

**5ESS®-2000 Switch**  
**ROUTINE OPERATIONS AND MAINTENANCE PROCEDURES**  
**5E11(1) and Later Software Releases**

Document: 235-105-210  
Issue Date: October 1999  
Issue Number: 15.00A

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## 1. INTRODUCTION

### 1.1 DOCUMENT COVERAGE

This Routine Operations and Maintenance Procedures Manual contains both descriptive material and detailed procedures for routine operations and maintenance of the 5ESS®-2000 switch. This manual covers the **5E11 through 5E14** software releases. As the 5ESS®-2000 switch continues to evolve, this manual will be reissued to cover future software releases.

This manual is primarily intended for telephone company personnel who schedule or perform routine maintenance for the 5ESS®-2000 switch.

**NOTE:** Lucent Technologies has discontinued the availability of software releases 5E10 and earlier. Information specific to these earlier releases have been deleted from this document.

### 1.2 UPDATE INFORMATION

#### Issue 15

Issue 15 is a reissue supporting **5E11 through 5E14** software releases. Many changes in this reissue is from customer comment cards, hot line calls, and development changes. The Update Instructions identify all the changes made and instructions for page replacements.

### 1.3 SOFTWARE RELEASE UPDATE INFORMATION

In accordance with the 5ESS®-2000 Switch Software Support Plan, the 5E11 software release is rated **Discontinued Availability (DA)** as of November 13, 1999. The information supporting 5E11 and earlier is being removed over time, instead of concurrently, from all documentation.

If you are supporting offices using a software release prior to 5E12 and have a need for the information that is being removed, it is recommended that you retain the associated pages as they are removed from the paper documents or the earlier copy of CDROM.

### 1.4 NAME CHANGE

As of March 18, 1999, Bellcore officially changed its name to **Telcordia Technologies**. Not all pages of this document are being reissued to reflect this change; instead, the pages will be reissued over time, as technical and other changes are required. Customers on standing order for this document may see that, on previous-issue pages, the Bellcore name is still exclusively used.

Customers receiving new orders for this document will see the **Telcordia Technologies** name used as appropriate throughout the document, and the Bellcore name used only to identify items that were produced under the Bellcore name. Exceptions may exist in software-influenced elements such as input/output messages, master control center screens, and recent change/verify screens. These elements will not be changed in this document until such time as they are changed in the software code. Document updates will not be made specifically to remove historical references to Bellcore.

### 1.5 MANUAL ORGANIZATION

This manual contains the following sections:

- **SECTION 1—INTRODUCTION:** This section contains an introduction and general information about the manual.

- **SECTION 2—EQUIPMENT TEST LIST:** This section lists preventive (routine) maintenance schedules for the 5ESS®-2000 switch. Preventive maintenance is performed on a specified schedule to ensure continuing peak overall performance of the network.
- **SECTION 3—SYSTEM CONTROL OPERATIONS DESCRIPTION:** Describes system control functions, for example, off-line boot verification, Automatic Trunk Test Scheduler, Authority Management, and Call Monitoring.
- **SECTION 4—SYSTEM CONTROL OPERATIONS PROCEDURES:** This section contains detailed level procedures for performing the system control functions.
- **SECTION 5—MEMORY ALTERATION DESCRIPTION:** This section contains a description of the changes possible within the 5ESS®-2000 switch data base. Covered within this section are software release update, office backup methods, office dependent data (ODD) backup, ODD recovery, editing the data base using the office data base editor (ODBE), software release retrofit, and software-update procedure automation.
- **SECTION 6—MEMORY ALTERATION PROCEDURES:** This section contains detailed level procedures for the subjects described in Section 5 of this manual and supports off-line boot verification.
- **SECTION 7—REMOTE OFFICE TEST LINE:** This section describes the functions and equipment of the remote office test line (ROTL) for the 5ESS®-2000 switch.
- **SECTION 8—FAN AND ALARM TESTS:** This section contains detailed level procedures for fan and alarm tests. This section also contains procedures to change fan unit air filters.
- **SECTION 9—MOVING HEAD DISK PROCEDURE DESCRIPTION:** This section contains descriptions for converting, connecting, or replacing moving head disks (MHD).
- **SECTION 10—MOVING HEAD DISK PROCEDURES:** This section contains detailed level procedures for the subjects described in Section 9 of this manual.

**NOTE:** Refer to 235-105-220 for Call Trace Procedures. These procedures are not covered in 235-105-210 .

- **SECTION 11—MISCELLANEOUS ROUTINE PROCEDURES:** This section contains procedures to record announcements using the 13A recorded announcement unit, conversion of a RISLU to an ERISLU, and to update numerous IDCU procedures.
- **SECTION 12—ROUTINE EXERCISE DESCRIPTION:** This section provides a description of the 5ESS®-2000 switch routine exercise (REX), including the administration module (AM).
- **SECTION 13—ROUTINE EXERCISE PROCEDURES:** This section contains detailed level procedures for the subjects described in Section 12 of this manual.
- **SECTION 14—FEATURE ACTIVATION PROCEDURES:** The section contains the procedures that activate or turn-on various exchange features. This could be a complete growth of a feature or just the changing or updating of one or more attributes for a specific feature. This section also covers the removal from service or de-activation (de-growth) of a feature.
- **SECTION 15—OPERATIONS SUPPORT SYSTEMS ACTIVATION:** This section contains detailed level procedures to bring up the 5ESS®-2000 switch operations support systems (OSS).
- **GLOSSARY:** This section provides brief definitions of acronyms and abbreviations used in this manual.
- **INDEX:** Lists the subjects covered in this manual.
- **APPENDIX:** Contains the operations and maintenance checklist.

## 1.6 USER FEEDBACK

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Customers not represented by a documentation coordinator and Lucent Technologies employees can order the documentation for the 5ESS-2000 switch directly from the Lucent Technologies Customer Information Center. Proper billing information must be provided. These orders may be mailed to the following address:

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## 1.8 TECHNICAL ASSISTANCE

Technical assistance for the 5ESS-2000 switch can be obtained by calling the North American Regional Technical Assistance Center (NARTAC) at **1-800-225-RTAC (1-800-225-7822)**. This telephone number is monitored 24 hours a day, 7 days a week. During regular business hours, your call will be answered by your local RTAC. Outside of normal business hours, all calls will be answered at a centralized technical assistance center where service-affecting problems will be dispatched immediately to your local RTAC. All other problems will be referred to your local RTAC on the next regular business day.

## 1.9 MAINTENANCE OF VENDOR EQUIPMENT

The 235-xxx-xxx manuals do not provide maintenance procedures for the repair of equipment manufactured by vendors other than Lucent Technologies (for example, tape drives, disk drives, etc.). To identify the appropriate maintenance document for other vendor equipment, refer to 235-001-001 , *Documentation Description and Ordering Guide*.

## 1.10 REFERENCES

The Compact Digital Exchange (CDX) and the Very Compact Digital Exchange (VCDX) are switching systems based on the 5ESS-2000 switch. This document is a standard 5ESS-2000 switch document that is also applicable to the CDX and VCDX switching systems. Information applicable only to CDX or VCDX may be found in the following manuals:

- 235-120-010, *Compact Digital Exchange (CDX) Reference Guide*
- 235-120-020, *Compact Digital Exchange (CDX) User's Guide*
- 235-120-110, *Very Compact Digital Exchange (VCDX) Reference Guide*
- 235-120-120, *Very Compact Digital Exchange (VCDX) User's Guide*.

When appropriate, this document contains references to the applicable CDX or VCDX documents.

Documents for the SEAGATE TECHNOLOGY™ CDC 340-megabyte (MB) SMD Disk drives may be obtained from:

Seagate Technology  
P.O. Box 12313  
Room OK A-100  
Oklahoma City, OK 73157  
TEL: (405) 949-6728

Document numbers and titles for the Seagate Technology CDC 340-MB SMD disk drives are shown as follows:

- 83325050 — Hardware Maintenance Manual, Volume 1
- 83325060 — Hardware Maintenance Manual, Volume 2
- 83325070 — Hardware Maintenance Manual, Volume 3
- 83322440 — Microcircuits Manual, Volume 1
- 83324440 — Microcircuits Manual, Volume 2.

Documents for the Hewlett-Packard Model 88781A 9-track SCSI tape drive (KS-23909, L21) can be ordered from

Hewlett-Packard  
TEL: (800) 227-8164

and are as follows:

- 88781-90001 — 88781 Technical Data Sheet
- 88781-90030 — 88781 Service Manual

- 5960-7618 — 88781 User's Guide
- HP88781A — Product Specifications

Documents for the StorageTek Model 9914V 9-track SCSI tape drive (KS-23909, L10) can be ordered from

StorageTek  
2270 S. 88th Street  
Louisville, CO 80028  
TEL: (303) 673-7242

and are as follows:

- 95 121798 30 — 9914 SCSI Manual
- 95 125455 10 — 9914V User/Diagnostic Manual
- 95 125456 10 — 9914V Streamer Servicing Manual
- 95 124765 10 — 9914V User/Diagnostic Manual
- MG8015A — 9914V Product Specification Manual

Documents for the Laser Magnetic Storage International Company *PERTEC*® interface 9-track tape units (*KEYSTONE*® II, KS-22762, and *KEYSTONE*® III, KS-23113) can be ordered from

Valley Forge Peripherals, Inc.  
422 Business Center  
Building 0-1530  
Oaks, PA 19456-0908  
TEL: (610) 666-3332

and are as follows:

- 49762900 — Reference Manual - Model 92185
- 49763000 — Vertical Mount Maintenance Manual - Model 92185
- 49768900 — Reference Manual - Model 92181
- 49769000 — Maintenance Manual - Model 92181



## 2. EQUIPMENT TEST LIST

### 2.1 INTRODUCTION

**CAUTION:** Do not run demand phase on a routine basis. Demand phase is to be run only when required. Demand phase is not covered in this document. If demand is required, refer to 235-105-220 , *5ESS®-2000 Switch Corrective Maintenance Manual*.

This section lists preventive (routine) maintenance schedules for the *5ESS®-2000* switch. Preventive maintenance is performed on a specified schedule to ensure continuing peak overall performance of the network.

Since peak load periods, features, recent change activities, growth, etc., vary widely in different offices, some tests, such as routine exercise (REX), may not have specific test schedules that are best for all offices. In cases of this type, the equipment test list (ETL) gives references where procedures, recommendations, and/or guidelines can be found for the listed test(s).

### 2.2 ROUTINE MAINTENANCE SCHEDULES

The routine maintenance schedules are listed in Table 2-1 .

The following documents may also have routine maintenance task requirements:

- 235-410-350 , *INDAP Operation and Maintenance Guide*
- 250-520-105, *Toll and Assistance Video Display Terminal Description and Operation*
- 250-600-501, *OSPS Automated Position Administration, Reporting, Recent Change, and Software Maintenance for CSG*
- 250-600-502J1, *OSPS Automated Position, Equipment Maintenance Job Aid*.
- 250-600-504, *OSPS Automated Position, VRCP Application for CSG*
- 250-600-505, *OSPS Automated Position, SDAP Application for CSG*
- 250-600-506, *OSPS Automated Position, Base and Utilities Applications for CSG*.

**Table 2-1 Equipment Test List Preventive Maintenance Schedule**

TASK	TITLE	TASK LOCATION	FREQUENCY
1	Air Filter, Fan Assembly Unit Type - Replace	Section 8 Procedure 8.15	6 Months (Maximum)
2	Air Filter, Fan Unit in General Drawer - Type Units Replace	Section 8 Procedure 8.18	6 Months (Maximum)
3	Air Filter, 340-Mb MHD - Replace	Section 8 Procedure 8.17	6 Months (Maximum)
4	Backup - (See "Disk Backup" or "Tape Backup" in this table, as appropriate.)	Section 6	<b>a</b>
5	Charge Circuit in PDF, Perform Periodic Test	Section 4 Procedure 4.7.2	1 Month
6	Disk Backup, Full Office - Make [An office should keep two different versions of office backup disks (one of each copy), with the oldest copy being discarded when a new copy is made].	Section 6 Procedure 6.21	<b>a</b>
	After performing Procedure 6.21 , Verify Software Backup	Procedure 6.26	

	Disk.		
7	Equipment OS List - Analyze and Clear (See <b>OP:OOS</b> input message in 235-600-700).	—	24 Hours
8	Fan Units, Communication Module/Time Multiplexed Switch, - Test	Section 8 Procedure 8.14	6 Months
9	Fan Units, Switching Module - Test	Section 8 Procedure 8.13	6 Months
10	Fan Units, ISLU - Test	Section 8 Procedure 8.24	6 Months
11	Full Office Backup - Make (See "Disk Backup" or "Tape Backup" in this table, as appropriate.)	Section 6	<b>a</b>
12	Hourly Plant Report - Evaluate	Section 3	<b>a</b>
13	Memory Administration, Routine - Perform	Sections 5 and 6	<b>a</b>
14	Miscellaneous Alarm, Major - Test	Section 8 Procedure 8.5	12 Months
15	Miscellaneous Alarm, Minor - Test	Section 8 Procedure 8.6	12 Months
16	Moving Head Disk Integrity - Verify	Section 10 Procedure 10.13	1 Week
17	Office Alarm, Critical - Test	Section 8 Procedure 8.2	12 Months
18	Office Alarm, Major - Test	Section 8 Procedure 8.3	12 Months
19	Office Alarm, Minor - Test	Section 8 Procedure 8.4	12 Months
20	Primary Disk Partitions to Backup Disk Partitions - Copy	Section 6 Procedure 6.17	1 Week
21	Routine Exercise (REX) - Description Routine Exercise (REX) - Schedule REX Tests - Summary REX DGN,FAB - Evaluation REX ELS - Evaluation	Section 12 Procedure 13.1 Procedure 13.4 Procedure 13.5 Procedure 13.6	<b>a</b>
22	This Task Is Un-Assigned		
23	Software Updates - Activate	Section 6 Procedure 6.4	<b>a</b>
24	Software Updates - Schedule	Section 6 Procedure 6.3	<b>a</b>
25	Tape Backup, Full Office - (Tape backup of the entire office should be done at least once a month or more often if many software updates and/or ECD changes are being added to the office. Keep the three latest versions of entire office backup tapes, with the oldest copy being discarded when a new copy is made). After performing Procedure 6.23, Verify Backup Text Tapes (Ignore if verify is automatically done).	Section 6 Procedure 6.23  Procedure 6.27	<b>a</b>
26	Tape Operating Procedure (TOP) Tape - Make (An office should have three TOP tapes available with the oldest one being replaced every 3 to 4 months; see "Tape Backup, Full Office", Procedure 6.23).	Section 6	3-4 Months
27	24-Hour Report - Review and Log	Section 3	24 Hours
28	Clean KS-23114 Tape Drive	Section 11 Procedure 11.37	Every 8 Hours or Monthly
29	Air Filter, SCSI Cabinet - Replace	Section 8 Procedure 8.16	6 Months (Maximum)
30	SCSI DAT Drive - Clean	Section 11 Procedure 11.36	25 Hours of Operation or Monthly
31	KS-23909, L10 Tape Drive - Clean	Section 11 Procedure 11.36	8 Hours of Operation or Monthly
32	KS-23909, L21 Tape Drive - Clean	Section 11 Procedure 11.36	8 Hours of Operation or Monthly

**Notes:**

- a. Since peak load periods, features, recent change activities, growth, etc., vary widely in different offices, some tests may not have specific test schedules that are best for all offices. In cases of this type, the equipment test list gives references where procedures, recommendations, and/or guidelines can be found for the listed test(s).

### 3. SYSTEM CONTROL OPERATIONS DESCRIPTION

#### 3.1 INTRODUCTION

This section contains descriptive material for system control operations associated with the 5ESS®-2000 switch. Some operations or system control functions can be performed by means of stand-alone input messages. In such cases, only a brief explanation of the function or the way to use the input message will be given.

Section 4 contains detailed level procedures for performing the system control operations.

The system control functions described in this section are as follows:

- **Date and Time:** Describes when and how the date and time can be set as well as the input messages to change the date and/or time.
- **Alarm System Management:** Describes the input messages necessary to perform alarm release and to assign alarm levels and labels, and the allowing or inhibiting of alarm reports.
- **Command and Test Scheduling:** Describes the four processes (automatic line insulation tests, automatic progression testing, office dependent data backup, and routine exerciser) that can be scheduled automatically by means of input messages. How to schedule these processes and how to change already scheduled ones are discussed.
- **File and File System Management:** Gives a brief explanation of all the possible input/output messages and some examples of how to use these messages. Since there are a variety of input messages to manage files and the file system, it is impossible to show standard procedures.
- **Log File Handling:** Detects and corrects transient errors or determines a chronological order of events. How these log files are built up and what types of log files are present in the system are described.
- **Network Management:** Avoids degrading of the network because of too many call attempts. One of the management capabilities is the automatic or manual trunk group controls. What these controls are used for and how it is possible to manipulate these controls by means of input messages are described.

#### 3.2 DATE AND TIME

##### 3.2.1 SET DATE AND TIME AFTER INITIALIZATION

After system initialization, the time and date have to be set. This can be done by using the **SET:CLK** input message. This message sets the system clock to the specified date and time or adjusts the system clock by plus or minus the seconds specified.

##### 3.2.2 CHANGING DATE AND TIME

Changing the date and/or time can be done together or independently from one another. In a normal operating exchange, the date will not have to be changed. However, when a system clock failure occurs, the date might have to be changed after recovery. This can be done by means of the input message previously mentioned.

Changing the time can be necessary after a system clock failure or when the time has to be changed to/from daylight saving time.

When changing date and time in an operating exchange, first check whether there are scheduled tests or ODD backups present. This can be done by entering the **OP:BKUPSTAT** input message. If there are some tests scheduled or ODD backups at the time the clock will be changed, it may be necessary to reschedule those tests.

For example: if an ODD backup is scheduled and date and time has to be changed until a time past the scheduling, this ODD backup will be bypassed. In such a case, the backup might be rescheduled.

It is also possible to check whether scheduled routine exercises have been bypassed. This can be done by entering the **OP:ST=REX** input message.

### 3.3 ALARM SYSTEM MANAGEMENT

#### 3.3.1 GENERAL

The alarm system management is used to set the alarm retire mode, to provide alarm control, and to assign the level, label, and repeatability of scan points.

#### 3.3.2 ALARM RETIRE

The critical and major audible alarms in an exchange can be retired manually or automatically. When the alarm retire mode is manual, the alarms have to be retired by pressing the **ALM RLS** function key at the master control center (MCC) video terminal, or by entering the **CLR:ALARMS** input message. If the alarm retire mode is set to automatic, the alarms will be retired in 8 seconds by the system. Minor alarms will be retired automatically all the time, independent of the alarm retire mode.

Automatic or manual alarm retire mode can be activated by means of the menu commands 800 and 801 at the MCC Page 105/106—BLDG/POWER & ALARM CNTRLS.

#### 3.3.3 ALARM ASSIGNMENTS

Alarm level, label, and repeatability assignments can be given to building or miscellaneous alarms. The assignments are shown at the MCC Pages 105/106—BLDG/POWER & ALARM CNTRLS and 119—MISCELLANEOUS ALARMS.

The alarm level can be critical, major, minor, or informational. The label can consist of a maximum of nine letters, digits, spaces, plus, or minus signs. The alarm repeatability is either nonrepeating or repeating (at 15-minute intervals). Once level, label, and repeatability are filled in, they are protected from loss when the system is booted.

The procedure for changing Automatic Message Accounting (AMA) alarm levels for the AMA alarm feature is located in the 235-190-300, *Billing and Feature Specifications* manual.

#### 3.3.4 ALARM CONTROL

Some alarms can be inhibited or allowed manually from alarm reporting. These alarms are as follows:

- Building/power alarms
- External sanity monitor alarm
- Fan or fuse alarms of the time multiplex switch (TMS) or the message switch (MSGs)
- Miscellaneous alarms.

When a building/power alarm is inhibited, the respective indicator at the MCC Page 105/106 will show the abbreviation **INH** in reverse video. Also the words BLDG INH in the SUMMARY STATUS AREA will be backlighted. To inhibit or allow building power alarms, one can use the appropriate input message or the menu command (shown at the MCC Page 105/106).

The external sanity monitor alarm indicator is shown at the MCC Page 116—MISCELLANEOUS. Once the alarm is

inhibited, the **INHIBIT** indicator will be in reverse video. Also this alarm can be inhibited or allowed by either the input message or the menu command at the appropriate MCC page.

The MSGS, TMS, and ONTC fan or fan fuse alarms can be inhibited by the system. When such an alarm is inhibited, this is shown at MCC Page 115—COMMUNICATION MODULE SUMMARY. The reason an alarm will be inhibited is because the respective scan point is chattering. After solving the problem, the alarm can be allowed again by entering the input message:

**ALW:ALM,MSGS=a[,b];**  
**ALW:ALM,TMS=a[,b];**  
**ALW:ALM,ONTC=a[,b];**

Where:            **a** = unit number **0** or **1**  
                      **b** = **FANALM** or **FRMFUSE** (must choose one).

The miscellaneous alarms can be allowed or inhibited manually by means of the appropriate input message or the menu command at the MCC Page 119—MISCELLANEOUS ALARMS. When the alarm is inhibited, the respective indicator at the MCC Page 119 will show the abbreviation **INH** in reverse video. Also the **INHIBIT** indicator of MISCELLANEOUS ALARMS at MCC Page 116 will be in reverse video.

The miscellaneous frame fuse alarm indicator is marked **FRAME FUSE** and is shown at MCC Page 116 (MISCELLANEOUS ALARMS). This alarm can be inhibited by the system if the scan point is chattering. After solving the problem, the alarm can be allowed by entering **ALW:ALM,MFFUSE=a;**

Where:            **a** = miscellaneous frame fuse unit number **0** or **1**

When this alarm is inhibited, the abbreviation **INH** is displayed in reverse video at the right of the **FRAME FUSE** indicator.

The miscellaneous frame fan alarm indicator is marked **FRAME FAN** and is shown at MCC Page 116 (MISCELLANEOUS ALARMS). This alarm can be inhibited by the system if the scan point is chattering. After solving the problem, the alarm can be allowed by entering **ALW:ALM,MFFAN;**

When this alarm is inhibited, the abbreviation **INH** is displayed in reverse video at the right of the **FRAME FAN** indicator.

### 3.4 COMMAND AND TEST SCHEDULING

#### 3.4.1 GENERAL

There are eight processes that can be automatically scheduled by means of input messages. The processes are as follows:

- Automatic line insulation test
- Automatic progression testing
- Office dependent data (ODD) backup
- Routine exerciser
- Automatic line evaluation
- Per call test failure

- Stuck coin failures
- Automatic mismatch detection.

### 3.4.2 AUTOMATIC LINE INSULATION TEST (ALIT)

The automatic line insulation test (ALIT) scans lines to detect leakage to battery or ground and to report unpressurized or under pressurized line cables. The ALIT is scheduled by means of recent change data. The parameters that have to be filled in can be found in 235-118-2XX, View 8.1—OFFICE PARAMETERS. The ALIT parameters can be temporarily changed by the input message **EXC:LIT?**. The next ALIT session will run at the normally scheduled time. If a complete rescheduling of the ALIT is necessary, the parameters have to be changed by means of recent change.

**NOTE:** If you reschedule ALIT via the 8.1 RC/V, the scheduling change of ALIT will not take place until the next ALIT session is over. After ALIT has run, the new parameters will take effect. To verify how the next ALIT session has been scheduled, the **EXC:LIT,OPT=V**; input message can be used. Once an ALIT has started, it will generate an autonomous start message.

When the switching module/switching module-2000 (SM/SM-2000)) is in minimum mode (for example, initialization), the ALIT is skipped or suspended. This is indicated by an **EXC:LIT-SUSPEND** message. When the SM/SM-2000 is fully initialized or in normal mode, ALITs run normally. A system overload can cause a suspension. A report **EXC:LIT-IN** is displayed when the ALIT resumes.

ALIT does not get suspended on a per SM/SM-2000 basis. However, ALIT can be suspended for an individual unit (LU, ISLU, RT, etc.) being tested. When an individual unit is suspended a SINGLE CIRCUIT ABORT message is created. The response to a manual **OP:LIT** input command will indicate if ALIT is currently suspended for a particular unit.

There are two possible reports indicating the completion of an ALIT. One will indicate that all lines have been tested in the scheduled time. The other report indicates that the test has stopped because the allotted time for the ALIT ran out. The test will be terminated gracefully.

It is also possible to demand line insulation tests. They are called demand line insulation tests (DLIT). These tests can be requested for one line or a range of lines, as well as a directory number.

**NOTE:** When using directory number only one line can be requested. However, a range of lines may be requested when using line equipment number.

### 3.4.3 SUBSCRIBER LINE INSTRUMENT MEASUREMENT (SLIM)

The subscriber line instrument measurement (SLIM) equipment is located in the modular metallic service unit (MMSU) which is one of the SM service units. SLIM is used to test subscriber analog lines for voltage, resistance, and capacitance. A Routine and Operator mode of operation is provided.

**Routine:** This mode is used for automatic testing of analog lines. In this mode, a set of tests will run at a scheduled time on a large number of analog lines. The tests, thresholds, and time schedules are defined via recent change data. The parameters that have to be filled in can be found in the Recent Change Manual. The routine mode is normally used to test large numbers of analog lines during times when machine traffic is at a minimum. Analog lines that fail the test thresholds are stored on disk as line equipment numbers (LENs). At the end of the scheduled time, these results are printed on the ROP.

The SLIM test status (suspended, done, in progress, scheduled or defined) and control (allow, inhibit, abort pokes) can be viewed on the 162 [,1-4] page or using commands for that unit (**OP:TSESS**; **ALW:TSESS**; **INH:TSESS**; **ABT:TSESS**; **DUMP:FILEA**);).

**Operator:** This mode is used for manual testing of analog and digital lines. These tests are executed by MCC pages, sometimes in combination with predefined, SLIM related recent change views. The operator mode is normally used to test those lines that failed the routine mode tests. Procedures to clear line troubles detected by SLIM routine testing can be found in 235-105-220.

### 3.4.4 AUTOMATIC PROGRESSION TESTING

An automatic progression test (APT) is performed on outgoing trunks. This test can indicate incorrect office dependent data, wiring or cross-connect errors, or faulty trunk circuit hardware. The APT runs operational tests and code answer test line (CATL) tests on trunks, and follows a specified schedule for these tests. This test is scheduled by means of recent change procedures. The APT tests can determine only if the test passed or failed, not the actual measured characteristics of the trunk. The parameters which must be entered can be found in 235-118-2XX. Like the ALIT, an APT can be rescheduled once by means of the **SCHED:APT** input message. When APT is to be rescheduled definitely, the parameters must be changed by means of recent change.

**NOTE:** The APT is disabled in a 5ESS®-2000 switch for AUTOPLEX® System 1000.

To verify how the next APT has been scheduled, the **OP:APT** input message can be used. When an APT has started, an autonomous report **RPT APT STARTED** will be displayed. In APT, a history keeps track of information concerning the tests. This allows interruptions of the testing cycle when the trunks are needed for service or when the scheduled test time has run out. This will be indicated by an autonomous SUSPEND or STOP report. When the whole test cycle has completed, an autonomous COMPLETED report will be displayed. When an APT has been suspended, testing should resume again within 2 hours; otherwise, the APT will be aborted.

### 3.4.5 AUTOMATIC TRUNK TEST SCHEDULER

#### 3.4.5.1 General

The automatic trunk test scheduler (ATTS) is used for automatic trunk testing in a 5ESS®-2000 switch for AUTOPLEX® System 1000. (The ATTS is a secured feature that can be optionally purchased and can be used in a 5ESS®-2000 switch that is not part of the 5ESS®-2000 switch for AUTOPLEX® System 1000.) The ATTS feature provides the ability to schedule routine testing on a periodic basis and is capable of supporting multiple, independent schedules of test sessions.

Features of the ATTS include the following:

- Programmable scheduling of tests, including ability to add, modify, and delete test sessions
- Automatic logging of test results
- Optional real-time printing of test results
- Report generation
- Flexible test-session control such as skipping, linking, etc.

#### 3.4.5.2 ATTS Parameter Input

The technician is required to provide test-schedule-dependent data using the ATTS parameters. The required input data may be entered through recent change/verify (RC/V) screen prompts (ATTS parameters view) or by manual man-machine language (MML) input commands.

To obtain a printout of the population of the RC ATTS TEST SESSION PARAMETERS View 14.10 for a specific



schedule, use the **DUMP:ATPRM;** input command.

### 3.4.5.3 ATTS Data Input

The technician is required to provide session scheduling information, including the trunk group (TG), the TG member, and the range of members to test during the session. The required input data may be entered through RC/V screen prompts (ATTS test session data view) or by manual MML input commands.

To obtain a printout of the population for the ATTS TEST SESSION SCHEDULER DATA View 14.9 for a specific scheduler, use the **DUMP:ATDTA;** input command.

Before setting up the ATTS sessions, some conditions to observe are as follows:

- The specified TG number has an associated automatic trunk test table number (TEST MODE) and signaling type on the TRUNK GROUP View 5.1. This signaling type must be valid with the scheduled test. There must also be an AUTO TRUNK TEST View 14.1, defined with the test and the TEST MODE.
- Individual test sessions with the same ATTS schedule are not allowed to overlap in time.

For detailed information on the ATTS RC views and the related RC views, refer to the Recent Change Manual.

### 3.4.5.4 ATTS Recent Change and Verify Access

A complete test schedule consists of a collection of ATTS sessions. The ATTS sessions are usually populated from a trunk line work station (TLWS). The steps required to define the ATTS sessions are as follows:

- (1) Access the 196 page (RC View).
- (2) Verify that the TRUNK GROUP View 5.1 and the AUTO TRUNK TEST View 14.1 are populated correctly.
- (3) Request the ATTS TEST SESSION PARAMETERS View 14.10.
- (4) When all of the test schedule parameters are completed, access the ATTS TEST SESSION SCHEDULE DATA View 14.9.

Each ATTS is enabled with the **ST:ATTS;** input command, and begins executing sessions according to their scheduled week, day, and start time. The ATTS continues to execute as scheduled until the **STP:ATTS;** input command is executed. The variables and domain values for the ATTS input commands are found in the Input and Output Messages Manual. To obtain the status information for a schedule, use the **OP:ATTS;** input command.

**NOTE:** Once a schedule is set up, the test type should not be changed. If it must be changed, the session data (ATDTA) for that schedule must be deleted first. If the log file for that schedule already has data in it, when the new schedule with the new test type is run, there may be REPT ATTS messages indicating that the old results are being purged.

## 3.5 OPERATIONAL TESTS

### 3.5.1 GENERAL

Operational tests test the transmission characteristics of a trunk by measuring a signal from one exchange to another. Operational tests are done as follows:

- **Automatically** - Maintenance personnel are allowed to automatically schedule routine trunk testing sessions for specific days of the week, given a start time and duration.

- **Manually, on Demand** - The maintenance personnel can run an operational test on specific trunks using either the MCC/TLWS display pages or the input command **TST:TRK**. The maintenance personnel can connect a trunk to the TLWS test access unit so that other measurements can be made using external test equipment.

**CAUTION:** All interactive and noninteractive transient test calls that terminate on a subscriber line with any services that are charged on a per-incoming-call basis will result in the subscriber being charged for the service activation.

The services affected include call diversion, call waiting, call queuing, and freephone.

Maintenance personnel start and control testing from a TLWS. Manually-started test calls allow maintenance personnel to specify the required non-interactive tests, and the incoming and outgoing trunks and trunk groups to be tested.

Maintenance personnel can specify the following for both on-demand and automatically-scheduled test sessions:

- Type of output results. The maintenance personnel can specify:
  - The type and flavor of test output reports
  - The number of test report lines.
- Type of test termination criteria to be used, as follows:
  - The nominal attenuation in both transmission and reception directions for both outgoing and incoming trunks
  - The transmissions level of test tones
  - The access code to the responder
  - The threshold for maintenance and service (for outgoing trunks only).

On a per-test-session basis, the test command includes a test termination criterion and an output results type.

Test call names are defined in the market-dependent data (MDD). These names are assigned to a particular set of test calls and test line types that are available in the exchange. The test call names are used by the test call interface tools: RC/V, MML commands and reports, and TLWS menu displays and pokes.

Maintenance personnel can use test call names while using a TLWS. They can examine test call names available, and optionally request information about analog/digital for all tests. Output reports contain information about a test call, including the test call name.

## 3.5.2 AUTOMATIC TRUNK TEST SCHEDULER

### 3.5.2.1 General

The ATTS is an integrated 5ESS-2000 switch software-based feature which provides a means of scheduling automatic execution of specific types of operational test calls on out-going trunks and logging the individual test results on the AM disk for retrieval at a later time.

Scheduling is accomplished by creating and maintaining a set of ``sessions" in a ``schedule" via an RC/V interface.

The ATTS is accessible from normal maintenance terminals such as TLWS. The ATTS supports up to 20 schedules which can run concurrently. The entries in these schedules correspond to scheduled test sessions.

Each schedule is operated independently, with the schedule data base accessible to multiple users simultaneously. A single time entry in a single schedule, containing a single trunk group to be tested, is considered a *session*. The ATTS includes only trunk groups as session entries. The ATTS allows schedule cycles of 8 weeks.

The tests start when specified by an entry in a routine test schedule control data table in the ODD. These tests are done on a scheduled basis by agreement with the administration of a remote exchange. The ATTS implementation involves an AM-based scheduler.

Test parameters or "test result analysis thresholds" determining success or failure of a test call are part of the trunk group relationships in the data base. These parameters are used for demand testing. Each trunk group relationship references a set of parameters to be used for testing their trunks.

The number of test sessions available accommodates all trunk groups to be tested for different types of trunk tests. The exchange allows all trunk groups to be scheduled for testing. Some of these may be tested more than once in 8 weeks.

The telephone administration can specify the number of schedules/directors on a per-exchange basis with a minimum of 20 concurrent schedules.

### 3.5.2.2 ATTS Scheduling

The ATTS has a granularity of start time in minutes. Administrations can impose constraining conventions, that is, schedule sessions in 10-minute steps, thereby scheduling several trunk groups in one hour. However, the constraints are enforced only by administrative procedures, not by switch software.

Test sessions in a schedule do not overlap. The system prevents maintenance personnel from creating conflicting, overlapping session assignments. If it is desirable to reallocate part of an existing session, the system may require that session first be unallocated.

Sessions can be linked together in a "chain". A session with a "chain" flag starts as soon as the prior session ends, provided the stop time of the first session exactly matches the start time of the second session. A session always stops at its assigned stop time, or earlier if all trunk group members have been tested.

Schedule data is entered per session, with each session representing a trunk group to be tested. For each test session, the following must be specified:

- Schedule number
- Week and day
- Start time/stop time (hour and minute)
- Type of automatic test
- Trunk group to test
  - First member number
  - Last member number.
- Link indicator (indicating whether to link the session to the previous session)
- Skip indicator (indicating whether to skip the test session entry)

- Retry indicator (indicating whether to do an automatic second attempt on failure).

Split trunk group testing is permitted. A trunk group can be tested over two or more sessions, if it is too big to be tested in one session. This is done by providing *start* and *end* member numbers as inputs to the testing session. The default *start* member is the first member of the trunk group. The default *end* member is the last member of the group. Testing over this default range is completed only if time permits.

Routine testing is done on a trunk-group basis. Trunk groups may be tested in any order, and may be tested more than once. However, in one schedule, only one trunk group at a time is tested.

The scheduler can be set to attempt an immediate single retry of aborting trunks using RC/V screen ATTS TEST SCHEDULE PARAMETERS, field RETRY ON ABORT. The default status of this option is DISABLED (that is, aborting trunks are not retried).

The scheduler can also be set to attempt an immediate single retest of failing trunks, using RC/V screen ATTS TEST SCHEDULE PARAMETERS, field RETEST ON FAILURE. The default status of this option is DISABLED (that is, failing trunks are not retested).

The progression (the trunk selection for testing in a group) is trunk group member number order. Busy trunks or a busy responder in the far exchange (unavailable trunks) are skipped for later retry when revisiting the group. Scheduled time permitting, the system iterates over the group member number list, attempting to test trunks previously skipped. The maximum number of revisit iterations is controlled by the RC/V screen ATTS TEST SCHEDULE PARAMETERS, field MAX LOOPS, and is associated with the session in the schedule indicated in the view. A reasonable initial default revisit-iterations value is provided by the administration when populating the data base.

The maintenance personnel can view the entered data of the ATTS schedules via the **DUMP:ATDTA** message as follows:

- Print or display an entire schedule, with schedule number as an input parameter
- Print or display a specific day's schedule, by specifying the schedule number, week number, day within the week, and trunk group number (optionally)
- Print or display a specific week's schedule, obtained by specifying the schedule number and week number
- Print or display the schedule for a particular trunk group, over all schedules.

The function has an 8-week schedule of automatic tests divided into two 4-week periods. The 12 months of any year therefore correspond to 6 cycles of the 8-week schedule. The first day of the first week of the 4-week period, must align with the first Monday in a month. So, if a month has five Mondays, there is no scheduled routine testing during the week starting on the fifth Monday.

Each schedule is controlled separately. The running of a schedule is controlled by MML input commands (for example, **ST:ATTS** and **STP:ATTS**). A running session can be halted by an MML stop-session message. Similarly, via RC/V, maintenance personnel may skip individual, non-executing sessions in a running schedule without deleting the full-session data.

Schedules run continuously, once started, except when all schedules are stopped by high-level commands or AM recovery (manual or automatic). When the scheduler resumes normal activities after recovery, all schedules are self-synchronizing to the AM clock and calendar.

Maintenance personnel can start an available schedule simply by specifying the schedule number via the ST:ATTS

input command. Similarly, maintenance personnel can suspend a scheduled test session for maintenance reasons via the STP:ATTS input command, including running on-demand testing, and restart the scheduled test session when ready again. The schedule resumes at the appropriate time in the schedule, skipping tests that were scheduled for the period of suspension.

The ATTS is an automatic test tool. Manual demand testing of trunks may use various test directors. Manual testing has priority over automatic testing, so maintenance personnel do not have to wait for an entire session to complete before a contested director resource is provided for the demand test. The ATTS and demand requests for director resources are queued when received. In demand testing, maintenance personnel wait only while the next ATTS test is executed before the request is serviced.

### 3.5.2.3 ATTS Reports

Two types of reports are possible: *demand* reports and *autonomous* (scheduled) reports.

- The output of the report can be directed to a desired printer/output device
- To avoid cluttering the receive-only printer (ROP), the ATTS reports can be printed as they occur at the end of each test, or printing may be suppressed. The data is logged to allow printing at a later time.
- Output report format is similar to the manual demand-tests output. Some changes are made for variations in output format (for example, tabular output format) because of output-format constraints. The output reports for one trunk group (that is, session) are output contiguously. The CLLI field (trunk group name field) is output from the trunk group relationship along with each trunk group output.
- Full test results are logged incrementally as they are executed. Maintenance personnel can interrogate the logging file to derive standardized reports of the results. Selection of report type (for example, failed trunks only, or complete results) is made when the output report is requested via the **DUMP:ATLOG** message with an appropriate command parameter. Maintenance personnel have access to the logging file to do regular file-management transactions, such as the printing of selected parts.
- The ATTS results go to a binary file, then the report generator can be used to print results. The report generator results can be routed to an American Standard Code for Information Interchange (ASCII) file that can be browsed through and printed later. These files can be archived for later usage.
- The ATTS results are logged for a minimum of 7 days. Although maintenance personnel get results daily, a 7-day log covers events such as weekends and holidays. There are warning messages to show when the log file reaches 95 percent of its capacity.
- Output-sorting criteria - The users of the report generator can provide the following options as parameters to the **DUMP:ATLOG** input message used for retrieving ATTS reports containing logged test results.
  - Select an output report for all schedules, or a specific schedule of logged results on a specific week and day of the schedule. Thus daily activities can be scheduled based on these results.
  - Select an output report based on a trunk group number to obtain the results for that trunk group from the entire log.
  - Obtain a full dump of the log results.
  - Specify whether the above reports include all test results, just failed test results, or just aborted test results.
- The test results show one of the following for each tested trunk:

- Test passed
- Test failed, and reason for failure (for example, transmission test level result, or signaling test state that timed out)
- Aborted; test not executed; results show the reason.

For both on-demand and automatically-scheduled test sessions, the print options include printing of the different types of output results.

For both on-demand and automatically-scheduled tests, one, two, or all three of the following types of output reports may be specified on a per-test-session basis:

- List of all trunks that passed the test
- List of failed trunks, indicating the type of failure for each failed trunk
- List of aborting trunks, indicating the reason for abortion for each trunk
- List of all aborting and failing trunks with appropriate status for each trunk. A trunk will appear on the list as many times as it has failed.

When a scheduled test session is terminated prematurely, the reason is printed in the output report. If the test session terminates due to the 10-out-of-15 responder busy test termination criterion, the trunk appears in the output report as ``responder busy." When testing a trunk, a busy responder is immediately retried, if this option is enabled. The responder either continues to be busy, or will answer the test call. If the responder continues to be busy (10 times out of 15), the test session terminates and the final status of that trunk will be ``responder busy", and the number of trunks not tested because of this is the termination criterion in the output report. If the responder answers the test call, then the final state will be something other than ``responder busy."

This means there is no entry in the output report for each instance of a responder being busy.

### 3.5.3 OFFICE DEPENDENT DATA BACKUP

The office dependent data (ODD) backups can be done on a scheduled basis. The actual time interval between scheduling ODD backups depends upon operating company practices. When scheduling ODD backups, it is better to schedule a differential dump. As this is the default, the parameter FULL must not be specified in the **BKUP:ODD** input message. When an ODD backup fails, a minor alarm will be generated. To reset the scheduled backup, the **CLR:ODDBKUP** input message can be used. Scheduled ODD backups can be shown by entering the **OP:BKUPSTAT** input message. When no backups are scheduled, the system response will be **NG**.

Refer to Section 6 of this document for detailed procedures on ODD backup.

For specific information on the 5ESS-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120, *Very Compact Digital Exchange User's Guide*.

### 3.5.4 ROUTINE EXERCISE

Refer to Section 13 of this document for descriptive and detailed procedures for routine exercise (REX).

### 3.5.5 AUTOMATIC LINE EVALUATION (ALE)

The ALE provides a daily summary report of digital subscriber lines (DSL) that have experienced transmission or protocol faults during that day. The report is composed of three parts: level 1, level 2, and protocol error records (PER).

The level 1 portion of the report includes all U-interface DSLs where the level 1 error performance has exceeded a prespecified threshold. The threshold for each DSL is defined by the daily report threshold maintained on RC/V view 22.15, Performance Monitoring Groups. The group that is assigned to a DSL is given in RC/V views 22.7, 23.2, and 23.8. For more information on the contents of the level 1 summary report, see the **EXC:ALE,LEVEL1** output message.

The level 2 portion of the report includes all ISDN DSLs and trunks where the level 2 error performance has exceeded a prespecified threshold, that is, more than 2 percent of the received layer 2 frames have been received in error. For more information on the contents of the level 2 summary report, see the **EXC:ALE,LEVEL2** output message.

The PER portion of the report includes all ISDN DSLs and trunks where at least one PER has been recorded. For more information on the contents of the PER summary report, see the **EXC:ALE-PER** output message.

Each of the summaries may be separately allowed or inhibited for the entire office. Also, the information for the reports may be directed at one of two message classes, that is, PRFM or PRFMMON. See the **ALW:ALE** and **INH:ALE** input messages for details.

The execution time for the daily automatic report is determined using RC/V view 8.1 to specify the performance monitoring start time. In addition to the daily level 1 report, there are also level 1 interval reports. These interval reports will report all U-interface DSLs that have exceeded their respective interval report thresholds maintained on RC/V view 22.15, Performance Monitoring Groups. U-interface DSL line card is supported by the interval report feature. The Lucent Technologies AMI U-interface DSL line card is not supported. Interval reports are not output. They are directed to the disks where the last interval report generated is available upon demand.

The hours between interval reports is determined by the performance monitoring REPORT INT global parameter maintained on RC/V view 8.1. The default interval is 1 (one) and can be set to values that are factors of 24 (1, 2, 3, 4, 6, 8, 12, 24).

For each DSL that is indicated on the level 1 or level 2 report summary, follow procedures specified in 235-105-220 for clearing line problems.

### 3.5.6 PER-CALL TEST FAILURE (PCTF)

A REPT PCTF SUMMARY report is sent to the ROP on a periodic basis determined by the value in the PCTF interval global parameter (see RC/V view 8.1). The summary report contains an entry for each port and High-Level Service Circuit (HLSC) which has experienced at least one PCTF since the previous automatically generated report was output. Each entry will indicate the PCTFs that have occurred by their type and count.

The PCTF report period can be set to occur every 15 minutes, 30 minutes, 45 minutes, 60 minutes, 6 hours, or 24 hours. The default is every 60 minutes (1 hour).

In addition to the automatic summary reports, the ability to manually request PCTF summary reports is provided via the input message **OP:PCTF**. Termination of the manual reports can be requested by entering the new **STP:PCTF** input message. By default, the summary reports will also be sent to the Switching Control Center (SCC).

The reporting of the individual PCTFs is controlled by the PCTF verbose option on a per-SM/SM-2000 basis. The PCTF verbose option can be altered via the **ALW:PCTF,VERBOSE** or **INH:PCTF,VERBOSE** input messages.

The default for the verbose option is inhibited. An SM/SM-2000 which is in the verbose mode will report all PCTF occurrences to the RSB by sending the normal REPT PCTF message. However, an SM/SM-2000 which is not in the verbose mode will only report the first and tenth occurrence of a PCTF type on a line to the RSB. The first occurrence generates a REPT PCTF FIRST message and the tenth occurrence generates a REPT PCTF TENTH message.

The Touch-Tone Fraud (TTF) PCTF is handled in a slightly different manner than the rest of the PCTF types. First of all, the individual REPT PCTF TTF messages are also sent to the SCC at all times; the mode of the SM/SM-2000 has no effect on the reporting of the TTF PCTFs to the SCC. Secondly, the TTF PCTFs will not be reported to the RSB at all if the system is not in the verbose mode.

To resolve problems specified in the PCTF summary report, follow procedures specified in 235-105-220 for clearing line problems.

### 3.5.7 STUCK COIN FAILURES (SCF)

Stuck Coin Failures are reported at routine intervals. At each routine interval, the entire list of coin phones which have experienced stuck coin failures during the previous interval are printed (using the REPT SCF output message). The list of stuck coin failures that have occurred during the current interval can also be requested manually (using the OP SCF input message).

The SCF reporting is administered using RC/V to update the COIN INT global office parameter (see RC/V view 8.1). The allowed values for COIN INT are 15, 30, 45, and 60, corresponding to the number of minutes between interval reports of the stuck coin list.

The SCF report indicates the number of stuck coin failures on an individual coin line. When a stuck coin is detected, a second attempt to clear the coin is made. If the coin clears on the second attempt, the failure is recorded as a single attempt failure (1F). If both attempts fail, the failure is recorded as a dual attempt failure (1+2F). A count is maintained of the number of failure attempts (if both 1F and 1+2F failures occur, then only the number of 1+2F failures are retained).

To resolve problems specified in the SCF report, follow procedures specified in 235-105-220 for clearing coin line problems.

### 3.5.8 AUTOMATIC MISMATCH DETECTION

This section describes the NT1 mismatch test that was introduced with a previous software release. This test performs Integrated Services Line Unit (ISLU) Network Termination (NT1), or first Basic Rate Interface Transmission Extension (BRITE) Channel Unit (CU), mismatch detection for U-interface Digital Subscriber Lines (U-DSLs). This test is needed because with the introduction of the previous software release, two types of U-DSL technologies exist. The NT1/CU mismatch detection will detect if the wrong type of NT1 or CU is connected to the ISLU U-card.

The two types of ISLU U-DSL technologies are commonly referred to as:

- Alternate Mark Inversion (AMI) - this is the U-DSL service provided by the KCB10 U-card.
- ANS<sup>®</sup>/ 2B1Q Standard U-DSL - this is the U-DSL service that is provided by the KCB17 ISLU U-card.

A mismatch exists if either one or both of the following conditions exist.

- The line card installed in the line card slot does not match the type of service assigned to the customer at line card provisioning time. An example is if the customer subscribes to AMI U-DSL services, but an ANS/ U-card is installed in the line card slot. This is a line card mismatch.



- The NT1 or first BRITE CU that is connected to the U-card does not match the type of service assigned to the customer at line card provisioning time. An example is if the customer subscribes to AMI U-DSL services, but an *ANSI* NT1 is installed at the customer's premises. This is an NT1 mismatch.

The automatic mismatch test runs an electrical test on the U-card tip and ring, applying voltages and measuring currents, to determine what might (or might not) be connected to the U-card loop. The goal is to prevent mismatches, namely, to have *ANSI* Standard U-cards connected to *ANSI* Standard NT1s or CUs, and to have AMI U-cards connected to AMI NT1s or CUs. On an hourly basis, the automatic mismatch test runs on all U-cards that have D-channel port status indicating that ISDN layer 1 is not established at the 2-wire U-interface. Layer 1 may not be established because of a mismatch condition. When the automatic mismatch test detects a mismatch, then the D-channel port status supplementary information is updated to MSMTCH to indicate the mismatch condition, and a summary report is printed to the ROP for all U-DSLs that are found with a mismatch condition.

There are several office parameters that provide control of the automatic mismatch test, and the automatic mismatch test report. They are mismatch detection enable and report parameters found under RC/V view 8.1.

- **ENABLE:** This parameter allows or inhibits the automatic mismatch test from running in the entire office.
- **REPORT:** This parameter allows or inhibits the automatic mismatch test report from printing in the entire office.

There are additional controls for automatic mismatch and its report. These controls are on an SM/SM-2000 basis and can be used to inhibit or allow the automatic mismatch mechanism. This is controlled through the input messages **INH:MISMATCH** and **ALW:MISMATCH**. However, the SM/SM-2000 controls are subordinate to the office parameters. This means that if the office parameter is set to no, then the SM/SM-2000 controls have no affect.

## 3.6 FILE AND FILE SYSTEM MANAGEMENT

### 3.6.1 INTRODUCTION

Maintaining the file system includes the following:

- Checking file system resources
- Manipulating files
- Using the file system audits
- File system corruption detection [system integrity verification (SIV)]
- Backing up and restoring file systems.

### 3.6.2 GENERAL

This subject lists and briefly describes the input messages and reports used in managing files and the file system. These messages and responses are used in performing various actions such as reporting the contents of a file or directory and copying a file from an active disk to an off-line or out-of-service disk.

The input/output messages are categorized according to the function performed on the file or file system and how they are used (Type). The different functions and the corresponding tables are as follows:

- File System Control—Table 3-1

- File Transfer and Backup—Table 3-2
- File Modification and Retrieval—Table 3-3
- Maintenance Tools—Table 3-4 .

The three types of input/output messages are routine, troubleshooting, and permanent. Routine messages are used periodically to determine actual or potential troubles in the system. The troubleshooting messages are used to clear troubles and will not cause permanent changes to the system. The messages labeled permanent can cause permanent changes in the file structure or process structure of the system. Permanent messages should be used upon concurrence with the local technical assistance organization or as directed in a software update.

A detailed description of these input messages can be found in 235-600-700 and a detailed description of these output messages can be found in 235-600-750.

### 3.6.3 CHECKING FILE SYSTEM RESOURCES

The **REPT FS** output message warns that a file system is about to run out of space. Immediate action must be taken to provide more space in the file system. Contact your technical assistance organization to determine the files that can be removed to provide file system space (for example, software update history).

File system free space can be monitored and action can be taken before the free space is used up. The command **OP:STATUS:FREEDISK** reports the free space and free i-nodes in the mounted file systems. Monitor these numbers regularly to determine if space or i-nodes are being depleted.

Running the file system block audit may increase the free space in a file system if the audit finds lost resources that it can recover. Note that no error is reported when lost free disk blocks are recovered.

The allocation of disk space to contiguous files is limited to the size of the largest set of contiguous free disk blocks in the file system. In a fragmented file system, this may be considerably less than total free space. The compaction audit can be used to increase the size of contiguous free disk space.

**Table 3-1 File System Control**

MESSAGE/ RESPONSE NAME ( <sup>a</sup> )	TYPE	DESCRIPTION
ALW:FSYS:ACCESS	Permanent	Changes access permission of files.
ALW:FSYS:MOUNT	Permanent	Mounts an unmounted file system so that the system can access files in the file system.
CLR:FSYS:OWNER	Permanent	Changes the owner of a file. All operating system files are owned by root.
CLR:FSYS:DIR	Permanent	Removes a directory from the file system.
CLR:FSYS:FILE	Permanent	Removes a file from the file system.
COPY:FSYS:CFILE	Permanent	Copies a file to a contiguous area of the disk. Contiguous files are transferred from disk to main memory more quickly than regular files.
COPY:FSYS:FILE	Permanent	Makes another copy of a file in a different directory. The copied file has the same name as the original file.
IN:FSYS:DIR	Permanent	Creates a new directory in the file system.
OP:ST:DISKUSE	Troubleshooting	Reports the number of blocks contained in all files and directories within each specified directory or file name.
OP:ST:FILESYS	Routine	Lists all currently mounted file systems, the directory under which they are mounted, and the time they were mounted.
OP:ST:FREEDISK	Routine	Lists the mounted file systems with the number of free blocks and free i-nodes. Used to determine if file system space is being depleted.

OP:ST:LISTDIR	Routine	Reports the contents of a specific directory or file.
REPT:FILESYS	Troubleshooting	This autonomous report warns that a file system within the central processor is about to run out of space.
<b>Notes:</b> a. The message/response names as presented in this table are not intended to be typed into the system. These names are provided so the user can reference these messages in 235-600-700, <i>Input Message Manual</i> , and 235-600-750, <i>Output Message Manual</i> , for the correct syntax.		

**Table 3-2 File Transfer and Backup**

MESSAGE NAME ( <sup>a</sup> )	TYPE	DESCRIPTION
COPY:ACTDISK	Permanent	Copies a file from an active disk to an off-line or out-of-service disk.
COPY:CPOOSF	Permanent	Copies a file from an out-of-service disk to an active service disk.
COPY:CPSPDISK	Permanent	Copies a specific partition or a list of partitions from one of the system disks to an active spare disk.
COPY:PTN:ALL	Permanent	Copies one set of partitions into a corresponding set of partitions. This message is used to recover mutilated disk partitions from backup disk partitions and to generate partition backup copies.
COPY:TAPE:IN	Permanent	Copies files from a magnetic tape containing full or relative pathnames and header information, and places them in their respective directories. The message can also print a table of contents of the tape.
COPY:TAPE:OUT	Permanent	Copies one or more files to a magnetic tape along with relative pathnames and header information.
<b>Notes:</b> a. The message/response names as presented in this table are not intended to be typed into the system. These names are provided so the user can reference these messages in 235-600-700, <i>Input Message Manual</i> , and 235-600-750, <i>Output Message Manual</i> , for the correct syntax.		

**Table 3-3 File Modification and Retrieval**

MESSAGE NAME ( <sup>a</sup> )	TYPE	DESCRIPTION
IN:F-APND-A	Permanent	Appends a line to an American Standard Code for Information Interchange (ASCII) file.
IN:F-DEL	Permanent	Deletes one or more lines from an ASCII file.
IN:F-REPL	Permanent	Replaces lines in an ASCII file with user supplied lines.
DUMP:F-ALL	Troubleshooting	Prints the contents of an ASCII file on the receive-only printer.
DUMP:F-DATA	Troubleshooting	Prints the contents of a file in the specified format.
DUMP:F-PARTL	Troubleshooting	Prints one or more lines of an ASCII file.
<b>Notes:</b> a. The message/response names as presented in this table are not intended to be typed into the system. These names are provided so the user can reference these messages in 235-600-700, <i>Input Message Manual</i> , and 235-600-750, <i>Output Message Manual</i> , for the correct syntax.		

**Table 3-4 Maintenance Tools**

MESSAGE NAME( <sup>a</sup> )	TYPE	DESCRIPTION
OP:ST-SUM	Routine	Calculates a checksum for a given file and prints the number of blocks in the file.
VFY:TAPE	Routine	Verifies the readability of information on system tapes and the consistency of corresponding hash sums.
<b>Notes:</b> a. The message/response names as presented in this table are not intended to be typed into the system. These names are provided so the user can reference these messages in 235-600-700, <i>Input Message Manual</i> , and 235-600-750, <i>Output Message Manual</i> , for the correct syntax.		

### 3.6.4 COPYING FILES TO NONACTIVE DISKS—UTILITY REQUIREMENTS

The active/nonactive disk copy utility copies a file from an active to a nonactive disk. The file can be a regular file, a contiguous file (type C or x), or a block device file (type b which consists of a partition or a file system).

To use this facility, the user needs to specify the following:

- **The Number of the Destination Disk:** This disk must be out-of-service (OOS) or off-line (OFL) and does not have to be a mate of the active (ACT) disk.
- **The Full Pathname of the Source File That Exists on an ACT Disk:** If the source is a regular or contiguous file, then this file must exist on a mounted file system.
- **The Full Pathname or Number of the Destination Partition on the Nonactive Disk:** If a name is specified, then it must exist as a special device file on the active disk. If the source is a regular or contiguous file, then this partition must be a file system.
- **The Pathname on the Destination Partition Where the File is to be Written:** If the destination pathname is not specified, then the pathname of the source file will be used. If the destination pathname starts with a `"/', then the mount point will be excluded from it (destination pathname). It is not required that all directories in the pathname specified exist.

Examples of copying files can be found in Section 6 of this document.

### 3.6.5 EMERGENCY DUMP

On disk, a partition is reserved for emergency dump. When there has been data written in this partition, an autonomous report (**REPT EMERGENCY DUMP PARTITION FULL**) will be printed. When data has been written in the emergency dump partition, the emergency dump status flag will be set. Due to the status flag, the previously mentioned report will be printed periodically. When the flag has been set, no other emergency dump can be written within the next 12 hours. Therefore, an input message is present to clear the status flag. This message must only be used when the dumped data has been saved. As soon as the status flag has been cleared, the emergency dump partition is marked empty. The message to clear the status flag is **CLR:EMERDMP**;. Before saving the data, the status has to be investigated. This is done by means of the input message **OP:EMERSTAT**;. This will result in a report indicating on which disk, MHD 0 or 1, the data has been dumped, how many bytes have been written, and the hexadecimal address of each segment written. To save the dumped data, an emergency dump can be performed.

### 3.6.6 LOG FILE HANDLING

Hardware and software errors will generate error reports. These reports will either be printed on the ROP, collected in the log file, or both. The message class of the report is decisive whether a report will either be logged, printed, or both.

The user can change the log or print option with the input message **CHG:LPS?**. This will direct the output to the **DAYLOG** file or print the data at the devices specified in the ECD for that message class. The **OP:LPS?** message can be used to determine the current log and print status of a message class.

On MCC display Page 110—SYSTEM INHIBITS, the poke command 902 generates the input message **OP:LPS,MSGCLS=ALL** and causes the status of the message classes to be printed at the ROP.

Log files can be used to do the following:

- **Detect and Correct Transient Errors:** Correctable memory errors can occur at an increasing rate over many days. This problem can be detected by studying the log file entries.
- **Determine a Chronological Order of Events:** This can be done by putting entries from several log files together.

Log files are defined in the classdef and device forms in the equipment configuration data base (ECD). All log files

are located in the directory /log/log. The pathname for each log file is defined in the particular device form.

### 3.6.7 SIZE OF LOG FILES

To prevent a file system overflow, the files are limited in size. When a log file is first created, the file will be called XXXXX1, where XXXXX stands for the log filename. When half of the disk space is used, the contents of XXXXX1 is copied into XXXXX0, and the most recent information will be stored in XXXXX1 again. When all disk space is used, the ``1-part" is again copied into the ``0-part" which will overwrite the old information by then and the ``1-part" will be filled again with the most recent information. Each log file entry has time of day information, real-time clock values, and sequence numbers.

The log files must be dumped at regular intervals to avoid losing the contents of the files. It is advisable to dump the files once a day.

The available space in the log file for operations on recent change data, RCLOG, can be obtained by using the **OP:AVAILLOG**; input message.

### 3.6.8 TYPES OF LOG FILES

There are several log files present in the exchange. Most of them are related to the administrative module (AM). Table 3-5 shows the log files related to the AM. Table 3-6 shows the log files related to recent change and equipment data and input messages.

**Table 3-5 Review of the Log Files Related to the AM**

LOG FILE	DESCRIPTION
CONFLOG	Configuration management log file. This file contains a record of each error detected in a hardware unit. Activation of storing the information in <b>CONFLOG</b> is done by the <b>ALW:CNFLG</b> message.
ERLOG	Error interrupt log file. This file contains control unit (CU) error interrupts, except memory related ones.
MEMLOG	Memory history log file. This file contains the supplementary data for memory error interrupts. This log file will be used to locate transient memory failures.
IODRVLOG	Input/output driver log file. This file contains the error reports associated with the Input/Output Driver and Disk Driver.
PMLOG	Postmortem log file. This file contains the postmortem dumps.
SPLLOG	Spooler output log file. This file contains the spooler output process (SOP) failure printouts.
SIMLOG	System integrity monitor log file. This file contains errors detected by the system integrity monitor, usually dealing with resource overload conditions.
CMONLOG	Maintenance monitor log file. This file contains a record of terminated and restarted maintenance interface processes.
DAYLOG	Daylog file. This file contains output messages from the AM as well as SM, CM, and other areas of the switch. It is used to debug software faults and has detailed information that is not required for routine office operation. This file is an ASCII file. The method used to dump the file is dependent upon the software release.
OLBLOG	AM off-line boot log file. This file contains output messages and PRMs directed to the ROP on the off-line side during the off-line boot (OFLBOOT) procedure.

**Table 3-6 Log Files Used for Recent Change Data and Input Messages**

LOG FILE	DESCRIPTION
RCLOG	Operations on recent change (RC) log files. This file contains the changes made by operations on RC data. When an insert is made, the log file will contain the new data. When an update is made, the log file will contain the new data. When a deletion has taken place, the old data will be stored in the log file. To inhibit logging of operations on RC data, the command 612 at the master control center (MCC), Page 110 - SYSTEM INHIBITS, must be keyed in. Note that unlogged operations on RC data will be lost after a boot. When an RC log file reaches 100 percent in use, the major alarm will be set off and the LOG FILE FULL message will be printed on the ROP, indicating that the RC/Vs are locked out until a backup is done.
ECDLOG	Equipment configuration data log file. This file contains all the changes made in the equipment

	configuration data base. The old as well as the new data will be kept.
CMDLOG	Command log file. This file contains all the input messages entered in the exchange together with the dialogue number and the person identity or the teletypewriter number (dependent on the kind of authority chosen).

### 3.6.9 LOG FILE DUMPS

To preserve the log file information for later use, the contents of log files can be dumped. This can be done by using the **OP:LOG?** input message. With this input message, several options are provided to print a particular part of a log file instead of the whole log file. The keyword option or the type option can be used to look for transient errors. For example, if the maintenance person wants to retrieve only the error reports from the CONFLOG, the input message is as follows:

**OP:LOG;LG="CONFLOG":TYPE=0291,DEVICE="xxx";**

If only the fault reports are required then the following must be used:

**OP:LOG;LG="CONFLOG":TYPE=0801,DEVICE="xxx";**

The **xxx** means the logical output device to which the output should be routed (for example, rop0). Refer to 235-600-700, *Input Message Manual*, for complete information about the **OP:LOG** command.

To dump the contents of the MEMLOG file, the input message **OP:MEMERRS** must be entered. An entire log file can also be dumped on tape for later investigation. This can be achieved by using the input message **OP:LOG?**.

### 3.6.10 USE OF THE DAY LOG FILE

The day log file is kept for the manufacturer to locate severe software faults. The contents of this log file have an ASCII format. The maintenance person in the exchange can make a dump of this log file, if necessary, by using the appropriate input message for the software release installed.

**Dump of Day Log File:** A dump of the day log file can be made using the **OP:LOG?** input messages described previously in the "Log File Dumps" section.

### 3.6.11 HOURLY PLANT REPORT

The hourly plant report contains data regarding originating, incoming, terminating, and outgoing calls, call connect setup troubles, and reflects the maintenance effect on traffic during the past hour.

If enabled, the hourly plant report is automatically printed. It can be enabled by using the **ALW:PLNTHR** input message. It can also be requested at any time. The **OP:PLNTHR** input message can be used to print the last complete hourly plant report. The **INH:PLNTHR** input message can be used to inhibit the printing of the hourly plant report. The report is sent to the MCC, the SCCS, and the SCCS/NAC channel.

For more detailed information on the hourly plant report, refer to 235-070-100, Appendix 1.

### 3.6.12 24-HOUR PLANT REPORT

The 24-hour plant report contains data regarding originating, incoming, terminating, and outgoing calls, call connect setup troubles, and reflects the maintenance effect on traffic during the past 24 hours.

The 24-hour report is generated and issued by the 5ESS-2000 switch once a day at 02:00:00. The report is sent to the MCC, the SCCS, and the SCCS/NAC channel and is saved for the next 24 hours to fulfill requests.

For more detailed information on the 24-hour plant report, refer to 235-070-100, Appendix 1.

## 3.7 NETWORK MANAGEMENT

### 3.7.1 OVERVIEW

The overall performance of the network can be degraded if there are too many call attempts in a telephone network. Network management provides real-time surveillance and control techniques to minimize the network degradation.

### 3.7.2 TRUNK GROUP CONTROLS

One of the management capabilities is the automatic or manual trunk group controls. Trunk group controls are used to limit the access of calls to a trunk group, to control the overflow of calls from a trunk group, and to offer alternate routing chains to busy groups. The control methods used are either protective or expansive. Protective controls are used to control the spread of congestion in the network by restricting normal trunk access and overflow. Expansive controls allow the routing to expand beyond the normal in-chain routing during failure or overflow conditions.

Trunk group controls can be divided into two classes:

- **Prehunt:** Applied after a trunk group has been chosen and before the hunt for an idle member starts.
- **Posthunt:** Applied after the trunk group hunt failed to locate an idle member and before alternate route treatment is applied.

The controls will be active when a threshold is reached. The threshold for prehunt controls is the percentage of all calls attempting to select a member in a trunk group. The percentage of all calls failing to select a member in a trunk group is the threshold for posthunt controls. There are four trunk group controls: cancel-to, cancel-from, skip, and reroute.

The cancel-to control is a prehunt control which cancels traffic destined for a specific trunk group. The call is then routed to one of the following announcements:

- **NCA:** No Circuit Announcement
- **EA1:** Emergency Announcement 1
- **EA2:** Emergency Announcement 2.

The cancel-from control is a posthunt control which cancels calls failing to select a member in a trunk group. In this case, the call is routed also to one of the previously mentioned announcements.

The skip control is a prehunt control which skips the selected trunk group and provides an alternate route. When no alternate routes are available, the call will get the treatment defined for such a call.

The reroute control is a posthunt control which provides a different routing chain to allow traffic to be routed over these secondary groups when the primary is congested. When no member has been found in the secondary groups, the call will be routed again by the primary groups. When a cancel in-chain return (CICR) is specified, the call will be routed to the no circuit announcement (NCA).

### 3.7.3 INPUT MESSAGES AND RESPONSES

When a manual trunk group control change occurs, an autonomous response is generated. There are two kinds of changes: either all of the manual controls have been deleted or a single manual trunk group control has changed. Manual trunk group control reports can be affected by means of input messages. The reports can be either allowed or inhibited. Printing a report on the ROP can be stopped by an **STP:NMOP?** input message.

A list of all active manual trunk group controls can be requested. The report following this input message consists of three parts. The first one indicates that the listing has started. The second one indicates the way of control (sprayed, ordered, or regular) and the method (cancel-to, cancel-from, skip, or reroute), on which trunk, and how much direct or alternate traffic is routed. When the control method is rerouted, the trunk group numbers that are used as the alternate route are listed also. The third report indicates the termination status of the listing.

There is one input message which affects the trunk group controls. It is possible to delete all active manual trunk group controls by means of the **CLR:TGC?** input message.

When using input messages, the system response can be **RL**. In such a case, the network system is busy updating manual trunk group controls and another request has already been queued. The input message is denied and has to be retried later.

Output messages of CCS network critical events are printed on the ROP. Refer to 235-190-120, *CCS7 Signaling Service Features*, for an explanation of these outputs.

### 3.7.4 MESSAGE ROUTING VERIFICATION TEST (MRVT)

A message routing verification test (MRVT) feature was added with a previous software release. Refer to 235-190-120, *CCS7 Signaling Service Features*, for more information about this feature.

## 3.8 AUTHORITY MANAGEMENT

### 3.8.1 OVERVIEW

The 5ESS-2000 Switch Command Restriction feature, provides the ability to restrict access to input commands and log input activity via *authority checking*. This section presents authority checking information in three major subsections:

- Authority Checking Concepts
- A User's Perspective of Authority Checking
- Authority Checking Administration Guidelines.

### 3.8.2 AUTHORITY CHECKING

Authority checking is comprised of two main security activities:

- *Command restriction* - restricting access to 5ESS-2000 switch input messages and command pokes
- *Command logging and reporting* - input command usage tracking.

Authority checking is assigned on a per-terminal basis, as specified in the Equipment Configuration Database (ECD). Three levels of authority checking are supported: none, terminal, and user. Additionally, the login process can be configured on a per-terminal basis in the ECD. Login prompts for a login and password before granting system access.

Authority checking is based on command groups, which are sets of input messages and command pokes. Command groups are assigned to users and terminals to define the set of permissible commands.

Authority checking can be used on any device which uses a craft shell. This includes the Maintenance Control Center (MCC), the Switching Control Center (SCC), Supplementary Trunk and Line Workstation (STLWS) terminals, and Recent Change and Verify (RC/V) terminals. Authority checking does not affect Emergency Action



Interface (EAI) commands. The SCC and MCC terminals support terminal-level authority checking only. Authority checking is not supported on *UNIX*® terminals.

### 3.8.3 AUTHORITY CHECKING CONCEPTS

#### 3.8.3.1 Command Groups

##### 3.8.3.1.1 General

A command group is a set of input messages and command pokes grouped together because they share a common function, operate on a common unit, or have some other common characteristics. Each input message and poke is a member of exactly one command group. Command groups are assigned to users and devices to define the set of permissible commands. Example command groups include NMOC (Network Management and Overload Control), SM (Switching Module Maintenance), and ALARM (Alarm Manipulation).

A complete table of command group names and explanations is located in the Introduction section of 235-600-700, *5ESS*®-2000 *Switch Input Messages Manual*.

The Command Group Index, an alphabetically-ordered list of input message identifiers and their command groups, is located in the Indexes section of 235-600-700, *5ESS*®-2000 *Switch Input Messages Manual*.

The Command Group Appendix, which maps commands groups to input message identifiers, is located in the Appendixes section of 235-600-700, *5ESS*®-2000 *Switch Input Messages Manual*.

In addition, each input message in the 235-600-700, *5ESS*®-2000 *Switch Input Messages Manual* specifies its own command group or groups.

##### 3.8.3.1.2 Special Command Groups

Two special command groups, NOCHK and SUPERUSR, are defined to bypass authority checking for two different purposes.

**NOCHK Command Group:** The NOCHK command group contains input messages that are never authority checked. For example, **OP:CLK**, a popular input message that presents no danger to the system, is in the NOCHK command group.

All users and terminals are implicitly permitted to execute NOCHK commands. Thus, the system administrator can not assign the NOCHK command group to users or terminals. CMDLOG logfile entries are never created for NOCHK commands. Furthermore, CMDLOG logging and reporting is not configurable for the NOCHK command group.

**SUPERUSR Command Group:** The SUPERUSR command group does not actually contain any input messages or pokes. It is a keyword that, when assigned to a user, instructs the system to by-pass terminal restrictions. Judicious use of SUPERUSR is advised for security reasons.

##### 3.8.3.1.3 Command Profiles

To simplify assignment of command groups to users and terminals, the administrator may define one or more command *profiles*, which are simply lists of command groups. Command profiles are assigned to users or terminals similar to the way command groups are assigned.

#### 3.8.3.2 Levels of Authority Checking

##### 3.8.3.2.1 General

Three levels of authority checking are available for a device: *none*, *terminal*, and *user*. These authority levels are described in the following sections.

When discussing authority levels, one must also discuss the login process. An authority level with login enabled yields different authority checking results than the same authority level with login disabled.

Combinations (or modes) of authority checking and login are illustrated in Table 3-7.

### 3.8.3.2.2 No Authority Checking

Authority checking is disabled (*none*) by default. With authority checking disabled, all input requests are honored and no command logging is performed.

Login is also disabled by default. If login is desired, it is recommended that the administrator first establish terminal level or user level authority checking. Refer to Section 3.8.4, Authority Administration, for details.

### 3.8.3.2.3 Terminal Authority Checking

With terminal authority checking, the user is restricted to executing only those commands belonging to commands groups allowed on the particular terminal. The terminal may have no restrictions. In this case logging and/or reporting is still performed, but any command may be executed.

### 3.8.3.2.4 User Authority Checking

With user authority checking, restrictions can differ between the case where login is enabled and the case where it is not.

With login disabled, the user is restricted to commands belonging to command groups assigned to the terminal (this is the same as terminal authority checking).

With login enabled, the user is restricted to commands belonging to command groups assigned to both the terminal and their user identity (exception to this is noted in the following paragraph). If both restrictions are met, the command is executed.

### 3.8.3.2.5 SUPERUSR Capabilities

Terminal restrictions for SUPERUSR can be accomplished by setting the ECD getty form field 10 to "t". This restricts the SUPERUSR command group (comgr) to the capabilities assigned to the specific terminal device.

Bypassing terminal restrictions for SUPERUSR is accomplished by setting the getty form field 10 to "u".

### 3.8.3.2.6 Authority Checking Summary

Table 3-7 illustrates and summarizes the various combinations (or modes) of login and authority checking described in the previous sections.

**Table 3-7 Authority Checking Combinations or Modes**

AUTHORITY LEVEL	LOGIN/PASSWORD (SEE LEGEND)	
	YES	NO
u - (user)	a	b
t - (terminal)	c	d
n - (none)	e	f
<b>Notes:</b>		
a. Devices configured with both login and <i>user</i> authority checking ('u') enabled initially display the login prompt. In this		

mode, users provide a login and password to gain access to the system. Users in this mode are restricted to commands in command groups assigned both to their login and to the device. If no restrictions are placed on the device, user restrictions still apply and command logging and reporting can still occur. This mode is not supported on the MCC or SCC.

- b. Devices configured with just *user* authority checking ('u') enabled come up with the normal display (no login prompt). In this mode, users are restricted to commands in command groups assigned to the device. If no restrictions are placed on the device, command logging and reporting can still occur. This mode is identical to mode (4) with the exception that this mode provides a user identity in the command logfile.
- c. Devices configured with both login and *terminal* authority checking ('t') enabled initially display the login prompt. In this mode, users provide a login and password to gain access to the system. Then users are restricted to commands in command groups assigned to the device. If no restrictions are placed on the device, command logging and reporting can still occur. This mode is not supported on the MCC or SCC.
- d. Devices configured with just *terminal* authority checking ('t') enabled come up with the normal display (no login prompt). Users in this mode are restricted to commands in command groups assigned to the device. If no restrictions are placed on the device, command logging and reporting can still occur.
- e. Devices configured with login enabled but authority checking disabled ('n') come up displaying the login prompt. In this mode, users provide a login and password to gain access to the system. This mode is not supported on the MCC or SCC.

This mode is not recommended because login identities used to access the system are those defined with the admin command (see Section 3.8.4.2). The same results can be achieved by creating the desired logins with ADD:PAUTH and configuring login and terminal authority checking [mode (3)] without establishing terminal restrictions.

- f. Devices configured with neither login nor authority checking come up with the normal display (no login prompt) and with no restrictions. This is the default configuration.

### 3.8.3.3 Command Logging and Reporting

In addition to restricting input requests, authority checking also provides the capability to log input requests in the CMDLOG command logfile. CMDLOG entries may also be routed to and alarmed on devices in the PSSWD output message class. Input request logging and reporting is configurable on a command group basis. This can be customized through the Equipment Configuration Data base (ECD) authdef form for each command group.

Command logging allows both permitted and denied input requests to be recorded in the CMDLOG logfile. This provides an audit trail of user activities. Each CMDLOG entry contains the date and time, the device where the command was executed (if available), the login identity (if available), and the actual command. The input request acknowledgment (e.g., "NG - INSUFFICIENT AUTHORITY") is included for rejected input requests. This logfile can be accessed and searched using the **OP:LOG** input message.

Command reporting displays the same information described above at the desired alarm level on devices in the PSSWD output message class. This can be used to draw attention to execution, or attempted execution, of sensitive commands. Default PSSWD devices are the Receive Only Printer (ROP) and the Switching Control Center (SCC) device.

### 3.8.3.4 ECD Authority Definition

The ECD Authority Definition (*authdef*) form defines CMDLOG logging and alarming parameters for a command group. One authdef form exists for each command group. By modifying the authdef form for a command group, the system administrator can control the command group's logging status (log or do not log) and alarm level of **REPT:CMDLOG** output messages for allowed and denied input requests.

By default, logging and reporting are disabled for all command groups.

### 3.8.3.5 User Identities

User identities, also called *logins*, are created by the system administrator. Logins defined with the admin command are used when authority checking is disabled ('n'). Logins defined by ADD:PAUTH are used when authority checking is enabled ('t' or 'u'). Be aware that separate login/password databases are used for these two cases. See Section 3.8.4 for details.

### 3.8.3.6 Passwords

Each user identity has a corresponding password. Passwords are subject to password complexity rules, including

- A password must be at least six characters long
- A password must not match the user identity
- A password must not match any of the previous three passwords.

Users are forced to change their passwords after a certain number of weeks has elapsed. The number of weeks is specified in the ECD eaiopt form and can be adjusted by the system administrator.

Conversely, a minimum number of weeks must elapse before a user is permitted to change his or her password. The minimum password change time is also defined and administered through the ECD.

### 3.8.3.7 Authority Data Bases

Authority information, such as user identities, terminal identities, and command profile identities, is stored in one of three authority data bases. Each data base, person authority (PAUTH), terminal authority (TAUTH), and command profile (PROFL), is stored in binary format.

The person authority (PAUTH) data base contains an entry for each user identity defined by the system administrator. Each data base entry stores the user identity, password, and command groups assigned to the user.

The terminal authority (TAUTH) data base contains an entry for each terminal identity defined by the system administrator. Each data base entry stores the terminal identity and command groups assigned to the terminal.

The command profile (PROFL) data base contains an entry for each command profile defined by the system administrator. Each data base entry stores a profile name and command groups belonging to the profile.

### 3.8.3.8 Unrestricted Access

For emergency situations where immediate unrestricted system access is required, authority checking can be disabled for a period of time on the MCC and SCC devices. Authority checking on other devices can only be disabled through normal authority administration procedures.

An application parameter on the Emergency Action Interface (EAI) page requests unrestricted MCC and SCC access. The request results in a **REPT:SECURITY** output message with a critical alarm to alert operations personnel of a change in the level of security on the MCC and SCC.

### 3.8.3.9 Security-Related Output Message Classes

Output messages relating to maintenance interface security belong to either the AUTH, MAINT, or PSSWD output message classes.

The AUTH output message class contains output messages for verifying PAUTH, TAUTH, or PROFL data base contents.

The MAINT output message class contains output messages relating to requests for or changes in status of unrestricted access on the MCC and SCC.

The PSSWD output message class contains all **REPT:CMDLOG** and **REPT:LOGIN** output messages. **REPT:CMDLOG** reports input message activity. **REPT:LOGIN** reports login events such as successful logins or repeated unsuccessful login attempts.

### 3.8.3.10 User Perspective

#### 3.8.3.10.1 Overview

Authority checking is largely transparent to users that have no system administration responsibilities. This section describes the few aspects of authority checking that affect all users.

A user may or may not be required to provide a login and password to gain access to the system. The system administrator decides, for each terminal, whether or not the login process is required.

Also, a user may or may not be subject to authority checking. Authority checking may be disabled, or it may be enabled with either terminal-level restrictions or user-level restrictions. Again, this is decided by the system administrator on a per-terminal basis.

The different combinations (or modes) of login and authority checking are illustrated in Table 3-7 and discussed in Section 3.8.3.2.6, Authority Checking Summary.

#### 3.8.3.10.2 Logging In and Logging Off

On devices where a login and password are required to access the system, an optional system greeting is displayed followed by the "login:" prompt. To login in, the user types his or her user identity followed by a carriage return. The system prompts for a password and the user enters his or her password followed by a carriage return. The system does not print (echo) the password on the terminal.

If the system administrator defined the user identity in lowercase, the user should enter their login identity in lowercase if possible. If uppercase letters are used, the system assumes that the terminal cannot generate lowercase letters and that all further uppercase input should be treated as lowercase.

When the login process has been successfully completed, the user continues with a normal session.

To log off, the user only needs to enter a control-D.

#### 3.8.3.10.3 Changing the Password

While logging in, a user may be forced to change his or her password before system access is granted. A user is forced to change his or her password for one of three reasons:

- (1) The first login attempt for a user identity forces the password to be changed from the initial password assigned by the system administrator.
- (2) The password expires after the administrator-specified number of weeks has elapsed since the last password change.
- (3) The system administrator has forced a password change.

A user may change his or her password at any time, subject to a minimum time constraint between password change requests. The default minimum change time is one week, but the administrator can specify a longer period. A password *must* be changed after a maximum number of weeks has elapsed since the password last changed. The default maximum change time is 15 weeks, but the administrator can specify a shorter or longer period.

#### 3.8.3.10.4 Insufficient Authority

When a user enters an input request from a device with authority checking enabled, the input request is executed only if it passes command restriction. For terminals configured with terminal authority checking, the input request is executed if it belongs to a command group assigned to the particular terminal identity. For terminals configured with user authority checking, the input request is executed if it belongs to a command group assigned to the particular terminal identity and, if a login was required, if it also belongs to a command group assigned to the person's user identity.

If authority checking fails, the input request is denied and an acknowledgment indicating insufficient authority is printed on the originating terminal. The acknowledgment for rejected Man-Machine Language (MML) input requests is: **NG - INSUFFICIENT AUTHORITY**

The acknowledgment for rejected command pokes is: **NG - NO AUTHORITY**

If the user requires permission to execute the input request, then the system administrator can provide authority through authority administration procedures.

### 3.8.4 AUTHORITY ADMINISTRATION

#### 3.8.4.1 Overview

The system administrator, or whoever is responsible for security in an office, has several duties associated with administering authority. These include:

- Administering user identities
- Administering terminal identities
- Administering command profiles
- Assigning command groups and profiles to user and terminal identities
- Enable/disable login
- Establishing authority checking on the desired terminals
- Administering command logging and reporting settings
- Security Monitoring

The authority administration activities listed previously are described in detail in subsequent sections. It is important for some administrative steps that a particular order be followed. In particular, the following order should be followed when establishing authority checking for a device:

- (1) Add the terminal identity to the TAUTH data base if the terminal restrictions are desired.
- (2) Assign command groups to the terminal identity.
- (3) Add any new person (user) identities to the PAUTH data base.

- (4) Assign command groups to the user identity.
- (5) Enable login and/or authority checking for the terminal.

Notice all terminal and user identities are added to TAUTH and PAUTH and assigned command groups *before* login and/or authority checking are configured. This ensures that the desired command group assignments are in place before anyone is subject to authority checking on the device. If (5) was done between (1) and (2), then ALL input requests from the terminal would be restricted until (2) is completed.

### 3.8.4.2 Administering User Identities

User identities defined with the admin command are used when authority checking is disabled ('n' authority level). Be aware that the login/password database for 'n' authority is not the same database used for 't' and 'u' authority. The admin command is documented in the Administration section of 235-700-200, *UNIX® System Reference Manual*.

For 't' and 'u' authority levels person (user) identities are added to the person authority database via the **ADD:PAUTH** input message. The administrator specifies the user name (identity) and a password, which the user will be forced to change at first login. For example:

**ADD:PAUTH:IDENT="userid",PSSWD="userpass"**

By default, a user identity has no command groups assigned (it is completely restricted). Because of this, it is recommended that the administrator assign command groups to the user identity immediately after the identity is added to the personal authority data base.

The administrator can override a user's password via the **CHG:PAUTH**. The user will be forced to choose a new password upon his or her next login. For example: **CHG:PAUTH:IDENT="userid",PSSWD="newpass"**

**ADD:PAUTH** and **CHG:PAUTH** are not printed (echoed) on the ROP in order to keep passwords private.

A user identity is deleted from the person authority data base via the **DEL:PAUTH** input message. For example: **DEL:PAUTH:IDENT="userid"**

The administrator can retrieve information about user identities from the person authority data base using the **VFY:PAUTH** input message. The following lists all user identities in the person authority data base: **VFY:PAUTH**

The following reports the last login time for a given user identity: **VFY:PAUTH:IDENT="userid"**

### 3.8.4.3 Administering Terminal Identities

The first step in administering terminal identities is to determine the terminal identity names for the terminals involved. For example, the terminal identity for `/dev/tty` is **ttyn**.

A terminal identity is added to the terminal authority data base (TAUTH) via the **ADD:TAUTH** input message: **ADD:TAUTH:TERM="ttyn"**

where **ttyn** is replaced with the desired terminal identity.

By default, a terminal identity has no command groups assigned (it is completely restricted). Because of this, it is recommended that the administrator assign command groups to the terminal identity immediately after the identity is added to the terminal authority data base.

A terminal identity is deleted from the terminal authority data base via the **DEL:TAUTH** input message. For example: **DEL:TAUTH:TERM="ttyn"**

The administrator can list all terminal identities defined in the terminal authority data base using the **VFY:TAUTH** input message: **VFY:TAUTH**

If command logging with open terminal restrictions is desired, there is a way to achieve this without adding a terminal identity and assigning all command groups to it.

If the terminal identity is *not* added to the terminal authority data base, then the device has no restrictions when authority checking is enabled for the device. Restrictions are defaulted to none if a terminal identity is not found in the terminal authority data base. However, command logging and reporting are still performed.

#### 3.8.4.4 Defining a Command Group Profile

To simplify assignment of command groups to users and terminals, the administrator may wish to define one or more command group *profiles*. These profiles are simply lists of command groups, and can be assigned to users and terminals similar to the way command groups are assigned.

Command profile identities are created using **ADD:PROFL**. For example, the following input message defines an SM/SM-2000 maintenance profile identity: **ADD:PROFL:IDENT="smmaint"**

Command groups can be added to or deleted from a profile using **CHG:PROFL**. For example, assume the following command groups are needed by anyone performing SM/SM-2000 maintenance:

ALARM	Alarm management
MAINT	Routine system maintenance activities
ODD	Office Dependent Data activities
SM/SM-2000	Switching module/switching module-2000 maintenance activities

They can be added to the "smmaint" profile with the following input message:

**CHG:PROFL:IDENT="smmaint",ACTION=INCLUDE,COMGR=ALARM,MAINT,ODD,SM**

A profile identity is deleted from the profile authority data base via the **DEL:PROFL** input message. For example, **DEL:PROFL:IDENT="smmaint"**

The administrator can retrieve information about profile identities from the profile authority data base using the **VFY:PROFL** input message. The following lists all profile identities in the profile authority data base: **VFY:PROFL**

The following lists the command groups assigned to a given profile identity (that is, "smmaint"):

**VFY:PROFL:IDENT="smmaint"**

#### 3.8.4.5 Assigning Command Groups and Profiles

**NOTE:** Activities described in this section should be completed *immediately* after a terminal or user identity is created via **ADD:PAUTH** or **ADD:TAUTH**. Otherwise the terminal or user will be completely restricted.

Command groups and profiles are assigned to user identities using **ADD:PCGRP**. Command groups and profiles are assigned to terminal identities using **ADD:TCGRP**. For example, command group PASS (Personal password modification) is assigned to user identity "userid" and terminal identity "ttyn" by the following input commands:

**ADD:PCGRP:IDENT="userid",COMGR=PASS**

**ADD:TCGRP:TERM="ttyn",COMGR=PASS**

Similarly, these identities are assigned command group profile "smmaint" by entering:

**ADD:PCGRP:IDENT="userid",PROFL="smmaint"**



**ADD:TCGRP:TERM="ttyn",PROFL="smmaint"**

**NOTE:** Every person and terminal identity should be assigned the PASS command group. This enables everyone to change their own password.

Only the administrator should be assigned the ADMIN (administrator-only activities) and AUTH (authority administration) command groups. These command groups contain sensitive commands that should be accessible only by the system administrator.

The administrator should be assigned the SUPERUSR command group to bypass terminal authority. This allows the administrator to execute input commands without being subject to terminal restrictions. Other users should be assigned SUPERUSR with discretion.

A command group or profile can be disassociated from a user or terminal identity by the **DEL:PCGRP** and **DEL:TCGRP** input messages. For example, command group ALARM (Alarm management) is no longer accessible to user identity "userid" and terminal identity "ttyn" after the following input commands are executed:

**DEL:PCGRP:IDENT="userid",COMGR=ALARM**  
**DEL:TCGRP:TERM="ttyn",COMGR=ALARM**

Similarly, these identities can no longer access commands in command group profile "smmaint":

**DEL:PCGRP:IDENT="userid",PROFL="smmaint"**  
**DEL:TCGRP:TERM="ttyn",PROFL="smmaint"**

**NOTE:** When a command group or profile is added to or deleted from a user identity, the change takes effect upon the user's next login.

When a command group or profile is added to or deleted from a terminal identity, the change takes effect after the terminal is restored.

The administrator can determine the command groups and profiles assigned to user and terminal identities using the **VFY:PCGRP** and **VFY:TCGRP** input messages. The following lists all command groups and profiles assigned to the "userid" user identity: **VFY:PCGRP:IDENT="userid"**

The following lists all command groups and profiles assigned to the "ttyn" terminal identity:

**VFY:TCGRP:TERM="ttyn"**

### 3.8.4.6 Enabling/Disabling Login

#### 3.8.4.6.1 Enable Login

**NOTE:** Login is not supported on MCC and SCC devices. Procedures described in this section do not apply to the MCC or SCC.

Enabling login on a device requires modifying the ECD *getty* form(s) for the terminal and activating the changes by restoring the terminal.

To execute the login process on a STLWS terminal, ECD changes are required on two *getty* forms. Two forms are involved since one form is required for the message section of the STLWS screen and a second form is used by the control and display (C/D) region of the screen. The two *getty* form names differ only in that the TTY name in *gettyrec* (field 1) is lowercase on one form and uppercase on the other form; for example: *gettyl* and *gettyL* for STLWS *ttyl*.

To execute the login process for a recent change terminal, an ECD change is required on one *getty* form. The TTY name in *gettyrec* (field 1) is lowercase (for example: *gettyw* for *ttyw*). Only one form requires updating since recent change terminals do not have a C/D region.

Whether one or two *getty* forms require updating, the same change is required: change *shlname* (field 4) to

**/etc/login.**

The processes running on the device must be terminated to activate the changes. This may be done by typing control-D, restoring the terminal or controller, or on a wide scale by a craft initialization.

### 3.8.4.6.2 Disable Login

To disable login on a terminal, the ECD changes described above must be reversed. Note that two getty forms are involved for STLWS terminals and one getty form is involved for RC/V terminals. For recent terminals, change shlname (field 4) to **/cft/bin/pdshl.app**. For STLWS terminals, change shlname to **/cft/bin/pdshl.app** in the getty form for the message section of the STLWS screen and change shlname to **/cft/dap/poker** in the getty form for the C/D region of the screen.

Again, the processes running on the terminal must be terminated to activate the changes.

### 3.8.4.7 Establishing Authority Checking

Modifying authority checking on a device requires modifying the ECD *getty* form(s) for the terminal and activating the changes by restoring the terminal.

To change authority checking on a STLWS terminal, ECD changes are required on two getty forms. Two forms are involved since one form is required for the message section of the STLWS screen and a second form is used by the control and display (C/D) region of the screen. The two getty form names differ only in that the TTY name in *gettyrec* (field 1) is lowercase on one form and uppercase on the other form; for example: *gettyl* and *gettyL* for STLWS ttyl.

To change authority checking on a recent change terminal, an ECD change is required on one getty form. The TTY name in *gettyrec* (field 1) is lowercase (for example: *gettyw* for *ttyw*). Only one form requires updating since recent change terminals do not have a C/D region.

Whether one or two getty forms require updating, the same change is required. To enable authority checking on the terminal, the *auth\_chk* field (field 10) can be changed to either 'u' for user-level authority checking or 't' for terminal-level authority checking. The default *auth\_chk* value is 'n' (none, authority checking disabled).

**NOTE:** When authority checking is disabled ('n') the login process should also be disabled.

If this recommendation is not followed, the user identities used by login are those defined via the *admin* command (not those defined in PAUTH) and the terminal identities in TAUTH are not available. The *admin* command is documented in Administration section of 235-700-200, *UNIX® System Reference Manual*.

The processes running on the device must be terminated to activate the changes. This may be done by typing control-D, restoring the terminal or controller, or on a wide scale by a craft initialization.

### 3.8.4.8 Administering Command Logging and Reporting

Administering input message logging and reporting requires modifying the ECD *authdef* (authority definition) form for a command group. The command group name (field 1, *comgr\_name*) is uppercase. For example **ALARM** is the *comgr\_name* key for the alarm management command group.

**NOTE:** Never modify field 2 (*comgr\_number*) when modifying an *authdef* form. The *comgr\_number* field is set by Lucent Technologies and should not be changed.

By modifying *authdef* fields 4, 5, 7, and 8, the administrator can configure the desired alarm level and logging status for allowed requests and denied requests for each command group.

Field 4 (*alarm\_level*) is the alarm level for denied input requests. This controls how this command group's

**REPT:CMDLOG** output messages for denied requests appear on PSSWD output message class devices. Valid values are as follows:

- NO - denied requests are *not* reported (default)
- CR - denied requests are reported with a CRITICAL alarm level
- MJ - denied requests are reported with a MAJOR alarm level
- MN - denied requests are reported with a MINOR alarm level
- IF - denied requests are reported with an INFORMATIONAL alarm level (**REPT:CMDLOG** appears but does not trigger an alarm).

Field 5 (log\_flag) is the logging (reporting) status for denied input requests. This controls whether CMDLOG entries for denied requests are generated for this command group. Valid values are as follows:

- n - denied requests are *not* logged in CMDLOG (default)
- y - denied requests are logged in CMDLOG.

Field 7 (alarm\_level) is the alarm level for allowed input requests. This is identical to field 4 except it controls **REPT:CMDLOG** output messages for allowed requests.

Field 8 (log\_flag) is the logging (reporting) status for allowed input requests. This is identical to field 5 except it controls CMDLOG entries for allowed requests.

CMDLOG is engineered to hold approximately 1000 entries so setting log\_flag to 'y' should be done judiciously. The changes are activated immediately upon ending the ECD recent change transaction.

### 3.8.4.9 Security Monitoring

#### 3.8.4.9.1 Idle User Identities

The system administrator can track inactive user logins using the **VFY:PAUTH** input message with the **DORMANT** keyword. For example, **VFY:PAUTH:DORMANT=5** lists all user identities that

- Have not logged in for 5 days (or have never logged in)
- Have been logged in for 5 or more days

#### 3.8.4.9.2 Reviewing CMDLOG

The CMDLOG logfile provides an audit trail of user activities. CMDLOG can be accessed and searched using log file handling procedures documented in the Operations section of this document. CMDLOG files can be stored for later analysis using file backup procedures documented in the Operations section of this document.

Input requests are logged in CMDLOG according to parameters established in the authdef record for each command group. Each CMDLOG entry contains the date and time, the logical device identity (e.g. **ttyn**) where the command was executed, the login identity, and the actual command. The input request acknowledgment (e.g., "NG - INSUFFICIENT AUTHORITY") is included for rejected input requests.

The logical device identity may not be present, which means the input request was not associated with a terminal.

This happens when commands are run from a script or run by the system, such as periodic maintenance reports.

The user identity may not be present, which means the input request was not associated with a specific user. This happens when the login process is not enabled or when commands are run by the system, such as periodic maintenance reports.

The following two example CMDLOG entries illustrate how CMDLOG can be used to track command usage.

#### **CMDLOG Example 1**

CMDLOG example 1 shows that **OP:STAT,ACSR,CORC** was entered from ttyr on March 10, 1993 at 6:30 p.m. The request was denied due to insufficient authority. No user identity is available, presumably because ttyr was not configured to run the login process.

```
REPT CMDLOG  ttyr 93-03-10 18:30
OP:STAT,ACSR,CORC;
NG - INSUFFICIENT AUTHORITY
```

#### **CMDLOG Example 2**

CMDLOG example 2 shows that user identity "user1" entered command poke 196 (Office Dependent Data Recent Change) from ttyn on March 10, 1993 at 6:35 p.m. The request was allowed (there is no acknowledgment indicating insufficient authority).

```
REPT CMDLOG user1 ttyn 93-03-10 18:35
196;
```

### **3.8.4.10 Unrestricted Access**

#### **3.8.4.10.1 General**

For software release retrofits or emergency situations where immediate unrestricted input is required, authority checking can be disabled for a period of time on the MCC and SCC devices. Authority checking on devices other than the MCC or SCC can only be disabled through normal authority administration procedures.

#### **3.8.4.10.2 Manual Request, Activation, and Deactivation**

An application parameter on the Emergency Action Interface (EAI) page requests unrestricted MCC and SCC access. The application parameter is '+' (plus), thus poke 42!+!50 requests unrestricted access. The request results in a **REPT:SECURITY** output message with a critical alarm to alert operations personnel of a change in the level of security on the MCC and SCC.

Once the '+' application parameter has been entered, the first MML input message request fully activates unrestricted access. All input messages and command pokes are executed without restrictions until unrestricted access is deactivated.

Unrestricted access is deactivated by the first MML input message request following another 42!+!50 EAI poke or after 60 minutes has transpired, whichever comes first.

**NOTE:** An MML input request (or at least a carriage return) must be entered to fully restore command restrictions.

A **REPT:SECURITY** output messages reports that the original security level has been restored.

#### **3.8.4.10.3 Automatic Activation and Deactivation**

During a software release retrofit, unrestricted access to the MCC and SCC is *automatically* provided. A **REPT:SECURITY** output message reports that command restrictions are disabled to inform operations personnel of a possible change in the level of security on the MCC and SCC.

Unrestricted MCC and SCC access is permitted during the entire retrofit process. Once the retrofit is complete, terminal restrictions (if any) are automatically restored. Another **REPT:SECURITY** output message informs operations personnel that unrestricted access is disabled.

### 3.8.4.11 Interactions Between Authority Checking and Other Security Features

#### 3.8.4.11.1 Pathname File

The pathname (.pname) file is another mechanism used by the craft shell to limit access to a subset of input messages. The .pname mechanism is entirely independent from authority checking.

The craft shell assumes that a .pname file exists in its current directory. Each line of the .pname file describes an environment for the craft shell as follows: **a:b:c:d:e:f\$g**

Where:

- a** = Numeric Label
- b** = Craft shell search directory list
- c** = Current directory
- d** = Alternate shell
- e** = User ID
- f** = Group ID
- g** = Optional strings

The craft shell search directory list ('b') specifies a list of directories searched by the craft shell to locate the command to execute. A .pname with fewer search directories limits the number of commands the craft shell can execute. Each craft shell can have a different initial directory, and thus a different .pname file, so it is possible to control search directories on a per-terminal basis.

With authority checking disabled, an input request is executed only if it is located in the list of craft shell search directories. With authority checking enabled, an input request is executed only if it passes authority checking *and* if it is located in the list of craft shell search directories.

#### 3.8.4.11.2 Password Protected Commands

Password protected commands are documented in the Administration section of 235-700-200, *UNIX® System Reference Manual*. Password protected commands prompt for a password before the command is executed. The Office Database Editor (ODBE) and *UNIX* shell (SH) are examples of commands that can be password protected.

Password protected commands are entirely independent from authority checking. For example, a user may pass authority checking for a password protected command but may not be able to execute the command because he or she does not know the password for the command.

#### 3.8.4.11.3 RC/V Security

The recent change and verify (RC/V) system provides access permissions for Office Dependent Database (ODD) recent change forms. The RC/V form access (RCACCESS) mechanism is documented in 235-118-XXX, *Recent Change Procedures*.

The RACCESS mechanism is entirely independent from authority checking. Once a user passes authority checking for ODD recent change, he or she is subject to RACCESS permissions (if any) established via the **SET:RACCESS** input message.

### 3.9 OFFICE RECORD FORM

The office record form(s) can be used to print a record of all recent changes that have occurred for a particular view on a per-view basis. For example, office record 5109-12 will print out the information on recent change view 1.1 for all telephone numbers (TN). The printout can be limited to recent changes associated with a key ID, to the number associated with the key ID, or to a range of numbers associated with a key ID. Procedure 4.1 can be used to print office record form(s).

### 3.10 LOADING AMA TAPES

This subject contains detailed level procedures for loading and verifying automatic message accounting (AMA) tapes. See Procedures 4.2, 4.3, and 4.4.

### 3.11 PREVENTIVE MAINTENANCE FOR TAPE DRIVES AND MOVING HEAD DISKS

Two types of preventive maintenance must be performed on tape drives and moving head disks (MHD): (1) routine hardware maintenance and (2) software exercises.

The first type covers hardware routine maintenance such as the following:

- **Cleaning and Replacing Filters:** See Section 8 of this document.
- **Cleaning Tape Heads and Guides:** Tape heads and guides should be cleaned per the manufacturer's maintenance manual(s). See 235-001-001, *Documentation Description and Ordering Guide*, for related documentation.
- **Cleaning the Moving Head Disk:** Moving head disk(s) should be cleaned per the manufacturer's maintenance manual(s). See Section 1 of this document for a listing and ordering information for moving head disk maintenance manuals. Also refer to 235-001-001, *Documentation Description and Ordering Guide*, for other related documentation.

The second type of preventive maintenance concerns exercises such as demand diagnostics and system checks that must be performed to help identify problem areas before they cause system outage time. See Procedure 4.6 for testing the *KEYSTONE*® III tape drive and see Procedure 10.13 (Section 10) to verify MHD integrity.

### 3.12 TESTING *KEYSTONE*® III TAPE DRIVES

This subject contains detailed level procedures for testing the *KEYSTONE*® III tape drives. See Procedure 4.6. These procedures should be performed before making office backup tapes which are written in the EXT format. This is the format used by GENBKUP to make office backup tapes. Failure to successfully complete these tests could cause tape read failures when the tapes are used to recover the system and could extend office outage time.

### 3.13 TESTING POWER DISTRIBUTION FRAME CHARGE CIRCUIT

This subject contains a detailed level procedure for testing the power distribution frame (PDF) charge circuit (CHG CKT). See Procedure 4.7.2. This test should be run every month to ensure operational capability.

### 3.14 IMPLEMENT NAIL-UP FOR INTRA-OFFICE OFF-PREMISES STATION APPLICATION

This subject contains detailed level procedures to implement nail-up for intra-office off-premises station application.

### 3.15 MODEM POOLING

The modem pooling application within the integrated services digital network (ISDN) environment provides the ability for ISDN customers to make data calls to an analog customer who has a modem. Analog customers can also originate a call to an ISDN customer who has subscribed to the modem pooling feature. These data calls make use of modems in a common pool instead of requiring individual analog lines and modems for each ISDN customer. A modem pool member consists of two basic sides, the digital side and the analog side. The ISDN modem pooling application from the digital side, used the BRI ``D" channel provisioned for X.25 packet switching and is physically wired from a ``T" or ``U" integrated services line unit (ISLU) line card to the Lucent Technologies 7500 modular data module (MDM). The MDM performs X.25 to asynchronous protocol conversion. The analog side of the modem pool terminates to an analog line unit or ISLU ``Z" analog line card and is wired to the analog modem. The digital and analog equipment is connected electrically by using an RS232C cable. The modem pool group should be built with a minimum of three modem pool members. Each modem pool member consists of a dedicated BRI, MDM, modem, and analog line.

Refer to Figure 3-1 for a basic layout of the modem pool.

There are two basic types of modem pools that can be assigned. They are as follows:

- **Private Modem Pools** are restricted to users that are members of a closed user group (CUG). The CUGs allow a predetermined set of users access to a modem pool. They are assigned during the line assignment process to the modem pool multiline hunt group and also to the ISDN customers who have subscribed to the modem pool feature. Once this is done, only ISDN customers with the same CUG number as the modem pool will have access to it. This would normally be the case when the hardware (modems and terminal adapters) is to be located at the end customer's premises.
- **Public Modem Pools** can be assigned in two different ways. One way is to build a modem pool using a new CUG number. Any ISDN customer that subscribes to the modem pooling feature would be assigned the same CUG as the public modem pool. Public modem pools could be located in the central office.

Another way to build a public modem pool is to override the permissions on the CUG to make the pool accessible by anyone knowing the phone number. A CUG must always be established for any modem pool.

The following recent change views are used to build the modem pool translations:

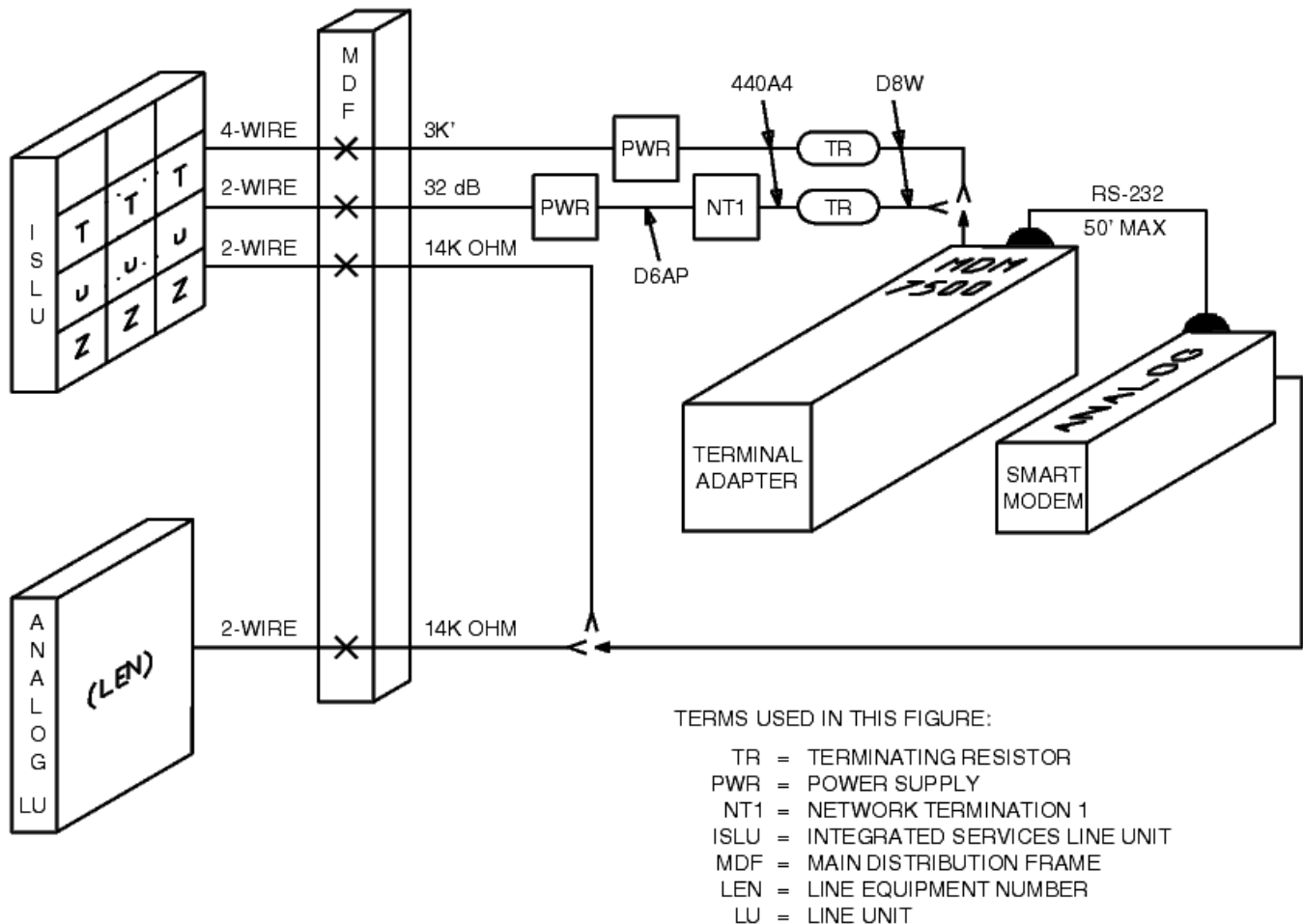
- Recent Change View 4.1 (Line Class Code)
- Recent Change View 8.5 (Timing Miscellaneous)
- Recent Change View 12.18 (Multiline Hunt Feature Definition)
- Recent Change View 3.5 (Multiline Hunt Group Line Assignment)
- Recent Change View 23.2 (ISDN Individual DSL—PKT HML)
- Recent Change View 23.12 (ISDN Modem TN to DSL Assignment)
- Recent Change View 23.10 (CUG DSL Assignment).

For more details on the previously referenced recent change views, refer to the following:

- 235-118-249: *Recent Change Procedures— Software Release 5E10*
- 235-118-250: *Recent Change Reference— Software Release 5E10*
- 235-118-251: *Recent Change Procedures— Software Release 5E11*

- 235-118-252: *Recent Change Reference— Software Release 5E11*
- 235-118-253: *Recent Change Reference— Software Release 5E12*
- 235-118-254: *Recent Change Reference— Software Release 5E13*

The diagnostic program that tests the modem pool members is available on demand using the **TST:MP?** (test modem pool message) input message. Refer to 235-600-700, *Input Message Manual*, for a full description of this input message. A minimum of three modem pool members are required in order for the **TST:MP?** message to be used. An error message will be printed if there are less than three modem pool members.



**Figure 3-1 Basic Layout of the Modem Pool**

### 3.16 CALL MONITOR FEATURE

The call monitor feature provides an early detection mechanism for loss of call processing functionality when all other system indicators appear normal. The call monitor feature reports to the craft by ROP and an alarm indicator on MISC Page 116 when a failure in call completion analysis occurs. The ROP output is in the form of a REPT CALLMON 5- or 15-minute report. The ROP output message has either a major, minor, or no alarm.

The failure criteria are defined as follows:

- For the 5-minute report, failure occurs if more than 50 percent of the total calls attempted in a 5-minute period



are not passed.

- For the 15-minute report, failure occurs if more than 90 percent of the total calls attempted in a 15-minute period are not passed.

The major alarm criteria are defined as follows:

- For the 5-minute report, a major alarm occurs if 40 percent or more of the total tests are ``operational test failures."
- For the 15-minute report, a major alarm occurs if 50 percent or more of the total tests are ``operational test failures."

The minor alarm criteria are defined as follows:

- For both the 5- and 15-minute reports, a minor alarm occurs if 70 percent or more of the total tests are ``indeterminate" plus ``not attempted" failures.

If no alarm criteria are met, no alarm will be printed with either analysis report. The output is also directed to the day log file. The output is in the form of a **REPT CALLMON** message. The body of the message is as follows:

```

REPT CALLMON CURRENT [5 or 15] MINUTE REPORT
  CALLMON PRINTMODE = [NORMAL or VERBOSE]
  CALLMON STATE = [ALLOWED or INHIBITED]
  NON-CCS TEST CALL COMPLETION SUMMARY
  PASSED   FAILED   INDETERMINATE   NOT-ATTEMPTED   LAST-TRKG-PASSED
  a         b         c                 d                 e
  CCS TEST CALL COMPLETION SUMMARY
  PASSED   FAILED   INDETERMINATE   NOT-ATTEMPTED   LAST-TRKG-PASSED
  f         g         h                 i                 j
  TOP FIVE HIGHRUNNER FAILURE TYPES
  FAILURE-CODE   NUMBER-OF-OCCURRENCES
  H'k             l
  H'm             n
  H'o             p
  H'q             r
  H's             t

```

Where: **a, b, c, d, e, f, g, h, i, j, l, n, p, r,** and **t** are decimal numbers.  
**k, m, o, q,** and **s** is a hexadecimal number (these are failure codes).

The call monitor will perform separate analysis for common channel signaling (CCS) test calls (if equipped) along with non-CCS test calls. The call monitor utilizes the terminal maintenance automatic progression testing (APT) functionality to make these operational test calls. Non-CCS test calls are based on the default APT test for the trunk group in the AM ODD relations RT\_TRKG and TM\_ATTT. All CCS test calls use the voice path assurance (VPA) continuity test.

**NOTE:** The APT is disabled in a 5ESS-2000 switch for AUTOPLEX System 1000.

The ability to inhibit the call monitor on a per-trunk-group basis is provided by a field in the static AM ODD relation RT\_TRKG. This field, ``callmon\_inh", is populated from the recent change trunk View 5.1, as is the existing field for

inhibiting APT. If APT is inhibited, then the call monitor must be inhibited.

The call monitor routinely cycles through the AM ODD relation RT\_TRKG and selects trunk groups to use for making the test calls. A test call is attempted every 30 seconds; two are attempted (non-CCS and CCS) if CCS is equipped. It is recommended that the APT schedule is set up to allow testing on at least one trunk group from each possible SM/SM-2000. This schedule maximizes the benefit from this feature. The call monitor keeps an ever-changing list of possible trunk groups to select from in case it does not find a testable trunk group at the 30-second entry as it continues to step through the ODD. This list guarantees that the call monitor feature always has a trunk to test.

The test calls that the call monitor attempts pegs traffic counts (that is, TRFC 15, TRFC 30), APT testing also pegs traffic counts.

The call monitor can be inhibited as well as requested to print the past 15-minute history and print per-test call requests (verbose mode).

The miscellaneous page (116) displays the inhibit/allow/alarm status for the call monitor:

- Entering command 601 generates the message **INH:CALLMON**, which will inhibit the monitor from making test calls and performing call completion analysis. The inhibit box will backlight. This also clears the monitor's history data and trunk-test lists.
- Entering command 701 generates the message **ALW:CALLMON**, which allows the monitor to start the cycle of making test calls and performing call completion analysis. The backlit inhibit box will extinguish.
- Entering command 801 generates the message **RTR:CALLMON,ALARM**, which retires a call monitor alarm condition. If the call monitor generates an alarm, the alarm box on the 116 page will backlight. This command will extinguish the alarm box. Note that call monitor alarms are suppressed if cutover is active.
- Entering command 901 generates the message **OP:CALLMON**, which will print the **OP CALLMON** message on the ROP. The body of the message is identical to **REPT CALLMON** discussed previously, except the first line which is as follows:

**M OP CALLMON PAST 15 MINUTE REPORT**

The verbose mode may be entered by typing **SET:CALLMON,VERBOSE**. The per-test call results will be printed in the form of a **REPT CALLMON** message. The body of the message is as follows:

```
REPT CALLMON VERBOSE TEST CALL
SM = a          PORT = b
TRUNK GROUP = c MEMBER = d
SIGNALING TYPE = e TEST TYPE = f
RESULT = g
RETURN CODE = h
```

Where: **a, c, d, e,** and **f** are decimal numbers.  
**b** and **h** are hexadecimal numbers, and  
**g** is a character string.

The verbose mode is cleared by typing and entering: **CLR:CALLMON,VERBOSE**.

The call monitor requires a global digital service unit (GDSU) equipped with transmission test facility (TTF) responder circuits. Refer to Section 12.9.1, TTF Resource Contention, for more information. The call monitor also

requires integrated services test facility (ISTF) hardware for performing digital loopback test calls.

For details on interpreting the output, refer to 235-600-750, *Output Message Manual*.

For troubleshooting details, refer to 235-105-220, *Corrective Maintenance Procedures*.

## **4. SYSTEM CONTROL OPERATIONS PROCEDURES**

### **GENERAL**

Section 4 contains detailed level procedures for performing the system control functions.

## Procedure 4.1: PRINT OFFICE RECORD FORM(S)

### OVERVIEW

The **OP:OFR:FORM** input message will print a record of all recent changes that have occurred for a particular view on a per-view basis. For example, office record 5100 will print out the information on recent change view 1.1 for all TNs (telephone numbers). (See Table 4.1-1 .) The printout can be limited to recent changes associated with a key ID, to the number associated with a key ID, or to a range of numbers associated with a key ID.

### PROCEDURE

1. Do you wish to print a record of all recent changes that have occurred for a particular form, all recent changes associated with key ID (see Table 4.1-1 ), recent change(s) associated with one number of key ID, or recent changes associated with a range of numbers for key ID.

**ALL RECENT CHANGES FOR FORM**, then go to Step 2.

**RECENT CHANGES ASSOCIATED WITH KEY ID**, then go to Step 3.

**NUMBER ASSOCIATED WITH KEY ID**, then go to Step 4.

**RANGE OF NUMBERS ASSOCIATED WITH KEY ID**, then go to Step 5.

2. To print all recent changes for a form (see Table 4.1-1 ), at the Master Control Center (MCC) or Trunk and Line Work Station (TLWS), type and enter: **OP:OFR:FORM=a;**

Where: **a** = Form number to be printed. (see first column of Table 4.1-1 .)

Response: At ROP, **OP:OFR:FORM=a;** **PF** is printed followed by a printout of all "a" forms that have been updated via recent change.

**Results:** Copy of forms requested are printed.

3. To print all recent changes for form "a" that are associated with the key ID number (see Table 4.1-1 ), at MCC or TLWS, type and enter: **OP:OFR:FORM=a,b;**

Where: **a** = Form number to be printed. (see first column of Table 4.1-1 .)  
**b** = Key ID associated with form type (see second column of Table 4.1-1 .)

Response: At ROP, **OP:OFR:FORM=a,b;** **PF** is printed followed by a printout of all recent changes for "a" forms that are associated with "b" (key ID).

**Results:** Copy of forms requested are printed.

4. To print recent change for a number (see column 3 of Table 4.1-1 ) associated with key ID, at MCC or TLWS, type and enter: **OP:OFR:FORM=a,b=c;**

Where: **a** = Form type.  
**b** = Key ID associated with form type.  
**c** = Number associated with the key ID.

Response: At ROP, **OP:OFR:FORM a,b c PF** is printed followed by a printout of recent change for a number associated with the key ID.

**Results:** Copy of forms requested are printed.

5. To print recent changes for a range of numbers associated with the key ID (see Table 4.1-1 ), at MCC or TLWS, type and enter: **OP:OFR:FORM=a,b=c&d**;

Where: **a** = Form type.  
**b** = Key ID associated with form type.  
**c d** = Range of numbers associated with the key ID.

Response: **OP:OFR:FORM a,b (c,d) PF** is printed followed by a printout of recent changes for the range of numbers associated with the key ID.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Table 4.1-1 Meaning of Office Record Form Data**

FORM	KEY ID	KEY MEANING AND NUMBER(S)
5100	TN	Directory number or range of numbers
5104	none	—
5105A	MLHG	Multiline hunt group number or range of numbers
5105B	MLHG	Multiline hunt group number or range of numbers
5112	TN	Directory number or range of numbers
5113	MLHG	Multiline hunt group number or range of numbers
5171	LEN	Line equipment number
5200	TG	Trunk group number or range of numbers
5202	TG	Trunk group number or range of numbers
5203	TRANCL	Transmission class number or range of numbers
5204	TG	Trunk group number or range of numbers
5205	TG	Trunk group number or range of numbers
5209	INDIT	Incoming digit number or range of numbers
52711	none	—
52712	none	—
52713	none	—
53001	DATREE	Digit analysis tree number or range of numbers
53002	PDIT	Preliminary digit interpreter table number or range of numbers
53003	LDIT	Local digit interpreter table number or range of numbers
53006	none	—
5301	SCRNIDX	Screening index number or range of numbers
53021	CHGIDX	Charge index number or range of numbers
5303	RTIDX	Route index number or range of numbers
5305	none	—
5306	LCC	Line class code or range of codes
5307	LDIT	Local digit interpreter table number or range of numbers
5501	OFFCOD	Office code number or range of numbers
5600	none	—
5601	none	—
56016	TN	Directory number or range of numbers
56018	TG	Trunk group number or range of numbers
56021	none	—
56022	none	—
56023	TN	Directory number or range of numbers
56025	TG	Trunk group number or range of numbers
56031	none	—
56032	TN	Directory number or range of numbers
5604	none	—
56051	none	—
56052	none	—
56053	TN	Directory number or range of numbers
56061	none	—
56062	TN	Directory number or range of numbers

56071	none	—
56073	TN	Directory number or range of numbers
56075	TG	Trunk group number or range of numbers
56081	none	—
56083	TN	Directory number or range of numbers
56091	none	—
56095	TN	Directory number or range of numbers
56097	TG	Trunk group number or range of numbers
56101	none	—
56103	TN	Directory number or range of numbers
56141	none	—
56143	TN	Directory number or range of numbers
56161	none	—
56162	TN	Directory number or range of numbers
57101	SM	Switching module number or range of numbers
57102	SM	Switching module number or range of numbers
57201	SM	Switching module number or range of numbers
57202	SM	Switching module number or range of numbers
57301	SM	Switching module number or range of numbers
57302	SM	Switching module number or range of numbers
57402	SM	Switching module number or range of numbers
57501	SM	Switching module number or range of numbers
57502	SM	Switching module number or range of numbers
5790	SM	Switching module number or range of numbers

## Procedure 4.2: NONTELEPROCESSING WRITE OF AMA DATA FROM DISK TO TAPE (FOR 9-TRACK)

### OVERVIEW

**NOTE 1:** If office is optioned for ``teleprocessing" mode, use **Procedure 4.16** .

**NOTE 2:** For specific information on the 5ESS®-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

**NOTE 3:** For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120 , *Very Compact Digital Exchange User's Guide*.

**NOTE 4:** If there is no DAT drive on MT 0 then 9-track tape writing for AMA is supported on both MT 0 and 1 for medium density [1600 bits per inch (bpi)] tapes. Otherwise the 9-track is only supported on MT 1. Both AMA streams ST1 and ST2 support either MT.

### PROCEDURE

1. At the MCC, in order to obtain the current state of the AMA control file, type and enter:  
**OP:AMA:CONTROLFILE=a;**

Where:        **a** = ST1 used if AMA data goes to the ST1 data stream.  
              **a** = ST2 used if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response:    **REPT AMA CONTROL FILE FOR STREAM a**  
                 **OFFICE ID b**  
                 **OFFICE TYPE c**  
                 **DAYS UNTIL EXPIRATION d**  
                 **PROCESS START TIME e**  
                 **PROCESS STOP TIME f**  
                 **DEFAULT MT FOR AUTO TAPE START g**  
                 **h**  
                 **i**  
                 **AMAT PASSWORD j**  
                 **HOC PASSWORD k**  
                 **BACKUP HOC PASSWORD l**  
                 **PASSWORD FROM LAST SESSION m**  
                 **n**  
                 **o**  
                 **p**  
                 **TAPE SEQUENCE NUMBER q**  
                 **TAPE DATA SET ID r**

Where:        **a** = Data stream:



**ST1** - Indicates that the information is for the ST1 data stream.

**ST2** - Indicates that the information is for the ST2 data stream.

**b** = Office ID.

**c** = Office type code.

**d** = Number of days until the tape expires.

**e** = Start time in hours and minutes for AMA tape writing.

**f** = Stop time in hours and minutes for AMA tape writing.

**g** = Default tape drive for the AMA function.

**h** = The AMA option that is in effect.

**i** = Indication of whether AMA data transfer sessions have been manually inhibited.

**j** = Automatic message accounting teleprocessing (AMAT) password.

**k** = Host collector (HOC) password.

**l** = Backup HOC password.

**m** = Password of the last HOC that polled this AMAT.

**n** = Indicates, if tape writing or verification session is currently in progress.

**o** = Indicates, if a teleprocessing session is currently in process.

**p** = Indicates whether or not automatic tape writing has been inhibited via the **INH:AMA-AUT OST** message.

**q** = AMA tape sequence number.

**r** = Data set ID used by the revenue accounting office (RAO).

2. Verify that AMA control file information is correct. If the AMA option is not **TAPE**, enter the following message at the MCC: **SET:AMA:CONTROL,OPTION=TAPE; a;**

Where: **a** = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

3. At the MCC, type and enter: **ALW:AMA:SESSION, a;**

Where: **a** = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

4. Mount and verify a new AMA tape.

Reference: **Procedure 4.3**

5. At the MCC, type and enter: **CPY:AMATAPE[:PRIM|SEC][,SBLK=a][,EBLK=b][,MT=c][,{ST1|ST2}];**

Where: **a** = Sequence number of the *first* block of secondary data required. This variable is used only if secondary data is being written to tape.

**b** = Sequence number of the *last* block of secondary data required. This variable is used only if secondary data is being written to tape.

**c** = Tape drive number.

**PRIM** = Write *primary* data.

**SEC** = Write *secondary* data.

**ST1** = Used if AMA data goes to the ST1 data stream.

**ST2** = Used if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

6. Is the next output message OK?

**NOTE:** This message comes out automatically when the session terminates.

Response:     **REPT AMATAPE COMPLETE FOR STREAM a**  
                  **VOL SER NUMBER b**  
                  **TAPE DRIVE NUMBER c**  
                  **START TIME dd:dd:dd**  
                  **e**  
                  **START BLOCK f g**  
                  **END BLOCK h i**  
                  **RECORDS WRITTEN j**  
                  **TAPE SEQUENCE NUMBER k**  
                  **l**

Where:         **a** = Data stream:

**ST1** - Information is for the ST1 data stream.

**ST2** - Information is for the ST2 data stream.

**b** = Serial number of the tape.

**c** = Tape drive number.

**d** = Start time in month, day, hours, minutes, and seconds.

**e** = Indicates whether primary or secondary data was written to tape.

**f** = Sequence number of the first block of data written to tape.

**g** = Time stamp for start block in month, day, hour, and minute.

**h** = Sequence number of the last block of data written to tape.

**i** = Time stamp for last block in month, day, hour, and minute.

**j** = Total number of AMA records written to tape.

**k** = AMA tape sequence number.

**l** = Text phrase:

**NORMAL TERMINATION - MORE DATA REQUESTED THAN AVAILABLE**

or

**NORMAL TERMINATION - MORE DATA TO BE WRITTEN**

or

**NORMAL TERMINATION - NO MORE DATA**

or

**TERMINATION REQUESTED VIA STP:AMATAPE MESSAGE**

or

**TRAILER LABELS COULD NOT BE WRITTEN**

or

**AUTOMATIC TAPE WRITING STOP TIME WAS REACHED**

or

**INVALID TERMINATION REASON SPECIFIED**

If **YES**, go to Step 7.

If **NO**, seek technical assistance.

7. Record the first and last block numbers and the tape sequence number to ensure that data could be retrieved again (if necessary.)
8. Remove the complete (full) AMA tape. Record the first and last block numbers and the tape sequence number to ensure the data could be retrieved again (if necessary).

Reference: **Procedure 4.4**

9. Was the message at Step 6 NORMAL TERMINATION - MORE DATA TO BE WRITTEN?

If **YES**, repeat from Step 4 (use a different tape than the one removed at Step 8).

If **NO**, continue with Step 10.

10. At the MCC, type and enter: **OP:AMA:DISK, a;**

Where a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a single-data-stream-office, the stream does not have to be specified as either ST1 or ST2; however, for a dual-stream-office, the stream must be specified as either ST1 or ST2.

Response 1: **REPT AMA DISK SUMMARY  
DISK IS CURRENTLY 0 PERCENT FULL  
ALL DATA ON THE OFFLINE SIDE HAS BEEN READ  
THE AMA PROCESS HAS BEEN TRANSITIONED TO THE ACTIVE SIDE**

Response 2: **REPT AMA DISK SUMMARY  
DISK IS CURRENTLY 0 PERCENT FULL  
NUMBER OF PRIMARY AMA BLOCKS IN USE IS APPROXIMATELY : y**

11. In the previous step, did either Response 1 print out or Response 2 print out with y equaling zero?

If **YES**, **STOP YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, there is more data to be read (y greater than zero).

If you want to read this data (that is, in a software transition), continue with the next step.

12. At the MCC, type and enter: **ALW:AMA:SESSION= a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

13. Mount and verify an empty AMA tape.

Reference: **Procedure 4.3**

14. Is the next output message OK?

**NOTE:** This message comes out automatically when the session terminates.

Response:     **REPT AMATAPE COMPLETE FOR STREAM a**  
                  **VOL SER NUMBER b**  
                  **TAPE DRIVE NUMBER c**  
                  **START TIME dd:dd:dd**  
                  **e**  
                  **START BLOCK f g**  
                  **END BLOCK h i**  
                  **RECORDS WRITTEN j**  
                  **TAPE SEQUENCE NUMBER k**  
                  **l**

Where:         **a** = Data stream:

**ST1** - Information is for the ST1 data stream.

**ST2** - Information is for the ST2 data stream.

**b** = Serial number of the tape.

**c** = Tape drive number.

**d** = Start time in month, day, hours, minutes, and seconds.

**e** = Indicates whether primary or secondary data was written to tape.

**f** = Sequence number of the first block of data written to tape.

**g** = Time stamp for start block in month, day, hour, and minute.

**h** = Sequence number of the last block of data written to tape.

**i** = Time stamp for last block in month, day, hour, and minute.

**j** = Total number of AMA records written to tape.

**k** = AMA tape sequence number.

**l** = Text phrase:

**NORMAL TERMINATION - MORE DATA REQUESTED THAN AVAILABLE**

**NORMAL TERMINATION - NO MORE DATA**

If **YES**, continue with Step 15.

If **NO**, repeat from Step 7.

15. Record the first and last block numbers and the tape sequence number to ensure that data could be retrieved again (if necessary).
16. Remove the AMA tape.

Reference:     **Procedure 4.4**

17. At the MCC, type and enter: **OP:AMA:DISK, a;**

Where         **a** = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a single-data-stream-office, the stream does not have to be specified as either ST1 or ST2; however, for a dual-stream-office, the stream must be specified as either ST1 or ST2.

Response 1: **REPT AMA DISK SUMMARY  
DISK IS CURRENTL 0 PERCENT FULL  
ALL DATA ON THE OFFLINE SIDE HAS BEEN READ  
THE AMA PROCESS HAS BEEN TRANSITIONED TO THE ACTIVE SIDE**

Response 2: **REPT AMA DISK SUMMARY  
DISK IS CURRENTLY 0 PERCENT FULL  
NUMBER OF PRIMARY AMA BLOCKS IN USE IS APPROXIMATELY : y**

18. In the previous step, did either Response 1 print out or Response 2 print out with y equaling zero?

If **YES**, **STOP YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, there is more data to be read (y greater than zero).

If you want to read this data (that is, in a software transition), repeat from Step 12.

19. At the MCC, type and enter: **ALW:AMA:SESSION, a;**

Where a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

20. At the MCC video terminal, type and enter: **INH:AMA:SESSION=a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

21. Send the AMA tape(s) to the revenue accounting office (RAO).

Results: AMA data on tape(s) and ready for the revenue accounting office (RAO).

22. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.3: MOUNT AND VERIFY AUTOMATIC MESSAGE ACCOUNTING (AMA) TAPE (FOR 9-TRACK)

### OVERVIEW

**Note 1:** This procedure is to be used only as part of Procedure 4.2 and not as a stand-alone procedure.

**Note 2:** For specific information on the 5ESS®-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

**Note 3:** For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120, *Very Compact Digital Exchange User's Guide*.

**Note 4:** If there is no DAT drive on MT 0 then 9-track tape writing for AMA is supported on both MT 0 and 1 for medium density [1600 bits per inch (bpi)] tapes. Otherwise the 9-track is only supported on MT 1. Both AMA streams ST1 and ST2 support either MT.

### PROCEDURE

1. Ensure AMA tape is certified for 1600 bpi density.
2. If tape is to be written, attach write enable ring to supply reel.
3. Is either **LOGIC OFF** or **LOGIC ON** LED lighted?  
If **YES**, go to Step 5.  
If **NO**, continue with Step 4.
4. Open the dust cover and set the circuit breaker switch to position 1.
5. If the **LOGIC OFF** LED lights, touch the **LOGIC ON** switch. Otherwise, continue with Step 6.
6. Open the dust cover, place supply reel on hub, and depress hub latch.
7. Thread tape from bottom of supply reel along path around air bearings and onto top of take-up reel.
8. Hold the end of the tape against the take-up reel and wrap several turns clockwise by rotating the reel; then close the dust cover.
9. At the control panel, touch the **LOAD/REWIND** switch.
10. Does the tape move and stop and is **BOT** LED lighted?  
If **YES**, continue with Step 11.  
If **NO**, touch **RESET** switch, attach the beginning of the tape marker and repeat from Step 6.

**NOTE:** If you have to repeat from Step 6 more than once, seek technical assistance. One problem could be that the tape does not have a BOT marker, or the BOT marker was written over due to an error (in this case tape is unusable).

11. Touch **ON LINE** switch.
12. At master control center (MCC) video terminal, type and enter:  
**VFY:AMATAPE:MT=a,b;**

Where:           **a** = 01 or 08 if Tape Drive 0 and 01 or 18 if Tape Drive 1.

**b** = ST1 if AMA data goes to ST1 data stream and ST2 if data goes to the ST2 data stream.

Response:       **IP** followed by the **REPT AMATAPE VERIFY** output message is printed.

**Results:** Automatic Message Accounting (AMA) Tape verified.

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 4.4: REMOVE AMA TAPE****PROCEDURE**

1. At control panel, if **ON LINE** LED is on, touch **RESET** switch.

Response: **ON LINE** LED is off.

2. Touch **UNLOAD** switch.

Response: Tape rewinds onto supply reel.

3. Open dust cover.

4. Depress latch release button and remove reel.

5. Close dust cover.

6. Touch **LOGIC OFF** switch.

**Results:** Tape removed from tape drive.

7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 4.5: PERFORM MANUFACTURER'S TESTS ON *KEYSTONE*<sup>®</sup> III TAPE DRIVE

### OVERVIEW

The tests performed in this procedure will verify the operation of the *KEYSTONE*<sup>®</sup> III tape drive and ensure that the write head current is optimal. This procedure must be run using the KS-23113 List 900 Calibration Tape (Hc) or an equivalent 295 (+ or - 5) oERSTED tape which is writable at 6250 bits per inch (bpi). The tapes should also be usable across the *ANSI*<sup>®</sup> STD defined temperature range (16 degrees C to 32 degrees C) and humidity (RH 20% to 80%). After calibration, to ensure system recovery via backup tapes, verify readability of the most current **GENBKUP** tapes. Also, create a new full set of **GENBKUP** tapes with the newly calibrated tape drive characteristics. These tests are internal drive tests.

**NOTE:** An optional jumper (W1) located on the servo/control circuit board (if equipped) will have to be moved so that the tape drive will store the test adjustment results.

### PROCEDURE

1. Verify that the following correct firmware is installed in the Administrative Module (AM):
  - **TN84:** MC4C151A1 at EQL 033-132 [Input/Output Processor 0 (IOP 0)]
  - **UN145:** MC4C160A1 or A1B at EQL 033-078 (IOP 0)
  - **UN28B:** MC4C077A1C (extra main memory) or MC3T003A1 (very large main memory) at EQL 060-036 & 160-036 [Both Control Units (CU)].
2. Take the drive offline.
3. **CAUTION 1:** Take appropriate ESD precautions (that is, use ground strap) when handling circuit boards.

**CAUTION 2:** If it is necessary to remove the brackets at the top and bottom of the board assembly, use caution and protect the area under the drives in case hardware is dropped.

Determine if an optional jumper (W1) exists on the servo/control circuit board and move it as follows:

- (a) On the rear of the tape drive, loosen the large thumb screws on the right-hand board assembly. This assembly does not extend to the rear as far as the left-hand board assembly (which has ribbon cables connected to it) and the right-hand board assembly is secured to an aluminum cage by the large thumb screws. On the newer drives, it may be necessary to remove brackets at the top and bottom of the board assembly.
  - (b) Slowly swing the right-hand board assembly to the right.
  - (c) Determine if the jumper (W1) exists. If so, slide the jumper off pins 2-3 and slide it back onto pins 1-2. The jumper is rectangular shaped (normally a blue color) and is located in the lower middle area on the component side of the board. Count the pins from right to left (1-3).
4. Perform customer engineer (CE) test 37 as follows:

**NOTE 1:** Test 37 sets up the velocity correction multiplier for the velocity DAC.

**NOTE 2:** A tape **must not** be threaded for test 37.

- (a) While holding down the **CE** switch, press the **TEST** switch.

Response: The **DIAGNOSTICS** indicator lights and the display reads **00**.

- (b) Press the **STEP** switch until **03** appears on the display panel.

- (c) Press the **TEST** switch.

Response: Display reads **30**.

- (d) Press the **STEP** switch until the display increments from **30** to **37**.

- (e) In order to initiate the test, press the **EXECUTE** switch.

Response: Termination code **00** is displayed if test 37 is successful.

- (f) If a termination code other than **00** is displayed, refer to the TEST DESCRIPTIONS section of the *CPI Hardware Reference Manual 4976300* for information on possible fault codes and/or seek technical assistance. Otherwise, continue with the next step.

5. Using a standard 300 oERSTED tape as described in the overview, with the write ring in place, mount the tape on the tape drive. **Do not** press the **ON-LINE** switch.

6. Perform CE test 48 as follows:

**NOTE:** Test 48 sets up the compressor power-down timer for 1 minute if no tape motion has occurred.

- (a) While holding down the **CE** switch, press the **TEST** switch.

Response: The **DIAGNOSTICS** indicator lights and the display reads **00**.

- (b) Press the **STEP** switch until **04** appears on the display.

- (c) Press the **TEST** switch.

Response: Display reads **40**.

- (d) Press the **STEP** switch until the display increments from **40** to **48**.

- (e) In order to initiate the test, press the **EXECUTE** switch.

Response: Termination code **00** is displayed if test 48 is successful.

- (f) If a termination code other than **00** is displayed, seek technical assistance. Otherwise, continue with the next step.

7. Perform CE test 64 as follows:

**Note:** Test 64 determines the optimum write current level for all 9 tracks. The write currents are determined for 25 ips PE, 25 ips GCR, 75 ips PE, and 75 ips GCR. The values are stored in backup memory.

- (a) While holding down the **CE** switch, press the **TEST** switch.

Response: The **DIAGNOSTICS** indicator lights and the display reads **00**.

- (b) Press the **STEP** switch until **06** appears on the display.

- (c) Press the **TEST** switch.

Response: Display reads **60**.

- (d) Press the **STEP** switch until the display reads **64**.

- (e) Press the **EXECUTE** switch to run test 64. This test determines the optimum write current level for all nine tracks.

Response: The display reads **00** if the test is complete.

- (f) After test 64 completes, press the **RESET** switch.

8. Perform CE test 31 as follows:

**NOTE:** Test 31 sets up and checks read amplitudes at 25 and 75 ips. At 25 ips, it determines the minimum gain value for each track, and stores them in backup memory. It again determines the minimum gain value for each track and compares it to the previously stored value. If the difference in gain between the 2 values for any track is such that it causes an amplitude difference of 0.1 volt, the test is repeated. Also, if any fault is detected while determining the minimum gain values, the test is repeated. If, after 5 attempts, the operation is not successful, a fault is reported.

- (a) While holding down the **CE** switch, press the **TEST** switch.

Response: The **DIAGNOSTICS** indicator lights and the display reads **00**.

- (b) Press the **STEP** switch until **03** appears on the display.

- (c) Press the **TEST** switch.

Response: The display reads **30**.

- (d) Press the **STEP** switch until the display reads **31**.

- (e) Press the **EXECUTE** switch to start test 31. This test checks read amplitudes on successive tries and compares them.

Response: The display indicates **00** if the test is successful.

- (f) If the display did not indicate **00**, seek technical assistance. Otherwise, continue with the next step.

9. Maintain power on (do not power down) the tape drive while performing these final steps or else the test results will be lost and the tests will have to be repeated.

10. If previously moved, return the servo/control board jumper (W1) to its original position (pins 2-3).

11. Secure circuit boards to cage using top and bottom thumb screws.

**Results:** Manufacturer's tests performed and completed on tape drive.

12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.6: PERFORM OPERATIONAL TESTS ON *KEYSTONE*® III TAPE DRIVE

### OVERVIEW

The operational tests described in this procedure are for the *KEYSTONE*® III tape drive. This procedure must be performed each time before making office backup tapes which are written in the EXT format. This is the format used by GENBKUP to make office backup tapes. Failure to successfully complete these tests could cause tape read failures when the tapes are used to recover the system and could extend office outage time.

If any operational test fails, perform the manufacturer's tests in **Procedure 4.5**.

### PROCEDURE

1. Mount a scratch tape with a write ring on the tape drive but do not load the tape. (Do not press the **LOAD** switch).
2. Close the door and press the **TEST** switch on the panel.

Response: The **DIAGNOSTICS** indicator lights.  
The display panel shows **01**.

3. Press the **EXECUTE** switch.

Response: The display increments from **00**, **11**, **22** through **99**.  
At the same time, the **BOT**, **HIGH DENSITY**, **ON LINE**, and **RESET** indicators each light for approximately 5 seconds.  
After the lamp test is concluded, the lamps resume their proper state.  
Various read/write and servo tests are conducted for approximately 10 minutes.  
If all tests pass, the tape rewinds, unloads, and the display indicates **00**.

4. In the previous step, did all the indicated responses occur?

If **YES**, continue with the next step.

If **NO**, **DO NOT CONTINUE! Seek technical assistance.**

5. Press the **RESET** switch to clear the diagnostic results.

Response: The diagnostic results clear.

6. **NOTE:** The next test executes demand phase 5 on the magnetic tape controller (MTC).

Obtain the following items:

- A scratch tape.
- A 1-inch reflective tape marker [the same type used for a beginning of tape (BOT)].

7. **NOTE:** To avoid contamination, use a clean surface, desk, work table, etc., to unroll the scratch tape.

Unroll approximately (but not more than) 72 inches of scratch tape from the BOT.

8. Attach the 1-inch reflective tape on the back half of the tape, on the side opposite to the one the BOT is on, 50 inches from the BOT. This becomes the end of tape (EOT) and should be on the half of the tape next to the tape drive when the tape is mounted.
9. Attach the EOT and manually rewind the test tape.
10. Mount the test tape (with write ring) on the tape drive.
11. Press the **LOAD** switch.
12. After the tape is loaded, press the **ON-LINE** switch.
13. At the MCC video terminal, in order to create the test pattern used for the demand phase, type and enter:  
**COPY:TAPE:TEST,TD="/dev/mt00";**

Response:     **COPY TAPE TEST COMPLETED**  
                  **xxx**

Where:         **xxx** = Record counts.

**NOTE:** Unless these records are created for the test pattern, the demand diagnostic cannot be done.

14. At the MCC video terminal, in order to execute the demand phase 5 command, type and enter:  
**DGN:MTC=0:PH=5,MT=0;**

Response:     **ATP** is printed in response message.

15. Was **ATP** printed in the response message in the previous step?

If **YES**, continue with the next step.

If **NO**, **seek technical assistance.**

16. Mark and save this diagnostic test tape for future use.
17. At the MCC video terminal, in order to restore the magnetic tape controller (MTC), type and enter:  
**RST:MTC=0;**

Response:     **PF** followed by **RST:MTC** output message is printed.

18. A full set of office backup tapes using GENBKUP should now be made using the same type of tapes used for the previous tests.

**Results.** Operational Tests performed on tape drive.

19. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.7: PERFORM PERIODIC TESTS ON PDF CHARGE CIRCUIT

### OVERVIEW

This procedure tests the power distribution frame (PDF) charge circuit (CHG CKT). This procedure should be performed on a periodic basis to ensure operational capability.

It is important to verify the type of charge panel for the PDF cabinet. If the PDF cabinet is equipped with an ED-83024-30, G1 (2 amp) charge panel that contains the ED-82950-30, G1, A, B charge circuit module, follow Procedure A (Steps 1 through 4). If the PDF cabinet is equipped with an ED-83024-30, G5 or G6 (15 amp) charge panel that contains the ED-82950-G2 charge circuit module, follow Procedure B (Steps 1 through 5).

### PROCEDURE

1. Perform periodic tests on PDF charge circuit using the following subprocedures.
  - 4.7.1 — Procedure A (2AMP)
  - 4.7.2 — Procedure B (15AMP)

#### 4.7.1 Procedure A (2 AMP)

### OVERVIEW

**NOTE:** Before performing this procedure, refer to the OVERVIEW, Section 4.7 .

1. At the PDF, remove the capacitor charge probe **CAP CHG** from the control panel.
2. Place the tip of the **CAP CHG** probe anywhere on bare metal framework and PRESS HARD ENOUGH FOR THE TIP OF THE PROBE TO PARTIALLY RECESS INTO THE PROBE HANDLE.
3. While the probe is recessed, press and hold the **CAP CHG TEST** button for approximately 10 seconds and observe that the **CAP CHG** light-emitting diode (LED) [red] remains lighted.
  - (a) If the **CAP CHG** LED (red) remains lighted only momentarily, it may be a defective **CAP CHG** probe.
  - (b) If the control fuse blows, the charge circuit pack is defective.
  - (c) If neither 3(a) nor 3(b) occurs, the **CAP CHG** probe is functioning properly.
4. Remove the **CAP CHG** probe from the PDF's bare metal framework, and place it back in the holder of the control panel.

**Results:** PDF Charge Circuit tested with good results, or take action to correct any defects found with the probe or circuit pack.

#### 4.7.2 Procedure B (15AMP)

### OVERVIEW

**NOTE:** Before performing this procedure, refer to the OVERVIEW, Section 4.7 .

1. **CAUTION:** Remove only a filter fuse in this step, not a load fuse. At the PDF, remove filter fuse one (FF1 location such as upper, center, and left) from the first equipped filter fuse panel. Wait approximately 10 seconds for the capacitor to discharge and the filter fuse LED (red) to light (DS2.2).

**NOTE:** Removal of the filter fuse will result in a minor alarm.

2. At the PDF, remove the capacitor charge probe **CAP CHG** from the control panel.
3. Insert the **CAP CHG** in the vacated filter fuse position. Push and twist the probe clockwise to lock it in place.
4. Press and hold the **CAP CHG TEST** button and observe the control panel for the following:
  - (a) The **CAP CHG** LED (red) does not go out.
  - (b) The **CHG CKT** fuse blows.
  - (c) On the filter fuse panel, the filter fuse LED does not go out.

If 4(a), 4(b), or 4(c) occurs, replace the charge circuit module (ED-83024-30, G5 or G6). Repeat Steps 1 through 4 with the new charge circuit module. If this did not correct the problem, the charge probe may need to be replaced. (Contact a qualified service representative.) To bring the filter fuse capacitor back on line in absence of a working charge circuit, obtain at least four (4) of the filter fuses (KS-19780, L26). Insert one of these fuses into the FF1 holder. If the DS2.2 LED does not go out, quickly remove the fuse and replace it with another. Repeat this procedure until the DS2.2 LED goes out. If 4(a), 4(b), or 4(c) does not occur, the capacitor charge circuit is functioning properly.

5. Remove the charge probe from the filter fuse holder (FF1) and quickly reinsert the filter fuse. Replace the charge probe in its holder on the control panel.

**Results:** PDF Charge Circuit tested with good results, or corrective action to correct any defects found with the probe or circuit pack must be taken.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 4.8: IDENTIFY PATH TO BE NAILED UP/INSTALL CHANNEL UNIT

### OVERVIEW

The remote digital terminal (RDT) channel unit which is to be nailed up can reside in any systems which conform to the TR08 or TR303 specification. Lucent RDT products which conform to these specifications are *SLC*<sup>®</sup> 96 carrier system (TR08), *SLC* series 5 carrier system (TR08/TR303), and *SLC*-2000 carrier system (TR08/TR303).

The T1 facilities from the *SLC* carrier system can be connected to either a digital carrier line unit (DCLU) or an integrated digital carrier unit (IDCU).

The connection will be nailed up through the *5ESS*<sup>®</sup>-2000 switch to either a digital line trunk unit (DLTU) or a trunk unit (TU). The DLTU or TU will pass the connection to a foreign exchange for handling.

If a channel unit is already defined for the slot picked for the nailup, and if the channel unit is not the type required for the nailup, then the line using this channel unit must be deleted before the channel unit is added/installed.

### PROCEDURE

1. Identify the channel unit slot in the RDT which will be used for the nailed-up connection. A foreign-exchange-subscriber/loop-start (FXS/LS) channel unit will need to be inserted later into this slot. The office which will act as the foreign exchange should be equipped with a corresponding foreign-exchange-office/loop-start (FXO/LS) channel unit.
2. Identify the digital facility interface (DFI) channel in the DLTU (or the circuit in the TU) which will be used to provide the path to the foreign exchange. If a DFI is used, it must be an ANN3B type.
3. Determine the two equipment numbers.

For the IDCU and software releases prior to 5E10 with a line size equal to or less than 96, the equipment number is of the following format:

**M sssircc**

Where:

- sss** = Switching module (SM) number
- i** = IDCU number
- rr** = Remote terminal (that is, *SLC* carrier) number
- cc** = Channel number.

For the IDCU and software releases prior to 5E10 and RDTs of any line size, the equipment number is of the following format:

**G sss-i-rr-cccc**

Where:

- sss** = Switching module (SM) number
- i** = IDCU number
- rr** = Remote terminal (that is, *SLC* carrier) number
- cccc** = Channel number.

For the IDCU and software releases 5E10 and later and RDTs of any line size, the equipment number is of the following format:

**G sss-ii-rr-cccc**

Where:        **sss** = Switching module (SM) number  
              **ii** = IDCU number  
              **rr** = Remote terminal (that is, SLC carrier) number  
              **cccc** = Channel number.

For the DCLU, the equipment number is of the following format:

**S sssdrcc**

Where:        **sss** = SM number  
              **d** = DCLU number  
              **rr** = Remote terminal (that is, SLC carrier) number  
              **cc** = Channel number.

For the DLTU, the equipment number is of the following format:

**D sss-t-dd-cc**

Where:        **sss** = SM number  
              **t** = DLTU number  
              **dd** = DFI number  
              **cc** = Channel number.

For the TU, the equipment number is of the following format:

**T sss-t-s-b-c**

Where:        **sss** = SM number  
              **t** = TU number  
              **s** = Service group number  
              **b** = Circuit board number  
              **c** = Circuit number.

**Results:** Path to be nailed up identified and channel unit defined in previous procedure can be installed into the selected SLC carrier slot.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 4.9: IMPLEMENT NAILUP TERMINATING AT REMOTE TERMINAL****PROCEDURE**

1. Identify the path to be nailed up and install the channel unit in the remote terminal.

Reference: **Procedure 4.8**

2. If the remote terminal is connected to a digital carrier line unit (DCLU), then provision the channel unit in the DCLU or if the remote terminal is connected to an integrated digital carrier unit (IDCU), then provision the channel unit in the IDCU.

Reference: **Procedure 4.10**

3. If SLC® series 5 carrier system is being used, then continue with Step 4.  
If SLC-2000 access system is being used, then go to Step 5.  
If SLC 96 carrier system is being used, then go to Step 6.

4. Provision the SLC series 5 carrier system.

This procedure must be performed at the remote terminal (RT) and is defined in 363-205-402, *SLC Series 5 Carrier System, Channel Units, Installation Tests (TOP)*.

5. Provision the SLC-2000 access system.

This procedure must be performed at the remote terminal (RT) and is defined in 363-208-001, *SLC-2000 Access System, User/Service Manual*.

6. Set up nail-up connection.

Reference: **Procedure 4.11**

7. Verify the nailup.

Reference: **Procedure 4.12**

**Results:** Nailup implemented, terminating at remote terminal.

8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.10: PROVISION CHANNEL UNIT IN DCLU/IDCU

### OVERVIEW

For administrative purposes, the foreign-exchange-subscriber/loop-start (FXS/LS) channel unit should be grown as an FXSLS type, and the foreign-exchange-office/loop-start (FXO/LS) channel unit should be grown as an SSV00 type.

Since many channel units provide two channels, each channel slot is labeled with two channel numbers. When a 1-channel channel unit is placed into one of these slots with two channel numbers, the one channel will be referenced by the *odd* channel number. The FXS/LS and FXO/LS channel units provide only one channel and therefore always have an *odd* channel-unit number.

### PROCEDURE

1. At the recent change and verify (RC/V) terminal, begin an RC/V session by typing and entering the following command: **RCV:MENU,APPRC;**

Response: The main RC/V menu is displayed.

2. If for DCLU, type and enter **18.11u**  
If for IDCU, type and enter **18.15u**

Response: The **REMOTE TERMINAL EQUIPMENT (DCLU-SLC)** view is displayed.  
or  
The **REMOTE TERMINAL EQUIPMENT (DCLU-SLC)** view is displayed.

3. If DCLU, type and enter the switching module (SM), the digital carrier line unit (DCLU), and the remote terminal (RT) numbers. The remaining fields are filled in.

If IDCU, type and enter the switching module (SM), the integrated digital carrier unit (IDCU), and the remote terminal (RT) numbers. The remaining fields are filled in.

4. For DCLU, type and enter **2** to get to Page 2.  
For IDCU, type and enter **3** to get to Page 3.

**NOTE:** The menu defining the types of channel units equipped and not equipped in the various slots is displayed.

5. Type and enter **C** to provide the definition of one of these channel unit types.

Response: The *CHANGE FIELD* prompt is displayed.

6. Type and enter the field number of the slot identified in **Procedure 4.8**.

Response: The cursor moves to this field.

7. Type and enter **SSV00** (for FXO/LS) or **FXSLS** (for FXS/LS).

Response: The *CHANGE FIELD* prompt is displayed.

8. Press RETURN key.

The *ENTER COMMAND* prompt is displayed.

9. Type and enter **U** to update the office-dependent data (ODD).

Response: The **FORM UPDATED** is displayed in the upper right-hand corner of the screen.

10. Type and enter **<** to back up one level.

**Results:** The DCLU or IDCU channel unit provisioned.

11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.11: SET UP NAIL-UP CONNECTION

### PROCEDURE

1. If the nail-up connection is for a trunk circuit, then remove the trunks from service, using the following commands, otherwise, go to Step 2.

**RMV:TRK,DEN=a-b-c-d[,UCL];**  
**RMV:TRK,TEN(a,b,c,d,e[,UCL];**

Where:

- a** = Switching module (SM) number
- b** = Digital line and trunk unit (DLTU) number or the trunk unit (TU) number
- c** = Digital facility interface (DFI) number
- or
- c** = Service group number
- d** = Channel on the remote terminal (RT)
- or
- d** = Channel board number
- e** = Circuit number.

Response: The trunks will be removed from service.

2. At recent change and verify (RC/V) terminal, begin an RC/V session by typing and entering the following command: **RCV:MENUP,APPRC;** .

Response: The main RC/V menu appears.

3. Type and enter: **7.11i**

Response: **NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed.  
 Cursor at PORT1 attribute.

4. Type in the data as shown in Figure 4.11-1 .

Where: x xxxxxxxx and y yyyyyyyy are the equipment numbers determined in **Procedure 4.8** .

Response: The ENTER COMMAND prompt is displayed.

---

```

                                5ESS(R) SWITCH
                                RECENT CHANGE 7.11
                                NAIL-UP AND HAIRPIN SPECIFICATION

CONTROLLING PORT                NON-CONTROLLING PORT                FOR BOTH PORTS
*1. C OE                        x xxxxxxxx__ #12. NC OE                y yyyyyyyy__ #23. SIGMODE
4. C LOSS                        0.0          15. NC LOSS                0.0          24. HAIRPIN  N
5. C INIT SIG 01__              16. NC INIT SIG 01__          25. DDS      N
6. C FINAL SIG 01__            17. NC FINAL SIG 11__          26. PATH NUM 1
7. C TRWRD                      UAC          18. NC TRWRD                UAC          27. DSC NUM  _

```

8. C ZCS	Y	19. NC ZCS	Y
9. C PATH1 DS1	___	20. NC PATH1 DS1	___
10. C PATH1 DS0	___	21. NC PATH1 DS0	___
11. C PATH2 DS0	___	22. NC PATH2 DS0	___

---

**Figure 4.11-1 Recent Change View 7.11 and Input Data**

5. Type and enter **i** to update office-dependent data (ODD).

Response: **inserting....FORM INSERTED** is displayed in the upper right-hand corner of the screen.

6. Type and enter **<**

Response: **7.0** page displayed.

7. If the nail-up connection is for a trunk circuit, then restore the trunks to service using the following commands, otherwise go to Step 8.

**RST:TRK,DEN=aaa-b-cc-dd[,UCL];**  
**RST:TRK,TEN(aaa,b,c,d,e[,UCL];**

Response: The trunks will be restored to service.

8. **Results:** The Nailed-Up connection set up.

**NOTE:** If desired, verify the nail-up connection using **Procedure 4.12**.

Return to the procedure that directed you here.

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 4.12: VERIFY THE NAILED-UP CONNECTION****PROCEDURE**

1. At the master control center (MCC), type and enter:  
**TRC:UTIL,ILEN=s-i-r-c;**  
[for a connection through the integrated digital carrier unit (IDCU)]  
or  
**TRC:UTIL,LEN=s-d-r-c;**  
[for a connection through the digital carrier line unit (DCLU)]

Where:

- s** = Switching module (SM) number
- i** = IDCU number
- d** = DCLU number
- r** = Remote terminal (that is, SLC carrier) number
- c** = Channel number.

Response: The status of the nailed-up connection is displayed on the MCC terminal and printed on the receive-only printer (ROP).

**Results:** The Nailed-Up connection verified.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## **Procedure 4.13: IMPLEMENT TRUNK-TO-TRUNK NAILUP FOR INTRA-OFFICE APPLICATION**

### **PROCEDURE**

1. Identify trunks to be nailed up.

Reference:     **Procedure 4.14**

2. Is connection to be set up using ABCD (FE - extended framing) signaling mode?

If yes, continue with Step 3.

Otherwise, go to Step 4.

3. Recent change digital facility interface (DFI) to ABCD sigmode.

Reference:     **Procedure 4.15**

4. Set up nail-up connection.

Reference:     **Procedure 4.11**

5. Verify nail-up connection.

Reference:     **Procedure 4.12**

**Results:** Trunk-to-Trunk nailup for intra-office application(s) implemented.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.14: IDENTIFY TRUNKS

### OVERVIEW

**NOTE:** The trunk ports to be nailed up may exist on a digital line trunk unit (DLTU), a trunk unit (TU), or a trunk unit channel board (TUCHBD). If the trunk is on a DLTU, the digital facility interface (DFI) to be used **MUST** be an ANN3B type.

### PROCEDURE

1. Identify target trunks for each port of the connection.
2. Determine the PORT names of the selected channels.

**EXAMPLE:**

**Daaabccdd** may be a PORT name.

Where:        **aaa** = Switching module (SM) number  
              **b** = DLTU number  
              **cc** = DFI number  
              **dd** = Channel on the DFI.

**EXAMPLE:**

**Taaabcde** may be a PORT name.

Where:        **aaa** = SM number  
              **b** = Trunk unit number  
              **c** = Service group number  
              **d** = Channel board number  
              **e** = Circuit number.

**Results:** Trunks identified.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 4.15: RECENT CHANGE DFI TO ABCD SIGMODE****PROCEDURE**

1. Remove the digital facility interface(s) [DFI(s)] from service: **RMV:DFI=aaa-b-cc[,UCL];**

Response: The DFI(s) will be removed from service.

2. At recent change and verify (RC/V) terminal, type and enter: **RCV:MENU:APPRC;**

Response: The main menu is displayed.

3. Type and enter **20.4u** to update signaling mode of a digital line and trunk unit (DLTU) DFI.

Response: The view is displayed.

4. Type and enter the switching module (SM), DLTU, and DFI numbers.

5. After the form has been filled in, type and enter the number for the signaling mode field.

**NOTE:** The value of the change level indicator (CLI) field should be 3 when the screen fills. This indicates an ANN3B DFI.

Response: Cursor goes to field to be changed.

6. Type and enter **FE** for **ABCD** signaling mode.

7. Hit **CARRIAGE RETURN**.

8. Type and enter **U** in order to update the recent change view.

Response: **FORM UPDATED** displayed in the upper right-hand corner of the screen.

9. Repeat procedure for other DFI, if necessary.

10. Restore the DFI(s) to service: **RST:DFI=aaa-b-cc,ucl;**

Response: The DFI(s) will be restored to service.

11. **NOTE:** At this point, the DFIs have been successfully installed and updated in recent change.

12. Return to the procedure that directed you here.

**Results:** The recent change DFI to the ABCD SIGMODE, updated.

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.16: AMA TELEPROCESSING EMERGENCY TAPE WRITING PROCEDURE (FOR 9-TRACK)

### OVERVIEW

**NOTE 1:** This procedure is to be used only as part of **Procedure 4.2** and not as a stand-alone procedure.

**NOTE 2:** For specific information on the 5ESS®-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

**NOTE 3:** For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120, *Very Compact Digital Exchange User's Guide*.

**NOTE 4:** If there is no DAT drive on MT 0 then 9-track tape writing for AMA is supported on both MT 0 and 1 for medium density [1600 bits per inch (bpi)] tapes. Otherwise the 9-track is only supported on MT 1. Both AMA streams ST1 and ST2 support either MT.

A failure in an automatic message accounting (AMA) data link could result in a loss of revenue due AMA disk being full. This procedure explains how to convert from AMA teleprocessing to tape processing, extract the AMA data to tape, and return to AMA teleprocessing.

### PROCEDURE

1. At the master control center (MCC), type and enter:  
**OP:AMA:CONTROLFILE[a];**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response: AMA option field should read **IS TELEPROCESSING**

2. At the MCC, type and enter: **SET:AMA:CONTROL[: a],OPTION=TAPE;**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

3. At the MCC, type and enter: **OP:AMA:CONTROLFILE [a];**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2;

however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response: AMA option field should now read **IS TAPE**

4. At the MCC, type and enter: **ALW:AMA:SESSION**, a;

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response: Data Transfer field should read **DATA TRANSFER IS NOT MANUALLY INHIBITED**

5. Mount a new AMA tape (1600 bpi) on tape drive with write-enable ring attached. Tapes with headers should be supplied by the accounting center. See Procedure 4.3, Mount and Verify AMA Tape, in this document.

6. At the MCC, type and enter: **CPY:AMATAPE:PRIM,MT= a,b;**

Where: a = Tape Drive number  
b = ST1 if AMA data goes to ST1 data stream and ST2 if data goes to ST2 data stream.

7. Was the tape termination message **REPT AMATAPE COMPLETE** seen on the ROP?

If **YES**, continue with Step 8.

If **NO**, repeat from Step 5.

8. Remove AMA tape from the tape drive and label with the following:

Date  
Time Written  
Start Block  
End Block.

**NOTE:** Alternatively, the previous information can be obtained from **OP:AMA SESSION**; when the session is complete. The information will indicate the session is a PREVIOUS session and the time stamps for the session should be about the time when the session took place. The equivalent information will be listed in the following fields:

Start Time  
First Block  
Last Block

9. At the MCC, type and enter: **OP:AMA:DISK**, a;

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response 1: **REPT AMA DISK SUMMARY  
PERCENT ON DISK NOT KNOWN  
THERE COULD BE PRIMARY AMA BLOCKS IN USE ON DISK**

Response 2: **REPT AMA DISK SUMMARY  
DISK IS CURRENTLY 0 PER CENT FULL  
NUMBER OF PRIMARY AMA BLOCKS IN USE IS APPROXIMATELY : 0**

10. At the MCC, type and enter: **OP:AMA:CONTROLFILE, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response: AMA option field should now read **IS TAPE**

11. At the MCC, to set the control file back to teleprocessing, type and enter: **SET:AMA:CONTROL:a  
,OPTION=TP;**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

**NOTE:** This command will allow automatic teleprocessing to resume when the data link is restored.

12. At the MCC, type and enter: **OP:AMA:CONTROLFILE, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

Response: AMA option field should read **IS TELEPROCESSING**  
Data Transfer field should read **IS NOT MANUALLY INHIBITED**

13. At the MCC, type and enter: **ALW:AMA:SESSION, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream and ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a *single-data-stream office*, the stream does not have to be specified as either an ST1 or ST2; however, for a *dual-stream office*, the stream **must** be specified as either an ST1 or ST2.

14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 4.17: PROVISION NAILUP/HAIRPIN CONNECTIONS IN IDCU/DCLU****PROCEDURE**

1. To establish a connection through the integrated digital carrier unit (IDCU), at the master control center (MCC), type and enter: **TRC:UTIL,ILEN=s-i-r-c;**

Where:            **s** = Switching module (SM) number  
                     **i** = IDCU number  
                     **r** = Remote terminal (that is, SLC carrier) number  
                     **c** = Channel number.

Response:        The status of the nailed-up connection is displayed on the MCC terminal and printed on the receive-only printer (ROP).

To establish a connection through the digital carrier line unit (DCLU), at the MCC, type and enter:  
**TRC:UTIL,LEN=s-d-r-c;**

Where:            **s** = Switching module (SM) number  
                     **d** = DCLU number  
                     **r** = Remote terminal (that is, SLC carrier) number  
                     **c** = Channel number.

Response:        The status of the nailed-up connection is displayed on the MCC terminal and printed on the ROP.

2. If the output of the **TRC:UTIL** command indicates that the nailed-up connection is not established, determine if the ports are in-service. If the ports are not in-service, determine why the ports are out-of-service, and take action to restore the ports to service.
3. If the output of the **TRC:UTIL** command for an ILEN indicates that the nailed-up connection is established but a connection between the two ports does not seem to exist, repeat **Procedure 4.13**, if this connection involves a SLC series 5 carrier system.
4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.18: PERFORM MANUFACTURER'S TESTS ON KS-23909, L21 SCSI 9-TRACK TAPE DRIVE

### OVERVIEW

The tests performed in this procedure will verify the operation of the KS-23909, L21 SCSI 9-Track tape drive. These tests are internal drive tests. Users of this procedure should refer to *KS-23909, L(30) INFORMATION MANUAL FOR THE KS-23909 1600/6250 CPI RECORDER (with SCSI Interface)* for a detailed list and description of these tests.

**CAUTION:** Make sure that no tape transactions are in progress to the drive to be tested before starting this procedure.

### PROCEDURE

1. Perform Manufacturer's Tests on KS-23909, L21 SCSI 9-Track Tape Drive running a Drive Internal Diagnostic Test.
2. Switch off the drive by turning off the Power Switch on the drive.
3. Switch on the drive and let the "power on" test complete.
4. Load a write enabled (write enable ring installed) "scratch" tape.
5. Close the drive door.
6. After the drive positions the tape at BOT, take the drive OFFLINE (press **ONLINE** key if necessary).
7. Press **OPTION** key.

Response: **TEST \*** appears in the display.

8. Press **ENTER** key.
9. Bring the test number of the desired test into the display by pressing **NEXT** key or **PREV** key.
10. Press **ENTER** key.

Response: The display prompts **ONCE \***, asking if the test is to be run only once. If the test is to be run more than once (perhaps checking for intermittent problems), use **NEXT** key and **PREV** key to display other choices which are 10 times, 100 times, 1000 times, or loop (run continuously until **RESET** key is pressed).

11. Press **ENTER** key to run the test.

Response: The drive displays the RUN test number, indicating which individual test in the sequence is running.

**NOTE:** To abort a test, press **RESET** key while the test is running. Press **RESET** key one more time to return to the Option Select level (**TEST \*** appears in the display).



12. When the test is complete, either **PASS** test number or **FAIL** test number is displayed.

If the test passed and the test is to be repeated or another test is to be selected, press **ENTER** key or **RESET** key. The display will return to the level that displays the test number.

If the same test is to be selected, repeat Step 9.

If another test is to be selected, use the **NEXT** and **PREV** keys.

13. If the test fails, press **ENTER** key to display the error that caused the failure. Refer to *KS-23909, L(30) INFORMATION MANUAL FOR THE KS-23909 1600/6250 CPI RECORDER (with SCSI Interface)* for information on error codes and/or seek technical assistance.
14. Press **RESET** key 3 times to completely exit through the test selection and Option Select levels.
15. Press **OPTION** key or **RESET** key to leave the option mode.

**STOP. THE MANUFACTURER'S TESTS HAVE BEEN PERFORMED AND COMPLETED ON THE TAPE DRIVE.**

## Procedure 4.19: PERFORM MANUFACTURER'S TESTS ON KS-23909, L10 SCSI 9-TRACK TAPE DRIVE

### OVERVIEW

The tests performed in this procedure will verify the operation of the KS-23909, L10 SCSI 9-Track tape drive. These tests are internal drive tests. Users of this procedure should refer to *KS-23909, L(40) INFORMATION MANUAL FOR THE KS-23909 1600/6250 CPI RECORDER (with SCSI Interface)* for a detailed list and description of these tests.

**CAUTION:** Make sure that no tape transactions are in progress to the drive to be tested before starting this procedure.

### PROCEDURE

1. Perform Manufacturer's Tests on KS-23909, L10 SCSI 9-Track Tape Drive running a Drive Integrity Diagnostic Test.
2. Switch off the drive by turning off the Power Switch on the drive.
3. Switch on the drive.

Response: After several seconds the display panel should indicate **TESTING**, then **LOCATING**, and finally **NO TAPE**. Otherwise, refer to *KS-23909, L(40) INFORMATION MANUAL FOR THE KS-23909 1600/6250 CPI RECORDER (with SCSI Interface)* for fault messages.

4. Load a write enabled (write enable ring installed) "scratch" tape. Press **LD/ONL** switch to load the tape.
5. With the scratch tape loaded, press **RESET** to place drive "off-line", then press **DIAG** key.

Response: The display should indicate **TEST 00**.

6. Operate the **UNITS** button to set display to **TEST 01**.
7. Press **RUN/STOP** key once.

Response: The tests run for several minutes, after which a pass is denoted by **PASS 98** (where 98 is the last test program in the preset test program stack).

A test failure is denoted by a message of the form **F29 Er01**. The **ENTER** key may be pressed to indicate the current density and speed (that is, **6250 Hi**), but to continue running the program, the **DIAG** key must then be pressed to skip the error, and then the **RUN/STOP** key. Refer to *KS-23909, L(40) INFORMATION MANUAL FOR THE KS-23909 1600/6250 CPI RECORDER (with SCSI Interface)* for information on error codes and/or seek technical assistance.

8. This test is a check of drive integrity, including writing data to the tape. When this test has passed, the drive is ready for on-line use.
9. To remove tape from tape drive or cancel test, press **DIAG** key, then press **RWD/UNL** key.

10. **STOP. THE MANUFACTURER'S TESTS HAVE BEEN PERFORMED AND COMPLETED ON THE TAPE DRIVE.**

## Procedure 4.20: PERFORM OPERATIONAL TESTS ON SCSI 9-TRACK AND DAT DRIVES

### OVERVIEW

The operational tests described in this procedure are for the small computer system interface (SCSI) 9-Track and digital audio tape (DAT) drives. This procedure must be performed each time before making office backup tapes. Failure to successfully complete these tests could cause tape read/write failures, which, when these tapes are used to recover the system, may result in recovery failure.

### PROCEDURE

1. Insert a write-enabled tape (write-enable ring installed on the back of a 9-track tape reel, or write protect tab pushed to closed position on the rear of the cassette of a DAT drive) into the tape drive.
2. If this is a DAT drive continue with Step 3.

Bring the 9-track tape drive on-line by pressing **LD/ONL** key on KS-23909, L10 tape drive or KS-23909, L21 tape drive so that an **ONLINE** indication is displayed on drive's front panel.

3. At the MCC terminal, enter: **DGN:MT=x**

Where: x = the number of the MT brought on-line.

This step runs the nondemand phase diagnostics on the tape drive. Successful diagnostic completion yields the following response:

Response: **DGN MT x ATP MESSAGE COMPLETE**

4. Was **ATP** printed in the response message in the previous step?

If **YES**, continue with Step 5.

If **NO**, seek technical assistance.

5. At the MCC terminal, enter: **DGN:MT=x:PH=90,TLP**

Where: x = the MT being tested.

This step verifies read/write of blocked data to tape. Successful completion of this step will yield the following response:

Response: **DGN MT x ATP MESSAGE COMPLETE**

6. Was **ATP** printed in the response message in the previous step?

If **YES**, continue with Step 7.

If **NO**, was the media write protected?

If **YES**, go back to Step 1.

If **NO**, seek technical assistance.

7. Make the tape media write-protected (remove write-enable ring on back of a 9-track tape reel, or push the write-protect tab to open position on the rear of the DAT drive cassette), and insert into the tape drive.
8. If this is a DAT drive continue with Step 9.

Verify that the 9-track tape drive is on-line (as in Step 2).

9. At the MCC terminal, enter: **DGN:MT=x:PH=91,TLP**

Where:            x = the MT being tested.

This step verifies the write protection mechanism of the tape drive. Successful completion of this step will yield the following response:

Response:        **DGN MT x ATP MESSAGE COMPLETE**

10. Was **ATP** printed in the response message in the previous step?

If **YES**, continue with Step 11.

If **NO**, was the media write-enabled?

                    If **YES**, go back to Step 7.

                    If **NO**, seek technical assistance.

11. At the MCC terminal, enter: **RST:MT=x**

Where:            x = the MT that was tested.

Response:        **RST MT x COMPLETED**

12. A full set of office backup tapes using GENBKUP should now be made using the same type of tapes used for the previous tests.

**STOP. OPERATIONAL TESTS HAVE BEEN PERFORMED ON THE SCSI 9-TRACK TAPE OR DAT DRIVES.**

## Procedure 4.21: PERFORM MANUFACTURER'S TESTS ON NCR006-3503341 and NCR006-3300608 SCSI DAT DRIVE.

### OVERVIEW

The internal drive tests performed in this procedure verifies the operation of the Small Computer System Interface (SCSI) Digital Audio Tape (DAT) drive:

SCSI DAT DRIVE	CIRCUIT PACK
NCR006-3503341	UN376, UN376B (Figure 4.21.1-1 ).
NCR006-3300608	UN376C

During powerup of the circuit pack, the drive executes a self-test diagnostic sequence which is indicated by the following LED (light emitting diode) status:

Configuration		Cassette Indicator	Drive Indicator
Self Test	UN376,B UN376C	Flashing Amber Pulse Green	Flashing Amber Off
Self Test Complete	UN376,B UN376C	Green Green	Green Off
Self Test Failure	UN376,B UN376C	Flashing Amber Green	Amber Alternating Flashing Green and Amber

Should the self-test fails, seek technical assistance.

**CAUTION:** Ensure that there are no tape transactions in progress to the drive to be tested before starting this procedure.

### PROCEDURE

1. Perform Manufacturer's Tests on NCR006-3503341 and NCR006-3300608 SCSI DAT Drive.

## Procedure 4.21.1: Drive Power-on Diagnostic Tests

### PROCEDURE

1. Insert a write-enabled (write-protect tab pushed to closed position) on the rear of the cassette of the DAT drive, Figure 4.21.1-2 ) "scratch" tape into the DAT drive.

2. Is the circuit pack **OOS** LED off?

If **NO**, continue with the next step.

If **YES**, press the **ROS/RST** switch to the **ROS** position.

Response: The **OOS** LED should come on after a few seconds.

3. Pull the circuit pack halfway out of the card cage.
4. Push the circuit pack back in all the way.

Response: The DAT drive and cassette indicators will begin flashing, indicating that the drive's power-on diagnostics are in progress.

5. After the diagnostics complete, did the appropriate drive LEDs become steady green indicating the diagnostic tests passed?

If **YES**, continue with the next step.

If **NO**, repeat from Step 4. In case of failure again, seek technical assistance.

6. Press the **ROS/RST** switch to **RST** position to restore the drive to the **ACT** state.
7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

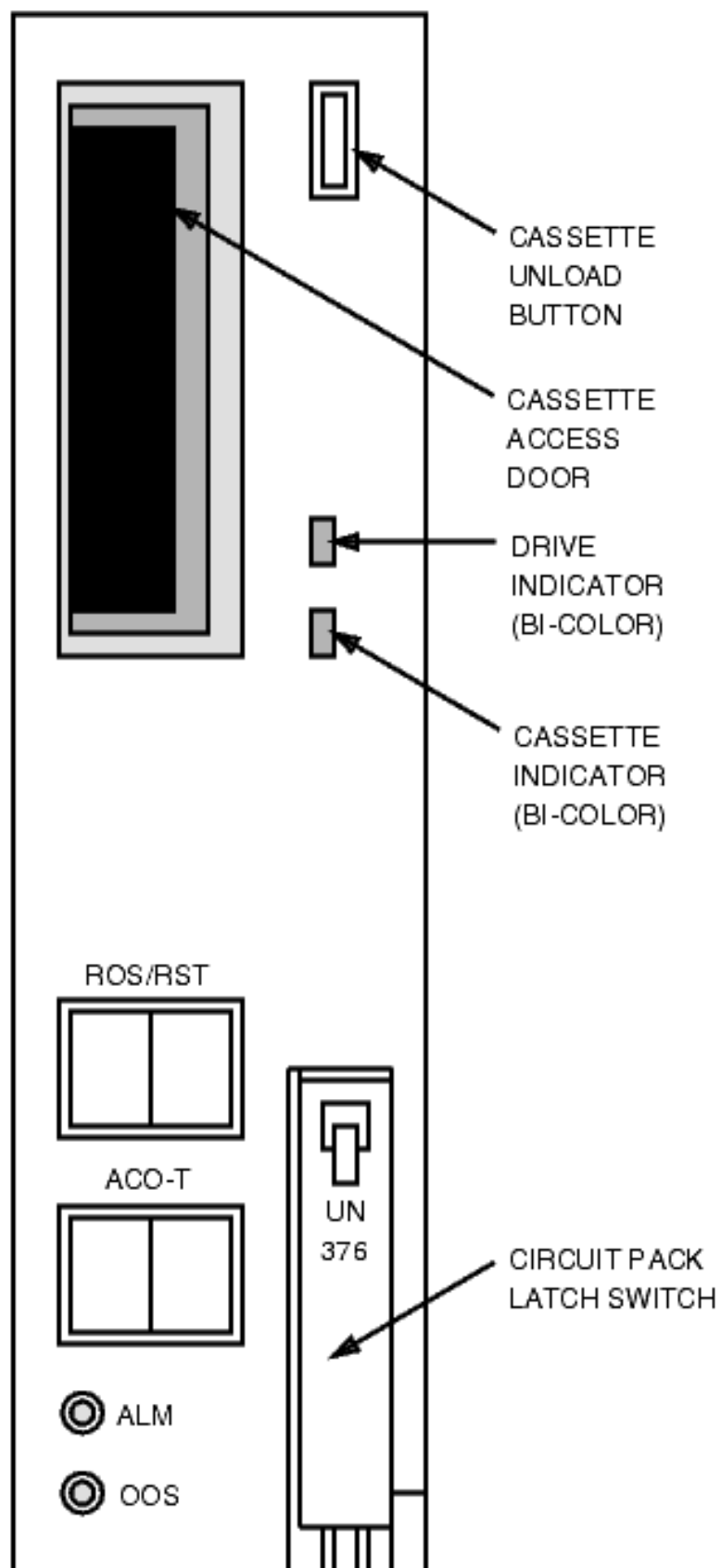




Figure 4.21.1-1 SCSI DAT Drive Circuit Pack, Front View [UN376,B (NCR006-3503341) or UN376C (NCR006-3300608)]

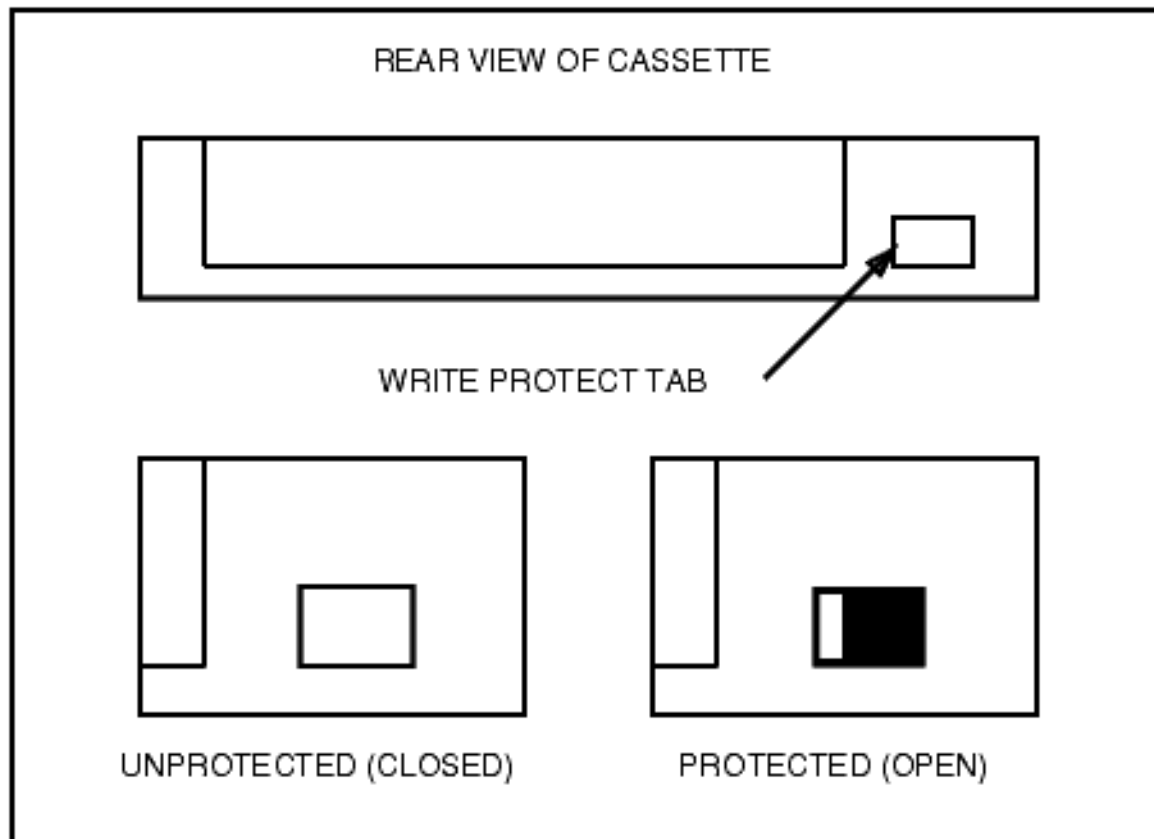


Figure 4.21.1-2 Cassette Write Protect

## Procedure 4.22: AMA TELEPROCESSING EMERGENCY TAPE WRITING PROCEDURE (FOR DAT)

### OVERVIEW

**NOTE 1:** For specific information on the 5ESS-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

**NOTE 2:** For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120, *Very Compact Digital Exchange User's Guide*.

A failure in an automatic message accounting (AMA) data link could result in a loss of revenue due to the AMA disk being full. This procedure explains how to convert from AMA teleprocessing to tape processing, extract the AMA data to tape, and return to AMA teleprocessing.

### PROCEDURE

1. At the MCC, type and enter: **OP:AMA:CONTROLFILE,a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to ST2 data stream.

**Note:** For a single-data-stream office, the stream does not have to be specified as either ST1 or ST2; however, for a dual-stream office, the stream must be specified as either an ST1 or ST2.

Response: AMA option field should read **IS TELEPROCESSING**

2. At the MCC, type and enter: **SET:AMA:CONTROL:a,OPTION=TAPE;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

3. At the MCC, type and enter: **OP:AMA:CONTROLFILE,a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

Response: AMA option field should now read **IS TAPE**

4. At the MCC, type and enter: **ALW:AMA:SESSION,a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

Response: Data Transfer field should read: **DATA TRANSFER IS NOT MANUALLY INHIBITED**

5. Mount and verify a new, write-enabled AMA tape in the DAT tape drive. See Mount and Verify DAT AMA

Tape, **Procedure 4.24** . Tapes with headers should be supplied by the accounting center.

6. At the MCC, type and enter: **CPY:AMATAPE:PRIM,MT=a, b;**

Where: a = Tape drive number. b = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

7. Is the response in Step 6 as follows?

**REPT AMA CONTROL FILE FOR STREAM a**  
**NORMAL TERMINATION--MORE DATA TO BE WRITTEN**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

If **YES**, continue with next step.

If **NO**, go to Step 11.

8. Wait until the green LED stops flashing and a **REPT AMATAPE COMPLETE FOR STREAM a** message is printed, remove tape from drive using the Unload Tape from DAT Tape Drive, **Procedure 4.25** .
9. Label the AMA tape cartridge with the following:

Date  
Time Written  
Start Block  
End Block.

**NOTE:** Alternately, the previous information can be obtained from **OP:AMA:SESSION**; when the session is complete. The information will indicate the session is a PREVIOUS session. The time stamps for the session should be about the time the session took place. The equivalent information will be listed in the following fields:

Start Time  
First Block  
Last Block

10. Go to Step 6.

11. Is the response from Step 6 as follows?

**REPT AMA CONTROL FILE FOR STREAM a**  
**NORMAL TERMINATION--NO MORE DATA**  
or  
**REPT AMA CONTROL FILE FOR STREAM a**  
**NORMAL TERMINATION-- MORE DATA REQUESTED THAN AVAILABLE**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

If **YES**, continue with next step.

If **NO**, seek technical assistance.

12. Wait until the green LED stops flashing and a **REPT AMATAPE COMPLETE FOR STREAM** a message is printed, then remove the tape from drive using the Unload Tape from DAT Tape Drive, **Procedure 4.25**.
13. Label the AMA tape cartridge with the following:

Date  
Time Written  
Start Block  
End Block.

**NOTE:** Alternately, the previous information can be obtained from **OP:AMA:SESSION**; when the session is complete. The information will indicate the session is a PREVIOUS session. The time stamps for the session should be about the time the session took place. The equivalent information will be listed in the following fields:

Start Time  
First Block  
Last Block

14. At the MCC, type and enter: **OP:AMA:DISK, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

Response 1: **REPT AMA DISK SUMMARY  
PERCENT ON DISK NOT KNOWN  
THERE COULD BE PRIMARY AMA BLOCKS IN USE ON DISK**

Response 2: **REPT AMA DISK SUMMARY  
DISK IS CURRENTLY 0% FULL  
NUMBER OF PRIMARY AMA BLOCKS IN USE IS APPROXIMATELY: 0**

15. At the MCC, type and enter: **OP:AMA:CONTROLFILE, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

Response: AMA option field should now read **IS TAPE**

16. At the MCC, to set the control file back to teleprocessing, type the following:  
**SET:AMA:CONTROL:a,OPTION=TP;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

**NOTE:** This command will allow automatic teleprocessing to resume when the data link is restored.

17. At the MCC, type and enter: **OP:AMA:CONTROLFILE, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

Response: AMA option field should read: **AMA OPTION IS TELEPROCESSING**

Data Transfer field should read: **DATA TRANSFER IS NOT MANUALLY INHIBITED**

18. At the MCC, type and enter: **ALW:AMA:SESSION, a**;

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

19. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.23: NONTELEPROCESSING WRITE OF AMA DATA FROM DISK TO TAPE (FOR DAT)

### OVERVIEW

**NOTE 1:** For specific information on the 5ESS-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

**NOTE 2:** For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120, *Very Compact Digital Exchange User's Guide*.

### PROCEDURE

1. At MCC, in order to obtain the current state of the AMA control file, type **OP:AMA:CONTROLFILE, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

Response: **REPT AMA CONTROL FILE FOR STREAM a**  
**OFFICE ID b**  
**DAYS UNTIL EXPIRATION d**  
**PROCESS START TIME e**  
**PROCESS STOP TIME f**  
**DEFAULT MT FOR AUTO TAPE START g**  
**h**  
**i**  
**AMAT PASSWORD j**  
**HOC PASSWORD k**  
**BACKUP HOC PASSWORD l**  
**PASSWORD FROM LAST SESSION m**  
**n**  
**o**  
**p**  
**TAPE SEQUENCE NUMBER qTAPE DATASET ID r**

Where: a = ST1 if information is for the ST1 data stream or ST2 if information is for the ST2 data stream.

**Note:** For a single-data-stream office, the stream does not have to be specified as either an ST1 or ST2; however, for a dual-stream office, the stream must be specified as either ST1 or ST2.

b = Office ID - A unique 6-digit ID assigned by the RAO

d = Number of days until tape expires

e = Start time in hours and minutes for AMA tape writing.

f = Stop time in hours and minutes for AMA tape writing.

g = Default tape drive for AMA function

h = AMA option that is in effect.

i = Indication of whether AMA data transfer sessions have been manually inhibited.

j = Automatic Message Accounting Teleprocessing [AMAT password]

k = Host collector (HOC) password.  
 l = Backup HOC password.  
 m = Password of the last HOC that polled this AMAT.  
 n = Indicates whether or not a tape is writing or verification session is currently in progress.  
 o = indicates whether or not a teleprocessing session is currently in process.  
 p = Indicates whether or not automatic tape writing has been inhibited via  
**INH:AMA-AUTOST** message.  
 q = AMA tape sequence number.  
 r = Dataset ID used by the Revenue Accounting Office (RAO).

2. Verify that AMA control file information is correct. If the AMA option is not **TAPE**, enter the following message at the MCC:

**SET:AMA:CONTROL,OPTION=TAPE, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

3. At the MCC, type and enter: **ALW:AMA:SESSION, a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

4. Load a new, write-enabled AMA tape in the DAT tape drive. Tapes with headers should be supplied by the accounting center. See Mount and Verify AMA Tape, **Procedure 4.24**.
5. Write AMA data to tape. At the MCC, type and enter:

**CPY:AMATAPE:{PRIM | SEC,SBLK=a,EBLK=b},MT=c;d;**

Where:

- a = Sequence number of the first block of secondary data required. This variable is used only if secondary data is being written to tape.
- b = Sequence number of the last block of secondary data required. This variable is used only if secondary data is being written to tape.
- PRIM** = Write primary data.
- SEC** = Write secondary data.
- c = Tape drive number.
- d = ST1 if information is for the ST1 data stream or ST2 if information is for the ST2 data stream.

**Note:** For a single-data-stream office, the stream does not have to be specified as either an ST1 or ST2; however, for a dual-stream office, the stream must be specified as either ST1 or ST2.

6. Is the next output message as follows?

**NOTE:** This message is output automatically when the session terminates.

**REPT AMATAPE COMPLETE FOR STREAM a**  
**VOL SER NUMBER b**  
**TAPE DRIVE NUMBER c**  
**START TIME dd:dd:dd**

e  
**START BLOCK** f g  
**END BLOCK** h i  
**RECORDS WRITTEN** j  
**TAPE SEQUENCE NUMBER** k  
 l

Where: a = ST1 if information is for the ST1 data stream or ST2 if information is for the ST2 data stream.

**Note:** For a single-data-stream office, the stream does not have to be specified as either an ST1 or ST2; however, for a dual-stream office, the stream must be specified as either ST1 or ST2.

b = Serial number of the tape.

c = Tape drive number.

d = Start time in month, day, hours, minutes, and seconds.

e = Indicates primary or secondary data was written to tape.

f = Sequence number of the first block of data written to tape.

g = Time stamp for start block in month, day, hour, and minute.

h = Sequence number of the last block of data written to tape.

i = Time stamp for last block in month, day, hour, and minute.

j = Total number of AMA records written to tape.

k = AMA tape sequence number.

l = Text phrase:

**NORMAL TERMINATION - MORE DATA REQUESTED THAN AVAILABLE**

**NORMAL TERMINATION - MORE DATA TO BE WRITTEN**

**NORMAL TERMINATION - NO MORE DATA**

**TERMINATION REQUESTED VIA STP:AMATAPE MESSAGE**

**TRAILER LABELS COULD NOT BE WRITTEN**

**AUTOMATIC TAPE WRITING STOP TIME WAS REACHED**

**INVALID TERMINATION REASON SPECIFIED**

7. Is the response from Step 6?

**REPT AMATAPE COMPLETE FOR STREAM a**

:

:

**NORMAL TERMINATION-MORE DATA REQUESTED THAN AVAILABLE**

or

**REPT AMATAPE COMPLETE FOR STREAM a**

:

:

**NORMAL TERMINATION-NO MORE DATA**

If **YES**, go to Step 13

If **NO**, continue with next Step

8. Is the response from Step 6:

**REPT AMATAPE COMPLETE FOR STREAM a**

:

:

**NORMAL TERMINATION-MORE DATA TO BE WRITTEN MOUNT ANOTHER TAPE AND CONTINUE WITH COPY AMATAPE**



```

or
REPT AMATAPE COMPLETE FOR STREAM a
:
:
TERMINATION REQUESTED VIA STP:AMATAPE MESSAGE
or
REPT AMATAPE COMPLETE FOR STREAM a
:
:
TRAILER LABELS COULD NOT BE WRITTEN
or
REPT AMATAPE COMPLETE FOR STREAM a
:
:
AUTOMATIC TAPE WRITING STOP TIME WAS REACHED
or
REPT AMATAPE COMPLETE FOR STREAM a
:
:
INVALID TERMINATION REASON SPECIFIED

```

Where: a = ST1 if information is for the ST1 data stream or ST2 if information is for the ST2 data stream.

If **YES**, continue with next step.  
 If **NO**, seek technical assistance.

9. Record the first and last block numbers and the tape sequence number to ensure that data could be retrieved again (if necessary.)
10. Remove the complete AMA tape. See Unload Tape from DAT Tape Drive, **Procedure 4.25**
11. At the MCC, type and enter: **OP:AMA:DISK,a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

**NOTE:** For a single-data-stream-office, the stream does not have to be specified as either ST1 or ST2; however, for a dual-stream-office, the stream must be specified as either ST1 or ST2.

Response 1: **REPT AMA DISK SUMMARY  
 DISK IS CURRENTLY 0 PERCENT FULL  
 ALL DATA ON THE OFFLINE SIDE HAS BEEN READ  
 THE AMA PROCESS HAS BEEN TRANSITIONED TO THE ACTIVE SIDE**

Response 2: **REPT AMA DISK SUMMARY  
 DISK IS CURRENTLY 0 PERCENT FULL  
 NUMBER OF PRIMARY AMA BLOCKS IN USE IS APPROXIMATELY: y**

12. In the previous step, did either Response 1 print out or Response 2 print out with y equaling zero?

If **YES**, **STOP YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, there is more data to be read (y greater than zero).

If you want to read this data (that is, in a software transition), continue with the next step, otherwise go to Step 14.

13. At the MCC, type and enter: **ALW:AMA:SESSION,a;**

Where: a = ST1 if AMA data goes to the ST1 data stream or ST2 if AMA data goes to the ST2 data stream.

14. Mount and verify an empty labelled AMA tape. See Mount and Verify AMA Tape, **Procedure 4.24**

15. Return to Step 5 to copy more AMA data.

16. Record the first and last block numbers and the tape sequence number to ensure that data could be retrieved again (if necessary).

17. Remove the AMA tape.

18. At the MCC video terminal, type and enter: **INH:AMA:SESSION:a;**

Where: a = **ST1** if information is for the ST1 data stream or ST2 if information is for the **ST2** data stream.

19. Send the AMA tape(s) to the Revenue Accounting Office (RAO).

20. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.24: MOUNT AND VERIFY AUTOMATIC MESSAGE ACCOUNTING (AMA) TAPE (FOR DAT)

### OVERVIEW

**NOTE 1:** This procedure is to be used only as part of Procedure 4.2 and not as a stand-alone procedure.

**NOTE 2:** For specific information on the 5ESS-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

**NOTE 3:** For specific information on the 5ESS-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110, *Very Compact Digital Exchange Reference Guide* and 235-120-120, *Very Compact Digital Exchange User's Guide*.

**NOTE 4:** If there is no DAT drive on MT 0 then 9-track tape writing for AMA is supported on both MT 0 and 1 for medium density [1600 bits per inch (bpi)] tapes. Otherwise the 9-track is only supported on MT 1. Both AMA streams ST1 and ST2 support either MT.

**NOTE 5:** Tape drive MT 0 needs to be confirmed for medium density (1600 bpi) for this procedure to work.

### PROCEDURE

1. Verify that the tape cartridge's write-protect switch is set correctly. For write-protection, the light-colored tab should NOT be visible. For write-enable, the tab should be visible.
2. Check the LEDs on the tape drive front panel to make sure the drive is not functioning at present. Both the green and amber LEDs should not be illuminated. It is not recommended to interrupt the tape drive if the green LED is blinking. A steady green LED indicates a data cartridge is in the drive and the drive is ready for activity. There is a problem if the amber LED is blinking.
3. Insert the tape cartridge so the manufacturer's label is facing up and the write-enable switch on the cartridge is facing toward you.
4. Gently push the tape cartridge into the tape drive until the end with the write-enable switch is flush with the tape drive front panel. The tape drive is auto-loading and will pull the tape cartridge the remainder of the way into the drive. DO NOT force the cartridge into the drive.

5. At Master Control Center (MCC) video terminal, type and enter:

**VFY:AMATAPE:MT=08,ST1;**

Response: **IP** followed by the **REPT AMATAPE VERIFY** output message is printed. If **NG**, ensure AMA option in AMA control file is TAPE and AMA session is allowed.

Results: Automatic Message Accounting (AMA) Tape verified.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 4.25: LOAD TAPE INTO DAT TAPE DRIVE

### PROCEDURE

1. Verify that the tape cartridges write-protect switch is set correctly.

For write-protection the light-colored tab should NOT be visible. For write- enable, the tab should be visible.

2. Check the LEDs on the tape drive front panel to make sure the drive is not currently functioning.

Both the green and amber LEDs should not be illuminated. It is not recommended to interrupt the tape drive if the green LED is blinking. A steady green LED indicates a data cartridge is in the drive and the drive is ready for activity. There is a problem if the amber LED is blinking.

3. Insert the tape cartridge so the manufacturer's label is facing up and the write-enable switch on the cartridge is facing toward you.
4. Gently push the tape cartridge into the tape drive until the end with the write-enable switch is flush with the tape drive front panel. The tape drive is auto-loading and will pull the tape cartridge the remainder of the way into the drive. **DO NOT** force the cartridge into the drive. The green LED will blink for a few seconds while the tape is loading then remain steady once the loading process is complete.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## 5. MEMORY ALTERATION DESCRIPTION

### 5.1 GENERAL

This document contains a description of the changes that are possible within the 5ESS®-2000 switch data base. Covered within this document are program updates, office backup methods, office dependent data (ODD) backup, static office dependent data (SODD) audit, ODD recovery, editing the data base using the office data base editor (ODBE), and software release retrofit.

References to editing the data base using the office data base editor (ODBE) have been removed. ODBE is generally a trouble clearing tool and should not be used for routine activities. For ODBE use refer to 235-105-110, *System Maintenance Requirements and Tools*, or 235-105-220, *Corrective Maintenance*.

**CAUTION:** During normal operations, work within a couple of file systems can trigger UNIX® file system alarms. These alarms normally warn the switch owner of situations where a file system is likely to run out of file space unless actions are taken to prevent the space exhaustion. Though, in the cases of /update and /nododd/imdataX, these file systems can become and (in the case of /no5odd/imdataX,) stay full legally because of software update application or NRODD growth, respectively.

Section 6 contains detailed level procedures of the changes that are possible within the 5ESS®-2000 switch data base. These detailed level procedures are for program update, office backup methods, office dependent data (ODD) backup, ODD recovery, editing the data base using the office data base editor (ODBE), and software release retrofit. Other detailed memory alteration procedural information can be found in the following Lucent Technologies documents:

- 235-106-100, *Software Release Retrofit Procedures—5E10*
- 235-106-101, *Software Release Retrofit Procedures—5E11*
- 235-106-102, *Software Release Retrofit Procedures—5E12*
- 235-106-103, *Software Release Retrofit Procedures—5E13*
- 235-106-200, *Software Release Update Procedures—5E10*
- 235-106-201, *Software Release Update Procedures—5E11*
- 235-106-202, *Software Release Update Procedures—5E12*
- 235-106-203, *Software Release Update Procedures—5E13*
- 235-106-300, *Large Terminal Growth Procedures—5E10*
- 235-106-301, *Large Terminal Growth Procedures—5E11*
- 235-106-302, *Large Terminal Growth Procedures—5E12*
- 235-106-303, *Large Terminal Growth Procedures—5E13*

For input messages, man-machine language (MML), and the details on their proper usage in performing the different tasks described, refer to the Lucent Technologies procedural documents listed previously. For complete details concerning the messages and the associated variable fields, refer to 235-600-700, *Input Message Manual*.

### 5.2 PROGRAM UPDATE

Program update is the process of activating orderly program changes in the switching equipment software. The changes are made to a particular software release and/or software release issue to solve a system problem.

The types of program updates available are as follows:

- Software Update
- Emergency fix.

## 5.3 SOFTWARE UPDATE

### 5.3.1 GENERAL

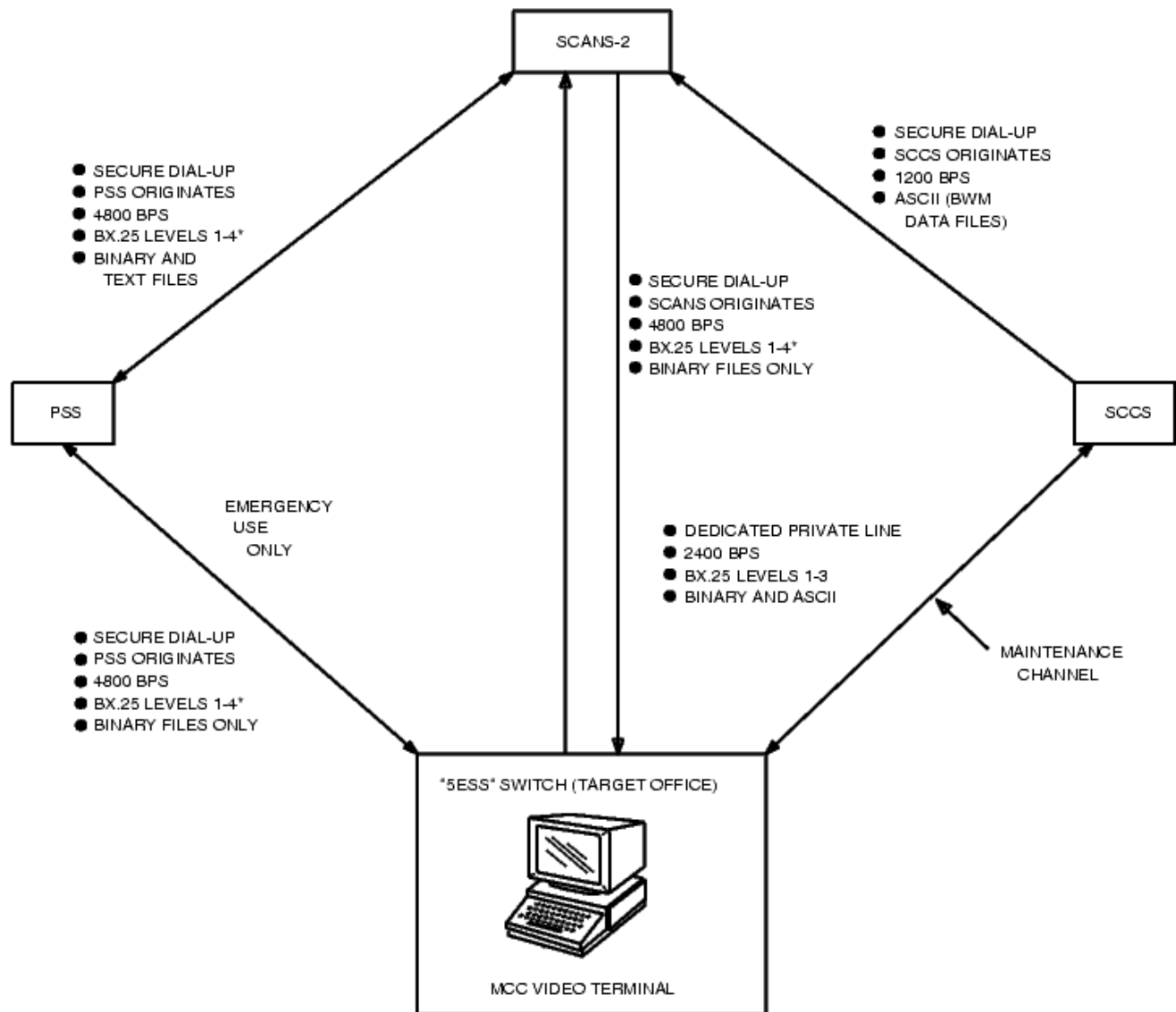
In-service offices receive most official software changes in the form of software updates. The software update originates as a fix for a problem within the software release. Four external interfaces are employed to provide for the generation, distribution, and activation of software updates. These interfaces (Figure 5-1) are as follows:

- (1) **Programmer Support System (PSS):** The PSS originates software updates. After a software update has been assembled, tested, and approved at the PSS, a software update identification number is assigned. The software update is then transmitted to the Software Change Administration and Notification System (SCANS) for distribution.
- (2) **SCANS:** The SCANS is a Lucent Technologies time-shared computer system for orderly software update distribution. Maintenance personnel who subscribe to SCANS may access SCANS daily to receive and record the software updates. The SCANS also lists any software updates that have been canceled or changed. Refer to 190-306-010 and PA-591152 for SCANS procedures. For Switching Control Center System (SCCS) application, see PA-1P139, Section 12.
- (3) **SCCS:** Using a 1200-baud dial-up terminal, the SCCS has the capability of remote software update activation. The SCCS accesses SCANS and triggers the delivery of a software update using the program update subsystem. Then the received software update is remotely activated from the SCCS via the maintenance channel.
- (4) **CSCANS:** Another external interface which provides for the distribution of software updates only in offices that are so equipped is the Customer Service Computer Access Network System (CSCANS) interface. The CSCANS is a Regional Bell Operating Company (RBOC) owned and operated computer system for automated software update distribution. Subscribing offices may access CSCANS to receive software updates.

Under normal operating conditions, the software update distribution point is SCANS. However, in an emergency (such as a SCANS outage), a software update can be transmitted from the PSS over a data link directly to an office. Maintenance personnel at the SCCS or local office must make a verbal request to the North American Regional Technical Assistance Center (NARTAC). The field update coordinator then sets up an emergency data link from the PSS to the switch and manually transmits the software update (after maintenance personnel have primed the switch for reception of the software update files). Procedures for activating the software update are not altered.

The software update activation responsibility between Lucent Technologies and the operating telephone company (OTC) is as follows:

- During preturnover (new office), retrofit, and restart intervals, the installer is responsible for obtaining and activating all current software updates which apply to that office.
- At all other times in a working office (when not in a retrofit or restart mode), the OTC is responsible for obtaining and activating all applicable software updates.



**Figure 5-1 Program Update Distribution**

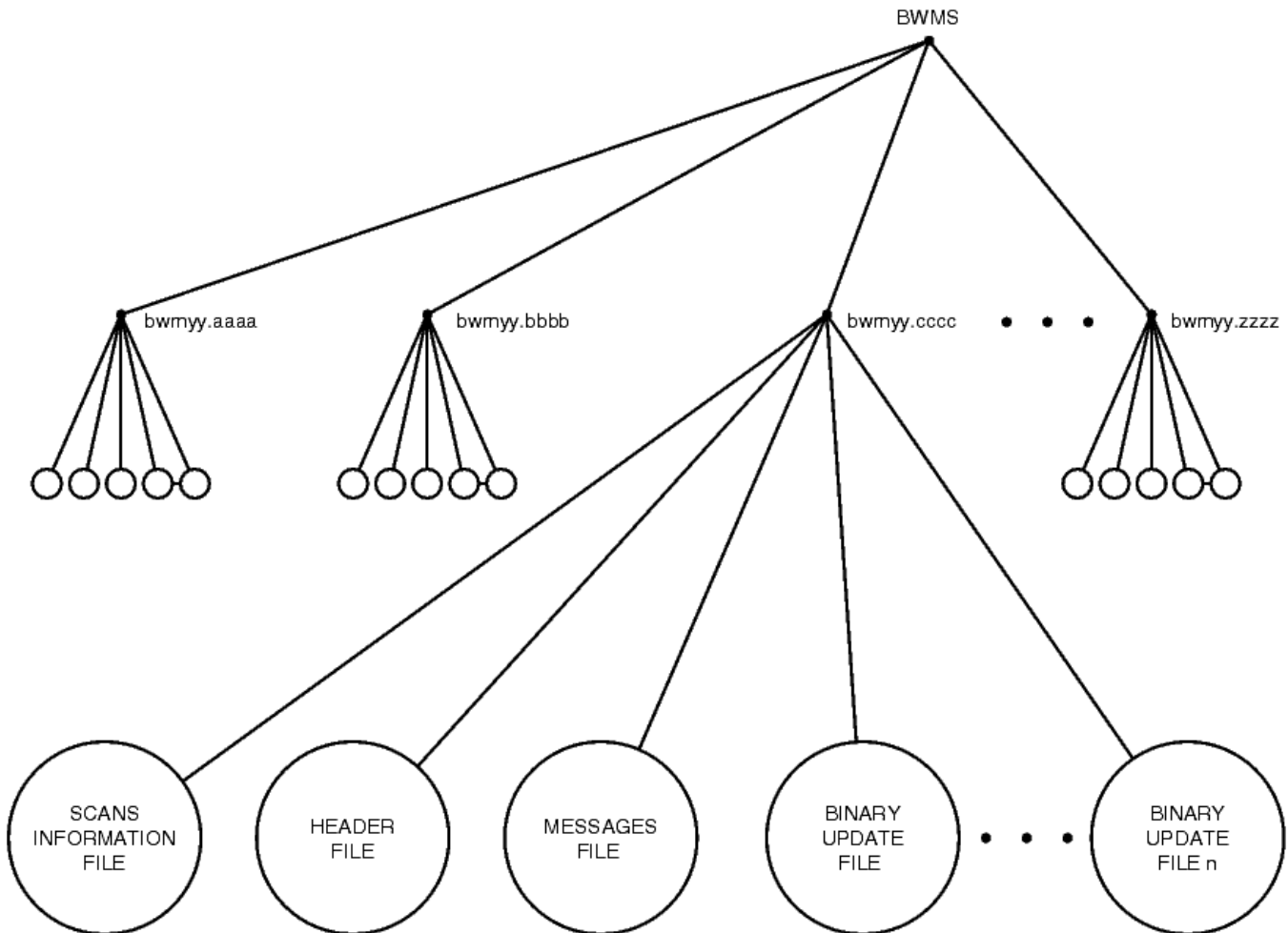
### 5.3.2 SOFTWARE UPDATE FORMAT

The software update format, illustrated in Figure 5-2, consists of at least four files:

- (1) **Header File:** The header file contains the necessary information for maintaining the integrity of the software update. The information consists of the software update number, software release(s) affected, sequence number, name, size, and checksum of each file in the software update. This information is used by the verification process to verify each software update before activation.
- (2) **Message File:** The message file contains the commands necessary to install the software update, plus any special instructions required. Figure 5-3 shows an example of a message file.
- (3) **Binary Update File(s):** The binary update file contains the binary data for a file targeted for the update. For nonkillable processes, these take the form of minimal object (.m) files. For killable processes, these are

updated object files for target processes.

- (4) **SCANS Information File:** The SCANS information file contains the software update number, software release(s) affected, general descriptive information, name and size of each file to be updated, associated software update(s), customer assistance request (CAR) numbers, and the name of the person to contact in case of trouble.



**Figure 5-2 Software Update Structure**

```
"BEGIN BWM81-0241
"
"APPLY.*****"
"
UPD:UPNM BWM81-0241:FN"/im/sysgeneric.o".DF"/imnbrl/sysgenhs.out":UF/etc/bwm/81
0241/JBterm.m"!
"
"SOAK.*****"
"
"    This BWM should soak for 0 days, 1 hours, 0 minutes
"    before being made official.
"    The following instructions should be executed during this
```



```

"      interval and yield the expected results.
"
"      Run a call volume with PROCALL and observe that there are no power
"      ring failures.
"
"
"BKOUT.*****"
"
"      If during the installation of this BWM, or at any time
"      during the SOAK period, you feel that the applied updates
"      should be backed out of the system, enter the following
"      command(s):
"
UPD:BKOUT:UPNM:BWM81-1241!
"
"OFFICIAL.*****"
"
"      To make the updates applied in this BWM official, wait the
"      prescribed SOAK interval and then enter sequentially the
"      following command(s).
"
UPD:UPNM BWM81-0241;OFC!
"
"END BWM81-0241

```

**Figure 5-3 Example of a Message File**

### 5.3.3 SCCS AND MASTER CONTROL CENTER INTERFACE

The software updates are normally activated remotely by the SCCS. Communication between the SCCS and the program update subsystem is over the maintenance channel. The local office can be unattended.

Software updates may also be activated locally at the master control center (MCC) video terminal. If the software updates are to be requested from SCANS by the local office, a 1200-baud terminal [other than the maintenance cathode ray terminal (MCRT)] must be present. The terminal must be full duplex, capable of printing at least 80 characters per line and must have a 212A-type data set. If the software updates are to be loaded into the switch from a tape, the 1200-baud terminal is not needed.

### 5.3.4 GENERAL FORMAT FOR ACTIVATION OF SOFTWARE UPDATES RECEIVED FROM SCANS

#### 5.3.4.1 Reception from SCANS

To receive software updates, first a dial-up link must be established with SCANS. When the dial-up link is completed, the proper login, password, and subpassword are used to gain access to the SCANS data base. When access is obtained, a listing is requested of all items from SCANS. This listing is reviewed, and all applicable software updates are stored.

The office storage space required for each software update binary data package is provided in the software change size section of the software update. Prior to data transmission, it must be determined that sufficient file space is available in the directory on disk where the software updates are to be stored. If file space is insufficient, memory audit and space reclamation techniques are used to create space, or the software updates are requested in stages (one or two at a time) as space allows. When enough file space is available, the office is primed for binary data package delivery by using the **IN:REMOTE:START;** message. During priming, file space is reserved and a transaction identifier (ID) is established. This transaction ID provides additional security at the application level in the file transfer process.

The office will receive data from SCANS for up to 24 hours after it is primed unless the data session is manually terminated using the **IN:REMOTE:STOP;** message. If the SCANS does not begin to send data within the 24-hour period, the data session times out and an IN REMOTE ERROR message is displayed at the SCCS (or MCC). After a time-out, the office will need to be primed again.

After priming, a delivery request is made to SCANS for the binary data packages. This request, which is usually made from a dial-up terminal between SCANS and the SCC, issues a binary overwrite (BOW) command to SCANS. The BOW command includes the 5ESS-2000 switch office name, the identification of the software updates, and a transaction ID.

As soon as a port is available, SCANS sets up a 4-wire dial-up link to the target office. This link is used for delivery of the binary data packages. Assuming no equipment failures or unusually high demand, SCANS will establish this link within 24 hours of the delivery request.

Using the access login and the transaction ID, SCANS accesses the Lucent Technologies 3B20 computer. The SCANS then establishes a 4800-b/s BX.25 data link to the target office. The binary update files, along with the header and message files, are then transmitted to the target office to be placed on disk in the software update directory (/etc/bwm) of a storage partition.

Upon successful reception of the binary overwrite files, the IN REMOTE STOPPED message is dumped at the SCCS work station and/or MCC video terminal to indicate that the binary files have been received and loaded into /etc/bwm.

Assuming that the binary update files have been received and verified, the BX.25 data link is automatically terminated.

The software updates received from SCANS are the same software updates generated at the PSS. The SCANS does not alter the internal structure or format of any software update. The SCANS information file is not required by the program update subsystem. If this file is sent along with the BOW, it is ignored.

#### 5.3.4.2 Reception from CSCANS

To receive software updates from CSCANS, a dial-up link must first be established with CSCANS. When the dial-up link is completed, the proper login and passwords must be used to gain access to the CSCANS data base, for those offices that are so equipped. For subscribing offices, follow local CSCANS procedures for accessing the CSCANS data base and requesting applicable software updates.

The office storage space required for each software update binary data package is provided in the software change size section of the software. Prior to data transmission, it must be determined that sufficient file space is available in the directory on disk where the software updates are to be stored. If the file space is insufficient, memory audit and space reclamation techniques are used to create space, or the software updates are requested in stages (one or two at a time) as space allows. When enough file space is available, the office is primed for binary data package delivery by using the **UPD:INITPW:PASSWD="xxxxxx",KEY="yy";** message. In priming, a password and key must be selected through use of the UPD:INITPW message, and the identical password and key must be set in the CSCANS data base. This password provides additional security at the application level in the file transfer process.

The office will receive data from CSCANS at any time after it is primed and the CSCANS data base is updated. Note that the office will normally not need to be primed again. The office may be primed again, if desired for security or other reasons, through use of the **UPD:INITPW:PASSWD="xxxxxx",KEY="yy";** message. It is important to note that the CSCANS data base must also be updated accordingly with the newly chosen password and key.

After priming, a delivery request is made to CSCANS for the binary data packages. Follow local CSCANS procedures for requesting a binary data package. Upon successful reception of the binary overwrite files, a **UPD:CSCANS** message is dumped at the SCCS work station and/or MCC video terminal to indicate that the binary files have been received and loaded into /etc/bwm.

Assuming that the binary update files have been received and verified, the BX.25 data link is automatically terminated.

### 5.3.4.3 Verification

A process is provided by the program update subsystem to verify software updates before overwriting the resident software release. When the system receives the verification command, a check is made to confirm the existence and correctness of all files and associated checksums.

If a software update error is detected through verification, the software update in question should be requested again from SCANS. If the software update fails verification a second time, the Electronic Switching Assistance Center (ESAC) and the RTAC should be notified.

### 5.3.4.4 Activation

**NOTE:** This section is a general description of a software update activation. Later software releases allowed for enhanced program update capabilities through the use of a menu-driven craft interface.

After the software updates have been successfully verified, an executable message file for a specific software update is created. The message file contains an instruction set for activating a particular software update. The **UPD:BWMNO;** message contains a software update number that corresponds to a specific message file and the pathname of the message file. Only one executable message file can be executed in the system at any one time. The previous executable message file is overwritten each time the **UPD:BWMNO;** message is input.

**NOTE:** The software updates must be activated in sequential order. The executable message file contains four user accessible sections. Only three sections are used for normal installation. The fourth section is used for emergency backout. Once an executable message file has been created for a specific software update, that software update can be installed by entering forms of the **UPD:EXEC;** message as follows:

- (1) **Apply:** The APPLY section is used to place an update into a temporary mode. It is executed by entering the **UPD:EXEC:CMD,APPLY;** message.
- (2) **Soak:** The SOAK section contains the recommended soak interval for a software update. A soak interval is a period of time when the software update is tested and observed for proper operation. Although it is possible to execute the SOAK section by using the **UPD:EXEC:CMD:SOAK;** message, each step of the SOAK section, where applicable, should be performed on a manual basis to allow close observation of the soak interval.
- (3) **Official:** The OFFICIAL section is used to make the temporary update permanent following successful completion of the soak interval. It is executed by entering the **UPD:EXEC:CMD:OFFICIAL;** message.
- (4) **Backout:** The BACKOUT section is used only when it becomes necessary to back out of a temporary software update. It is executed by entering the **UPD:EXEC:CMD:BKOUT;** message.

The APPLY, OFFICIAL, and BACKOUT sections each contain one or more executable messages. The SOAK section may or may not contain messages. A copy of the current executable message file may be obtained by using the **UPD:BWMNO:LIST,ALL;** message.

The normal progression for software update activation is to execute the APPLY section first, followed by the SOAK section, and finally the OFFICIAL section.

If the system is rebooted when temporary updates are in place (other than switching module updates), the

temporary disk file is thrown away, and the system boots from the official file, effectively backing out the update(s).

When a temporary update is made permanent, an updated version of the file is built in the same directory as the original version. A windowless move then takes place to effectively make the new version official. The in-core memory is not touched when an update is made official since the update has already been installed there.

The software updates can also be activated by maintenance personnel at the SCCS or MCC by printing the message file of the applicable software updates and manually installing the required messages.

#### 5.3.4.5 Backout

During the soak interval, the temporary software update is observed to ensure proper performance. If the software update does not perform properly at any time during the soak interval, it should be backed out using the **UPD:EXEC:CMD:BKOUT**; message. The BACKOUT section backs out the designated change, plus any subsequently installed temporary changes; that is, the backout process can only delete changes in the exact reverse order of application. A sequential list of changes that are in the temporary state may be obtained using the **UPD:DISPLAY:TEMP**; message.

### 5.4 EMERGENCY FIX

#### 5.4.1 GENERAL

Regular program updates are performed in a timely and orderly fashion through software updates. Unexpected problems with the software release can occur that require immediate correction, not allowing time for the normal software update development and issue processes. These immediate corrections are known as emergency fixes. Emergency fixes are accomplished on a word-by-word basis under the direction of Lucent Technologies Customer Technical Support (CTS) [formerly Product Engineering Control Center (PECC)].

Emergency fixes are assigned a sequential craft number similar to the software update number. The program update subsystem provides emergency fixes with the same status and processes as software updates (that is, make temporary, backout, make permanent). Emergency fixes specify the address to be changed, the new data to be inserted, and the old data to be matched. Emergency fixes are also known as address-data couplets.

#### 5.4.2 SCCS AND MCC INTERFACE

As with software updates, most emergency fixes are activated remotely by the SCCS. Communication between the SCCS and the program update subsystem is via the maintenance channel. The local office can be unattended during the activation of the fix. Emergency fixes may also be activated locally through the MCC.

#### 5.4.3 GENERAL FORMAT FOR EMERGENCY FIX ACTIVATION

##### 5.4.3.1 Activation

The **LOAD:UPNM....**; message causes a temporary change to be made at the specified location. After a suitable test and soak period, the **UPD:UPNM....;OFC**; message makes the change permanent, and normal backout procedures can no longer be used.

##### 5.4.3.2 Backout

Normal backout can be accomplished only while the fix is in a temporary state. The backout procedure can be implemented using the **UPD:BKOUT:UPNM**; message. This message backs out the designated change, plus any subsequently installed changes, because the backout process can only delete changes in the exact reverse order of application. The **UPD:DISPLAY:TEMP**; message provides a sequential list of changes that are in a temporary state.

**NOTE:** The **UPD:BKOUT:UPNM;** message only restores the words specified in the change. If memory other than that specified in this change is mutilated, a system BOOT may be required to restore the switching system to normal.

## 5.5 SPACE RECLAMATION

### 5.5.1 RECLAIM SPACE IN SOFTWARE UPDATE STORAGE DIRECTORY /etc/bwm

As software updates are brought into /etc/bwm and activated, the space available in /etc/bwm for future software update storage is gradually reduced. To avoid running out of space, the file space occupied by software updates which have been made permanent should be cleared. Such space in /etc/bwm is cleared using the **UPD:CLR:BWM;** message. A listing of permanent updates should be obtained using the **UPD:DISPLAY:OFC;** message and compared to the contents of /etc/bwm using the **OP:STATUS:LISTDIR,DN="/etc/bwm";** message.

### 5.5.2 RECLAIM PATCH SPACE

Update functions are installed in patch space. After an update has been soaked and made permanent, the old functions and decision functions are normally no longer needed. These should be removed from execution, and the space reclaimed for use on future updates. After BWM 91-0105 and later software releases, the space reclamation is performed automatically when the update is made permanent.

## 5.6 ERROR CONDITIONS

Tables 5-1 and 5-2 contain listings of possible error conditions that may be encountered during file transfer. Should any error conditions arise during update activation that are not listed in the table, refer to the error condition listing in 235-600-700, *Input Message Manual*, or 235-600-750, *Output Message Manual* for the particular message in question.

**Table 5-1 File Transfer Error Conditions (SCANS Interface)**

CAUSE	EFFECT	ACTION TO BE TAKEN
Insufficient space for incoming file (Initial size for directory /etc/bwm is 5 MB).	File transfer session terminated.	(1) Verify and install applicable software updates received from SCANS-2.  (2) Clear directory /etc/bwm after updates have been made ``permanent."  (3) Enter second request for remaining software updates.
Incoming file length exceeds maximum file length permitted (2 MB max.).	File transfer continues with next file.	(1) Invalid software update. Contact ESAC and PECC.
File with identical pathname already exists.	File transfer continues with next file.	(1) Verify all software updates at completion of session.  (2) Clear those software updates in which verification was unsuccessful.  (3) Enter second request for any remaining software updates.
Incoming file interrupted by sending process.	File transfer session will be terminated if three consecutive files are interrupted.	(1) Enter second request for affected software updates.  (2) If problem persists, contact field update administrator.
Sending process is unable to continue	File transfer session terminated.	(1) Verify and install applicable software

and aborts session.		updates received from SCANS.  (2) Enter second request for transmission of remaining software updates.  (3) If problem persists, contact SCANS administrator.
Unrecoverable conditions detected by the retrieve process.	File transfer session terminated.	(1) Verify and install applicable software updates received from SCANS-2.  (2) Enter second request for transmission of remaining software updates.  (3) If problem persists, contact PECC.

**Table 5-2 File Transfer Error Conditions (CSCANS Interface)**

CAUSE	EFFECT	ACTION TO BE TAKEN
Insufficient space for incoming file (Initial size for directory /etc/bwm is 5 MB).	File transfer session terminated.	(1) Verify and install applicable software updates received from CSCANS.  (2) Clear directory /etc/bwm after updates have been made ``permanent."  (3) Enter second request for remaining software updates.
Incoming file length exceeds maximum file length permitted (2 MB max.).	File transfer continues with next file.	(1) Invalid software update. Contact ESAC and PECC.
File with identical pathname already exists.	File transfer continues with next file.	(1) Verify all software updates at completion of session.  (2) Clear those software updates in which verification was unsuccessful.  (3) Enter second request for any remaining software updates.
Incoming file interrupted by sending process.	File transfer session will be terminated if three consecutive files are interrupted.	(1) Enter second request for affected software updates.  (2) If problem persists, contact field update administrator.
Sending process is unable to continue and aborts session.	File transfer session terminated.	(1) Verify and install applicable software updates received from CSCANS.  (2) Enter second request for transmission of remaining software updates.  (3) If problem persists, contact CSCANS administrator.
Unrecoverable conditions detected by the retrieve process.	File transfer session terminated.	(1) Verify and install applicable software updates received from CSCANS.  (2) Enter second request for transmission of remaining software

updates.

(3) If problem persists, contact PECC.

## 5.7 ENHANCED PROGRAM UPDATE CAPABILITIES

The enhanced program update uses a menu-driven craft interface. This interface provides a user friendly program update procedure which simplifies software update installation. These enhancements eliminate the need for lengthy input messages that must be entered precisely.

When a software update package is received, four types of files are included. One or more update files are included which contain modified or new functions in the form of an object file to fix a process. A message file (Figure 5-3 ) is included which contains a set of craft commands required to install a given software update. A header file is included which is used to verify the software update on site. This file contains information such as target software release issue, file size, and checksum for all files in the software update. Finally, a SCANS file contains a description of the problem being corrected and administrative information used by the SCANS to determine to which offices the software update should be sent.

The message file provides commands and instructions used by an automated display mechanism to guide the craft through the process of installing the associated software update. This process reduces the amount of time required for and the potential errors associated with manual message inputs. The craft may examine the contents of the message file and monitor the status of an update transaction via video display pages.

The menu-driven craft interface provides software update installation menu page (Figure 5-4 ) and program update page (Figure 5-5 ). Numbered commands, called pokes, are entered from these display pages to perform the desired procedures. Refer to the Memory Alteration Procedures (Section 6 ) for detailed procedures using the menu-driven craft interface.

SYS EMER	CRITICAL	MAJOR	MINOR	BLDG/PWR	BLDG INH	CKT LIM	SYS NORM
OVERLOAD	SYS INH	AM	AM PERPH	OS LINKS	SM	CM	MISC

CMD: \_\_\_\_\_ 1940 Easy BWM Installation

9800	Start Execution	9850,F	Dump Inst BWM File
9810,[Y]	Change Install BWM Name	9860	Stop Execution
9820,[Y]	Change Back Out BWM Name	9870	Stop After Soak OFF
9830,[Y]	Change Apply BWM Name		
9840,HH,MM	Change BWM Soak Interval Timer		

(Y = 10 Character BWM Name or NONE for no BWM, HH = Hours, MM = Minutes, F = Filename)

RESPONSE: EASY BWM IS IDLE \_\_\_\_\_

Install BWM Name	BWM89-0050
Back out BWM Name	BWM89-6082
Apply BWM Name	NONE
BWM Soak Interval Timer	24-00

---

**Figure 5-4 Easy BWM Installation Page 1940**


---

SYS EMER	CRITICAL	MAJOR	MINOR	BLDG/PWR	BLDG INH	CKT LIM	SYS NORM
OVERLOAD	SYS INH	AM	AM PERPH	OS LINKS	SM	CM	MISC


---

```

1960 - BWM INSTALLATION BWM = BWM89-0001
9000,Y START BWM Y 9570 NEXT WINDOW 91xx DISPLAY (xx = 10 APPLY
9010 VERIFY CMPL 9575 PREV WINDOW 92xx PRINT 20 SOAK 30 OFC
9560 STOP EXC (Y = 10 CHAR BWM NAME) 93xx EXEC ALL 40 BKOUT 50 FILE)
9565,Z RESET LINE Z (Z = 3 DIGIT LINE NO) 94xx EXEC NEXT
(F = FILENAME IN BWM) 9260,F PRINT FILE F
SECTION EXECUTION STATUS
APPLY CMPL SOAK CMPL OFC INPG BKOUT
RESPONSE:
21 "
22 "OFFICIAL-----
23 "To make the update applied in this BWM official, wait the
24 "prescribed SOAK interval and then enter sequentially the
25 "following command(s):
26 "
27 UPD:OFC:DATA, UPNM="BWM89-0001";
28 "
29 UPD:RECLAIM:DATA, ALL;
30"END BWM89-0001

```

---



---

**Figure 5-5 BWM Installation Menu Page 1960**


---

## 5.8 SOFTWARE UPDATE INSTALLATION

**CAUTION:** The craft interface recovery feature (CIRF) provides the capability to recover the craft interfaces from craft lockout without affecting the call processing. This feature will kill *UNIX*® system processes including program-update processes; therefore, it should be used with great care. IT IS STRONGLY RECOMMENDED NOT TO USE THIS FEATURE WHILE SOFTWARE UPDATE IS IN PROGRESS because this feature may cause software update application to get into a state which cannot be recovered by any means.

**NOTE:** The master control center (MCC) Display Pages 1941 - BWM Automation Scheduling, 1942 - BWM Automation Office Profile, and 1943 - BWM Automation Health Check, provide a method to schedule SUs for automatic installation. With this method, the user is required to schedule a specific SU to be installed on a given day and time to a specific install state (VERIFY, SOAK, or OFFICIAL). Once the SU has been scheduled, the user is not required to constantly monitor the SU progress. When the previously specified day/time arrive, the specified SU will begin auto installation. Refer to 235-105-110 for details on how to use MCC Display Pages 1941, 1942, and 1943. In addition, many of the capabilities (for example, scheduling SUs for automatic installation) are also available from CSCANS over the CSCANS interface. For subscribing offices, follow local CSCANS procedures for accessing the CSCANS data base and administering these new capabilities. MCC Display Pages 1960 and 1940 may still be used as



alternative (manual methods of loading or backing out SUs).

The craft can install a software update through the use of the software update installation menu (Figure 5-5). This menu is on MCC Page 1960. The craft interface simplifies the task of installing a software update by directing the craft through the installation process. The upper part of the display provides a list of menu items, each of which is identified by a poke number. The lower part of the menu page provides a display window for sections of the message file. The current section of the message file, called the working section, is displayed so it may be examined by the craft before execution. If the working section does not fit in the designated window, the craft can scroll forward and backward using the NEXT and PREVIOUS window pokes. The message file may be printed on the MCC printer by entering the PRINT poke provided on the menu page. A RESPONSE line is provided on the software update installation page to provide response messages to the craft during software update installation. Sequencing checks are made between software updates to ensure proper sequencing for all software updates in a 5ESS-2000 switch.

To select a particular software update, the START software update poke is entered along with the desired software update number. The menu page then displays the current status of the requested software update and sets the ``BWM=" indicator to the requested software update name. The VERIFY poke automatically deletes messages from the message file which are not in the language format required for the specific office. Additionally, this poke checks the message file integrity. The VERIFY poke must be executed before the software update can be applied to the system. When this poke is completed successfully, an indicator is provided on the display to notify the craft that the software update was successfully verified. The VERIFY poke may be executed as many times as desired. However, if there was no change to the message file since the last VERIFY poke was executed and the VERIFY flag is set to COMPLETED, subsequent VERIFY commands are rejected. When the software update has been successfully verified, the contents of the APPLY section of the message file are automatically displayed. The action indicators (DISPLAY, PRINT, EXEC ALL, and EXEC NEXT) are then used in conjunction with the section indicators (APPLY, SOAK, OFC, BKOUT, and FILE) to perform the desired software update installation functions. A single poke number is used to represent the action desired and the section of the message file to be acted upon. The first two digits represent the action, and the second two digits represent the section.

To apply the selected software update, the 9310 poke (EXEC ALL, APPLY) is used. This poke causes all commands in the APPLY section of the message file to be executed automatically and in sequential order. These commands may be executed one at a time using the 9410 (EXEC NEXT, APPLY) poke. The 9410 poke must be used repetitively to execute all the commands in the APPLY section. The 9310 poke may be used at any time after a 9410 poke in order to cause the execution of all remaining command lines in the APPLY section of the message file.

Subsequent to an EXEC poke, the RESET LINE poke may be used to reset the current command to be executed. This poke is entered followed by a comma and a line number to which the execution pointer should be reset. The specified line is then highlighted and may be executed again. If the requested line number is in the next or previous display window, the RESET LINE poke causes the display window to be adjusted.

If an error occurs during the execution of a command line, a summary of the error is displayed on the RESPONSE line of the menu page. The command line causing the error is displayed, and a detailed error message is printed on the MCC printer. If the 9310 poke is being used when the error occurs, execution of the next command line (if any are still remaining) is automatically stopped.

The STOP EXEC poke (9560) may be used subsequent to the EXEC ALL poke to stop execution of the next command line in the section.

Updates intended for switching modules are automatically propagated to all operational switching modules. Any switching modules which are isolated at the time of the update do not get updated. When all command lines in the section are successfully executed, a ``CMPL" indicator associated with the APPLY status is displayed, and the content of the SOAK section is automatically displayed. This guides the user to the next step of the software update installation process. This section of the message file contains the procedures required to test the software update and the required soak interval.

The DISPLAY poke (91XX) may be used to display selected sections of the message file. The first ten lines of the section are displayed in the display window. If more than ten lines exist for the selected section, the NEXT WINDOW and PREV WINDOW pokes may be used to scroll forward and backward through the section. These pokes do not affect the execution of commands and may be used only after a DISPLAY or EXEC poke has been entered for a given software update.

The PRINT FILE F poke (9260) can be used to print out any American standard code for information interchange (ASCII) files associated with the currently installed software update.

If a failure occurs during the SOAK procedure, the software update must be backed out. The BKOUT section of the message file is displayed by using the 9140 (DISPLAY, BKOUT) poke. This section provides information to the craft and commands required to back out the given software update.

The 9340 (EXEC ALL, BKOUT) poke automatically executes all commands in the BKOUT section of the message file, one by one, and in sequence. When the execution of these commands is completed successfully, the content of the APPLY section is again automatically displayed on the menu page.

When the software update has been successfully tested, it may be made official. This means that the software release file in the official disk partition is updated. Thus, the update can be saved across system bootstraps. However, reloading the system from the backup disk partition will destroy the update unless the updated software release file is copied to the backup partition. The 9330 (EXEC ALL, OFC) poke is used to make the software update official. This poke cannot complete until all command lines in the APPLY section have been completed successfully, and soak section is completed and timer is expired.

## 5.9 PROGRAM UPDATE MAINTENANCE

The display pokes provide an on-line log of history of all software updates installed into the current software release issue in a 5ESS-2000 switch office. The history of a software update (Figures 5-6 and 5-7 ) consists of, but is not limited to, the following information:

- Name of software update
- Status of software update (temporary or official)
- Time of last transaction
- Pathname of target object file
- Pathname of the update files for the target object.

When this menu page is selected and displayed, the history for a particular software update can be requested by using poke 9101 followed by a comma and the desired software update name. All updates associated with the specified software update are then printed on the MCC printer. The ``BWM=nn-nnnn" indicator is then set to the requested software update name.

Poke 9102 (OFC) may be used to request a history printout of all updates in the system which have been made official.

Poke 9103 (TEMP) may be used to request a history printout of all software updates which are in the temporary state.

Poke 9104 (ALL) may be used to request a history printout of all software updates in the 5ESS-2000 switch active log.

Poke 9104, SUM may be used to request a list of the last OFFICIAL, last CRAFT, and any TEMPORARY software

update in the 5ESS-2000 switch.

If all software updates in the active log have been made official and memory space used by the old version of the replaced functions has been reclaimed, the history of these software updates may be stored in the archive log to conserve disk space. Subsequently, these histories may be printed on the MCC printer by typing ``9104,backlog".

The updates shown in Figures 5-6 and 5-7 are in a temporary state. The most important status flag is the INSTALLED flag. An administrative module initialization can cause temporary updates in the administrative module to be removed. Consequently, the INSTALLED flag is reset and is cleared from the software update history after completion of the initialization. An administrative module initialization does not affect temporary updates installed in switch modules. The history of a software update which updates switch modules is global to all switch modules. Therefore, any interface module initialization does not cause the INSTALLED flag to be reset for a temporary switch module update.

The process type is described more explicitly by using the correct process types (see Figures 5-6 and 5-7 ). An OFC flag is added to the history entry after the update is made official. For a function replacement, an AUDT flag is added to the history after memory space used by the version of the replaced function(s) is reclaimed. If the reclamation of memory space fails, an AUDABT flag is added to the history entry instead. The AUDABT flag is set only when the reclamation of non-AM updates fails.

A file replacement may be verified by checking the time stamp and file size on the target file at the directory where the original file is located. When a function replacement is installed, the new address of the function is printed on the printer. The new address may be used to establish a breakpoint to detect when the replacement function is called.

If an update is targeted for multiple switch modules, two pieces of information are available to verify that the update is in all of the target modules. The first piece of information is the UPD Module Report. This report is generated and printed on the MCC printer automatically after a temporary update has been successfully applied, but one or more modules did not receive the update. The report identifies all modules which received the update and all modules which did not receive the update. If all modules received the update, the report is not printed.

The other piece of information is available on MCC Page 1800 (Figure 5-8 ). Box 10 is called UPDBACKOUT. This indicator shows whether or not recently applied SM program updates are currently loaded or backed out.

Both MCC Pages 1850 and 1851 (Figures 5-9 and 5-10 ) are added for communication module processor (CMP) inhibit and recovery control. Box 10 is called UPDBACKOUT. If the selected module *should* have the update, the box will be lighted.

Menu Page 1950 also provides the ability to detect update inconsistencies in the system. Poke 9200 (VERIFY INCONSISTENCY) provides this capability. For example, if a temporary update is booted out of the administrative module as a result of an initialization and if a switch module is isolated when an update is installed in all switch modules, an update inconsistency occurs. In this case, the isolated module does not receive the update. The use of poke 9200 generates the report shown in Figure 5-11 .

Poke 9300 (RECOVER FORWARD) may be used from menu Page 1950 to reapply all temporary updates in an inconsistent state. Poke 9400 (RECOVER BACKWARD) removes the temporary updates, starting from the last one in the system. If there is no inconsistency, a message will print to the ROP. Both pokes automatically determine the starting and ending points of the software update sequence so that a recovery process can be performed.

As the number of software updates installed in the system increases, disk space used by the history files grows. When all software updates have been made official and memory space used by the old version of the functions is reclaimed, most software update history can be saved in an archive file in a condensed format. This can be done by entering the **UPD:REDUCE** command manually. There is no corresponding poke on the 1950 page.

On menu Page 1950, poke 9600 may be used to clear disk space occupied by the software updates after the software update is made official. An automatic check is made to verify that the specified software update was made

official before the space is cleared. The space occupied by all software updates which have been made official may be cleared by typing "**9600,BWM=nn-nnnn**", or the space occupied by a single software update can be cleared by typing **9600** followed by a comma and the specific software update name.

Poke 9650 may be used to expand a compressed software update after it has been completely transmitted to the switch. This same poke may also be used to stop expansion on the software update that is currently being downloaded.

Poke 9500 (RECLAIM PATCH SPACE) is used to perform an update audit or space reclamation function. This causes memory locations previously used for old function text and decision function text to be released so that they may be used for future program updates. The following three pokes manipulate the soak timer information:

- Poke 9700 can be used to reset the soaking time to **HH** hours and **MM** minutes.
- Poke 9710 prints out the soak timer information on the ROP.
- Poke 9720 may be used to abort the soak timer.

Poke 9900 allows the user to back out up to the last three official software updates in the reverse order in which they were applied.

The command **UPD:PUMPBWM** is used when a pump action is required to pump the temporary image generated by the software update. This command does not make sense unless a software update has been applied.

For the CMP, the command is **UPD:PUMPBWM:CMP**

For the SM-2000, the command is **UPD:PUMPBWM:SM2K**

For the other SMs the command is **UPD:PUMPBWM:SM**

**NOTE:** The ``CONFIG" option is also available, this option is used to specify the configuration for SM and peripherals. The command is as follows:

**UPD:PUMPBWM:SM,CONFIG=a**

Where *a* equals the configuration type to receive the update. Valid values are; STANDARD, LOADED, and BASIC.

The command **UPD:PUMPOFC** is used when a pump action is required to pump the official image. This is the default case. This command is used to override the **UPD:PUMPBWM** command. The command is as follows:

**UPD:PUMPOFC[:CMP][:SM]**

**NOTE:** **UPD:PUMPBWM/UPD:PUMPOFC** has no effect on the standby CMP. The standby CMP will always be pumped with the same image in the active CMP.

```

----- Update Number 1 -----
Time & Date Stamp:      Thu Feb 20 04:58:59 1989

Update Name:            BWM89-0001
Processor Name:         AM
BWM sequence number:    1
Package sequence number:
0,      0,      0,      0,      0,      0,      0,      0,      0,      0

```

```

0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0

```

```

Transaction = 0x8:
.      NEW RELEASE OF FILE
File Update Type = 0x41:
.      KILLABLE PROCESS
.      SUPERVISOR PROCESS
Status = 0xc:
.      INSTALLED
Official Pfile Path = /no5text/prc/fpump
Working  Pfile Path =
Bound Upd File Path =
New OFC Pfile Path =
Saved BOLO FN/UPD Path =
Saved BOLO DF File Path =
.m Update file Path[0] = /etc/bwm/BWM89-0001/fpump

```

**Figure 5-6 Typical BWM History of an AM Update**

```

----- Update Number 10 -----
Time & Date Stamp:      Sun Feb 23 16:34:15 1989

Update Name:      BWM89-0002
Processor Name:   SM
OSSyspatch address 0x3feb2c
BWM sequence number: 10
Package sequence number:
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      1,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0,      0,      0,      0,      0,      0
0,      0,      0,      0,      0
Configuration:      BASIC
Affected SM list:
2,      3

Transaction = 0x2:
.      FUNCTION REPLACEMENT
File Update Type = 0x808:
.      CONTIGUOUS FILE
.      NON-KILLABLE PROCESS
.      SM
Status = 0xb:
.      INSTALLED
.      OGEN
Official Pfile Path = /no5text/im/D.basic/IM.out

```

```

Working Pfile Path = /no5text/im/D.basic/___IM.out
Bound Upd File Path = /updtmp/UpdFilbIM
New OFC Pfile Path =
Saved BOLO FN/UPD Path =
Saved BOLO DF File Path =
.m Update file Path[0] = /etc/bwm/BWM89-0002/PCtrnsch_c.m
Updated function      PCloss has new address of 0xf3034

```

**Figure 5-7 Typical BWM History of an SM Update**

SYS EMER	CRITICAL	MAJOR	MINOR	BLDG/PWR	BLDG INH	CKT LIM	SYS NORM																
OVERLOAD	SYS INH	AM	AM PERPH	OS LINKS	SM	CM	MISC																
CMD: █ -----1800 - SM 001 LSM INH & RCVRY CNTL																							
<u>INHIBIT (6)</u> 6XX <u>SET (4)</u> 4XX <u>OUTPUT (9)</u> 9XX <u>FORCE ACTIVE</u> 420 SET MCTSI 0 421 SET MCTSI 1 422 CLEAR FORCE <u>INITIALIZE</u> 920 SELECTIVE INIT (SI) 921 SELECTIVE INIT W/PUMP 922 FULL INIT (FI) 923 FULL INIT W/PUMP 924 MP RESET		<u>ALLOW (7)</u> 7XX <u>CLEAR (5)</u> 5XX		SM 001 STAT <div style="border: 1px solid black; padding: 2px;">INHIBITS +</div>		<table border="1"> <tr> <td>00 ROUTINE AUDITS 6 7 9</td> <td>01 AUTO PUMP 6 7</td> <td>02 ROUTINE EXERCISE 6 7 9</td> <td>03 MANUALLY ISOLATE 4 5</td> </tr> <tr> <td>04 SFTCHK 6 7</td> <td>05 INH SANITY TIMER 6 7</td> <td>06 CORC LOGGING 6 7</td> <td>07 RC BKOUT 50% 4 5</td> </tr> <tr> <td>08 ALL HDWCHK 6 7</td> <td>09 BREVC SM 6 7</td> <td>10 UPD BACKOUT</td> <td>11 MIN MODE (FI) 4 5</td> </tr> <tr> <td>12 PFR MSG VERBOSE 4 5</td> <td>13 NOT USED</td> <td>14 NOT USED</td> <td>15 NOT USED</td> </tr> </table>		00 ROUTINE AUDITS 6 7 9	01 AUTO PUMP 6 7	02 ROUTINE EXERCISE 6 7 9	03 MANUALLY ISOLATE 4 5	04 SFTCHK 6 7	05 INH SANITY TIMER 6 7	06 CORC LOGGING 6 7	07 RC BKOUT 50% 4 5	08 ALL HDWCHK 6 7	09 BREVC SM 6 7	10 UPD BACKOUT	11 MIN MODE (FI) 4 5	12 PFR MSG VERBOSE 4 5	13 NOT USED	14 NOT USED	15 NOT USED
00 ROUTINE AUDITS 6 7 9	01 AUTO PUMP 6 7	02 ROUTINE EXERCISE 6 7 9	03 MANUALLY ISOLATE 4 5																				
04 SFTCHK 6 7	05 INH SANITY TIMER 6 7	06 CORC LOGGING 6 7	07 RC BKOUT 50% 4 5																				
08 ALL HDWCHK 6 7	09 BREVC SM 6 7	10 UPD BACKOUT	11 MIN MODE (FI) 4 5																				
12 PFR MSG VERBOSE 4 5	13 NOT USED	14 NOT USED	15 NOT USED																				
		SITE 000 MCTSI <div style="display: flex; justify-content: space-around;"> <div>0 ACT</div> <div>1 STBY</div> </div> <div style="border: 1px solid black; padding: 2px; margin-top: 5px;">MATE MEMORY OOD</div>																					
XX=BOX NUMBER																							

**Figure 5-8 Switching Module Inhibit and Recovery Control Page 1800**

SYS EMER OVERLOAD	CRITICAL SYS INH	MAJOR AM	MINOR AM PERPH	BLDG/PWR OS LINKS	BLDG INH SM	CKT LIM CM	SYS NORM MISC												
1850 - CMP 0 PRIM INH & RCVRY CNTL																			
2XX INHIBIT CMP 0 PRIM 3XX ALLOW CMP 0 PRIM 4XX SET CMP 0 PRIM 5XX CLEAR CMP 0 PRIM 6XX INHIBIT CMP 0 7XX ALLOW CMP 0 9XX OUTPUT CMP 0 PRIM 800 OUTPUT CMP 0 STATUS INITIALIZE CMP 0 PRIM <hr/> 919 PURGING INIT (PGI) 920 SELECTIVE INIT (SI) 922 FULL INIT (FI) 923 FULL INIT W/PUMP		CMP 0 PRIM STAT <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">             0-0 ACT              POSTINIT              31           </div> <div style="border: 1px solid black; padding: 5px;">             MATE STAT              (SEE NOTE)              1-0 STBY              INHIBITS +           </div>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">00 ROUTINE AUDITS 6 7 9</td> <td style="padding: 5px;">01 AUTO PUMP 6 7</td> <td style="padding: 5px;">02 NOT USED</td> <td style="padding: 5px;">03 NOT USED</td> </tr> <tr> <td style="padding: 5px;">04 SFTCHK 6 7</td> <td style="padding: 5px;">05 ALARMED MSG DSCD</td> <td style="padding: 5px;">06 NOT USED</td> <td style="padding: 5px;">07 RC BKOUT 4 5</td> </tr> <tr> <td style="padding: 5px;">08 ALL HDWCHK 2 3</td> <td style="padding: 5px;">09 BREVITY CONTROL 6 7</td> <td style="padding: 5px;">10 UPD BACKOUT</td> <td style="padding: 5px;">11 MIN MODE</td> </tr> </table>				00 ROUTINE AUDITS 6 7 9	01 AUTO PUMP 6 7	02 NOT USED	03 NOT USED	04 SFTCHK 6 7	05 ALARMED MSG DSCD	06 NOT USED	07 RC BKOUT 4 5	08 ALL HDWCHK 2 3	09 BREVITY CONTROL 6 7	10 UPD BACKOUT	11 MIN MODE
00 ROUTINE AUDITS 6 7 9	01 AUTO PUMP 6 7	02 NOT USED	03 NOT USED																
04 SFTCHK 6 7	05 ALARMED MSG DSCD	06 NOT USED	07 RC BKOUT 4 5																
08 ALL HDWCHK 2 3	09 BREVITY CONTROL 6 7	10 UPD BACKOUT	11 MIN MODE																
XX=BOX NUMBER		(NOTE: SEE 1851,0 CMP 0 MATE INH & RCVRY CNTL)																	

Figure 5-9 Communication Module Processor Inhibit and Recovery Control Page1850

SYS EMER OVERLOAD	CRITICAL SYS INH	MAJOR AM	MINOR AM PERPH	BLDG/PWR OS LINKS	BLDG INH SM	CKT LIM CM	SYS NORM MISC												
1851 - CMP 0 MATE INH & RCVRY CNTL																			
2XX INHIBIT CMP 0 MATE 3XX ALLOW CMP 0 MATE 4XX SET CMP 0 MATE 5XX CLEAR CMP 0 MATE 9XX OUTPUT CMP 0 MATE 800 OUTPUT CMP 0 STATUS <u>INITIALIZE CMP 0 MATE</u> 919 PURGING INIT (PGI) 920 SELECTIVE INIT (SI) 922 FULL INIT (FI) 923 FULL INIT W/PUMP <u>OFFLINE PUMP CMP 0 MATE</u> 930 START 931 STOP				<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>MATE STAT</b>            1-0 STBY            INHIBITS +            SW-REQ         </div> <div style="display: flex;"> <div style="border: 1px solid black; padding: 5px; flex: 1;"> <b>CMP 0 PRIM STAT</b>            (SEE NOTE)            0-0 ACT            POSTINIT         </div> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25%;">00 ROUTINE AUDITS 9</td> <td style="width: 25%;">01 AUTO PUMP SEE NOTE</td> <td style="width: 25%;">02 NOT USED</td> <td style="width: 25%;">03 NOT USED</td> </tr> <tr> <td>04 SFTCHK SEE NOTE</td> <td>05 ALARMED MSG DSCD</td> <td>06 NOT USED</td> <td>07 RC BKOUT 4 5</td> </tr> <tr> <td>08 ALL HDWCHK 2 3</td> <td>09 BREVITY CONTROL SEE NOTE</td> <td>10 UPD BACKOUT</td> <td>11 MIN MODE</td> </tr> </table> </div>				00 ROUTINE AUDITS 9	01 AUTO PUMP SEE NOTE	02 NOT USED	03 NOT USED	04 SFTCHK SEE NOTE	05 ALARMED MSG DSCD	06 NOT USED	07 RC BKOUT 4 5	08 ALL HDWCHK 2 3	09 BREVITY CONTROL SEE NOTE	10 UPD BACKOUT	11 MIN MODE
00 ROUTINE AUDITS 9	01 AUTO PUMP SEE NOTE	02 NOT USED	03 NOT USED																
04 SFTCHK SEE NOTE	05 ALARMED MSG DSCD	06 NOT USED	07 RC BKOUT 4 5																
08 ALL HDWCHK 2 3	09 BREVITY CONTROL SEE NOTE	10 UPD BACKOUT	11 MIN MODE																
XX=BOX NUMBER				(NOTE: SEE 1850,0 CMP 0 PRIM INH & RCVRY CNTL)															

**Figure 5-10 Communication Module Processor Inhibit and Recovery Control Page1851**

UPD VFYCON IN PROGRESS

UPD VFYCON - TABLE OF INCONSISTENCIES FOLLOWS

UPNM	UPD NUMBER	TYPE	PROCESSOR
BWM88-0001	6	7	ISLU-CC : SM3
STATUS UNIT			
INCONSISTENT		ISLUCC=3-1-0	

REMOVE/RESTORE INCONSISTENT PERIPHERALS

BWM88-0001	5	7	PSU-PH : SM3
STATUS UNIT			
INCONSISTENT		PSUPH=3-0-0-5	
INCONSISTENT		PSUPH=3-0-0-10	

REMOVE/RESTORE INCONSISTENT PERIPHERALS

BWM88-0001	1	1	AM
------------	---	---	----

UPD VFYCON COMPLETED

**Figure 5-11 Typical Update Inconsistency Report**



## 5.10 OFFICE BACKUP METHODS

### 5.10.1 GENERAL

The backups for MHDs in an office can be the software backup disk(s) and/or a set (sequence) of tapes. The optional software backup disk(s) (MHD14/MHD15) is/are a bootable copy of MHD0/MHD1. The tapes will contain all of the text and data base partitions required to recover an office to a call processing state. At least five sets of tapes are required: (1) TOP tape, (2) AM text, (3) AM ODD, (4) SM text, and (5) one for each disk containing SM ODD.

A change to GENBKUP became effective in the 5E10 software release. If the office is equipped with a 3B21D and a DAT, a multivolume design was implemented. A multivolume tape has one TOP tape and may have more than one AM Text, SM Text, AMODD, or SMODD tapes written to one physical DAT. Each TOP, AM Text, SM Text, AMODD, or SMODD tape will be referred to as a logical volume for discussions related to a multivolume DAT.

### 5.10.2 GENBKUP ROUTINE

The full office backup procedure is the process used to save a copy of the office software (text, ODD, and ECD data bases). The full office backup is done in order to provide a reliable vehicle for system recovery in the event that data in both disk drives becomes mutilated.

To simplify the procedure, an automated procedure using GENBKUP exists. GENBKUP executes all audits and creates an AM Text, SM Text, AM ODD tapes, and the software backup disk. The CMP text and CMP ODD are part of the AM text and AM ODD, respectively. If any commands find errors during the execution of GENBKUP, the GENBKUP procedure will quit with a message indicating the command which found the error(s). GENBKUP should be entered from the recent change terminal or a supplemental trunk line work station.

**CAUTION:** The GENBKUP procedure could abort if the 5ESS-2000 switch contains a software update in the temporary state. This would be caused by differences between the incore version and the disk version created by a temporary software update.

After the **RCV:MENU:GENBKUP** message is typed in on the RC/V terminal or the **195** Poke is entered on the STLW terminal, the screen is painted with pages that inform the craft of GENBKUP commands being performed in the switch and ask for inputs from the craft. In general, all pages have a header that looks like the following illustration.

**PROCESSING - # # GENBKUP PROCEDURE PAGE n OF m**

After invoking GENBKUP, the following options are displayed in order for the craft to choose the kind of backup desired:

- **t:** Backup to Tape
- **p:** Physical Tape Verification
- **c:** Check LDFT Tape Header
- **d:** Software Disk Backup
- **u:** Update and Verify Disks
- **v:** Verify Disk Data
- **rt:** Restart Tape Sequence
- **rd:** Restart Sftw Bkup Disk

- **b:** Copy DAT to DAT (5E10)
- **q:** To Quit.

If either **d** or **t** is entered, a second page is displayed asking "Which software disk is to be updated?", or (for tape) which "Tape Drive to use?". The system then updates several disk partitions and runs a number of audits and compares before generating the backup entities. The **u** option causes the disk updates, audits, and compares to be run without generating any backup entities. This can be run from the SCC while the craft is still in the office and is used to run the preliminary verification before the backup entities are actually made. GENBKUP remembers the results of this verification for 24 hours. Entering a **v** causes only the audits and compares to be run. The *restart* options, **rt** and **rd**, will be displayed if GENBKUP has been entered within the last 24 hours and has executed the **BKUP:ODD** and **COPY:PTN** commands.

In general, a list of commands is displayed. While each command is being executed, that line is backlighted and a counter **PROCESSING - ##** is incremented while each command is executing to indicate command activity. The counter is restarted for each new command. In addition to the screen response, FSBLK audit, FSLINK audit, compare-disk-to-core results, and other messages associated with the commands being executed are also printed on the ROP. Prior to 5E10, during the ROOT TO BACKUP ROOT PARTITION COPY page, which follows the audits, the system MHDs (0/1) are simplexed and then duplexed by the **COPY:PTN:ALL** command. For 5E10 the system MHDs will not be simplexed during the ROOT TO BACKUP ROOT PARTITION COPY.

When the ODD Backup commands are to be executed, the craft is given the option of inhibiting recent changes for the entire ODD backup process or only during the final steps. For 5E10 software update, if the office is equipped with a 3B21D and a DAT, the recent changes will be inhibited only during the final steps. Inhibiting for the entire process will decrease the elapsed time of the backup process but will increase the time the customer is inhibited from making recent changes. The time variation will be office dependent. If any problems are encountered by the office backup process, an informative message will be output to the screen and printed on the ROP. The message will indicate craft action(s) to be done.

During the tape backup sequences, the craft is prompted when tapes should be mounted and unmounted. Because the multivolume tape format is used, the handling of tapes is minimized if a 5E10 software update is used and the office is equipped with a 3B21D and a DAT. At each tape mounting operation, the craft prompts the system by typing in **GO**. Prior to the 5E10 software update the craft is asked if the tape should be verified automatically after the tape is written. Normally the craft should answer "yes", but some circumstances (such as time) may warrant deferring the tape verification until another time. In this case, the label that is printed on the ROP when the tape is completed contains a "VERIFY: NOT DONE" statement. Following automatic tape verification, the label that is printed on the ROP when the tape is completed contains a "VERIFIED: SUCCESSFUL" statement. The tape label is printed on the ROP for each tape in a sequence.

For 5E10 software release, if the office is equipped with a 3B21D and a DAT, a full sequence of backups (that is, AMTEXT, SMTEXT, SMOOD ...) may be requested at one time. Once a request has been entered GENBKUP will not require craft intervention until the full backup request has been completed. Otherwise, at the end of each tape sequence, the "What is to be backed up?" prompt is returned. The craft reply entered starts the sequence again. The initial audits, compares, and ODD backups are run only once.

The following is a list of backup dependencies:

#### Software Backup Disks

- The software backup disk
- SM Text tape to match the software update level of the AM Text on the Backup Disk
- SM ODD tape to match the RC level of the AM ODD on the Backup Disk.

## Backup Tapes

- Text - AM Text tape and SM Text tape at the same software update level
- ODD - AM ODD tape and SM ODD tape(s) at the same RC level.

### 5.10.3 BACKUP LEVELS

#### 5.10.3.1 General

There are four levels of backups possible in the 5ESS switch 5ESS-2000 switch, depending upon the type of disks equipped. These levels are as follows:

- (1) Memory to primary-disk backup
- (2) DMERT operating system root partition to backup-root partition
- (3) Office dependent data (ODD) backup to tape
- (4) Full office backup to tape or disk

The four backups listed are identical for the 340-MB, and SCSI disks. Only a general description of these backup methods is provided in this section. For detailed procedures covering the 340-MB, and SCSI disks, refer to Memory Alteration Procedures (Section 6 ).

#### 5.10.3.2 Memory (core) to Primary Disk Backup

This backup is done any time changes to the office text or data are made permanent. This includes software updates and data base recent changes. The data base recent changes consist of ODD and equipment configuration data (ECD). It consists of saving the changes from memory to MHD 0 and 1. When the memory changes have been made permanent, they are available on disk for automatic recovery situations which require booting.

#### 5.10.3.3 DMERT Root to Backup-Root Partitions

This backup is performed prior to making changes permanent to data, program, or other files in the DMERT root partitions (/dev/root, /dev/db, /dev/etc, and /dev/boot). These changes are the result of software updates or ECD recent changes. The term primary partitions refers to the root partitions listed in Table 5-3 . This backup consists of copying the partitions shown in Table 5-3 from the primary to backup partitions. Files in these partitions are identified by pathnames that begin with something other than /no5text.

**Table 5-3 Source and Destination Partitions for Backup**

<b>SOURCE PRIMARY (ROOT) PARTITIONS</b>	<b>DESTINATION (BACKUP-ROOT) PARTITIONS</b>
/dev/boot	/dev/bboot
/dev/root	/dev/broot
/dev/etc	/dev/betc
/dev/db	/dev/bdb

Normally, system operation is performed from the files in the root partitions. This is indicated by the emergency action interface page having item 31 (BACK\_ROOT) cleared. Backup-root partitions are used only for recovery situations. This means that if backup-root is used to perform recovery operations, the required corrections should be made to the root partitions and control of the system must be returned to the root partitions. No ECD recent changes or software updates should ever be applied to the system while it is running on the backup-root partitions.

#### 5.10.3.4 ODD Backup to Tape

The ODD backup to tape is a backup of the office data base and the Lucent Technologies 3B20/3B21D computer data base on one tape. The ODD tape will contain the current working data base in the following partitions:

/dev/no5aodd1	/dev/no5dodd1	/dev/no5sodd(i)
---------------	---------------	-----------------

The set of data base partitions to be backed up depends on the contents of the /no5text/rcv/aimrc file.

#### 5.10.3.5 Full Office Backup to Tape

This procedure is used to create all of the tapes for the backup desired.

### 5.10.4 GENBKUP PROCESS: HOW IT WORKS AND WHAT IT DOES

#### 5.10.4.1 Introduction

GENBKUP is the general term used for the program that runs the automated full office backup. The procedures for a full office backup (disk and tape) are described in Section 6 of this document. Section 6 describes in detail what GENBKUP does and what the expected outcome is at each step. This section provides additional information about the program for help in troubleshooting GENBKUP problems.

It is assumed that the user of this document is familiar with the 5ESS-2000 switch and the GENBKUP procedure.

#### 5.10.4.2 General Information

GENBKUP is an interactive *UNIX*<sup>®</sup> system process, it is started by the **RCV:MENU:GENBKUP**; input message or 195 poke. It terminates itself when the user enters ``q" (for quit), when prompted, or when the process encounters an error condition. If termination of GENBKUP is desired and you are not at a prompt where ``q" is available, then, start another GENBKUP from another terminal. Because of built-in concurrency control, the new GENBKUP will detect the old GENBKUP and the system will ask if you wish to terminate the old GENBKUP. The ``y" (yes) answer will terminate the old GENBKUP. The new GENBKUP will then go on to do the preliminary checking, but you will be able to terminate it by entering ``q" when the initial menu is displayed.

The input message **RCV:MENU:GENBKUP** should be used on a recent change (RC) terminal while the poke (195) should be used on a supplementary trunk and line work station (STLWS) terminal or the master control center (MCC). When the input message is used, the /usr/bin/genbkup program is executed while the poke executes /usr/bin/Slgenbkp. Both programs are compiled from one source file using different libraries for terminal control functions and are basically identical. Both programs, therefore, are treated in this document as a single entity which is referred to as GENBKUP.

#### 5.10.4.3 High-Level Program Flow

The following is a high-level program flow. Some messages that appear on the screen are shown to relate internal program steps to external stages.

- (I) Initial checking (if test fails, it will abort or asks for more input).
  - (1) Terminal name and type.
  - (2) Special device files for tape drive 0 (high and low density).
  - (3) No memory growth in progress.
  - (4) No ODD BKUP in progress.

- (5) No other GENBKUP is running. Checks for the presence of /tmp/.genbkupLOCK file and, if found, asks the user if they wish to terminate the other GENBKUP.
- (6) Change directory to /cft/shl.
- (7) Check sums (sum -r) of /no5text/bkup/\*.ptn files against the values stored in /no5text/bkup/bkupsum file.
- (8) \*\*\*\*PTN FILES ARE OK\*\*\*\* (screen message, asterisks do not print on screen).
- (9) Check partitions and file systems listed in /no5text/bkup/parchk.list. Check to see if they are in the SG data base, check some of their sizes against vtoc. Create /updtmp/.GBbboot.bf, /updtmp/.GBlboot.bf and /updtmp/.GBprompat.o files to check bootfile sum values against those in /no5text/bkup/boot.sum. Remove the .GB files when done.
- (10) \*\*\*\*FOUND ALL PARTITIONS\*\*\*\*
- (11) Check if / (root), /etc, and /data base are mounted on primary (root, etc, and db), or on backup (broot, betc, and bdb). If all are mounted on primary, no action is required. If all on backup or some on primary and some backup, set a flag to offer limited menu options.

Check if other file systems are mounted: no5text, no5odd, updtmp, log, cdmp, rclog, bwm, tmp, unixa, cft, dg, usrbin, smtext, no5sodd, no5codd, smlog, and unixabf. If some are found to be mounted on nonstandard mount directory or not mounted, set a flag to offer limited menu options.

- (12) \*\*\*\*MOUNT TABLE IS OK\*\*\*\*
- (13) Check if restart option may be offered. Offer restart option, if all of the following conditions are met:
  - (i) /etc, /db, and / (root) are on primary partitions.
  - (ii) The file /updtmp/.genbkupCHK exists and was created or last modified within past 24 hours.
  - (iii) The file (.genbkupCHK) indicates ODD time later than the last modification of cpodd.out and /dev/no5aodd1 is currently mounted. In other words, no **BKUP:ODD** was run since the last time GENBKUP ran **BKUP:ODD** input message and /no5odd/cpdata is mounted on /dev/no5aodd1 rather than on no5aodd2.

And/or

The file (.genbkupCHK) indicates TXT time later than the last modification of /no5text/.version, /etc/.version, and /broot/.version. In other words, no software update was made official since the last time GENBKUP ran **COPY:PTN,ALL** input message. (During this step, a temporary directory /genbkupDIR is created to mount /broot in order to access /broot/.version. After reading the time-stamp of /version, the partition is unmounted.)

- (14) \*\*\*\*PROCEEDING...\*\*\*\*
  - (15) Display on screen when last GENBKUP tasks were done. ``COPY PARTITION ALL CMD DONE ON ....'', ``AM TEXT TAPE SEQUENCE MADE ON ...'', etc.
- (II) Display main menu on screen. Items displayed on the menu will vary depending on the conditions found during the initial checking. Perform the task selected by the user. When done, display the menu again. Exit when the user selects ``q".

If no software update activity is detected, and root, etc, and db are mounted on primary:

- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT Tape Header
- d) Software Disk Backup
- u) Update and Verify Disks
- v) Verify Disk Data
- rt) Restart Tape Sequence (If either TXT or ODD allowed, see previous Step I.13)
- rd) Restart Sftw Bkup Disk (If both TXT and ODD allowed, see previous Step I.13)
- b) Copy DAT to DAT (5E10)
- q) To Quit.

If no software update activity is detected, and root, etc, and db are mounted on backup:

- m) Make Root Copy
- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT Tape Header
- u) Update and Verify Disks
- v) Verify Disk Data
- b) Copy DAT to DAT (5E10)
- q) To Quit.

If one or more of the following is true -- (1) software update activity is detected; (2) some of root, db, etc., partitions are mounted on primary while others are mounted on backup; (3) a mount table inconsistency (some partitions are mounted on nonstandard directory or not mounted) was found:

- t) ODD Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT Tape Header
- b) Copy DAT to DAT (5E10)
- q) To Quit.

(III) Steps taken in each item on the previous main menu:

- t) Backup to multivolume DAT (5E10 software release and office equipped with a 3B21D and a DAT):"

Display variable menu depending on conditions, receive response, perform the task selected by the user and, when the task is complete, display a menu. Return to the main menu when ``q" is selected.

After "t" has been selected, a menu to select a tape drive is displayed.

If two DATs are available in the office the craft will be asked if a copy from DAT to DAT is desired.

After the DAT drive is selected, a menu to specify where to start writing on the DAT is displayed.

- b) Beginning of the DAT
- a) Append to the end of DAT
- s) Seek to a specific position of the DAT
- q) To Quit

If the option to start at the beginning of DAT is selected, all of the logical volumes will be backed up: TOP TAPE, AM TEXT, AM ODD, SM TEXT, and SM ODDs. The TOP TAPE logical volume will always be the first volume written to the beginning of the DAT (not optional).

- g) AM Text (See Note 1)
- a) AM ODD

- x) SM Text (See Note 2)
- s) SM ODD
- n) No more Selection

**NOTE 1:** AM TEXT not displayed if any of the following conditions are true:

1. Software update activity is detected.
2. root, etc, and db are on backup partitions.
3. Mount table inconsistency is found.

**NOTE 2:** SM TEXT not displayed if any of the following conditions are true:

1. Software update activity is detected.
2. Mount table inconsistency is found.

Once the selections have been entered, GENBKUP will start to back up each one of the logical volumes following the procedures described below for the TOP TAPE, AM TEXT, AM ODD, SM TEXT, or SM ODD. The completion of each logical volume will be marked by a message displayed on the screen and a label printed on the ROP. GENBKUP will continue until the back up of all the logical volumes selected has been completed and the main menu is displayed.

- t) Backup using single volume format: Single volume format is used for software releases prior to 5E10. It is also used for 5E10 software release if one of the following conditions is met:

- 1) The office is equipped with a 3B20
- 2) No DAT is available
- 3) A 3B21D office with a DAT and a 9-track that selects the 9-track.

Display variable menu depending on conditions, receive response, perform the task selected by the user and, when the task is complete, display the menu again. Return to the main menu when "q" is selected.

- g) AM TEXT (See Note 1)
- x) SM TEXT (See Note 2)
- a) AM ODD
- s) SM ODD
- t) TOP TAPE
- q) To Quit

**NOTE 1:** AM TEXT not displayed if any of the following conditions are true:

1. Software update activity is detected.
2. root, etc, and db are on backup partitions.
3. Mount table inconsistency is found.

**NOTE 2:** SM TEXT not displayed if any of the following conditions are true:

1. Software update activity is detected.
2. Mount table inconsistency is found.

g) AM TEXT:

- (i) Display Page 1 of ``AM TEXT VERIFICATION" and execute all the audit messages displayed on the screen (**AUD:FSBLK=1,INS="xxx"; AUD:FSLINK=1,INS="xxx";** etc.).
- (ii) Display Pages 2, 3, and 4 of ``AM TEXT VERIFICATION" and execute all the compare disk to core messages displayed on the screen (**CMPR:DISK:CORE,FN="xxx";** etc.).

- (iii) Display Page 5 of ``AM TEXT VERIFICATION" and execute **VFY:FILE,FLIST="/no5text/bkup/CRCfile";** message.
- (iv) If **COPY:PTN,ALL** (copy root, etc, db, and boot partitions to broot, betc, bdb, and bboot partitions or vice versa depending on which are mounted) has not been done already during this GENBKUP session, display ``ROOT TO BACKUP ROOT PARTITION COPY" page and execute all the messages displayed on the screen **OP:MHD=0/1,INFO, VFY:MHD=0/1,** and **COPY:PTN:ALL,SRC="xxx").**
- (v) If the current official AM ODD is not on primary disk pair (that is, /no5text/rcv/aimrc points to no5aodd2) run **BKUP:ODD.** If Recent Change is not already inhibited, the user will be given a choice of inhibiting RC for the entire time or a part of the time. For the multivolume format the selection is to inhibit RC part of the time. Depending on what option is chosen and whether RC is already inhibited, **BKUP:ODD,AM** is also run. This is done so that when the whole thing is done, AM ODD will point to primary disk pair (that is, /no5text/rcv/aimrc points to no5aodd1 or no5dodd1 rather than no5aodd2 or no5dodd2). For the 5E10 software release, if the office is equipped with a 3B21D and a DAT, the recent changes will be inhibited only during the final steps.
- (vi) Warn that the tape must be at least 2300 feet or 60M long for DAT. For a single volume tape format, ask if the tape should be verified after it is made. Test the tape drive; read in the tape header; and if the header is readable, display the date and the type of the tape contents about to be overwritten. Write tape with:

**COPY:BKDISK:START,SRC="xxx"...** (single volume tape)  
**COPY:BKDISK:MULTI,SRC="xxx"...** (multivolume DAT)

If verification of the tape was requested, verify tape with:

**VFY:TAPE,TD="xxx"....** Print label and ask to unmount the tape for single volume tapes. If more tape is needed for a single volume tape, write the next tape with:

**COPY:BKDISK,ACK:TPSIZE=2300(60M for DAT)** message.

For multivolume DAT continue writing to the same tape until all requested logical volumes have been completed.

#### x) SM TEXT:

- (i) Display ``SM TEXT VERIFICATION" page and execute all the audit messages displayed on the screen:  
**AUD:FSBLK=1,INS="xxx"; AUD:FSLINK=1,INS="xxx";** etc.
- (ii) Write tape. See Step ``vi" of AM TEXT for more detail.

#### a) AM ODD:

- (i) If **BKUP:ODD** has not been already run in this GENBKUP session, run **BKUP:ODD.** For single volume tape format if Recent Change is not already



inhibited, the user is given a choice of inhibiting RC for the entire time or a part of the time. For the 5E10 software release, if the office is equipped with a 3B21D and a DAT, the recent changes will be inhibited only during the final steps. Run **BKUP:ODD** once or twice depending on which option is chosen. Also run **BKUP:ODD,AM** if current official AM ODD is not on primary disk. This is done so that when the whole thing is done, AM ODD will be on the primary disk pair rather than on the secondary (that is, /no5text/rcv/aimrc will point to no5aodd1 or no5dodd1 rather than to no5aodd2 or no5dodd2).

(ii) Display ``AM ODD VERIFICATION" screen, and execute **AUD:FSBLK** and **AUD:FSLINK** for /dev/no5aodd1.

(iii) Write tape. See Step ``vi" of AM TEXT for more detail.

s) SM ODD:

(i) If **BKUP:ODD** has not been already run in this GENBKUP session, run **BKUP:ODD**. See previous AM ODD Step ``i".

(ii) Display ``SM ODD VERIFICATION" page(s), and execute **AUD:FSBLK** and **AUD:FSLINK** for /dev/no5codd1 and /dev/no5soddX partitions.

(iii) Write tape. See Step ``vi" of AM TEXT for more detail. Minimum of one tape for each SM ODD partition (for example, imdata1, imdata2, etc.) will be written. For multivolume DAT one logical volume for each SM ODD partition will be written.

t) TOP TAPE:

(i) Test the tape drive; read the tape header; and if the header is readable, display the date and the type of the tape contents about to be overwritten. Write TOP tape. For a single volume format, verify the tape via **VFY:TAPE...**, print the label and, unmount the tape.

p) Physical Tape Verification: Check if the tape can be read and if it is a load-disk-from-tape (LDFT) tape. Read in the header and determine the date the tape was written and what kind of tape it is (for example, text, odd, etc.). Display the information. Run **VFY:TAPE...** command to verify the tape.

c) Check LDFT Tape Header: For single volume format tape, read the tape header. Check and print what type (text, data base, etc.), sequence number, density, and device name. If the tape contains VTOC, read the VTOC contents and print them out in a similar format as done in **DUMP:MHD,VTOC**. For multivolume format DAT, the tape header content information (contents of the entire tape, that is, header from each of the logical volumes on the tape) includes what type (text, data, etc), session number, volume number, and date it was written.

d) Software Disk Backup: Ask which software backup disk (14 or 15) is to be updated. Verify AM TEXT, AM ODD, and SM ODD partitions; and if **BKUP:ODD** has not been run yet, run **BKUP:ODD**. See the steps AM TEXT, AM ODD, and SM ODD for verification and **BKUP:ODD**.

Check MHDs 0 and 1. Remove MHD 14 (or 15) and initialize (clear) MHD 14 (or 15).

**COPY:ACTDISK:MHD,SRC="/dev/vtoc",PTN="/dev/vtocb1"** (copies vtoc to MHD=xx) (MHD and

PTN="/dev/vtocab1" if MHD=xx was picked by the user).

Restore MHD=xx and copy from active disk to backup disk with:

**COPY:SPDISK:SRC="/no5text/bkup/prmdsk.ptn",**  
**DEST="/no5text/bkup/bkdsk1.ptn"** (or bkdsk2.ptn).

- u) Update and Verify Disks: If **BKUP:ODD** has not been run already during this GENBKUP session, then run **BKUP:ODD** (see AM TEXT steps for more detail).

Verify AM TEXT, AM ODD, and SM ODD partitions. Same audits, compare-disk-to-core, etc. messages are run as in verifications for AM TEXT, AM ODD, and SM ODD.

This option does everything ``Backup to Tape" does except making tapes. This option is identical to ``Verify Disk Data" except for **BKUP:ODD** which is done here but not in ``Verify Disk Data."

- v) Verify Disk Data: Verify AM TEXT, AM ODD, and SM ODD partitions. Same audits, compare-disk-to-core, etc. messages are run as in verifications for AM TEXT, AM ODD, and SM ODD.

- rt) Restart Tape Sequence: Display conditions under which this option is allowed and ask for ``go" input.

This option lets you write tapes without verifications and **BKUP:ODD**. It is usually used when ``Update and Verify" was run earlier in the day (within last 24 hours) and another **BKUP:ODD** was not run during the intervening period.

Display variable menu depending on conditions and receive response.

- g) AM TEXT (displayed only if TEXT restart allowed)
- x) SM TEXT
- a) AM ODD (displayed only if ODD restart allowed)
- s) SM ODD (displayed only if ODD restart allowed)
- t) TOP TAPE
- q) To Quit

#### g) AM TEXT:

- (i) Write AM TEXT tape. See Step ``vi" of AM TEXT section in ``Backup to Tape."

#### x) SM TEXT:

- (i) Run SM TEXT partition verification (audits of sm text partitions). Write SM TEXT tape. See Step ``vi" of AM TEXT section in ``Backup to Tape."

#### a) AM ODD:

- (i) Run AM ODD partition verification (audits of AM ODD partition). Write AM ODD tape. See Step ``vi" of AM TEXT section in ``Backup to Tape."

#### s) SM ODD:

- (i) Run SM ODD verification page (audits of SM ODD partitions). Display the SM ODD partitions and let the user choose which partition to write to tape. Write SM ODD tape. See Step ``vi" of AM TEXT in ``Backup to Tape."

#### t) TOP TAPE:

- (i) Identical to ``Top Tape" in ``Backup to Tape" option.

rd) Restart Sftw Bkup Disk: Display conditions under which this option is allowed and ask for ``go" input.

The rest of the steps are identical to ``Software Disk Backup" option described earlier except that partition verifications and **BKUP:ODD** are not run here.

- m) Make Root Copy: Verify AM TEXT partitions and run **COPY:PTN,ALL** input message. See AM TEXT verification steps for more detail.

#### 5.10.4.4 Craft Input Messages Issued by GENBKUP

GENBKUP accomplishes many of its tasks by issuing craft input messages. These messages issued by GENBKUP are shown on the screen and the currently running input message is highlighted. After each input message is issued, GENBKUP waits and periodically looks in the logfile /log/log/MTCLOG0 (or MTCLOG1, whichever is current) for the output message from the input message process. If the output message indicates success, GENBKUP goes on to the next step. If the output message indicates failure, GENBKUP aborts. GENBKUP will also abort if the output message is not found during a certain waiting period. The waiting period for each message is different depending on the input message. The frequency at which GENBKUP searches the logfile is every 3 to 15 seconds depending on the input message. Therefore if an input task completes and if GENBKUP is still waiting a few minutes after the completion report prints on the ROP, it can be assumed that something is wrong. (You must be careful, however, not to mistake an interim completion report for the completion report. For example, **BKUP:ODD** may print completion report for each module such as AM, but **BKUP:ODD** is still going on for other modules. GENBKUP waits until everything is done.)

The following is the list of craft input messages issued by GENBKUP with the output message pattern string GENBKUP searches for in the logfile.

**NOTE:** The wait time may vary dependent upon software release.

**AUD:FSBLK=%d,INS="/dev/%s"**

**AUD:FSLINK=%d,INS="/dev/%s"**

```
Wait time=300 sec.; search interval=3 sec.
Success string:    "[^0-9]0 *ERRORS *FOUND"
Failure strings:  "DATA.* *ERROR *203"
                  "AUD *FS.* *ERROR"
                  "AUD *FS.* *NOT *STARTED"
                  "AUD *FS.* *ABORTED"
                  "AUD *FS.* *STOPPED"
```

**BKUP:ODD**

**BKUP:ODD,AM**

```
Wait time=42000 sec.; search interval=10 sec.
Success string:    "BKUP *ODD *COMPLETED"
Failure strings:  "ABT *ODD.* *COMPLETED"
                  "BKUP:ODD; *RL"
                  "BKUP *ODD.* *ABORTED"
                  "BKUP *ODD.* *STOPPED"
```

```

                                "BKUP  *ODD.*  *NOT  *STARTED"
CMPR:DISK:CORE, FN="%s"

Wait time=1200 sec.; search interval=3 sec.

Success string:      " ARE  *EQUAL"

Failure strings:     " MISMATCH"
                    " FAILED *TO  *OPEN"
                    "CMPR  *DISK *CORE *STOPPED"
COPY:ACTDISK:MHD=14, SRC="/dev/vtoc", PTN="/dev/vtocb1"
COPY:ACTDISK:MHD=15, SRC="/dev/vtoc", PTN="/dev/vtocb2"

Wait time=3000 sec.; search interval=6 sec.

Success string:      "COPY  *ACTDISK *ON"

Failure string:      "COPY  *ACTDISK *STOPPED"
COPY:BKDISK,ACK:TPSIZE=2300 (60M for DAT) [,EXT]
COPY:BKDISK,START, SRC="%s", TD="%s", FN="%s", TPSIZE=2300 (60M for DAT)
[,EXT] [,MRG]
COPY:BKDISK:MULTI, SRC="%s", TD="%s", FN="%s", PSESS=%s, PVOL=%s, SESS=%s,
VOL=%s, EXT, SKP, NODMTMSG
Wait time=12600 sec.; search interval=10 sec.

Success strings:     "MOUNT  *NEXT  *TAPE"
                    "DISMOUNT"

Failure strings:     "COPY  *BKDISK *STOPPED"
                    "CAN'T  *RUN   *WITH  *SYSTEM"
                    "BKDISK  *PROCESS *ID   *NOT   *FOUND"
                    "BKDISK.* *START *WAS  *NOT  *ISSUED"
                    "RE-WRITE *ENTIRE *SEQUENCE"
                    "RE-INITIATE *ENTIRE *PROCEDURE"
                    "OPEN   *DISK"
                    "OPEN   *TAPE"
                    "NEW    *TAPE.* *TRY   *AGAIN"
                    "MOUNT  *TAPE.* *ACK.*"
COPY:SPDISK:SRC="/no5text/bkup/prmdsk.ptn", DEST="/no5text/bkup/bkdsk1.ptn"
COPY:SPDISK:SRC="/no5text/bkup/prmdsk.ptn", DEST="/no5text/bkup/bkdsk2.ptn"

Wait time=3600 sec.; search interval=10 sec.

Success string:      "COPY  *SPDISK *COMPLETED"

Failure strings:     "COPY  *SPDISK .*CODE *24[0-9]"
                    "COPY  *SPDISK *STOPPED"
COPY:PTN:ALL, SRC="/no5text/bkup/bkup.ptn", DEST="/no5text/bkup/prim.ptn"
COPY:PTN:ALL, SRC="/no5text/bkup/prim.ptn", DEST="/no5text/bkup/bkup.ptn"
COPY:PTN:ALL, SRC="/no5text/bkup/prim.ptn", DEST="/no5text/bkup/bkup.ptn", ACT
Wait time=3600 sec.; search interval=10 sec.

```

Success strings: "COPY \*FILESYS \*FILE \*COMPLETED"  
 "COPY \*PTN .\* \*COMPLETED"

Failure strings: "COPY \*FILESYS \*FILE \*STOPPED"  
 "COPY \*PTN .\* \*STOPPED"  
 "DISK \*ACCESS"  
 "ABORTED \*CODE"

**INIT:MHD=14,VFY**

Wait time=5400 sec.; search interval=8 sec.

Success string: "INIT \*MHD \*14 \*COMPLETED"

Failure strings: "INIT \*MHD \*14 \*STOPPED"  
 "INIT \*MHD \*14 \*ERROR"  
 "INIT \*MHD \*14 \*NOT \*STARTED"  
 "INIT \*MHD \*14 \*EARLY \*TERM \*VFY"  
 "INIT \*MHD \*14 \*ABORTED"

**INIT:MHD=15,VFY**

Wait time=5400 sec.; search interval=8 sec.

Success string: "INIT \*MHD \*15 \*COMPLETED"

Failure strings: "INIT \*MHD \*15 \*STOPPED"  
 "INIT \*MHD \*15 \*ERROR"  
 "INIT \*MHD \*15 \*NOT \*STARTED"  
 "INIT \*MHD \*15 \*EARLY \*TERM \*VFY"  
 "INIT \*MHD \*15 \*ABORTED"

**OP:MHD=0:INFO**

Wait time=240 sec.; search interval=3 sec.

Success string: "MHD \*0.\* \*ACT"

Failure strings: "OP \*MHD \*0 \*INFO \*NOT \*STARTED"  
 "OP \*MHD \*0 \*INFO \*STOPPED"  
 "OP \*MHD \*0 \*INFO \*ERROR"  
 "OP \*MHD \*0 \*INFO \*ABORTED"  
 "MHD \*0.\* \*INIT"  
 "MHD \*0.\* \*GROW"  
 "MHD \*0.\* \*UNEQIP"  
 "MHD \*0.\* \*OFL"  
 "MHD \*0.\* \*UNAV"  
 "MHD \*0.\* \*OOS"

**OP:MHD=1:INFO**

Wait time=240 sec.; search interval=3 sec.

Success string: "MHD \*1.\* \*ACT"

Failure strings: "OP \*MHD \*1 \*INFO \*NOT \*STARTED"  
 "OP \*MHD \*1 \*INFO \*STOPPED"

```

"OP *MHD *1 *INFO *ERROR"
"OP *MHD *1 *INFO *ABORTED"
"MHD *1.* *INIT"
"MHD *1.* *GROW"
"MHD *1.* *UNEQIP"
"MHD *1.* *OFL"
"MHD *1.* *UNAV"
"MHD *1.* *OOS"

```

**OP:MHD=14:INFO**

Wait time=240 sec.; search interval=3 sec.

```

Success strings:  "MHD *14.* *OOS"
                  "MHD *14.* *ACT"

```

```

Failure strings:  "OP *MHD *14 *INFO *NOT *STARTED"
                  "OP *MHD *14 *INFO *STOPPED"
                  "OP *MHD *14 *INFO *ERROR"
                  "OP *MHD *14 *INFO *ABORTED"
                  "MHD *14.* *INIT"
                  "MHD *14.* *GROW"
                  "MHD *14.* *UNEQIP"
                  "MHD *14.* *OFL"
                  "MHD *14.* *UNAV"

```

**OP:MHD=15:INFO**

Wait time=240 sec.; search interval=3 sec.

```

Success strings:  "MHD *15.* *OOS"
                  "MHD *15.* *ACT"

```

```

Failure strings:  "OP *MHD *15 *INFO *NOT *STARTED"
                  "OP *MHD *15 *INFO *STOPPED"
                  "OP *MHD *15 *INFO *ERROR"
                  "OP *MHD *15 *INFO *ABORTED"
                  "MHD *15.* *INIT"
                  "MHD *15.* *GROW"
                  "MHD *15.* *UNEQIP"
                  "MHD *15.* *OFL"
                  "MHD *15.* *UNAV"

```

**RMV:MHD=14**

Wait time=5400 sec.; search interval=5 sec.

```

Success strings:  "RMV *MHD *14 *COMPLETED"
                  "RMV *MHD *14 *STOPPED *H'5"

```

```

Failure strings:  "RMV *MHD *14 *ABORTED"
                  "RMV *MHD *14 *STOPPED"

```

**RMV:MHD=15**

Wait time=5400 sec.; search interval=5 sec.

Success strings: "RMV \*MHD \*15 \*COMPLETED"  
 "RMV \*MHD \*15 \*STOPPED \*H'5"

Failure strings: "RMV \*MHD \*15 \*ABORTED"  
 "RMV \*MHD \*15 \*STOPPED"

**RMV:MTC=0**

Wait time=180 sec.; search interval=3 sec.

Success strings: "RMV \*MTC \*0 \*COMPLETED"  
 "RMV \*MTC \*0 \*STOPPED \*H'5"

Failure strings: "RMV \*MTC \*0 \*ABORTED"  
 "RMV \*MTC \*0 \*STOPPED"  
 "RCVRY \*MTC \*0"  
 "RCVRY \*MT \*0"

**RST:MHD=14**

Wait time=5400 sec.; search interval=10 sec.

Success string: "RST \*MHD \*14 \*COMPLETED"

Failure strings: "RST \*MHD \*14 \*STOPPED"  
 "RST \*MHD \*14 \*ABORTED"

**RST:MHD=15**

Wait time=5400 sec.; search interval=10 sec.

Success string: "RST \*MHD \*15 \*COMPLETED"

Failure strings: "RST \*MHD \*15 \*STOPPED"  
 "RST \*MHD \*15 \*ABORTED"

**RST:MTC=0**

Wait time=300 sec.; search interval=4 sec.

Success string: "RST \*MT \*0 \*COMPLETED"

Failure strings: "RST \*MTC \*0 \*STOPPED"  
 "RST \*MTC \*0 \*ABORTED"

**VFY:MHD=0**

Wait time=1800 sec.; search interval=5 sec.

Success string: "VFY \*MHD \*0 \*COMPLETED"

Failure strings: "VFY \*MHD \*0 \*NOT \*STARTED"  
 "VFY \*MHD \*0 \*STOPPED"  
 "VFY \*MHD \*0 \*ERROR"  
 "VFY \*MHD \*0 \*ABORTED"  
 "VFY \*MHD \*0 \*EARLY \*TERM \*VERIFY"

**VFY:MHD=1**

Wait time=1800 sec.; search interval=5 sec.

Success string: "VFY \*MHD \*1 \*COMPLETED"

Failure strings: "VFY \*MHD \*1 \*NOT \*STARTED"  
 "VFY \*MHD \*1 \*STOPPED"  
 "VFY \*MHD \*1 \*ERROR"  
 "VFY \*MHD \*1 \*ABORTED"  
 "VFY \*MHD \*1 \*EARLY \*TERM \*VERIFY"

**VFY:TAPE,TD="":RETRY=3**

**VFY:TAPE,TD=%s:RETRY=%s,SESS=%s,VOL=%s,VERBOSE**

Wait time=5400 sec.; search interval=6 sec.

Success strings: "MISMATCHES.\* \*0.\* \*DATA \*MISMATCHES.\* \*0"  
 "VFY \*TAPE \*COMPLETED \*RETRIES.\* \*0"

Failure strings: "VFY \*TAPE \*ABORTED"  
 "VFY \*TAPE \*STOPPED"  
 "ABORTED \*CODE"  
 "VFY TAPE COMPLETED .\* MISMATCHES \*[1-9]"  
 "VFY \*TAPE \*COMPLETED \*RETRIES"

**VFY:FILE,FLIST="/no5text/bkup/CRCfile"**

**VFY:FILE,FN="/dev/mt08 i";**

Wait time=5000 sec.; search interval=10 sec.

Success string: "VFY \*FILE \*COMPLETED.\*"

Failure strings: "VFY \*FILE \*CANNOT \*OPEN.\*"  
 "VFY \*FILE \*VERIFICATION.\*FAILED\*"  
 "VFY \*FILE \*VERIFICATION.\*FAILURE\*"  
 "VFY \*FILE \*SPECIFICATION \*FILE \*ERROR.\*"

#### 5.10.4.5 Files Used and/or Created by GENBKUP

GENBKUP uses many files during its execution. Some are created by GENBKUP and others are a part of switch software. Since many failure messages mention these files, their names and functions are briefly described here.

The following switch software files are used by GENBKUP:

/no5text/rcv/aimrc

/no5text/bkup/aodd.ptn  
 /no5text/bkup/bkdsk1.ptn  
 /no5text/bkup/bkdsk2.ptn  
 /no5text/bkup/bkup.ptn  
 /no5text/bkup/bkupsum  
 /no5text/bkup/boot.sum  
 /no5text/bkup/codd.ptn  
 /no5text/bkup/parchk.list  
 /no5text/bkup/prim.ptn  
 /no5text/bkup/prmdsk.ptn  
 /no5text/bkup/smttext.ptn



```

/no5text/bkup/sodd1.ptn
/no5text/bkup/sodd2.ptn
/no5text/bkup/sodd3.ptn
/no5text/bkup/sodd4.ptn
/no5text/bkup/sodd5.ptn
/no5text/bkup/sodd6.ptn
/no5text/bkup/text.ptn
/no5text/bkup/xtrafs.ptn

```

If GENBKUP cannot access any of the previous files, GENBKUP will fail.

The file /no5text/rcv/aimrc is used to find out if currently official AM ODD is on no5aodd1 or on no5aodd2. This information is used to decide if it is needed to run **BKUP:ODD,AM** after the full **BKUP:ODD** is done.

Files with the .ptn suffix contain names of partitions that are copied to tape/disk. These file are used in input messages ``**COPY:BKDISK...**`, ``**COPY:SPDISK...**`, and ``**COPY:PTN:ALL...**`. Sums of these .ptn files are compared against sums stored in the bkupsum file during the initial checking.

Parchk.list contains names of partitions that are checked against SG data base and VTOC.

The following files are created by GENBKUP:

```

/no5text/bkup/.GBcpyptn
/no5text/bkup/.GBamtext
/no5text/bkup/.GBsmttext
/no5text/bkup/.GBamodd
/no5text/bkup/.GBsmodd1
/no5text/bkup/.GBsmodd2
/no5text/bkup/.GBsmodd3
/no5text/bkup/.GBsmodd4
/no5text/bkup/.GBsmodd5
/no5text/bkup/.GBsmodd6
/no5text/bkup/.GBtoptape
/no5text/bkup/.GBsftwdsk14
/no5text/bkup/.GBsftwdsk15

/updtmp/.GBbboot.bf
/updtmp/.GBlboot.bf
/updtmp/.GBprompat.o
/updtmp/.genbkupCHK
/updtmp/.genbkupLOCK
/updtmp/.genbkupLINK

/tmp/GBtape.hst

```

The .GBxxx files under /no5text/bkup are used to inform the user when GENBKUP tasks were run last. Each file represents a task run by GENBKUP. For example, when an AM text tape is made via GENBKUP, the file .GBamtext is created (or replaces the old one) and when GENBKUP is run next time, ``AM TEXT TAPE SEQUENCE MADE ON .....'' message is displayed on the screen just before the initial menu is displayed. They are empty history files, and the presence or absence of these files does not affect GENBKUP functionality (except for the message display).

The temporary files /updtmp/.GBbboot.bf, /updtmp/.GBlboot.bf, and /updtmp/.GBprompat.o are created for copying the bootfiles. Bootfiles are in the lboot and bboot partitions, and the ``sum'' operations cannot be done on them since they are not really files. The contents of the partitions are copied to the created files and then the files are summed. The sum values are then compared against those stored in boot.sum. They are removed when the compare is successful.

The file `/updtmp/.genbkupCHK` contains information on when the last `BKUP:ODD` and **COPY:PTN** were done. The information is then used to decide if the restart option may be allowed. If either or both were done within last 24 hours, certain restart options are offered in the initial menu (provided other conditions are met). The `/tmp/.genbkupLOCK` (and `/tmp/.genbkupLINK` which is linked to `.genbkupLOCK`) are used for concurrency control to detect already running GENBKUP process.

The file `/tmp/GBtape.hst` is created to record tape drive test history. Just before a tape is written, the tape drive and the tape is tested to ensure it is writable. Also if the tape was previously used, the header information is read in to inform the user of the contents if possible. During this test, information available at each step is written to the `/tmp/GBtape.hst` file. The file is not removed at the end of GENBKUP so that it can be read by the user if needed.

#### 5.10.4.6 If GENBKUP Terminates Abnormally

In this section, some common cases of GENBKUP abnormal termination are described along with what may be done to correct the situation. If the suggested steps fail to correct the situation, seek next level of technical assistance.

##### Terminal Hung Up

When poke 195 is used (rather than **RCV:MENU:GENBKUP** message), the system (not GENBKUP) creates a file under `/tmp` called `pipe_x` (x being the name of the terminal such as ``l'` for `ttyl`). This file is removed if the program exits (normally or abnormally); however, if an abnormal interrupt or a system init occurs, the file may be left behind. If the file already exists when poke 195 is entered from the same terminal, the terminal may be hung up or GENBKUP may not be able to start. If that happens, try the following: remove the pipe file (for example, `/tmp/pipe_l`); remove the tty controller for the terminal; then restore the tty controller and the tty; and then restart GENBKUP. Note that pokes 199, 198, and 196 will also have the same problem under a similar circumstance (that is, any of these pokes can leave the pipe file behind under similar circumstances and any of these pokes will make the terminal to be hung up if the pipe file is left behind).

##### POPEN SUM ERROR

GENBKUP uses system resource called pipe [via `popen()`] and since pipe is a limited resource, `popen()` sometimes fails (you will see a message ```POPEN SUM ERROR ...''`). There is a limited number of pipes that can be in use at one time and if there are many other processes that also use pipes, the chance of `popen` failing is increased. If that happens, try the following: check to see if the pipe-file (see previous ```Terminal Hung Up''`) is left behind in `/tmp`, if yes, remove it; remove the tty controller for the terminal where GENBKUP aborted, then restore the tty controller and the tty; and restart GENBKUP. [If `popen()` failed on a `/updtmp/.GB*` file, they may be left behind, but this will not affect the next GENBKUP run.]

##### Input Message Failure

If GENBKUP aborts due to failed input message, the failed input message is printed on the ROP. The cause of the failure must be investigated and corrected before restarting GENBKUP. In many cases, corrective actions to take can be found in 235-600-750, *Output Message Manual*, pages for the output message that reported the failure. In general, GENBKUP has no control over failures of input messages, and the cause of failure is unrelated and unknown to GENBKUP.

For example, if **VFY:FILE,FLIST="/no5text/bkup/CRCfile"** fails, first, look up the *Output Message Manual* ```VFY FILE''` page and learn what the failure means. Then take corrective actions accordingly. For example, if the VFY failure was due to a `crcvalue` mismatch, this means that the stored `crcvalue` and the calculated `crcvalue` did not match for the file mentioned in the failure message. The VFY command calculates `crcvalue` for each file listed in `/no5text/bkup/CRCfile` and then compares it against the value stored in the file `/.crcvalues`. A mismatch means that the file currently on the switch is not identical to the same file when the stored `crcvalue` was generated. The file may be corrupted, or private updates or overwrites in the system may

exist. You must seek appropriate technical assistance to correct the situation.

#### Input Message Time-Out

If GENBKUP aborts due to the expiration of the waiting period ("time-out"), GENBKUP prints the expired input message on the ROP. Check the ROP and investigate if the message ever completed.

If the message never completes or completion message never arrives, investigate the cause and correct the situation.

If the message completes shortly after the time-out, then retry GENBKUP when the system load is lighter. The message probably took longer than usual due to system load. However, if this happens consistently on the same message OR if the message completes a long time (for example, 10 or 15 minutes) after the time-out, the problem needs further investigation. Seek next level of technical assistance.

If the message completed before GENBKUP timed out, it is due to either GENBKUP was waiting for a wrong output message or the output message was not sent to MTCLOG. Check MTCLOG0 or MTCLOG1, whichever was current at the time, and see if the output message reporting the completion/failure is in it.

If the output message is found in the MTCLOG and the time stamp agrees (that is, the time stamp is between the times when the input message was issued and when GENBKUP timed out), GENBKUP was waiting for a wrong message. Check the output string pattern listed in this document. If there is a mismatch between what was printed and what GENBKUP expected, this must be reported to the next level technical support.

If the output message was not found in the MTCLOG and the message is printed on the ROP, check the ECD classdef form for the output message class to see if MTCLOG is listed as one of the devices. If not, modify the ECD form to add MTCLOG and retry GENBKUP.

#### Others

If GENBKUP aborts due to other reasons than those mentioned earlier, consult 235-600-750, *Output Message Manual*, "RCV MENU GENBKUP" page and find the error message matching the one printed on the ROP/screen by GENBKUP. Take corrective actions suggested in the manual.

## 5.11 BACKUP SCHEDULES AND GUIDELINES

### 5.11.1 GENERAL

The scheduling of various backup levels is determined by local practices based on the following guidelines.

### 5.11.2 MEMORY TO PRIMARY DISK (MHD 0/1)

Memory to primary disk backup should be scheduled based on recent change and software update activity. Scheduled intervals for disk backup may vary; they can be performed as often as daily or as infrequently as monthly.

### 5.11.3 DMERT ROOT PARTITIONS TO BACKUP PARTITIONS

The DMERT root partitions backup should be based on root partition changes associated with the ECD and software update activity. The primary partitions should be copied to the backup partitions before ECD and/or software updates are made permanent. This backup activity is not required for individual changes but should be done for sets of changes. If there is a number of software updates which affect the root partitions, the root partitions should be copied to backup root and the software updates should be applied. However, if all software update changes were made to files with pathnames beginning with /no5text, then this type of backup is not needed. The no5text partition does not have a backup partition on the disk.

#### 5.11.4 ODD BACKUP TO TAPE

The frequency of the ODD backup to tape will depend on how often an ODD backup (from main store to disk) is performed in the particular office. The ODD backups should be performed on a regular basis. The appropriate time to schedule an ODD disk image backup to tape is before an ODD backup. This will allow the maximum soak period for the ODD disk image before it is written to tape. Also, whenever the ECD has been altered, the ODD backup to tape should not be used. The full office-to-tape backup should be used instead. This is because the ODD backup to tape does not cover the ECD. All ODD disk image backup tapes made between two full office-to-tape backups should be saved. When a new ODD backup tape is made after a full office backup, the oldest ODD disk image backup tape made since the previous office backup should be discarded first. The following schedule for ODD backup to tape is recommended:

- (a) If an ODD backup is performed daily, the ODD disk image backup should be done once a week.
- (b) If an ODD backup is performed twice a week, the ODD disk image backup should be done once every 2 weeks.
- (c) If an ODD backup is performed weekly, the ODD disk image backup should be done once a month.

In any event, an ODD disk image backup should be done at least once a month and no more than once a week. In addition to the ODD backup to tape, an ODD recovery from tape procedure is provided in the Memory Alteration Procedures (Section 6).

#### 5.11.5 FULL OFFICE BACKUP TO TAPE

The full office backup tapes should be made based on the following considerations:

- (1) Office backup tapes should be made when the number of permanent software updates in the office reaches a point that makes it desirable to back up the software changes to tape. The number of software updates is office dependent but should not be more than 5.
- (2) Office backup tapes should be made when there is text/data base coupling that results from a recent change or software update change. The coupling and the need to make an office backup should be specified in the software update documentation.
- (3) Office backup tapes should be made whenever the office experiences a DMERT level 3 or higher initialization. The backup should be done after the system stabilizes and the disks are duplexed.
- (4) After a software release retrofit, a set of office backup tapes should be made of the new software release. Once the office is committed to the new software release, the old software release backup tapes should be purged from the office in approximately 2 weeks. Also, the new software release tapes used to boot the office during the software release retrofit should be kept as certified tapes until they are no longer usable as backup tapes.

### 5.12 OFFICE DEPENDENT DATA BACKUP

#### 5.12.1 PURPOSE

The purpose of ODD backup is to provide a sound basis for recovery by allowing the system to recover quickly from a boot or pump. The changes to the ODD may be introduced by regular recent change (RC), customer-originated recent change (CORC), maintenance, and ODBE.

Backup of the ODD makes the current memory image (that is, in-core contents) of the ODD permanent on disk. The ODD in the AM, CMP, and all of the SMs will be backed up during this operation.

### 5.12.2 ORIGINATION

Origination for ODD backup is under local control. Local control is required for the following reasons:

- (a) The ODD backup is run ``on demand."
- (b) After the first initialization of the office, the dynamic head blocks stored in the ODD must be backed up.

### 5.12.3 FREQUENCY

The frequency of ODD backup depends on the disk space allocated to log regular RCs and CORCs and the number of these changes in the system. In addition to showing the percentage, the output message will also indicate the number of regular RCs and CORCs in the disk log. The **OP:RCSTAT,SM=x&&x,AM;, OP:CORC STAT,SM=x&&y,AM,CMP=a&&b;** message will give the amount of CORCs in each processor.

The **OP:ODD,SM=x&&y,CMP=a&&b,AM;** message will give the percent of memory used and also the percent of available memory for each processor.

It is recommended that the ODD be backed up whenever the disk log reaches 80 percent of the log space usage. To avoid recent change performance degradation, the backup should be run in off-peak hours when system load and RC input are minimal.

### 5.12.4 SAFEGUARDS

When the disk log files reach 80 percent of the log file space usage, an alarmed output message notifies local maintenance personnel.

When an ODD backup is in progress, CORCs are blocked and the subscriber receives reorder tone. Similarly, when the **EXC:ODDRCVY:ALL;** message is required, the backup request is denied. Also, if an attempt to perform an ODD backup is initiated while a processor is in the RC BKOUT state, the backup request is denied for this processor.

### 5.12.5 DISK SPACE REQUIREMENTS

The ODD backup requires disk space for two copies of the entire ODD. The first copy is used as a working copy for the file update during backup, while the other copy is considered a ``save" copy.

### 5.12.6 RELIABILITY AND RECOVERY

Errors may be introduced during an ODD backup operation. These errors may be due to bad or lost messages, buffer overwrites, etc.

All processes used during an ODD backup are automatically released if a failure occurs. If the backup fails, a manual restart of the ODD backup operation should correct the problem. If not, a more serious system malfunction may be indicated. Seek technical assistance.

The ODD backup does not interface directly with any of the levels of software recovery. If a processor or the system has an initialization during an ODD backup, the ODD backup is normally aborted with no damage done to the official ODD files. The ODD backup can be restarted at another time. After the initialization, an RC recovery must be performed to reinstate the lost RCs and CORCs.

## 5.13 OFFICE DEPENDENT DATA RECOVERY

A stable or transient clear backs out all RCs and CORCs entered since the last ODD backup. This is because system initialization restores the memory version of the ODD with the disk version created by the most recent ODD backup. The ODD recovery consists of reapplying the backed-out RCs and CORCs. Records of the RCs and CORCs are logged in disk files during the updating process. The ODD recovery provides all features needed by maintenance personnel to recover the ODD.

The **EXC:ODDRCVY**; input message is usually generated automatically after a system initialization is completed. The output message generated is prefixed with an "A" to indicate that the ODD recovery was automatically started.

Manual recovery is needed after all craft-initiated system initializations. Manual recovery is also needed after automatic initializations when the system integrity monitor determines that the ODD recovery may be faulty. When manual intervention is needed, the EXC ODDRCVY NOT STARTED alarm message is dumped to indicate that the automatic recovery was not started and that a manual ODD recovery is needed. All recent change activity is blocked until the command has been completed.

One of the following **EXC:ODDRCVY**; message sections may be used to manually recover the ODD:

- RCLOG for recovery of all regular recent changes
- CORCLOG for recovery of all customer-originated recent changes
- ALL for recovery of all regular and customer-originated recent changes.

If a manual recovery is needed and the **OP:LOGSTAT**; message is run, the OP LOGSTAT output message displays a reminder that the ODD recovery has not been performed since the system initialization occurred. The ODD recovery procedures can be found in 235-105-250, *System Recovery*.

## 5.14 AUTOMATED SODD AUDIT

### 5.14.1 FEATURE DEFINITION

The Automated SODD Audit feature allows the Operating Company to maintain a clean data base. This new audit is automatically generated from the PRL5 data base population rule source files, ensuring completeness and accuracy. The PRL5 is a new technology that is a declarative language which allows implementation and optimization of Full and Incremental validation.

There are three modes of audit execution.

- (1) Full Audit: The Full Audit validates the ODD with respect to a large set of population rules. It executes in an infinite loop, starting and suspending itself according to a schedule established by the Operating Company personnel. A single cycle through the full audit may take several weeks to complete. Each time this cyclic audit resumes execution, it picks up where the previous execution suspended.
- (2) Incremental Audit: The Incremental audit automatically executes after each successful backup of office dependent data (**BKUP:ODD**). It validates data base transactions [both recent changes (RCs) and customer-originated recent changes (CORCs)] since the previous **BKUP:ODD**. The audit executes only after the whole backup is completed.
- (3) Entity Audit: The Operating Company personnel can request immediate execution of the audit. Such requests would limit the scope of an audit to the following entities:
  - Telephone Number (TN)
  - Office Equipment Number (OE)

- Multiline Hunt Group (MLHG) member
- MLHG
- Trunk Member
- Trunk Group
- Relation on a particular processor (referred to as a Relation/Processor Entity Audit).
- All relations on a particular processor (referred to as a Processor Entity Audit).

Each audit execution produces a summary message indicating how many errors were found by the audit. For the Full, Incremental, and Entity audit of a relation on a particular processor, a detailed summary of the errors is also automatically generated. Additionally, all audits produce a detailed log of individual error conditions. Many of these error conditions are documented by mechanically generated error messages, and some are documented by hand-crafted error messages that are similar to the ODA cross-check errors. Input messages are provided to read the detailed error log or to generate a detailed summary for any of the audits.

### 5.14.2 KEY AUDIT EVENTS

Some of the main events for the Automated SODD are as follows:

- Scheduling: Scheduling the Full audit.
- Running: Running the audit at the scheduled time for the Full audit, at the end of an ODD backup for the Incremental audit, and immediate execution on demand for the Entity audit.
- Stopping: Executing the stop command will abort the current execution of the audit. The audit will be restarted again at the next scheduled time for the Full audit and when the next ODD backup completes for the Incremental audit. It must be noted some of the transactions in the RC log files may not be audited if the Incremental audit is stopped.
- Restarting: This will restart the Full audit that was previously stopped if it is still within the time frame for the audit to run. This will also restart the Incremental audit that was previously stopped.
- Inhibiting: This will inhibit the audit from starting at the next scheduled time for the Full and/or Incremental audits, and it will also abort the current run if it is active. For the Full audit, it will mark the relation/processor it was running on before aborting so it can restart from that relation. The ALW command should be used to allow the audit after it has been inhibited. It must be noted that some of the transactions in the RC log files may not be audited if the Incremental audit is inhibited.
- Checking Audit Status: This will provide the current status of the audit execution. There are two types of status. The first type provides the inhibit/allow status of the Full and/or Incremental audit and the second provides a status of all active audits.
- Analyzing Errors: Analyzing the error files.
- ODD backup end: After the ODD backup completion of each processor, the log file is copied over and at the completion of the ODD backup, a message is sent to the SODD control process to start the Incremental audit.
- Automatic File Cleanup: Error log files from the current and previous runs are kept in the system for the Full and Incremental audits. The error log files for Entity audits are kept in the system for seven days. The report files are kept in the system for seven days. Automatic file cleanup is done twice a week to remove the files that are

older than these criteria.

### 5.14.3 USER PERSPECTIVES

- When the audit is first deployed in an office, a default schedule will be automatically established to cause the Full audit to run continuously. The user may enter an input message to reestablish the daily start/suspend schedule of the Full audit. After the schedule is established, the audit runs indefinitely.
- The Incremental audit is automatically scheduled for execution after each successful **BKUP:ODD**.
- The user can enter input commands to inhibit the Full and Incremental audits. The user can also enter input commands to re-allow these audits.
- An input message is provided to request immediate execution of an Entity audit.
- An input message is provided to determine the current status of the audits including the active and scheduled audits, progress information, etc.
- A summary message indicating how many errors were detected is provided after the conclusion of each audit execution. Another input message is provided for printing the detailed error logs.
- An input message is provided to stop any audit at any time while running.
- An input message is provided to print the Full Audit's schedule.
- An input message is provided to clear the schedule.
- An input message is provided to remove all error logs generated from the previous cycle of both the Full and Incremental audits. (This message should be used when the /rclog file system becomes low on space.)

### 5.14.4 RUNNING THE AUDIT

#### 5.14.4.1 General

Refer to the 235-600-700/750, *Input/Output Messages Manuals* for complete descriptions of the input and output messages used in this document.

There can be a maximum of 7 audits (1 Full, 1 Incremental and 5 Entity) running at any given time.

SODD audits the ODD on the backup disk along with the data in the log files. Note it does not audit the random access memory (RAM) copy of the data. The Full and the Incremental audit primarily use the backed up copy of the ODD with as little log file as is needed. The Entity audit on the other hand uses the backed up copy of the ODD with as much log file as possible.

The view of the ODD that will be audited by the Full, Incremental, and Processor Entity audits is established after each ODD backup. The view of the ODD that will be audited by the other Entity audits is established when the Entity audit is requested; therefore, each Entity audit will have its own current view of the ODD. Note, however, that this does NOT apply to the Processor Entity audit.

#### 5.14.4.2 Full Audit

The Full audit can be scheduled to run any time of the day, and any day of the week. The default is to schedule it to run continually; however, the schedule can be changed using an input command. Once the scheduled start time is reached for that day, the Full audit automatically starts from where it left off on the previous run. (It will restart at the



relation and processor that was being processed last). The following input command modifies an entry for the schedule:

**SCHED:AUD=SODD,DAY=a,STARTTIME=b,DURATION=c**

Where: **a** = MON | TUE | WED | THU | FRI | SAT | SUN | ALL  
**b** = Starting time in the form HH-MM  
**c** = Duration in the form HH-MM (minimum 1 hour)

Multiple sessions can be created for a day, but it is advisable to have one continuous session. Once a schedule is created, the Full audit will automatically start at the next scheduled time and run for the duration specified. Overlapping schedules are not allowed, but a job that starts at the same time that another one ends is allowed.

As an example, to set up the schedule for all days from 6:30p.m., to 11:30p.m. the following command can be executed:

**SCHED:AUD=SODD,DAY=all,STARTTIME=18-30,DURATION=5-00**

For setting up a continuous schedule, a duration of 24-00 should be used with day=all.

**SCHED:AUD=SODD,DAY=all,STARTTIME=18-00,DURATION=24-00**

Either the complete schedule or the schedule for a single day can be cleared as follows:

**SCHED:AUD=SODD,DAY=a,CLR CLR:AUD=SODD,SCHED,DAY=a**

<b>SCHED:AUD=SODD,DAY=a,CLR</b>	<b>CLR:AUD=SODD,SCHED,DAY=a</b>
---------------------------------	---------------------------------

Where: **a** = MON | TUE | WED | THU | FRI | SAT | SUN | ALL

The schedule can be viewed with the **OP:AUD=SODD,SCHED** command.

#### 5.14.4.3 Incremental Audit

The Incremental audit starts automatically after every ODD backup is complete. It audits RC and CORC transactions on the processors that were backed up during this backup. Thus, the schedule for the Incremental audit is same as the schedule for **ODD:BKUP** command. The Incremental audit may not audit all the population rule checks that a Full audit does.

#### 5.14.4.4 Entity Audit

The Entity audit is by request and executes immediately. The following command will execute this audit:

**EXC:AUD=SODD,{TN=a | OE="b" | RELATION="c",{AM | SM=d | CMP}  
 | AM | SM=d | CMP | MLHG=e[,MEMB=f] | TGN=g[,MEMB=h]}**

Up to 5 Entity audits can run simultaneously; however, only one Processor Entity audit can be executed at one time. Examples of Entity audit execution are:

**EXC:AUD=SODD,TN=2201000**  
**EXC:AUD=SODD,MLHG=3,MEMB=21**  
**EXC:AUD=SODD,RELATION="FC\_LINE",SM=4**  
**EXC:AUD=SODD,RELATION="ALL",CMP** (a Processor Entity audit)

## 5.14.5 STOPPING THE AUDIT

### 5.14.5.1 Full Audit

The STP command stops the current execution of the Full audit. The audit starts automatically at the next scheduled time. The STP command returns an OK irrespective of whether an audit is running or not. **STP:AUD=SODD,FULL**

If the STP command has been used, the EXC command can be used to restart the Full audit again (provided the schedule allows it). **EXC:AUD=SODD,FULL**

If the audit is to be stopped permanently (not start at the next scheduled time also), then the following command should be used:

**INH:AUD=SODD,FULL**

If the INH command has been used, the ALW command should be used to allow the audit to run again.

**ALW:AUD=SODD,FULL**

Clearing the schedule when the Full audit is executing will also stop the execution of the Full audit.

### 5.14.5.2 Incremental Audit

The STP command stops the current execution of the Incremental audit. **STP:AUD=SODD,INCR**

If the Incremental audit is stopped, it does not restart until after the next backup is completed. Hence, some of the transactions from the first log file that were not audited, may not get audited. If the STP command has been used, the EXC command should be used to restart the Incremental audit again. **EXC:AUD=SODD,INCR**

If the Incremental audit is to be stopped permanently (not start after the completion of the next backup session), then the following command should be used: **INH:AUD=SODD,INCR**

If the INH command has been used, the ALW command should be used to allow the audit to run again.

**ALW:AUD=SODD,INCR**

### 5.14.5.3 Entity Audit

The STP command stops the execution of that Entity audit. For each entity to be stopped, the exact parameters that were used to start it must be specified.

**STP:AUD=SODD,{TN=a | OE=b | RELATION=c,{AM | SM=d | CMP} | MLHG=e[,MEMB=f] | TGN=g[,MEMB=h]}**

An example of the STP command assuming an Entity audit on MLHG=3, MEMB=21 is executing, is

**STP:AUD=SODD,MLHG=3,MEMB=21.**

Note that except for the Processor Entity audit, any Entity audit that is stopped cannot be restarted.

### 5.14.5.4 Processor Entity Audit

Unlike any of the other Entity audits, if the STP command was used to stop a Processor Entity audit, the EXC command that was used to first request it can be used to restart it.

**EXC:AUD=SODD,RELATION=ALL,{AM|SM=a|CMP}**

A Processor Entity audit can be stopped and restarted numerous times, but there are limitations.

- If, after the audit has been stopped, the same EXC command that was used to start it is re-entered within 24

hours from when the audit was stopped, the Processor Entity audit will resume from the point at which it left off during its previous execution.

- If, after the audit has been stopped, the same EXC command that was used to start it is re-entered more than 24 hours from when the audit was stopped, the Processor Entity audit will start from the beginning (that is with the first relation on the processor). It will NOT resume from the point at which it left off.
- If, after the audit has been stopped, a different EXC command is used to start a Processor Entity audit, the one that was previously stopped will be abandoned (that is it can never be restarted).

#### 5.14.5.5 All Audits

If no option is provided to the STP command, all executing SODD audits are stopped. **STP:AUD=SODD**

#### 5.14.6 STATUS

##### 5.14.6.1 Full Audit

The OP:STATUS command provides information on whether the audit is inhibited or not. This follows the current dynamic data audits mechanism.

**OP:STATUS:AUD=SODD,FULL**

##### 5.14.6.2 Incremental Audit

The OP:STATUS command provides information on whether the audit is inhibited or not. This follows the current dynamic data audits mechanism.

**OP:STATUS:AUD=SODD,INCR**

##### 5.14.6.3 All Audits

The execution status of both the active and suspended audits can be obtained by using the **OP:AUD=SODD,EXC** command. When the command is entered, the relation/processor currently being executed by the active Full, Incremental, and Processor Entity audits is displayed. The percentage of the audit's completion is also displayed for these three audit types. For the other Entity audits, this command provides the actual entity being audited (that is, TN 2201000).

If a Full, Incremental, or Processor Entity audit has been stopped due to a user request or an internal error, the audit's status is displayed as **STOPPED**. If desired, the audit can be restarted via the **EXC:AUD=SODD** command.

#### 5.14.7 ANALYZING ERRORS

##### 5.14.7.1 Population Rule Errors

There are primarily two kinds of errors that are produced by the audits. Some error cases have a hand-crafted error message similar to the ODA cross check errors (custom error messages). The remaining errors (standard error messages) are automatically generated errors that have at a minimum the relation, the keys to the tuple, and the location (line number) in the population rule file where the error occurred. In most of the cases, a fragment of the actual population rule that failed will also be printed as part of the error message. The *Translations Data Manual* (TDM) 235-600-1xx provides a listing of all the population rule files and has a discussion on the PRL5.0 language.

**NOTE:** The Translations Data Manual is a software release specific document. The document number is based on each available software release.

An example of a Standard Error Message along with the associated PRL source is as follows:

```
RLfc_line.R, line 2515

RULE:
for fc_line in RLfc_line
begin
    if(fc_line.port.member{12:15} equals 0xf) then
    begin
        _3:
        find exactly 1 bfgmatch in RLbfgmatch on am
        where(bfgmatch.bfgid equals fc_line.bfgid)
        when_found
        begin
            _5:
            bfgmatch.bill_dn equals fc_line.bill_dn;
        end
    end
end
end
```

The Following Data Violate This Rule:

```
CONTEXT for Error 2:
<current_pcr=1>
<bfgmatch=<BFGMATCH:processor=-1:bfgid=128>>
<fc_line=<FC_LINE:processor=1:port.member=f128 port.module=0
party=0>>
```

```
CONTEXT for Error 3:
<current_pcr=1>
<bfgmatch=<BFGMATCH:processor=-1:bfgid=129>>
<fc_line=<FC_LINE:processor=1:port.member=f129 port.module=0
party=0>>
```

#### PRL SOURCE OF ERROR

```
2496: checks:
2497:
2498: /*RULE about RLfc_line.port: */
2499:
2500: for fc_line in RLfc_line
2501: begin
2502:     /** Default Service BFG - pseudo-port **/
2503:     if (fc_line.port.member {12:15} == 0xf) then
2504:     begin
2505:         fc_line.port.module == 0;
2506:         find == 1 lpt_pt in RLlpt_pt on bfg_gpd(LPT_BFG,
                                                    fc_line.lport)
2507:         where (lpt_pt.lport == fc_line.lport &&
2508:             lpt_pt.lpt_type == LPT_BFG);
2509:         /** Dflt Svc tuple must also exist in RLbfgmatch **/
2510:         find == 1 bfgmatch in RLbfgmatch on am
2511:         where (bfgmatch.bfgid == fc_line.bfgid)
2512:         when_found
```

```

2513:          begin
2514:              bfgmatch.def_svc == DBYES;
2515:              bfgmatch.bill_dn == fc_line.bill_dn;
2516:              find == 1 rc_lcc in RLrc_lcc on am
2517:              where (rc_lcc.lcc == bfgmatch.lcc &&
2518:                  rc_lcc.rax == bfgmatch.rax)
2519:              when_found
2520:              begin
2521:                  fc_line.screen_x == rc_lcc.screen_x;
2522:                  fc_line.digtrees == rc_lcc.digtrees;
2523:                  fc_line.desep == rc_lcc.desep;
2524:                  fc_line.insep == rc_lcc.insep;
2525:                  fc_line.line_screen == rc_lcc.line_screen;
2526:              end
2527:          end
2528:      end
2529:  end

```

The standard message for certain cases will be slightly different. All information as above is provided except that only the failed check line is provided instead of the actual population rule cross check. It is important to note that the failed check line that is provided is more accurate than the failed line number that is also provided. (This becomes important if the online listings of the population rules do not match with the Software Updated version of the relation check products).

Several PRL assertions may be provided with an error message; if this is the case all but the last one were successful. The last assertion in the PRL that is provided is where the error occurred. In the above example assertion \_3 was successful while assertion \_5 was the check that failed. Also note in the above example that checks that are in line numbers 2506 and 2507 are not in the error message. This is because these have no significance on the actual error that happened on line 2515.

An example of the standard message that might be slightly different is as follows (the difference is due to the PRL check being in functions):

RLrc\_tur.R, line 122

RULE FRAGMENT FROM WITHIN A FUNCTION BODY (TO VIEW THE COMPLETE RULE, PLEASE REFER TO THE PRL5 ON-LINE LISTINGS, WHICH CAN BE ACCESSED VIA DIAL-UP CONNECTION TO THE LUCENT TECHNOLOGIES IDS DOCUMENTATION.):

```

_5:
find greater than or equal to 1 islupidb in RLislupidb on
                                sm(rc_tur.module)
where(islupidb.picb equals rc_eqloc.picb - 1);

```

The Following Data Violate This Rule:

CONTEXT for Error 4:

<current\_pcr=193>

<rc\_tur=<:processor=193:module=48 shelf=0 islu=0>>

<rc\_eqloc=<:processor=193:im=48 unitttype=SMISLU unit\_no=0  
service\_group=0>>

Actual Number of Tuples Found = 0

PRL SOURCE OF ERROR

103: /\*\*\*\*\*

```

104:
105: In addition to the ISLU/IDCU checks there must exist an
106: RLpsiupidb.shelf where at least one of the
107: RLpsiupidb.pidb's matches the ISLU/IDCU's RLislupidb.pidb
108: found in the ISLU/IDCU above check.
109:
110: *****/
111: for rc_tur in RLrc_tur
112: begin
113:     find == 1 rc_eqloc in RLrc_eqloc on am
114:     where ( (rc_eqloc.unit_no      == rc_tur.islu)
115:            && (rc_eqloc.im         == rc_tur.module)
116:            && (rc_eqloc.unitttype is_in {SMISLU, SMIDCU})
117:            && (rc_eqloc.service_group == 0))
118:     when_found
119:         begin
120:             function func() returning boolean
121:             begin
122:                 find >= 1 islupidb in RLislupidb on
123:                 sm(rc_tur.module)
124:                 where (islupidb.picb ==
125:                       rc_eqloc.picb-1)
126:                 when_found
127:                     begin
128:                         dbfound = false;
129:                         for i in {0 thru 22}
130:                         begin

```

An example of a custom message (for a PRL check within a function) is as follows (custom message provides the custom text along with the standard message):

RLannc\_hdr.R, line 5573

RULE FRAGMENT FROM WITHIN A FUNCTION BODY (TO VIEW THE COMPLETE RULE, PLEASE REFER TO THE PRL5 ON-LINE LISTINGS, WHICH CAN BE ACCESSED VIA DIAL-UP CONNECTION TO THE LUCENT TECHNOLOGIES IDS DOCUMENTATION.)

The following APPLICATION/PHRASES entered on the ANNHD form (view 8.61) do not have the corresponding APPLICATION/PHRASE ID entered on the PHRASE form (view 8.63) .

The following data contains the APPLICATION, HEADER\_ID and PHRASE in error.

RULE FRAGMENT FROM WITHIN A FUNCTION BODY (TO VIEW THE COMPLETE RULE, PLEASE REFER TO THE PRL5 ON-LINE LISTINGS, WHICH CAN BE ACCESSED VIA DIAL-UP CONNECTION TO THE LUCENT TECHNOLOGIES IDS DOCUMENTATION.)

Mann8a:

```

find exactly 1 phrases in RLphrases on am
where(phrases.ph_id equals annc_hdr.phrase1 and phrases.appl equals
annc_hdr.appl);

```

The Following Data Violate This Rule:

```
CONTEXT for Error 1:
<current_pcr=1>
<annc_hdr=<ANNC_HDR:processor=1:appl=FCOSPS_DA_hdr_id=7656>>
<nappl=OSPDA>
<hdr_id=7656>
<phrase1=12043>
```

When the audits run, they create an error log file in the switch that is in binary format and is unreadable. An input command is provided to read this file and produce readable error messages. The command sends the output to a user-specified file, which is created under the /rclog/SODD/reports directory. The user can also request a summary message which gives the number of errors that the audit identified. This summary message is sent to the read-only printer (ROP). A detailed summary can also be requested by the user. The output is sent to a user-specified file under the /rclog/SODD/reports directory.

### 5.14.7.2 Errors vs. Warnings

All assertions in the PRL are provided with a label. A large majority of the cases will have a label with format "\_xx", where xx is a number. This number signifies the assertion number in that population rule file (that is, \_39 implies that it is the 39th assertion in that file). There are a few exceptions to this format. All labels that start with "M" (for example, Mann8a) signify they have a custom message. All labels that start with "R" or "O" signify they are Warnings and not Errors.

There are primarily two levels of inconsistencies that are detected by the audits:

- Errors which are inconsistencies in the Static Data with respect to the population rules. These need to be analyzed and corrected.
- Warnings which are inconsistencies in the Static Data with respect to the population rules but are due to some special circumstances. (These are similar to the current ODA warning messages). Some of these circumstances are as follows:
  - Hardware growth
  - Checks applicable to new starts only
  - RC not enforcing some constraints due to performance limitations.

All audits check for both error and warning inconsistencies in the ODD, however, the user has some control over how the errors and warnings are treated when printing or counting the number of errors found by the audit. By default, both errors and warnings are printed/counted when the **OP:AUD-SODD,ERRLOG** command is issued to either decode an audit's error log or count the number of errors found by the audit.

Further control exists over how warnings are treated. If a PRL check is considered a warning because RC/V or ODA does not enforce it, the check will contain a label on the line of PRL that is not being enforced. Within the first three characters of the label, it will contain an 'O' (if ODA is not enforcing the check) or 'R' (if RC/V is not enforcing the check). If the user has PRL warnings that need special treatment, an ASCII file can be created called /rclog/SODD/prl\_to\_ignore in which the warnings that are to be treated differently are specified. The warnings can be customized on a switch-by-switch basis as follows:

- (1) Ignore a specific warning in a specific relation.
- (2) Ignore all warnings pertaining to a specified relation.
- (3) Ignore all warnings of a given type (RC or ODA).

The following syntax is to be used when inserting text into the "prl\_to\_ignore" file:

Example Message	Meaning
*:R*:Warn:	Ignores all RC warnings
RLfc_line.R:R_003:Warn:	Ignores a specific warning in relation FC LINE
RLannc_hdr.R:O*:Error:	Treats all ODA warnings as errors in relation ANNC HDR

It is important to note that the .R file name, label, and action MUST be in the file in the format  
RL<relation\_name>.R:<label>:<action>:

This "prl\_to\_ignore" file will be checked as long as the all option in the **OP:AUD=SODD,ERRLOG** command is set to all=n while counting or printing the summary message, the detailed summary report, or the detailed error report. Additionally, it will not be carried over a retrofit.

## 5.14.8 SODD DATA BASE MANAGER DISTRIBUTION TYPE/PROCESSOR

### 5.14.8.1 General

Tables 5-4 and 5-5 can be used to identify where the switch-resident data base manager will get a tuple from when requested. These listings pinpoint the source of a tuple given the relation's distribution type and the processor requested.

**Table 5-4 Relation Table - SODD DBM Distribution Type/Processor Handling**

	0	-1	193	194	valid 1-192	invalid 1-192
DO	193	193	193	193	no match	no match
LR	appl	appl	193	194	no match	no match
LP	appl	appl	appl	appl	no match	no match
FR	no match	rodd	no match	no match	rodd	rodd
FP	no match	bad	no match	no match	pcr	no match
FG	no match	bad	no match	no match	pcr	no match
LRFP	appl	appl	193	194	pcr	no match
LRFG	appl	appl	193	194	pcr	no match
LRFR	appl	appl	193	194	rodd	rodd
LPFP	appl	appl	appl	appl	pcr	no match
LPFG	appl	appl	appl	appl	pcr	no match
LPFR	appl	appl	appl	appl	rodd	rodd
FPFG	no match	bad	no match	no match	pcr	no match
LPFPFG	appl	appl	appl	appl	pcr	no match
LRFPFG	appl	appl	193	194	pcr	no match

**Where: Valid 1-192:** An SM that is operational in this office

**Invalid 1-192:** An SM that is not operational in this office, or does not exist. A request for a processor number that falls outside of {-1, 0, 1-192, 193, 194} will be treated as bad.

**bad:** Bad combination, returns DBBADPCR, -123.

**rodd:** Redundant ODD file is source of tuple/parameter.

**pcr:** The processor's ODD file is used for the tuple/parameter read.

**nomatch:** Data base manager returns DBNOMATCH on this read.

**appl:** Read parameter GLp<application> for source processor of data.

**Table 5-5 Global Parameter Table - SODD DBM Distribution Type/Processor Handling**

	0	-1	193	194	valid 1-192	invalid 1-192	195
FP	bad	bad	bad	bad	pcr	bad	bad
FR	bad	rodd	bad	bad	rodd	rodd	rodd
LP	193	bad	193	194	bad	bad	bad
LR	193	194	193	194	bad	bad	bad
LPFP	193	bad	193	194	pcr	bad	bad
LRFP	193	194	193	194	pcr	bad	bad
LRFR	193	194	193	194	rodd	rodd	rodd

**Where: Valid 1-192:** an SM that is operational in this office

**Invalid 1-192:** an SM that is not operational in this office, or does not exist. A request for a processor number that falls outside



of {-1, 0, 1-192, 193, 194} will be treated as bad.

**bad:** Bad combination, returns DBBADPCR, -123.

**rodd:** Redundant ODD file is source of tuple/parameter.

**pcr:** The processor's ODD file is used for the tuple/parameter read.

**nomatch:** Data base manager returns DBNOMATCH on this read.

**appl:** Read parameter GLp<application> for source processor of data.

### 5.14.8.2 Full Audit

For the Full audit, errors from two runs - previous and current, are kept in the switch. The user can request to see the errors for one of the runs, or for one of the days, use the following command:

```
OP:AUD=SODD,ERRLOG,FULL,DAY=r[,WEEK=m][,CYCLE={PREV | CUR}]
[,ALL=[i][,BREVITY=[j]][,EXPAND=[p]][,OUTFILE=k |,SUMMARY |,
OUTFILE=k,SUMMARY}
```

### 5.14.8.3 Incremental Audit

For the Incremental audit, errors are kept for two runs for each processor in the switch. Errors are kept for each day's run of the Incremental audit. The user can request to see the errors for one of the runs, or one of the processors, or for one of the days, use the following command:

```
OP:AUD=SODD,ERRLOG,INCR,{DAY=r|AM|SM=n|CMP|RED|ALLPRC}
[,CYCLE={PREV|CUR}][,ALL=[i][,BREVITY=[j]]
[,EXPAND=[p]][,OUTFILE=k|,SUMMARY|,OUTFILE=k,SUMMARY}
```

### 5.14.8.4 Entity Audit

For the Entity audit, the user needs to specify the entity for which the errors are to be printed. If an audit is run on the same entity twice, the error log from the second run overwrites the first. The error log files created from the Entity audit runs are kept for 7 days.

```
OP:AUD=SODD,ERRLOG,{[TN=a | OE=b | RELATION=c,{AM | SM=d | CMP} |
MLHG=e[,MEMB=f] | TGN=g[,MEMB=h]][,ALL=[i][,BREVITY=[j]][,EXPAND=[p]]
[,OUTFILE=k | ,SUMMARY | ,OUTFILE=k,SUMMARY}
```

### 5.14.9 REPORT FILES

When the option outfile=k is used with the previous OP:AUD-SODD,ERRLOG command, the file ("k") that is created is stored in the switch under the /rlog/SODD/reports directory. When the option outfile=k is used in conjunction with the summary option, a detailed summary file ("k") is created and stored in the switch under the /rlog/SODD/reports directory. These files are kept in the switch for 7 days.

Brevity control has been implemented so that, by default, it is used when the error report is generated. This means the output is printed showing ten failing tuples (at most) for each check followed by a statement of how many additional tuples failed the check. To see all failing tuples and not just the first ten, brevity=n should be specified in the OP:AUD-SODD,ERRLOG command.

Many of the symbols contained in the PRL (that is, ==, &&) are expanded into their English equivalent when the report files are generated. This is done so that the errors are easier to understand. To see the symbols instead of the English translation, expand=n should be specified in the OP:AUD-SODD,ERRLOG command.

### 5.14.10 RELATIONS AUDITED

#### 5.14.10.1 Full/Incremental Audits

For the Full mode, the SODD audit cycles through its set of supported relations one at a time. For the Incremental mode, the SODD audit audits the tuples in the log files provided it is in one of the supported relations. (Note that tuples in each of the supported relations may access or check against tuples in relations that are not in the supported set.)

**NOTE:** The number of relations supported by the SODD audit is subject to change! New relations may be added from time to time via a Software Update (SU) when Lucent Technologies decides that it is critical for those relations to be audited.

All relations and global parameters are supported by the SODD Audit. However, the global parameters are only supported by the Full Audit.

### 5.14.10.2 Entity Audit

The Entity audit allows immediate execution of the SODD audit depending on the parameters specified. Audits can be requested on the telephone number (TN), office equipment (OE) number, multiline hunt group (MLHG), trunk group number (TGN), a given static relation (for example, FC\_PORTTYP) on a specific processor [administration module (AM), switching module (SM), communications module processor (CMP)], or all relations on a specific processor. This audit limits the scope of the requested audit by referencing specific relations in an attempt to determine a possible split translation. It is not intended to augment the Full Audit execution, but rather to use a subset of the Full audit to determine the split translation. Note that each of the primary relations audited may access or check against tuples in other relations, including relations not in the supported set.

Telephone Number to be audited. (for example, TN=2202200)

TN - Primary relations accessed: FC\_LINE, IS\_LINE, IS\_TERM, LTM\_PORT, LTSBPORT, PR\_DNTRA, PSX25LN, RC\_DNINF, RC\_MULTTI, RTDNMOD, RTDNMPG, RT\_DNTRA, RT\_SPECR

Office Equipment type and number to be audited. (for example, OE="I0290111")

OE - Primary relations accessed: DSLEQUIP, FC\_LINE, FC\_PORTT, IS\_LINE, IS\_TERM, LPT\_PT, LTSBPORT, MODATT, ODPSOP, PR\_DNTRA, PSX25LN, RC\_MULTTI, RC\_OEINF, RTDNMOD, RT\_DNTRA,

Static relation to be audited. (for example, RELATION="FC\_PORTTYP",SM=2)

Multiline Hunt Group to be audited.(for example, MLHG=22)

MLHG - Primary relations Accessed: FC\_LINE, GROUP\_PO, LAT\_LPT, IS\_LINE, IS\_TERM, MODATT, PR\_DNTRA, PSGP\_PRT, PSX25LN, RTDNMOD, RT\_DNTRA, RC\_MULTTI, RT\_MHG.

Member of Multiline Hunt Group to be audited. (for example, MLHG=22, MEMB=1)

MLHG MEMB - Primary relations Accessed: FC\_LINE, GROUP\_PO, LAT\_LPT, IS\_LINE, IS\_TERM, MODATT, PR\_DNTRA, PSGP\_PRT, PSX25LN, RTDNMOD, RT\_DNTRA, RC\_MULTTI, RT\_MHG.

Trunk Group Number to be audited. (that is, TGN=44)

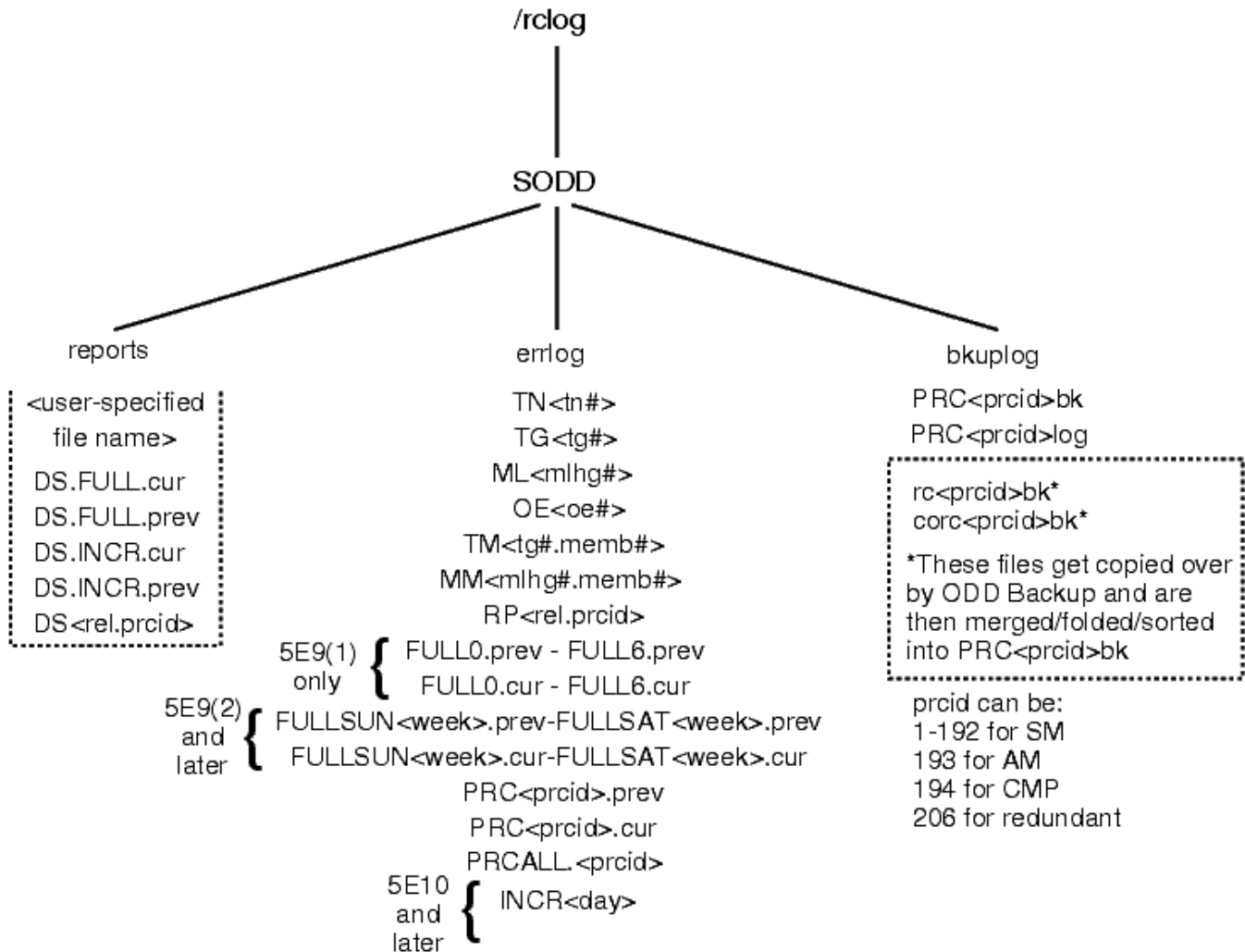
TGN - Primary relations Accessed: IMTGRPS, MODATT, PSTRUNKS, RCTGRPRK, RT\_TRKG

Member of Trunk Group Number to be audited. (for example, TGN=44, MEMB=1)

TGN MEMB - Primary relations Accessed: FC\_PORTT, FC\_TRUNK, GROUP\_PO, IMTGRPS, MODATT, RCTGRPRK, RC\_TRK, RT\_TRKG

### 5.14.11 FILES CREATED

Figure 5-12 shows the structure of the files used and created by the Automated SODD audit.



**Figure 5-12 Automated SODD File Structure**

As shown in Figure 5-12, the "reports" directory contains all of the error reports and summaries created by using the **OP:AUD=SODD,ERRLOG** command with the `outfile=k` option. In addition, this directory contains the automatically generated detailed summaries for the current and previous cycles of the Full and Incremental audits and for a Relation/Processor Entity audit.

The "bkuplog" directory (see Figure 5-12) contains the log files that get copied over after the **ODD:BKUP** is completed for the Incremental audit.

- At the end of ODD backup, SM <prcid>'s corc and rc logfiles are copied to `/rclog/SODD/bkuplog/rc<prcid>bk` and `corc<prcid>bk`.
- DBlogmfs (log file merge, fold and sort) processes these two files and puts the result into `/rclog/SODD/bkuplog/PRC<prcid>bk`. This file is used by the Incremental audit.
- When the Incremental audit is completed on this processor this file is removed.
- If the Incremental audit is stopped prematurely, the tuples not yet audited will be copied to `/rclog/SODD/bkuplog/PRC<prcid>log` to prevent being skipped during the Incremental audit run after the next

ODD backup. If these PRC<prcid>log files continue to increase in size, possibly affecting the Incremental's chance of completing the PRC<prcid>bk file, they will be removed and audited in the Full audit sequence.

The "errlog" directory contains the binary version of the errors created by running the audits (Full, Incremental and Entity).

- PRC<prcid>.cur - files containing the errors from running the Incremental audit for the particular processor for the current backup cycle.
- PRC<prcid>.prev - files containing the errors from running the Incremental audit for the particular processor from the previous backup cycle.
- PRC<day> - files containing the errors from a day's run of the Incremental audit.
- PRCALL.<prcid> - files containing the errors from a Processor Entity audit.
- TN<tn>, TG<tg>, ML<mlhg>, OE<oe>, TM<tg.memb>, MM<mlhg.memb>, RP<rel.prcid>  
- Entity audit binary files.
- FULL<day><week>.cur — files containing the errors from one week's run of the particular day of the Full audit for the current cycle.
- FULL<day><week>.prev — files containing the errors from one week's run of the particular day of the Full audit for the previous cycle.

All the executable files used by the SODD audit are under /no5text/rcv/SODD directory. In addition to these files there are several control files that are used by the SODD audit.

**NOTE:** These files are critical for the correct running of the audit and hence, should not be touched by the users directly. These are as follows:

- /rclog/SODD/.schedule — Full audit schedule; this file is maintained over a retrofit
- /rclog/SODD/.fid — active Full audit process id
- /rclog/SODD/.iid — active Incremental audit process id
- /rclog/SODD/.eid<1-5> — active Entity audit process ids
- /rclog/SODD/.rel\_prod — relation, processor and line number that is being executed by the Full audit
- /rclog/SODD/.incr\_aud — relation, processor and line number that is being executed by the Incremental audit
- /rclog/SODD/.entity<1-5> — monitor information for an Entity audit
- /rclog/SODD/.loop\_prod — restart information for the Full audit
- /rclog/SODD/.prc\_prod - relation, processor, and line number that is being executed by the Processor Entity audit
- /rclog/SODD/.prc\_loop - restart information for the Processor Entity audit
- /rclog/SODD/SODDLOG - ASCII file containing the output messages for the SODD Audit that were

issued to the ROP

- /rclog/DBaudsize — Binary file containing sizing information for each processor's log files.
- /rclog/x.tree.[PROC], /rclog/SODD/x.bmap — Binary files containing mapping information to get to a given tuple in the processor's log file.
- /rclog/SODD/prl\_to\_ignore — Optional ASCII file the 5ESS-2000 switch owner maintains that lists the PRL warnings to ignore or treat differently during a dump of the error logs. Refer to section 5.14.7.2 on how this file is manipulated/used.
- /unixa/users/SODD — This directory is used for future needs. SODD will abort if this directory is removed; hence, this directory should not be deleted.

## 5.14.12 FILE CLEANUP

### 5.14.12.1 Automatic File Cleanup

A job is scheduled to run twice a week (Monday and Thursday night at 11:00 pm) to clean up the old files in the /rclog/SODD directory. As was mentioned earlier

- For the report files, everything older than 7 days will be removed.
- For the errlog files, all the errlog files for the Entity audits that are older than 7 days will be removed.

As indicated earlier, errlog files from two runs are kept for the Full and Incremental audits. When a new run starts for the Full audit at the first relation, the "cur" files are copied as "prev" files. The data from the new run is stored in the "cur" files. For the Incremental audit, when a processor is backed up the "cur" file is copied as "prev" file for that processor and the data from the current run of the Incremental run for that processor is stored in the "cur" file.

### 5.14.12.2 Manual File Cleanup

All of the audits, at specific times (that is, at a beginning of a session), ensure that /rclog has over 20 percent free space available. If not, they stop with a message indicating such. To facilitate the freeing up of space, an input message is provided to remove all errlog files from the previous run of both the Full and Incremental audits (that is, all /rclog/SODD/errlog/\*.prev files).

The input message to accomplish this is **CLR:AUD=SODD,ERRLOG**.

## 5.14.13 INTERACTIONS

All commands/functionalities of the Static Data Audit (and its corresponding CRON scheduler) except for the Redundant ODD audit which is still executed using its normal input message, have been removed with this feature.

**NOTE:** Code coverage of the Automated SODD audit is based on the PRL5.0 Population Rules and the checks contained in each individual relation. Re-engineering of the PRL5.0 may necessitate that a check be moved from one relation to another due to performance and maintenance issues.

There is no interaction with Call Processing.

There is no interaction with the Redundant ODD Audit.

This feature does, however, interact with the existing Dynamic Audits architecture. With this feature, on the master control center (MCC), the audits inhibited box will light up when the static data audits are inhibited.

The Full, Incremental, and Processor Entity audits use the backup copy of the ODD on the disk and the RC logfiles to do their processing. This is done to ensure minimum or no impact on the Recent Change throughput. Hence the data that is audited may not include all the Recent Changes that were done since the last backup of the ODD. The Entity audit uses the backup copy of the ODD and the log files that were created by Recent Changes since the last backup. This will enable the Entity audit to audit a current view of the data base.

This feature interfaces with ODD Backup. The Incremental audit starts when the ODD backup completes, therefore the schedule for the Incremental audit is the same as the schedule for the ODD backup. ODD backup sends a message to the new Static Data Audit when a backup session completes for starting the Incremental audit. A message is also sent after each processor is backed up and the log files are copied to the /rclog/SODD/bkuplog directory. Also, none of the audits can run when the **ODD:BKUP** runs. Thus when the ODD backup begins, if any of these audits are running they will be suspended automatically. The Full audit starts right after the ODD backup completes if the schedule allows it. Likewise, a suspended Processor Entity audit starts after the ODD backup completes. If an Entity audit was running before the ODD backup and got stopped by the start of the backup, it is NOT restarted again after the backup is completed. The ODD backup scenario is as follows:

- Full audit is running.
- Multiprocessor ODD backup starts.
- Backup sets data delivery (DD) bits indicating backup is running, meaning at least one ODD file is changing.
- At next attempt at a tuple read, data base manager (DBM) causes SODD to halt because of DD bits.
- For each processor completing backup:
  - Backup copies corc and rc logfiles to /rclog/SODD/bkuplog.
  - Backup removes corc and rc logfiles from /smlog and /log.
  - Backup sends a message to SODD control process (RCsoddcp) indicating one processor's backup is completed.
  - RCsoddcp starts an instance of DBlogmfs to process the copied logfiles (provided an instance of DBlogmfs is not already running).
- Backup removes /rclog/DBaudsize, indicating the consistent view(s) are no longer valid. (New consistent view(s) will be established when next SODD audit starts.)
- Backup sends final message indicating it's done with the backup.
- Backup resets DD keys.
- Full audit restarts (as long as there's at least 15 minutes left in the segment.)
- RCsoddcp waits for DBlogmfs process to complete.
- Incremental audit starts.

#### 5.14.14 LIMITATIONS

The Full audit runs in an infinite loop, starting and suspending itself according to its schedule. If the user supplied a schedule that severely limits the audit execution time, the audit may never be able to completely validate the ODD. When the audit restarts at the beginning of the new session, it starts from the relation and processor it left off. In an

average office, given at least 18 hours a day to execute, the Full audit is expected to take four weeks to complete.

The audits check to ensure at least 20 percent of space in /rclog directory is available; if not, it stops running.

The Incremental audit reads the log files that were backed up via the **ODD:BKUP** command to get the tuples that need to be audited. If the **ODD:BKUP** was not done for several days, depending on the amount of customer-originated recent changes (CORCs) that were done in that office, the log files could be large. In this case, the Incremental audit may run for a long time. If another ODD:BKUP is done at this moment, the Incremental audit is stopped without completing all the log entries. The remaining log entries in this log file may or may not be audited by the next session of the Incremental audit.

**NOTE:** These will be picked up as regular tuples by the Full audit, if the Full audit is running.

#### 5.14.15 DOCUMENTATION/TRAINING

Even though several 5ESS-2000 switch documents have information on the Automated SODD Audit, the two primary documents where the majority of information is provided are this document, the 235-040-100 - *OA & M Planning Guide*, and the 235-600-10X - *Translations Data* manual (TDM) will provide the Population Rule listings.

Lucent Technologies Training offers the following courses that provide information on SODD:

- ES5D9D - OA&M Enhancements Video.
- ES5D9H - Analyzing Database Troubles (PRL5) using SODD.

#### 5.14.16 RETROFITS

The Automated SODD Audit is an OA&M Enhancement, and although it has no direct impact on the switch retrofit, it does have an indirect impact. Before a retrofit can take place, the switch data must be clean (especially for those relations that are critical to the success of the retrofit). The SODD Audit is a key element in cleaning up that data; it should be run and its errors analyzed and corrected so that the retrofit can occur without incident. Therefore, it is crucial to the success of the retrofit that the switch customer exercises the SODD Audit and makes any corrections to the ODD that are necessary.

The appropriate *Software Release Retrofit Procedures* manual can be referenced for additional information on the Automated SODD Audit's role prior to a switch retrofit.

### 5.15 ON-SWITCH ECD AUDIT

#### 5.15.1 FEATURE DEFINITION

The On-Switch ECD Audit will allow switch owners to verify the integrity of their ECD data base. The audit is invoked either via an input message or a scheduling mechanism. Lucent Technologies recommends that the audit be run regularly as part of routine switch maintenance in order to identify and correct any ECD data base errors as they may occur. The audit will be required to be run prior to the final data base dump for a retrofit and the ECD data base must be error free. Each audit execution produces a summary message and a detailed log of individual error conditions.

#### 5.15.2 KEY AUDIT EVENTS

Refer to the 235-600-700/750, *Input/Output Messages Manuals* for complete descriptions of the input and output messages used in this document.

Some of the main events for the On-Switch ECD Audit are as follows:

- Scheduling: Schedule automatic execution of the Audit for routine maintenance. (SCHED:ECDAUD)
- Running: Manual or Automatic execution of the audit. (EXC:ECDAUD)
- Stopping: Input of the stop command will abort execution of a currently running audit. (STOP:ECDAUD)
- Inhibiting: Input of the inhibit command will keep the scheduled audit from running and also prevent manual execution of the audit until the allow command is entered. (INH:ECDAUD)
- Allowing: Input of the allow command will let the scheduled audit run and also allow manual execution of the audit after it has been previously inhibited. (ALW:ECDAUD)
- Checking Audit Status: Input of the status command will show the current status of a running audit or the status of the last execution of the audit. (OP:ECDAUD)

### 5.15.3 USER PERSPECTIVES

The following lists the user interfaces provided with the feature:

- When the audit is first deployed in an office, it will create a default schedule for routine maintenance.
- The user can enter input commands to inhibit and allow the audit.
- An input message is provided to request immediate execution of the audit.
- An input message is provided to determine the current status of the audit.
- A summary message indicating how many errors were detected is provided after the conclusion of each audit execution.
- An input message is provided to stop audit execution at any time.

### 5.15.4 SCHEDULING THE AUDIT

To schedule the audit for weekly execution, the following input message should be used:

**SCHED:ECDAUD:STARTTIME=a-b,c;**

Where:           a = Hour of start time (0-23)  
                   b = Minute of start time (0-59)  
                   c = Day of start (MON, TUE, WED, THU, FRI, SAT, SUN)

To schedule the audit for monthly execution, the following input message should be used:

**SCHED:ECDAUD:STARTTIME=a-b,d;**

Where:           d = Day of Month start time (1-28)

To verify the current schedule, the following input message should be used: **OP:ECDAUD**

### 5.15.5 RUNNING THE AUDIT



The On-Switch ECD Audit, audits the disk version of the ECD Data base. Note that it does not audit the incore version of the ECD so it is advisable to perform an ECD RC/V 'activate' to copy the incore data base to disk prior to execution of the audit.

To request manual execution of the audit, the following input message should be used: **EXC:ECDAUD**

### 5.15.6 STOPPING THE AUDIT

To stop a currently running ECD Audit, the following input message should be used: **STOP:ECDAUD**

### 5.15.7 STATUS

To obtain the status of a currently running audit or a previously run audit, the following input message should be used: **OP:ECDAUD**

To inhibit execution of the audit, the following input message should be used: **INH:ECDAUD**

To allow execution of the audit, the following input message should be used: **ALW:ECDAUD**

### 5.15.8 ANALYZING ERRORS

If ECD errors were detected during the execution of the audit, an output message similar to the following will be received:

EXC ECDAUD COMPLETED - 5 ERRORS, OUTPUT FILE /database/ecdaud.err

The output file should now be analyzed. In most cases, the file should be small enough to dump to the ROP. It will contain error-by-error English descriptions of the errors encountered. The ECD form, keys, field being checked, and error message that are contained in the file will allow the user to correct the data as needed.

An example of an error might be as follows:

form=ucb key1=; key2=; key3=MHD key4=0 field=21 current\_value=GROW "error: MHD 0 major\_status must be OOS"

## 5.16 FEATURE ACTIVATION COUNTING AND RECONCILIATION (FACR)

### 5.16.1 FEATURE DEFINITION

The Feature Activation Counting and Reconciliation (FACR) program is a new process designed to provide the customer the ability to monitor feature usage in their 5ESS-2000 switches and provides Lucent Technologies a vehicle for billing the customer for assigned software features. Release 1 of FACR has the ability to count a subset of the existing feature packages. For more information on the feature packages which are monitored by the FACR audit, contact your Lucent Technologies Network Systems Account Representative, or your FACR coordinator. It is intended that FACR eventually be able to count all feature packages and replace the current Feature Billing Verification (FBV) process.

This feature does NOT have a Right to Use (RTU) fee. However, in order to be able to use this feature, the customer must make the necessary arrangements with their Lucent Technologies Network Systems Account Representative, including having the necessary PC (personal computer) hardware and software in place.

### 5.16.2 FACR ARCHITECTURE

The FACR feature consists of four components: FACR Data Collection Audit, FACR-RSCANS Communication Software, Lucent Technologies Billing Center Personal Computer (PC) and Customer Purchasing Center and/or Marketing Analysis Center Personal Computer. The following is a description of each component:

- FACR data collection audit is performed at the switch level. The function of the audit is to collect and summarize NSEP feature package usage data within the office. NSEP feature packages consist of a group of features that have an associated RTU fee. The audit queries the office data base and examines the feature content of every line and trunk in the office. Once all feature package data has been collected the program will formulate the NSEP feature package use counts.
- The FACR-RSCANS communication package provides the mechanism for transferring the feature count data file from any 5ESS-2000 switch to the FACR-RSCANS computer. The Communication Package software utilizes an enhanced version of RSCANS which provides automatic password generation to retrieve the data files from the applicable 5ESS-2000 switch. There is a software interface between the FACR-RSCANS computer and the PC workstations. This interface handles requests for data transfer between the PC and FACR-RSCANS computer.
- Both the Lucent Technologies Billing Center and the Customer Purchasing Center PC consist of communications software and bookkeeping programs.
  - The communications software will allow for file transfer to and from the FACR-RSCANS computer. The customer PC initiates all data file retrieval requests from the 5ESS-2000 switch to the FACR-RSCANS computer. Once the data files are on the FACR-RSCANS computer the files can then be downloaded to the PC via the communication software. The customer has control over which 5ESS-2000 switch FACR output files that the Lucent Technologies PC is allowed to access by the type of FACR audit that is executed on the 5ESS-2000 switch (Refer to Section 5.16.3 for further details).
  - The PC bookkeeping program allows for Lucent Technologies and the Customer to generate identical FACR "true-up" reports. This data can then be used for reconciliation of RTU NSEP software features.

### 5.16.3 FACR AUDIT

#### 5.16.3.1 Password Initialization

On initial start-up, every office which is using the FACR feature is required to initialize the FACR-RSCANS password. This must be done through consultation with the FACR coordinator. The FACR coordinator should provide the 5ESS-2000 switch maintenance technician with the initial password and office key. (It is **STRONGLY RECOMMENDED** that the password and key be unique for each office.)

The maintenance technician then uses the FACR password and office key as input for the "INIT:FACR" input message. Once the password has been initialized for the first time, all subsequent file requests will automatically generate the next password to be used. If the password should for any reason be lost on the switch, the FACR coordinator should contact the maintenance technician to reinitialize the password.

#### 5.16.3.2 Scheduling

The FACR audit has two modes of execution: Immediate or Scheduled. The FACR audit is considered a maintenance tool and is only allowed to execute between the times of 6 p.m. and 6 a.m. Therefore all immediate requests should be made during these times. If the request is made outside of the permitted times, the audit will be scheduled for execution at 6 p.m.

The schedule option allows the user to schedule the audit to begin execution any day of the calendar year during the times of 6 p.m. and 6 a.m. There are no restrictions in place as to the number of entries that can be scheduled at one time. However, all scheduled entries should be adequately spaced apart so that the previously scheduled request can complete. All scheduled requests will be carried over from one calendar year to the next calendar year, and all scheduled requests will be preserved when an office is upgraded to a new software release.

The FACR audit also has two types of execution: "OFC" (official) or "UNOFC" (unofficial). The request type is used to indicate the type of output file to be created upon completion of the audit. (Refer to Section 5.16.3.4 for further information.) When the audit is run with the OFC type, both the customer and Lucent Technologies will have access to the FACR data once the files have been retrieved from the 5ESS-2000 switch and stored on the FACR-RSCANS computer. If the customer wants the data access to be restricted to just their PCs, then the UNOFC request type should be used.

### 5.16.3.3 Execution

Before the FACR audit actually begins execution, a check is made to ensure that it is within the allowed execution time (6 p.m. to 6 a.m.). If this check passes, then the audit creates a list of all operational SMs/SM-2000s in the office. For each line and trunk in the SM/SM-2000, the audit collects all associated feature data. When all the feature data has been collected in the SM/SM-2000, feature package analysis is performed to determine what NSEP feature packages are being used. If a package is identified as being used, the count associated with the feature package is incremented by 1.

Upon completion of each SM/SM-2000, all feature package counts are written to the data file. Prior to execution of the next SM/SM-2000, a time check is made to verify that the FACR audit is still within the allowed execution time. If it has progressed outside of the allowed time, the audit stores the number of the next SM/SM-2000 to process and terminates normally. At the same time, the audit is scheduled to resume processing at the original start time for the next day. When it resumes, the audit begins processing where it left off using the saved SM/SM-2000 number.

### 5.16.3.4 Output Files

There are three types of data files that could be produced by the FACR audit, depending on how FACR was invoked. The three types are as follows:

- Interim storage file
- Final FACR file
- Error data file.

All files are stored under the /rclog/FACR directory. The following list provides a description of each file and its function.

- The interim storage data file "facr.data" is used as a scratch pad while an existing FACR audit is in progress. This file holds general office information, cumulative NSEP feature package counts, the audit request type, and time and date of execution. This file is updated upon completion of each SM/SM-2000 in the office. Once the audit has completed processing the entire office, the NSEP feature package counts are extracted to produce the final FACR data file.

- The final FACR data "file" actually consists of a FACR data file and a FACR error file. The files have the following naming convention:

File Names : 9257d012.94f, 9257d012.94u, 9257d012.94d or 9257d012.94e

BASE & CONTROL = 9257d0

Month = 12

Year = 94

File Type = f (official) , u (unofficial), d (detail or e (error)

9257d012.94f The official data file is created when the "OFC" parameter is used in the input message. Both the Lucent Technologies PC and the Customer PCs have access to official FACR data files.

- 9257d012.94u The unofficial data file is created when the "UNOFC" parameter is used in the input message. This data file is only accessible by the Customer PCs.
- 9257d012.94d The detail data file is created when the "DETAIL" parameter is used in the "EXC:FACR" input message. The audit runs in the unofficial mode and provides a detailed report that shows how a particular package count was incremented. (Refer to Section 5.16.3.5 for further information).
- 9257d012.94e The error file contains information in the event a fatal error is encountered during audit execution. Otherwise this file is normally empty. The contents of this file inform the PC user that a fatal error was encountered and that further action is required. Since the contents of the FACR data file are questionable in this case, a FACR report will NOT be generated. Instead the contents of the error file will be displayed to the PC user. A corresponding message is output to the ROP to alert the maintenance technician to the error condition.

- The error data file contains information pertaining to any data base read failures that were encountered during the execution of the audit. This data is stored in ASCII text format to assist in fault analysis. All errors which are recorded in this file indicate that a problem was encountered while the FACR audit was reading a relation in the data base, and that further analysis may be required. The following is a sample of an error message stored in this file:

```
NON-FATAL ERROR: Failure to READ RTDNMOD/isatrtu()
RELATION KEYS: noc = 3, d4d3 = 1234
FC_LINE KEYS: member = 0xb1aa, module = 8, party = 0
                ( mod = 194 rc = -101 )
```

The first line in the error message indicates the relation trying to be read and what FACR software function the error was encountered in. The second line provides the key(s) used when trying to read the relation. The third line indicates what switch port the FACR audit was processing when the error occurred. The fourth line provides the number of the switching module on which the read of the relation failed, and the return code from the failed read request.

If and when a data base read error is encountered for a line or a trunk, the error is recorded and program execution continues with the next port in the current SM/SM-2000 being processed. The error output is placed in one of three files, either "facr.err1", "facr.err2" or "facr.err3". The error files are used in a cyclical fashion.

### 5.16.3.5 Detail Report

The FACR audit has the capability to create a detail report for a single NSEP package. This report is used to assist in identifying which entities were found to have a feature activated which caused the NSEP package count to be incremented. An entity may consist of either a line, trunk group or trunk, equipment port, or multiline hunt group. The detail report contains a header that identifies the office, the date the report was created, the NSEP reported on, the entity and a single feature that caused the NSEP package to be counted.

The following is a sample of a detail report :

DETAIL FACR NSEP REPORT

```
-----
Office Name : NSC4
Office Base & Control : nsc4d2
5ESS Software Release : 5E9(1)
Date of Detail Report Run : 07/10/94
```

NSEP = ISDN1

LIST = J5D008P-1 MIA(R,S)  
TOTAL NSEP USAGE = 10

\*\*\* Detail Report for SM : 1 \*\*\*

2502201	1-b201	: 995E0216	2502203	1-b203	: 995E0216
2502204	1-b204	: 995E0216	2400057	1-b206	: 995E0216
	1-b25f	: 995E0433		1-b35c	: 995E0433
	1-b35d	: 995E0433		1-b35e	: 995E0433
TRKGRP	953	: 995E0443	TRKGRP	954	: 995E0443

\*\*\* NSEP Usage for SM 1 : 10 \*\*\*

The report would then continue with the rest of the SMs/SM-2000s in the office. A request for a detail report is made by using the following input message:

**EXC:FACR:DETAIL,NSEP=xxxx;**

Where xxxx is a valid NSEP currently being supported by the FACR software. For a list of valid NSEPs, contact your FACR coordinator. Due to the unique counting algorithms of LASS feature packages the following LASS NSEP values are **not** supported by the detail option of FACR:

L2SMRTU	LARSRTU	LASMRTU	LCBSRTU	LICSRTU
LOTSRTU	LSCARTU	LSCFRTU	LSCRRTU	LSDARTU

When a detail report has been requested, the audit runs in the unofficial mode. Upon completion, both the unofficial FACR data file and the detail report file will be combined for retrieval by the PC software through the FACR-RSCANS interface.

## 5.17 SOFTWARE RELEASE RETROFIT

Software release retrofit refers to the implementation of a new software release (for example, 5E12). The new software release is delivered to the office on a magnetic tape supplied by Lucent Technologies.

Prior to a software release retrofit, all units should be operational.

Application of the software release retrofit should be planned for a low-traffic period to minimize the number of calls affected by the call processing interruption(s). In some cases, associated hardware and/or firmware changes may be required.

## 5.18 REFERENCES

To obtain more detailed information on the subjects discussed within this document, refer to the following documents:

- 190-306-010, *SCANS Procedures*
- 235-105-110, *System Maintenance Requirements and Tools*
- 235-105-220, *Corrective Maintenance Procedures*
- 235-106-100, *Software Release Retrofit Procedures — 5E10*
- 235-106-101, *Software Release Retrofit Procedures— 5E11*
- 235-105-250, *System Recovery*
- 235-106-200, *Software Release Update Procedures — 5E10*

- 235-106-201, *Software Release Update Procedures* — 5E11
- 235-106-300, *Large Terminal Growth Procedures* — 5E10
- 235-106-301, *Large Terminal Growth Procedures* — 5E11
- 235-600-700, *Input Message Manual*
- 235-600-750, *Output Message Manual*.

## **6. MEMORY ALTERATION PROCEDURES**

### **GENERAL**

Section 6 contains detailed level procedures of the changes that are possible within the *5ESS*®-2000 switch data base. These detailed level procedures are for program update, office backup methods, office dependent data (ODD) backup, ODD recovery, editing the data base using the office data base editor (ODBE), and software release retrofit.

## Procedure 6.1: REQUEST SUMMARY/LONG SUMMARY OF SOFTWARE UPDATES

### PROCEDURE

1. **NOTE:** All communications between the 5ESS®-2000 switch office and Software Change Administration and Notification System (SCANS) are via a full-duplex, 1200-baud dial-up terminal.
2. Is SCANS linked up?  
 If **YES**, proceed to Step 4.  
 If **NO**, continue with the next step.
3. Access SCANS per local instructions.
4. How are software updates to be selected for viewing?  
 If **By SYSTEM NAME**, continue with the next step.  
 If **By RANGE of software update NUMBERS**, go to Step 7.  
 If **By RANGE of DATES**, go to Step 9.  
 If **By SOFTWARE RELEASE NAME**, go to Step 11.  
 If **By SOFTWARE RELEASE ISSUE**, go to Step 13.  
 If **By SPECIFIC KEYWORD**, go to Step 15.  
 If **By TYPE of software update**, go to Step 17.
5. At SCANS terminal (SUMMARY), type and enter: **SUM,S 5E**  
 At SCANS terminal (LONG SUMMARY), type and enter: **SUM+,S 5E**  
 Response: Summary of software updates (if any) by system name option.
6. Go to Step 18.
7. At SCANS terminal (SUMMARY), type and enter: **SUM,S 5E,R a:b**  
 At SCANS terminal (LONG SUMMARY), type and enter: **SUM+,S 5E,R a:b**  
 Where: **a** = update number identifying first software update in range.  
**b** = update number identifying last software update in range.  
 Response: Summary of software updates (if any) by system name option.  
**EXAMPLE:**  
**BWM=nn-nnna**  
**BWM=nn-nnnz**
8. Go to Step 18.
9. At SCANS terminal (SUMMARY), type and enter:  
**SUM,S 5E,D aa/bb/cc:dd/ee/ff**  
 At SCANS terminal (LONG SUMMARY), type and enter:  
**SUM+,S 5E,D aa/bb/cc:dd/ee/ff**

**Note:** The following are all 2-digit numbers:



Where: **aa** = Month in which first software update of range was issued.  
**bb** = Day on which first software update of range was issued.  
**cc** = Year in which first software update of range was issued.  
**dd** = Month in which last software update of range was issued.  
**ee** = Day on which last software update of range was issued.  
**ff** = Year in which last software update of range was issued.

Response: Summary of software updates (if any) by range of software update issue dates.

10. Now go to Step 18.

11. At SCANS terminal, type and enter: **SUM,S 5E,G 5E a** (SUMMARY)  
 At SCANS terminal, type and enter: **SUM+,S 5E,G 5E a** (LONG SUMMARY)

Where: **a** = Software release currently in system

Response: Summary of software updates (if any) by 5ESS®-2000 switch software release name option.

12. Now go to Step 18.

13. At SCANS terminal, type and enter: **SUM,S 5E,G 5E a,I b** (SUMMARY)  
 At SCANS terminal, type and enter: **SUM+,S 5E,G 5E a,I b** (LONG SUMMARY)

Where: **a** = Software release currently in system.  
**b** = Software release issue currently in the system.

Response: Summary of software updates (if any) by 5ESS®-2000 switch software release issue option.

14. Now go to Step 18.

15. At SCANS terminal, type and enter: **SUM,S 5E,K a** (SUMMARY)  
 At SCANS terminal, type and enter: **SUM+,S 5E,K a** (LONG SUMMARY)

Where: **a** = keyword name - which could be a change notice (CN) number or other such keyword variable.

Response: Summary of software updates (if any) by keyword option.

16. Now go to Step 18.

17. At SCANS terminal, type and enter: **SUM,S 5E,TY a** (SUMMARY)  
 At SCANS terminal, type and enter: **SUM+,S 5E,TY a** (LONG SUMMARY)

Where: **a** = one of the following software update types:  
 GEN - Software release change  
 INF - Information only  
 APT - Auxiliary software change  
 APW - Auxiliary software change  
 PAR - Parameter

LIB - Library/Utility  
BIN - Binary change.

Response: Summary of software updates (if any) by type option.

18. At SCANS terminal, type and enter: **BWM,O a** (SUMMARY and/or LONG SUMMARY)

Where: **a** = office name.

Response: Hard copy printout of software update text and overwrite data for 5ESS<sup>®</sup>-2000 switch office.  
(SUMMARY)  
or  
Hard copy printout of software update text and overwrite files for 5ESS<sup>®</sup>-2000 switch office.  
(LONG SUMMARY)

**Results:** A SUMMARY or LONG SUMMARY of software updates, depending on which one was requested.

19. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.2: OBTAIN SOFTWARE UPDATE STATUS REPORT****PROCEDURE**

1. Is SCANS link up?

If **YES**, proceed to Step 3.

If **NO**, continue with the next step.

2. Access SCANS per local instructions.

3. At SCANS terminal, type and enter: **STA, L, U a**

Where:            **a** = Office name.

Response:        Receive software update (if any) implementation status report.

4. Are any software updates shown due?

If **YES**, continue with the next step.

If **NO**, proceed to Step 6.

5. Record **SOFTWARE UPDATES DUE**

6. Record **NO SOFTWARE UPDATES DUE**

**Results:** Copy of software update status report with a list of software updates due or not due.

7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## **Procedure 6.3: SCHEDULE MAKING SOFTWARE UPDATE(s) OFFICIAL PROCEDURE**

1. Obtain software update status report.

Reference:     **Procedure 6.2**

2. Dependent on results of Step 1, do A or B.

(A) BWMs DUE, continue with Step 3:

(B) NO BWMs DUE:

(1) Wait approximately 1 day.

(2) Repeat from Step 1.

3. Request listing of available software updates.

(A) Standard Summary or Long Summary

Reference:     **Procedure 6.1**

4. Schedule date for making software update(s) OFFICIAL per local instructions.

**Results:** Schedule date(s) for making software update(s) OFFICIAL.

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.4: INSTALL SOFTWARE UPDATE

### PROCEDURE

1. Check/make OFFICIAL software updates in the soak state in the switch.

Reference:     **Procedure 6.5**

2. Load software updates.

(A) From SCANS or Tape:

Reference:     **Procedure 6.7**

3. Make listing of software updates loaded into switch.
4. Make software updates OFFICIAL.

**NOTE:** The MCC display Page 1940 - EASY BWM INSTALLATION provides a simplified alternative method of installing software updates. With this method, the user is required to enter a minimum number of pokes manually and is not required to constantly monitor the software update progress. The 1940 Page uses the tools presently found on the 1950 and 1960 MCC display pages. Refer to 235-105-110 for details on how to use this alternative method of installing the software update. MCC display Page 1960 is still the standard method to install software updates.

Reference:     **Procedure 6.9**

**Results:** Software update(s) installed.

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.5: CHECK/MAKE OFFICIAL THE TEMPORARY SOFTWARE UPDATES

### OVERVIEW

**NOTE:** In this procedure, the term "software updates in the soak state" does not refer to an actual temporary software update, but rather to a software update that has not yet been made official. (BWMs in temporary state.)

### PROCEDURE

1. On master control center (MCC) Page **1950**, to display temporary software updates, type and enter: **9103**

Response: In field adjacent to poke 9103, **IN PROGRESS** backlights followed by either:

- a) **COMPLETED** and a list of temporary software updates is printed at the receive-only printer (ROP).
- b) **COMPLETED** and no list is printed at the ROP.
- c) **ABORTED** indicates no temporary updates in the switch and UPD USRERR 1 is printed at the ROP.

2. Which response did you get: **a)**, **b)**, or **c)**?

If **a)**, continue with Step 3.

If **b)** or **c)**, no temporary updates are in the switch or the temporary updates have already be made official.

3. Make listing of temporary software updates that need to be made OFFICIAL.
4. Using list of temporary software updates, select software update with lowest sequence number.
5. Access MCC Page **1960** - BWM INSTALLATION MENU.
6. Is a software update number displayed to the right of "**BWM**"? An EXAMPLE: "**BWMnn-nnnn**".

If **YES**, continue with Step 7.

If **NO**, go to Step 8.

7. Is software update number shown the same software update that was previously selected?

If **YES**, go to Step 9.

If **NO**, continue with Step 8.

8. On MCC Page **1960**, to start software update, type and enter: **9000,"yyyyyyyyyy"**

Where: **yyyyyyyyyy** = 10-digit software update number, such as, "**BWMnn-nnnn**".

Response: On MCC Page **1960**, status of software update is displayed under "SECTION EXECUTION STATUS".  
Message file displayed for next section to be executed.

9. On MCC Page **1960**, type and enter: **9320** to execute soak section of message file.

Response: **SOAK SECTION COMPLETED: SOAK SECTION**

10. Using information contained in SOAK section of message file, has soak interval for this software update completed?

If **YES**, go to Step 12.

If **NO**, continue with Step 11.

11. Wait until soak interval has completed.

12. On MCC Page **1960**, type and enter: **9330** to make software update OFFICIAL.

Response: **EXECUTE ALL COMPLETED:OFFICIAL SECTION**

13. On MCC Page **1950**, to clear software update, type and enter: **9600,"yyyyyyyyyy"**

Where: **yyyyyyyyyy** = 10-digit software update number.

Response: **COMPLETED** to right of 9600 poke.

14. Was software update cleared successfully?

If **YES**, go to Step 18.

If **NO**, continue with Step 15.

15. Verify correct software update name used.

16. On MCC Page **1950**, to clear software update, type and enter: **9600,"yyyyyyyyyy"**

Where: **yyyyyyyyyy** = 10-digit software update number.

Response: **COMPLETED** to right of 9600 poke.

17. Was software update successfully cleared?

If **YES**, continue with Step 18.

If **NO**, **seek technical assistance**.

18. Are there any other **temporary** software updates active in the switch?

If **YES**, and you want to continue, proceed with Step 19.

If **NO**, **STOP**. There are no other temporary updates active in the switch.

19. Select software update with next highest sequence number.

20. Repeat from Step 8.

21. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**





## Procedure 6.6: MOUNT TAPE ON 9-TRACK TAPE DRIVES

### OVERVIEW

**NOTE:** For specific information on the 5ESS®-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

### PROCEDURE

1. If the operation that is to be performed is a ``read only" operation, then remove the ``write enable" ring from the back of the tape reel. If the operation that is to be performed will write data to the tape, verify that the ``write enable" ring is installed on the back of the tape reel.
  2. Remove outer ring from reel.
  3. Open tape drive door.  
  
For KS-23909, L21 tape drive:  
Make sure the drive is OFFLINE. The door cannot be opened unless the drive is OFFLINE. If the drive is ONLINE, press the **ONLINE** key once so that ONLINE is no longer displayed.  
  
For KS-23909, L10 tape drive:  
Wait for the power-on sequence to end with momentary OK, followed by NO TAPE messages on the display. Then the door can be opened.
  4. Mount tape on tape drive. Ensure the tape end is free. For new reels remove the adhesive strip and/or rubber block that constrains the free end.
  5. Thread tape onto drive following local procedures.  
  
**NOTE:** The KS-23909, L10 is an auto-load tape drive. Threading of tape onto take-up reel is not required. Refer to *Lucent Technologies KS-23909, L(40) Information Manual for the KS-23909 1600/6250 CPI Recorder (with SCSI Interface)*.
  6. Close door on tape drive.
  7. Press the **LOAD** (or equivalent) button.  
  
Response: Tape should move then stop.  
**BOT** (or equivalent) light should be on.
  8. Press the **ONLINE** (or equivalent) button.  
  
Response: **ONLINE** (or equivalent) light should be on.  
  
Comment: Tape is now ready for use.
- Results:** Tape mounted on drive.
9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.7: LOAD SOFTWARE UPDATE(s) FROM SCANS/OR TAPE

### OVERVIEW

There is a 24-hour time limit imposed from the time the switch is primed until SCANS must begin the data session. If SCANS puts the binary overwrite (BOW) request in the queue, it may take up to that 24-hour limit to start sending data to the switch. **IN REMOTE STARTED** is output to indicate the start of the data session. The **IN REMOTE REPT** message may be output periodically during the session to indicate various file rejects. Termination of the session is indicated by an **IN REMOTE REPT** output message followed immediately by the **IN REMOTE STOPPED** output message.

### PROCEDURE

1. If loading software update(s) from **SCANS**, continue to Step 2.  
If loading software update(s) from **TAPE**, go to Step 16.
2. At master control center (MCC), type and enter: **IN:REMOTE,START;**

Response:     **IN REMOTE INITIALIZED**  
                  **TRANSACTION ID: a**  
                  **TIME: b**

Where:         **a** = 7-digit transaction ID to be supplied to SCANS when issuing binary overwrite command.  
                  **b** = Time at which 24-hour timer began in the format hours:minutes.

3. At SCANS terminal, access SCANS per local instructions.
4. At SCANS terminal, type and enter: **BOW, S 5E, R a[:b], O c, PW d**

Where:         **a** = first or only software update in range.  
                  **b** = last software update in range (if ordering more than one software update).  
                  **c** = office name.  
                  **d** = transaction ID. (obtained in Step 2.)

5. At MCC, type and enter: **IN:REMOTE,REPT;**

Comment:       In response to the **IN:REMOTE,REPT** input, the **IN REMOTE REPT** output indicates the data session is still in progress while the **IN REMOTE ERROR 12** indicates no IN REMOTE processes are active at this time (that is, data session is over - successfully or unsuccessfully or we could already have).

6. Is response **IN REMOTE WAITING** or **IN REMOTE ERROR 12**?

If **IN REMOTE WAITING**, continue to Step 7.  
If **IN REMOTE ERROR**, go to Step 8.

7. Wait approximately 1 hour.
8. For a listing of BWMs not in switch, At the MCC, type and enter: **OP:STATUS:LISTDIR,FN="/etc/bwm";**

Response:       **OP STATUS LISTDIR COMPLETED**

```
total 17
1 drwxrwxrwx 8 root 416 Mar 1 10:30 .
10 drwxr-xr-x 8 root 5024 Mar 2 11:00 ..
1 drwxrwxrwx 2 root 192 Mar 2 10:58 930011
....
....
1 drwxrwxrwx 2 root 112 Mar 1 10:30 930016
```

If BWM(s) or update(s) appear in this file, down load, and repeat from Step 5.

**NOTE:** If Step 5 is repeated for the second time, verify the "/etc/bwm" directory, and start over from Step 2.

9. At MCC, type and enter: **VFY:BWM,ALL;**

```
Response:  VFY BWM
          aaaa bb-bbbb c [d] [e]
          ...
          ...
          aaaa bb-bbbb c [d] [e]
```

10. Is "c" = **NG** for any software update?

If **YES**, go to Step 11.

If **NO**, continue to Step 12.

11. Does "e" indicate **NO HEADER CHECK**?

If **YES**, **seek technical assistance.**

If **NO**, **STOP.**

12. What is value of "d"?

If **1** or **6**, then **seek technical assistance.**

If **2, 3, 4, 5, OR 7**, continue to Step 13.

13. Is this the first or second time verification has failed for a software update (or software updates)?

If **FIRST TIME**, proceed to Step 14.

If **SECOND TIME**, **seek technical assistance.**

14. Using list of software updates printed on ROP, determine which software update(s) failed verification and substitute for original list.

15. Now repeat procedure from Step 2.

16. If loading software update(s) from TAPE, Mount software update tape on tape drive.

Reference: **Procedure 6.6**

17. At master control center (MCC), type and enter:  
**COPY:TAPE:ATA,IN,TD="/dev/mt08",BSDIR="/etc/bwm";**
- Response:     **COPY TAPE IN COMPLETED**
18. At MCC, type and enter: **VFY:"BWMaaaaaa";**
- Where:         **a** = 6-digit software update number.
- Response:     **VFY BWM**  
              **aaaa bb-bbbb c [d] [e]**
19. Is "c" = **OK** or **NG**?
- If **OK**, continue to Step 20.
- If **NG**, go to Step 22.
20. Does "e" indicate **NO HEADER CHECK**?
- If **YES**, **seek technical assistance**.
- If **NO**, continue to Step 21.
21. Unmount software update tape.
- Reference:     **Procedure 6.8**
22. What is value of "d"?
- If **1**, continue to Step 24.
- If **2, 3, 4, 5, or 7**, go to Step 27.
- If **6**, then **seek technical assistance**.
23. Ensure correct software update name was used above during verification.
24. Type and enter: **VFY:BWM"aaaaaa";**
- Where:         **a** = 6-digit software update number.
- Response:     **VFY BWM**  
              **aaaa bb-bbbb c [d] [e]**
25. Is "c" = **OK** or **NG**?
- If **OK**, go to Step 19.
- If **NG**, continue to Step 26.
26. At MCC, type and enter: **COPY:TAPE,IN,TD="/dev/mt08",BSDIR="/etc/bwm";**
- Response:     **COPY TAPE IS COMPLETED**

27. At the MCC, type and enter: **VFY:BWMaaaaaa;**

Where:           **a** = 6-digit software update number.

Response:       **VFY BWM**  
                  **aaaa bb-bbbb c [d] [e]**

28. Is "c" = **OK** or **NG**?

If **OK**, go to Step 19.

If **NG**, **seek technical assistance.**

29. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.8: REMOVE/UNMOUNT TAPE FROM *KEYSTONE*<sup>®</sup> II OR *KEYSTONE*<sup>®</sup> III 9-TRACK TAPE DRIVE

### OVERVIEW

**NOTE:** For specific information on the 5ESS<sup>®</sup>-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010, *Compact Digital Exchange Reference Guide* and 235-120-020, *Compact Digital Exchange User's Guide*.

### PROCEDURE

1. Is tape moving?

If **YES**, continue with the next step.

If **NO**, go to Step 3.

2. Wait for tape to stop.

3. What kind of tape drive?

If *KEYSTONE*<sup>®</sup> II or **KENNEDY**: Press the **ON-LINE** button.

If *KEYSTONE*<sup>®</sup> III: Press the **RESET** button.

Response: **ON-LINE** indicator should go out.

4. What kind of tape drive?

If *KEYSTONE*<sup>®</sup> II or **KENNEDY**: Press the **REWIND** button.

If *KEYSTONE*<sup>®</sup> III: Press the **UNLOAD** button.

Response: Tape should fully rewind onto supply reel.

5. Open tape drive door.

6. Remove tape.

7. Close tape drive door.

8. Put outer ring on tape.

9. Store software update tape per local procedure.

10. Tape now ready for storage.

11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.9: MAKE SOFTWARE UPDATE(S) OFFICIAL

### PROCEDURE

1. Determine if breakpoints have been set in the switch.

**NOTE:** Breakpoints must be removed before continuing.

Type and enter the following:

	Input	Output Response if Breakpoint(s) Exist
For SM:	op:ut,sm=1&&192,util;	OP UT SM UTILFLAG
For AM:	op:util;	OP UTIL COMPLETED — STATE - ENABLED
For CMP:	oput,cmp=1,util;	OP UT CMP UTILFLAG

2. Do breakpoints exist?

If YES, continue to next Step.

If NO, go to Step 4.

3. To remove breakpoints, type and enter the appropriate commands:

(Refer to Input Manual (235-600-700) for complete command.)

For SM:	clr:ut:sm=1&&192,util;
For AM:	clr:util;
For CMP:	clr:ut:cmp=1,util;

**NOTE:** The appropriate personnel should be notified that the breakpoints have been cleared.

4. Using listing of software updates, **OP:STATUS,LISTDIR,FN="/etc/bwm";**, pick software update with lowest sequence number.
5. On master control center (MCC) Page **1960**, in order to start the software update process, type and enter:  
**9000,"yyyyyyyyyy"**

Where: **yyyyyyyyyy** = 10-digit software update number, craft (CFT) software update number, or temporary (TMP) software update number. EXAMPLE: **BWM93-0011**.

Response: **ENTER 9010 TO VERIFY BWM**

6. On MCC Page **1960**, enter command **9010** to verify software update and build executable message file.

Response: **UPD VFY COMPLETED**  
Apply section displayed under ``SECTION EXECUTION STATUS."

**NOTE:** If fails, check to see if "bwm" exists in file, or if "bwm" name was typed in error. Retry BWM second time, reload from TAPE or SCANS, if error message, seek assistance.

7. On MCC Page **1960**, enter command **9250** to print entire message file.

Response: Message file printed at receive-only printer (ROP).

8. Review message file for events that will take place during activation, or any special actions which must be accomplished manually.
9. On MCC Page **1960**, enter command **9310** to apply software update in a temporary mode.

Response:      **EXECUTE ALL COMPLETED: APPLY SECTION**

10. Using printout of message file, does the software update affect any of the following switching module (SM) pumpable peripherals?
  - Local digital service unit (LDSU), model 2
  - Digital service unit-2 (DSU2) recorded announcement function (RAF)
  - Service announcement system (SAS).

If **YES**, continue to next Step.

If **NO**, go to Step 12.

11. Download updates to the affected SM pumpable peripheral units.

Reference:      **Procedure 6.20**

12. On MCC Page **1960**, enter command **9320** to execute SOAK section of message file.

Response:      **EXECUTE ALL COMPLETED: SOAK SECTION**

**Note:** All BWM's SOAK for 24 hours, if SOAK time(s) require adjustments, use Page **1950**.

13. Using information from the soak indicator on MCC Page 1960, has the soak interval for this software update completed?

If **TMPG** (timer in progress), continue to next Step.

If **CMPL** (complete), go to Step 15.

14. Wait for software update soak interval to complete.
15. Is the software update that is being activated a TMP software update?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, continue with next Step.

16. On MCC Page **1960**, enter command **9330** to make software update OFFICIAL.

Response:      **EXECUTE ALL COMPLETED: OFFICIAL SECTION**

17. Are there any other software updates to be activated?

If **YES**, continue to next Step.



If **NO**, go to Step 20.

18. Pick software update with the next higher sequence number.
19. Repeat from Step 5.
20. On MCC Page **1950**, enter command **9600,BWMnn-nnnn** to clear software updates.

Response:     **COMPLETED** to right of poke.

**Note:** Check "/etc/bwm" file.

**Results:** BWM(s) made OFFICIAL.

21. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.10: BACKOUT SOFTWARE UPDATE

### OVERVIEW

**NOTE:** To backout the last official software update, refer to **Procedure 6.29** .

### PROCEDURE

1. This procedure should not be performed if any recent change activities are in progress. Verification of recent change activity should be done before continuing.

To verify that no recent change processes are being run, at the MCC type and enter

**OP:RCUSER;**

**Response: OP RCUSER: a ACTIVE RC USERS**

**Where:**

a = Total number of users executing recent change processes at the time of query.

2. Are there recent change processes active?

If **NO**, continue to next Step.

If **YES**, exit all recent change sessions or wait until there are no active processes before continuing.

3. Access MCC Page **1960** - BWM INSTALLATION MENU.

4. Is software update number displayed to the right of ``**BWM**'' the software update that needs to be backed out?

If **YES**, go to Step 6.

If **NO**, continue to next Step.

5. On MCC Page **1960**, in order to start the software update process, type and enter: **9000,"yyyyyyyyyy"**

Where: **yyyyyyyyyy** = 10-digit software update number, in the form **BWMnn-nnnn**.

**Response:** On MCC Page 1960, status of software update is displayed under ``SECTION EXECUTION STATUS".  
Message file displayed for next section to be executed.

6. On MCC Page 1960, type and enter: **9340** to backout software update.

**Response: EXECUTE ALL COMPLETED: BACKOUT SECTION**

7. Using printout of messages file, does the software update affect any of the following switching module (SM) pumpable peripherals?

- Integrated services line unit (**ISLU**)
- Local digital service unit (**LDSU**), model 2

- Local digital services function (**LDSF**)
- Recorded announcement function (**RAF**)
- Service announcement System (**SAS**)
- DSU2 integrated services test facility (**ISTF**)
- Global digital services function (**GDSF**)
- Protocol handler 4 for ISDN application (**PH4I**)
- Protocol handler interface processor 4 for ISDN application (**IP4I**)
- Protocol handler interface processor 4 for frame relay application (**IP4F**)
- Protocol handler voice version 1 for code division multiple access application (CDMA) (**PHV1C**)
- Protocol handler for asynchronous transfer mode (ATM) network interface (**PHA1A**)
- Operational image for the PH2 direct memory access processor (**ODMA**)
- Access image for the PH2 (**PH2A**)
- Gateway image for the PH2 (**PH2G**)
- Common image for the PH3 (**PH3C**)
- Operational image for the PH3 input/output processor (**OIOP**)
- Integrated digital carrier unit (**IDCU**) images (5E8 or later) of the following:
  - Integrated digital carrier unit common-control processor (IDCUCCP),
  - Integrated digital carrier unit loop-side interface (IDCULSI), or
  - Integrated digital carrier unit data-link processor (IDCUDLP).

If **YES**, continue to next Step.

If **NO**, then **STOP**.

8. Download updates to the affected SM pumpable peripheral units.

**Reference:**           **Procedure 6.20**

**Results:** Software update backed out.

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.11: OBTAIN ODD BACKUP SCHEDULE****PROCEDURE**

1. **NOTE:** **NG** is printed if no office dependent data (ODD) schedule is in existence.

At master control center (MCC), type and enter: **OP:BKUPSTAT;**

Response: **OP BKUPSTAT [FULL] {AM | NRODD=a [TO b] | CMP=c [TO d] |  
AM NRODD=a [TO b] | AM CMP=c [TO d] |  
AM NRODD=a [TO b] CMP=c [TO d] | RODD=a | AM RODD=a |  
AM NRODD=a [TO b] CMP=c [TO d] RODD=a |  
NRODD=a [TO b] CMP=c [TO d] RODD=a}  
EVERY=e AT=ffff**

Where: **a** = The report is for SM number(s). This parameter can be a single number or the lower limit of a range of numbers.  
**b** = Upper limit of a range of SMs.  
**c** = The report is for CMP number(s). This parameter can be a single number or the lower limit of a range of numbers.  
**d** = Upper limit of a range of CMPs.  
**e** = Number of days for every ODD backup to run.  
**f** = Time of day expressed in hour and minute.

**Results:** ODD backup schedule obtained.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.12: SCHEDULE AUTOMATIC ODD BACKUP

### OVERVIEW

This procedure requests to schedule the ODD backup to run periodically at specific intervals.

**NOTE:** During heavy recent change activity, an ODD backup has a slight chance of aborting because of a lack of resources for the backup to execute. Requesting ODD backup during heavy recent change activity is not recommended because this will affect the ODD backup and recent change performance and response time. If a backup aborts, re-request the ODD backup during a period of light recent change activity. Failure of ODD backup will cause a minor alarm.

### PROCEDURE

1. At master control center (MCC), type and enter:

**BKUP:ODD[,FULL][,AM][,CMP=0][,NRODD=a&&b][,RODD=a],EVERY=c,AT=d;**

Where:

- FULL** = Back up the entire ODD unconditionally. If FULL is not specified, only those ODD blocks that have been altered since the last ODD backup will be backed up (a differential backup). The AM ODD backup is always a full backup (that is, a differential backup of the AM ODD in not available).
- CMP** = Back up the CMP ODD.
- CMP** = Back up the CMP ODD.
- NRODD** = Back up the SM nonredundant ODD.
- RODD** = Back up the redundant ODD. (The default is the entire system [the AM, the CMP, NRODDs of all SMs and RODD] if none is specified).
- a** = SM number or the lower limit of a range of SM numbers.
- b** = Upper limit of a range of SM numbers.
- c** = Interval in days (0-90) between successive ODD backup runs.
- d** = Time of day in in hours and minutes when ODD is to be backed up.

Response: **NG** = No good. Valid values are as follows:

- INVALID CMP RANGE = the input request is not valid.
- INVALID SM RANGE = the input request is not valid.

**PF** = Printout follows: Request accepted and the corresponding **BKUP:ODD** output message will follow:

**RL** = Retry later. The request cannot be executed now due to unavailable system resources.

**Results:** Automatic ODD backup scheduled.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.13: CANCEL ODD BACKUP SCHEDULE****PROCEDURE**

1. **NOTE:** The 5E9 and later software releases will allow the same parameters as **BKUP:ODD:EVERY** in order to delete selected schedules.

At master control center (MCC), type and enter: **CLR:ODDBKUP;**

Response: **CLR ODD BKUP COMPLETED**

**NOTE:** If no office dependent data (ODD) backup schedule is in existence, **CLR ODD BKUP STOPPED** is printed.

**Results:** ODD backup schedule cancelled.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.14: PERFORM FULL ODD BACKUP****PROCEDURE**

1. **NOTE 1:** All switching modules (SM), communication module processors (CMP), and the administrative module (AM) must be up and running. In addition, the switch must not be in an OVERLOAD condition.

**NOTE 2:** A **BKUP ODD FULL CMP=a COMPLETED** message will be output for each SM. Backup of each SM, CMP, or AM will average 5 minutes.

At master control center (MCC), type and enter: **BKUP:ODD,FULL;**

Response: **BKUP ODD FULL AM COMPLETED**  
**BKUP ODD FULL NRODD=a COMPLETED**  
**BKUP ODD FULL RODD=b COMPLETED**  
**BKUP ODD FULL CMP=a COMPLETED**  
**BKUP ODD COMPLETED**

**Results:** Full ODD backup performed.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.15: ABORT IN-PROGRESS ODD BACKUP****PROCEDURE**

1. **NOTE:** If this command is input while a switching module (SM) is being backed up, the processes involved will wait for the SM to complete before the abort takes effect.

At master control center (MCC), in order to abort an in-progress office dependent data (ODD) backup, type and enter: **ABT:ODDBKUP!**

Response: **ABT BKUP ODD ABORTED**

**Results:** In-progress ODD backup aborted.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 6.16: BACKUP MEMORY (IN-CORE) TO PRIMARY DISK PARTITION

### OVERVIEW

The core to primary partition backup is done any time changes to the office text or data are made permanent such as committing to Lucent Technologies 3B20/21 computer or 5ESS<sup>®</sup>-2000 switch recent changes or software updates. The backup consists of saving the changes in memory by writing to the primary disk partitions. Once the memory changes are made permanent, they are available on disk for automatic recovery situations that require boots. The activity involves the primary system disks which are MHD 0 and 1.

### PROCEDURE

1. In the event errors are detected during the procedure, take appropriate corrective action using the output message manual as a first level reference; then, if necessary, seek technical assistance.
2. **WARNING:** On MCC Page 111, MHD=0 and 1 must be duplex before starting this procedure. The switch must NOT be in an OVERLOAD state. It is desirable, but not mandatory, that the AM, CMP, and all SMs and RSMs be duplex. Also, it is mandatory that no SM or RSM be isolated.
3. On EAI page, is **BACKUP-ROOT SET** backlighted?  
 If **YES**, then **seek technical assistance**.  
 If **NO**, continue with Step 4.
4. Access MCC Page **120**.
5. At the MCC, type and enter: **INH:DMQ:SRC=REX;**  
 Response: **OK**
6. At the MCC, type and enter: **OP:DMQ;**  
 Response: **REQUEST ACTIVE**  
           ...  
           **REQUEST WAITING**  
           ...  
           **INHIBIT SOURCES:**
7. Does output from **OP:DGN** or **OP:DMQ** show any active or scheduled REX diagnostics?  
 If **YES**, continue to Step 8.  
 If **NO**, continue to Step 9.
8. Stop each active and/or scheduled REX diagnostics dump by entering: **STP:DMQ,SLOT=a;**  
 Where: **a** = slot number obtained from Step 6.
9. Using office RC/V records, are there any **temporary** ECD/SG recent changes in the switch (that is, one that

has **not** been activated)?

If **YES**, continue to Step 10.

If **NO**, continue to Step 30.

10. Access MCC Page **199**.

Response: **Recent Change and Verify**  
cursor positioned at **database\_name**:

11. Type and enter: **incore**

Response: Cursor moves to **reviewonly**:

12. Type and enter: **n**

Response: Cursor moves to **journaling**:

13. To bypass other options, type and enter: **\***

Response: At top right-hand corner of screen:  
- RCV initialization in progress  
Cursor at **Enter Form Name**:

14. Type and enter: **activate**

Response: Cursor moves to **1.copy\_inc\_to\_disk**:

15. Type and enter: **y**

Response: Cursor moves to **Enter Execute, Change, Validate, or Print**:

16. To execute form, type and enter: **e**

Response: At top right-hand corner of screen:  
- **executing...** displayed  
- **FORM EXECUTED** displayed  
Cursor at **Enter Form Name**:

17. To exit DMERT RC/V, type and enter **<**

18. Access MCC Page **199**.

Response: **Recent Change and Verify**  
Cursor positioned at **database\_name**:

19. Type and enter: **rootdmly**

Response: Cursor moves to **reviewonly**

20. Type and enter: **n**

Response: Cursor moves to **journaling:**

21. To bypass other options, type and enter: **\***

Response: At top right-hand corner of screen:  
- **executing...** displayed  
- **FORM EXECUTED** displayed  
Cursor at **Enter Form Name:**

22. Type and enter: **trbegin**

Response: Cursor at **1.tr\_name:TRBEGIN**

23. Depress carriage return **1** time.

24. Type and enter: **e**

Response: At top right-hand corner of screen:  
- **executing...** displayed.  
- **FORM EXECUTED** displayed  
Cursor at **Enter Form Name:**

25. Reenter any and all changes to **rootdmly**

26. Type and enter: **trend**

Response: Cursor at **1.tr\_name:TREND**

27. Depress carriage return **4** times.

Response: Cursor at **Enter Execute, Change, Validate, or Print:**

28. Type and enter: **e**

Response: At top right-hand corner of screen:  
- **executing...** displayed  
- **FORM EXECUTED** displayed  
Cursor at **Enter Form Name:**

29. To exit DMERT RC/V, enter **<**

30. Access MCC Page **120**.

31. **Note:** A BKUP ODD SM a COMPLETED message will be output for each SM. Backup of each SM will take approximately 5 to 6 minutes. Backup of the AM will take 3 to 4 minutes. There will be a 15- to 30-second lag

between the BKUP ODD APPCP COMPLETED and BKUP ODD COMPLETED during which the final ODD copy is made. Type and enter: **BKUP:ODD;**

Response:     **BKUP ODD IN PROGRESS**  
                  ...  
                  **BKUP NRODD SM=a COMPLETED**  
                  ...  
                  **BKUP NRODD SM=z COMPLETED**  
                  **BKUP CMP = 0 COMPLETED**  
                  **BKUP ODD [FULL] RODD COMPLETED**  
                  **BKUP ODD COMPLETED**

32. Type and enter: **ALW:DMQ:SRC=REX;**

Response:     **OK**  
                  **ALW:DMQ ENABLED REX**

**Results:** Memory to primary disk partition backed up.

33. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.17: COPY PRIMARY DISK PARTITIONS TO BACKUP DISK PARTITIONS

### OVERVIEW

This backup is performed prior to making changes permanent to data, program, or other files in the root partitions. These are partitions **other than /no5text**. These changes are the result of software updates, ECD changes, or file edits. This backup activity will depend on the frequency of changes made to the root partitions. It is not necessary to perform this backup for every change to the root partitions.

### PROCEDURE

1. In the event errors are detected during the procedure, take appropriate corrective action using the output message manual as a first level reference then, if necessary, **seek technical assistance**.
2. **WARNING:** On MCC Page 111, DFC 0 and 1 must be duplex before starting this procedure. The switch must NOT be in an OVERLOAD state. It is desirable, but not mandatory, that the AM and all SMs and RSMs be duplex.
3. On EAI page, is **BACKUP-ROOT SET** backlighted?  
 If **YES**, then **seek technical assistance**.  
 If **NO**, continue to Step 4.
4. Access MCC Page **120**.
5. Type and enter: **DUMP:FILE,ALL,FN="/no5text/bkup/prim.ptn";**  
 Response: **DUMP FILE ALL COMPLETE**  
 Contents of **/no5text/bkup/prim.ptn** printed.
6. Type and enter: **DUMP:FILE,ALL,FN="/no5text/bkup/bkup.ptn";**  
 Response: **DUMP FILE ALL COMPLETE**  
 Contents of **/no5text/bkup/bkup.ptn** printed.
7. Do contents of **/no5text/bkup/prim.ptn** and **/no5text/bkup/bkup.ptn** agree line-for-line with those listed in Table 6.17-1 ?  
 If **YES**, continue to Step 8.  
 If **NO**, then **seek technical assistance**.
8. Type and enter: **COPY:PTN,ALL,SRC="/no5text/bkup/prim.ptn",  
 DEST="/no5text/bkup/bkup.ptn";**  
 Response: **RMV:MHD x [TASK/SLOT] y MSG STARTED**  
**RMV MHD x COMPLETED**  
**REPT [DIOP/DLM] SIMPLEX PROCESSING COMPLETED**  
**COPY PTN ALL COMPLETED**  
**xxxx BLOCKS COPIED**  
**RST MHD x TASK y MSG STARTED**

...

**RST MHD x IN PROGRESS** (will be output every 2 minutes)

...

**RST MHD x COMPLETED**

**Results:** Primary disk partitions copied to backup disk partitions.

**Table 6.17-1    Contents of /no5test/bkup/prim.ptn  
and bkup.ptn**

<b>prim.ptn</b>	<b>bkup.ptn</b>
/dev/root	/dev/broot
/dev/etc	/dev/betc
/dev/db	/dev/bdb
/dev/boot	/dev/bboot

9.    **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.18: PERFORM DIFFERENTIAL ODD BACKUP

### OVERVIEW

A "differential" office dependent data (ODD) backup will copy only those pages which have been changed since the last backup.

### PROCEDURE

1. **NOTE 1:** All switching modules (SM), communication module processors (CMP), and the administrative module (AM) must be up and running. In addition, the switch must **not** be in an **OVERLOAD** condition.

**NOTE 2:** Although it is not required to inhibit recent change during backup, it is recommended in order to not impact the ODD backup performance. Call all Recent Change Centers to ensure no one is using recent change in the office before proceeding with the inhibit.

At the MCC, type and enter: **INH:RC;**

Response: **INH RC COMPLETED**

2. At the master control center (MCC), type and enter: **BKUP:ODD;**

Response: **BKUP ODD FULL AM COMPLETED**  
**BKUP ODD NRODD=a COMPLETED**  
**BKUP ODD NRODD=z COMPLETED**  
**BKUP ODD CMP=b COMPLETED**  
**BKUP ODD FULL RODD=c COMPLETED**  
**BKUP ODD COMPLETED**

**NOTE 1:** If any SM fails, it will be retried with a full differential after all other SMs have been completed.

**NOTE 2:** A **BKUP NRODD=a COMPLETED** or **BKUP ODD CMP=b COMPLETED** message will be output for each SM or CMP respectively. A **BKUP RODD=c COMPLETED** message will be output for redundant ODD.

3. If recent change was inhibited in Step 1, allow recent change and call all Recent Change Centers to inform them recent change is no longer inhibited.

At the MCC, type and enter: **ALW:RC;**

Response: **ALW RC COMPLETED**

**Results:** Differential ODD Backup performed.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.19: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For Future Use



## Procedure 6.20: DOWNLOAD UPDATES TO SM PUMPABLE PERIPHERAL UNITS

### OVERVIEW

**NOTE:** This procedure should be run *only as a last resort*. The **UPD:PMPPERF** commands in the message file should be able to automatically remove and restore the affected peripheral units, which would pump them. If the **UPD:PMPPERF** command repeatedly fails, and no office hardware is defective, seek technical assistance. The required course of action may include this manual procedure.

### PROCEDURE

1. Which switching module (SM) pumpable peripheral unit does the software update apply to(?):
  - Integrated services line unit (**ISLU**)
  - Local digital service unit (**LDSU**), model 2
  - Local digital services function (**LDSF**)
  - Recorded announcement function (**RAF**)
  - Service announcement System (**SAS**)
  - DSU2 integrated services test facility (**ISTF**)
  - Global digital services function (**GDSF**)
  - Protocol handler 4 for ISDN application (**PH4I**)
  - Protocol handler interface processor 4 for ISDN application (**IP4I**)
  - Protocol handler interface processor 4 for frame relay application (**IP4F**)
  - Protocol handler voice version 1 for code division multiple access application (CDMA) (**PHV1C**)
  - Protocol handler for asynchronous transfer mode (ATM) network interface (**PHA1A**)
  - Operational image for the PH2 direct memory access processor (**ODMA**)
  - Access image for the PH2 (**PH2A**)
  - Gateway image for the PH2 (**PH2G**)
  - Common image for the PH3 (**PH3C**)
  - Operational image for the PH3 input/output processor (**OIOP**)
  - Integrated digital carrier unit (**IDCU**) images (5E9 or later) of the following:
    - Integrated digital carrier unit common-control processor (IDCUCCP),
    - Integrated digital carrier unit loop-side interface (IDCULSI), or
    - Integrated digital carrier unit data-link processor (IDCUDLP).

If **ISLU**, continue to Step 2.

If **PH16**, go to Step 10.

If **PH128, ODMA, PH2A, PH2G, PH3C, OIOP, PH4I, IP4I, IP4F, PHV1C, or PHA1A**, go to Step 16.

If **RAF, SAS**, go to Step 22.

If **LDSU, LDSF, GDSF**, go to Step 28.

If **ISTF**, go to Step 34.

If **IDCU**, go to Step 40.

2. On master control center (MCC) Page **1010,x**, enter command **1700y,x** to access the ISLU NETWORK display page.

Where:            **x** = Number of the SM (1-192)  
                       **y** = Number of ISLU NETWORK (0-7).

3. Enter command **200** to remove **ISLUCC 0**.
4. Enter command **300,UCL** to restore **ISLUCC 0**.
5. Enter command **201** to remove **ISLUCC 1**.
6. Enter command **301,UCL** to restore **ISLUCC 1**.
7. Repeat Steps 2 through 6 for other ISLU networks.
8. Repeat Steps 1 through 7 for other SMs.
9. Proceed to Step 48.
10. Enter command **118y,x** to access the packet switch unit (PSU) shelf to be updated with the software update.

Where:            **x** = Number of SM (1-192)  
                       **y** = Number of packet switch interface unit (PSIU) shelf (0-5) to be updated.

11. Enter command **2xx** to remove the PH16 to be updated.

Where:            **xx** = PH16 number (00-15).

12. Enter command **3xx,UCL** to restore the PH16 that was just removed.
13. Repeat Steps 11 and 12 until all the PH16s have been updated.
14. Repeat Steps 10 through 13 for all other SMs.
15. Proceed to Step 48.
16. Enter command **118y,x** to access the PSU shelf to be updated with the software update.

Where:            **x** = Number of SM (1-192)  
                       **y** = Number of PSU shelf (0-5) to be updated.

17.            **NOTE:** This step handles PH2A/PH2G and ODMA updates simultaneously;

or PH128 and ODMA updates simultaneously;  
 or both PH3C and OIOP updates simultaneously.  
 or both PH4I and IP4I or IP4F updates simultaneously.  
 or both PHV1C updates.  
 or both PHA1A updates.

Enter command **2xx** to remove the protocol handler (PH) to be updated.

Where: **xx** = PH number (00-15).

18. Enter command **3xx,UCL** to restore the PH that was just removed.
19. Repeat Steps 17 and 18 until all the PHs have been updated.
20. Repeat Steps 16 through 19 for all other SMs.
21. Proceed to Step 48.
22. Enter command **1090y,x** to access the RAF/SAS display page.

Where: **y** = RAF/SAS (0-7)  
**x** = SM number.

23. Enter command **200** to remove the RAF from service or **210** to remove the SAS from service.
24. Enter command **300,UCL** to restore the RAF or **310,UCL** to restore the SAS.
25. Repeat Steps 23 and 24 for any additional RAFs/SASs.
26. Repeat Steps 22 through 25 for other SMs.
27. Proceed to Step 48.
28. Enter command **1080,x** to access the LDSU display page.  
 OR  
 Enter command **1080,y,x** to access the LDSF display page.  
 OR  
 Enter command **1115,z,x** to access the GDSF display page.

Where: **x** = SM number. **y** = LDSF number (0-5). **z** = GDSF number (0-31 for an SM-2000; 0 for SM).

29. Enter command **23x** to remove the LDSU or **240** to remove the LDSF or **200** to remove the GDSF.

Where: **x** = Service group number (0-1).

30. Enter command **33x,UCL** to restore the LDSU or **340,UCL** to restore the LDSF or **300** to remove the GDSF.
31. Repeat Steps 29 and 30 for each LDSU service group to be updated or LDSF or GDSF to be updated.
32. Repeat Steps 28 through 31 for other SMs.
33. Proceed to Step 48.

34. Enter command **1110,x** to access the ISTF display page.

Where:            **x** = SM number.

35. Enter command **20x** to remove ISTF x.

Where:            **x** = ISTF unit to be removed (0-3).

36. Enter command **30x,UCL** to restore ISTF x.

Where:            **x** = ISTF unit to be restored.

37. Repeat Steps 35 and 36 for each ISTF to be updated.

38. Repeat Steps 34 through 37 for each SM.

39. Proceed to Step 48.

40. Enter command **1860y,x** to access the IDCU display page.

Where:            **y** = IDCU unit number (0-7)  
                      **x** = SM number (1-192).

41. Enter command 200 to *remove* IDCU SG 0.

42. Enter command 300,UCL to *restore* IDCU SG 0.

43. Enter command 201 to *remove* IDCU SG 1.

44. Enter command 301,UCL to *restore* IDCU SG 1.

45. Repeat Steps 40 through 44 for other IDCU circuits.

46. Repeat Steps 40 through 45 for other SMs.

47. Proceed to Step 48.

48. On MCC Page **1950**, enter command **9200** to execute **VERIFY INCONSISTENCY** of updates.

49. At the receive-only printer (ROP), what is the system response?

If **UPD VFYCON - NO INCONSISTENCY FOUND IN THE SYSTEM**, go to Step 51.

If **UPD VFYCON - TABLE OF INCONSISTENCY FOLLOWS**, continue with Step 50.

50. Determine which peripherals are not consistent, then go to Step 1 and repeat this procedure to download inconsistent peripherals until **NO INCONSISTENCY FOUND** is printed in response message.

51. Return to the procedure that directed you here.

52. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.21: MAKE FULL OFFICE BACKUP DISK — 5E10 and LATER

### OVERVIEW

**CAUTION:** During normal operations, work within a couple of file systems can trigger *UNIX*\* file system alarms. These alarms normally warn the switch owner of situations where a file system is likely to run out of file space unless actions are taken to prevent the space exhaustion. Though, in the cases of /updtmp (or /update 5E9 or later) and /nododd/imdataX, these file systems can become and (in the case of /no5odd/imdataX,) stay full legally because of software update application or NRODD growth, respectively.

**NOTE:** The backout Last Overwrite feature can not be used if the office backup tapes/disks are used to recover the switch.

This procedure allows the technician to Make Full Office Backup of the AM Text and AM office dependent data (ODD) to software backup disk and corresponding DAT (digital audio tape) or tapes.

The full office backup disk procedure is the process used to save a copy of the office software [text, ODD, and equipment configuration data (ECD) data bases]. The full office backup is done in order to provide a reliable vehicle for system recovery in the event that data in both system disk drives becomes mutilated.

A software backup disk (MHD14 or MHD15) is created from the files on the system disk, and backup tapes are created from the SM text and SM ODD on the outboard disks. Also, two (or more) tape sequences are required, one for SM Text, and one tape for each disk pair that is allocated for SM ODD. The tapes made on KS23113, LIST 14 (KEYSTONE III) tape drives must be writable at 6250 bits-per-inch (bpi) and should be certified tapes. Certified tapes are tapes that have been verified to be writable at 6250 bpi. The tapes should also be usable across the expected temperature range of the particular office.

Office backup is performed by either the automated GENBKUP process which requires approximately 2 to 4 hours to complete or by a manual office backup which requires from 8 to 12 hours to complete. The time required to do an ODD back-up must also be considered.

The automated GENBKUP executes all audits, populates the software backup disk(s) with AM text and AM ODD, and creates the SM Text, SM ODD tapes. If any commands identify errors during the execution of GENBKUP, GENBKUP will quit gracefully with a message indicating the command which found the errors.

GENBKUP should be entered from the recent change terminal or a supplemental trunk line work station. It may also be entered from the SCC during nonprime hours and exited (entering ``q") before the backup media is changed. After invoking GENBKUP, it will query you for the type of backup that is wanted and tell you when tapes should be mounted and unmounted.

When using GENBKUP, the portion of the backup process that runs the **BKUP:ODD**, simplexes disks, clears partitions, and restores partitions may be created separately from the tape (and software backup disk) generation. When the main menu is displayed, tape request should be made instead of software disk backup to execute the memory checking logic of GENBKUP. When GENBKUP prompts for the tape to be mounted, exit (entering ``q") and return to the tape menu. The tapes and software backup disk may be generated during normal shift hours by reentering GENBKUP when the technician is in the office and able to manipulate the backup tapes. Software backup disk and matching backup tapes (text and ODD) should always be made in the same GENBKUP session.

Disk backup of the entire office should be done at least once a month or more often if many software updates and/or ECD changes are being added to the office. An office should keep two different versions of office backup disks (one on each copy), with the oldest copy being discarded when a new copy is made.

## PROCEDURE DESCRIPTION

This section gives an overview of the backup procedure. Those sections of the procedure that can make use of GENBKUP are noted. Those sections noted with ``GENBKUP -v option" are sections that can be run separately by using the verify option of GENBKUP. The use of the verify option is not documented in this procedure.

- Preconditioning.
  - Run tape drive operational diagnostics.
  - Determine present ODD Backup schedule and Clear that schedule.
  - Inhibit routine exercise (REX).
  - Stop any active or scheduled REX diagnostics.
  - Activate any /no5text or /smttext software updates in the soak state.
  - Activate any ECD/SG recent changes that have not been activated.
- Consistency checks (GENBKUP or Manually).
  - Check consistency of tables used for **COPY:PTN** commands.
  - Check consistency of disk partitions with File System Audits.
  - Check consistency between ``core" and disk files with Kernel Compares.
- Create Backup media (GENBKUP or Manually).
  - Recreate backup root partitions.
  - Run **BKUP:ODD**.
  - Create software backup disk(s).
  - Make and verify SM Text, and SM ODD backup tapes.
  - Label backup tapes (label produced by GENBKUP).
- Restore Controls.
  - Allow REX again.
  - Turn-on the automatic backup schedule again as appropriate.

## PROCEDURE

### 6.21.1 PRECONDITIONING

1. Perform operational tests on tape drive being used.

Reference: *KEYSTONE III* tape drive, **Procedure 4.6**

SCSI 9-Track and DAT, **Procedure 4.20**

**Note:** The manufacturer's tests previously performed on the *KEYSTONE III* tape drive, are no longer required.

2. **Caution:** *"TMP" software updates installed on the switch that is/are not official may cause abnormal terminations of steps in this procedure.*

In the event errors are detected during the procedure, take appropriate corrective action using 235-600-750, *Output Message Manual* as a first level reference; then, if necessary, **seek technical assistance**.

3. Clean tape drive heads.
4. **Caution:** *On MCC Page 123, MHD0 and MHD1 must be duplex, and all other MHDs should be duplex before starting this procedure. The switch must NOT be in an OVERLOAD STATE (Page 109). It is desirable, but not mandatory, that the control units (CU) all switching modules (SM), and remote switching modules (RSM) be duplex.*

On EAI page, is **BACKUP-ROOT SET** backlighted?

If **YES**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

If **NO**, continue to next Step.

5. Access MCC Page **120**
6. At the MCC, type and enter: **OP:BKUPSTAT;**

**Note 1:** An **NG** may appear if automatic backup is not scheduled.

Response: **OP BKUPSTAT EVERY a AT b**

**Where:**

a = the number of days between backups.  
b = the time.

**Note 2:** Record the day and the time of the automatic backup schedule. This data will be used at the conclusion to reset the ODD backup schedule.

7. At the MCC, type and enter: **CLR:ODDBKUP;**
8. At the MCC, type and enter: **INH:DMQ:SRC=REX;**
9. At the MCC, type and enter: **OP:DMQ,AM;**

Response: **REQUEST ACTIVE  
NONE  
REQUEST WAITING  
NONE  
INHIBIT SOURCES:  
REX**

10. Does output from **OP:DMQ** show any active or scheduled REX diagnostics?

If **YES**, continue to next Step.

If **NO**, go to Step 12.

11. Stop each active and/or scheduled REX diagnostics dump. At the MCC, type and enter:

**STOP:DMQ,AM,ACTIVE;**

**STOP:DMQ,AM,WAITING;**

12. To display temporary software update(s), on MCC Page **1950**, type and enter **9103** temporary software update(s).

Response: In field adjacent to poke 9103, **IN PROGRESS** backlights followed by one of the following:

a) **COMPLETED** and a list of temporary software updates is printed at the ROP.

b) **COMPLETED** and no list is printed at the ROP.

c) **ABORTED** indicates NO temporary updates in the switch and **UPD USRERR 1** is printed at the ROP.

13. Which response did you get: **a)**, **b)**, or **c)**?

If **a)**, continue to next Step.

If **b)** or **c)**, go to Step 16.

14. Make all temporary software updates OFFICIAL or back them out.

Reference: **Procedure 6.9**

15. To avoid differences between the incore version and disk version, backout ``TMP" software update listed in Step 12, **a)**.

16. Using office RC/V records, are there any temporary ECD/SG recent changes in the switch (that is, ones that have **not** been activated)?

If **YES**, continue to next Step.

If **NO**, go to Step 19.

17. To activate incore ECD changes, access MCC Page **199**, complete the following:

---

```
database_name:      incore
reviewonly:         n
journaling:         *
Enter Form Name:    activate
1.copy_inc_to_disk: yes
Enter Execute, ...: e<
Enter Form Name:
```

---

18. To Activate rootdmlly ECD changes, access MCC Page **199**, complete the following:

---

```
database_name:      rootdmlly
```



```

reviewonly          n
journaling:         *
Enter Form Name:    trbegin
1.tr_name:TRBEGIN   Depress carriage return 1 time.
Enter Execute, ...: e
Enter Form Name:    Reenter any and all changes to
                    rootdmly from office RC/V records.
                    trend
1.tr_name:TREND     Depress carriage return 4 times.
Enter Execute, ...: e<
Enter Form Name:

```

---

19. **Note:** The remainder of the procedure can be completed by using GENBKUP to enter the messages for you or completed manually.

How is remainder of office backup to be run?

If using **automated GENBKUP**, continue with Section **6.21.2**

If completed **manually**, go to Section **6.21.3**.

### 6.21.2 Initialize GENBKUP

1. **Caution:** This procedure could abort if the 5ESS-2000 switch contains a software update in the temporary state. This would be due to differences between the incore version and the disk version created by a temporary software update. Please check (MCC Page 1960) for this before continuing with this procedure.

Enter Poke **195** on STLWS terminal (or MCC only if necessary), or type and enter on RC/V terminal:  
**RCV:MENU:GENBKUP;**

Response:     **GENBKUP STARTED**  
                  **PRM\_0 E800 00xx xxxx 0005 xx xx xx**  
                  (If GENBKUP has completed disk verification and updates within the last 24 hours)

Response on terminal:

---

```

                                GENBKUP  PROCEDURE
PROCESSING - ##                CHECK    INTEGRITY

VERIFYING PTN FILES

    PTN FILES ARE OK

        FINDING OFFICE PARTITIONS

            FOUND ALL PARTITIONS

                CHECKING MOUNT TABLE

                    MOUNT TABLE IS OK

                        PROCEEDING .....

```

---

**Note:** The next display will not come out if the office has never made a full office backup.

---

GENBKUP PROCEDURE  
LAST SUCCESSFUL BACKUP

```

COPY PARTITION ALL CMD DONE ON xxx xxx xx xx:xx:xx 19xx
AM TEXT TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
SM TEXT TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
AM ODD TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
SM ODD 1 TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
SM ODD 2 TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
.
.
TOP TAPE MADE ON xxx xxx xx xx:xx:xx 19xx
SOFTWR BKUP DISK 14 UPDATED ON xxx xxx xx xx:xx:xx 19xx
SOFTWR BKUP DISK 15 UPDATED ON xxx xxx xx xx:xx:xx 19xx
<><>

```

Please enter 'go' to continue or 'q' to quit:

---

2. At the MCC, type and enter: **GO**

Response on terminal:

---

GENBKUP PROCEDURE  
MAIN MENU

WARNING:

BWMS in a TEMPORARY state can cause a CMPR:DISK:CORE failure, aborting GENBKUP

SELECT OPTION:

- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT tape header
- d) Software Disk Backup
- u) Update and Verify Disks
- v) Verify Disk Data
- rt) Restart Tape Sequence \*
- rd) Restart Sftw Bkup Disk \*
- b) Copy DAT to DAT (5E10)
- q) To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

**Note 1:** The Restart options will be displayed if GENBKUP has been entered within the last 24 hours and has executed **BKUP:ODD** and **COPY:PTN** commands.

**Note 2:** If GENBKUP is run from the MCC or STLWS, the technician may escape to enter commands or pokes by operating the **CMD** key. However, the GENBKUP process will continue to run and update the screen. Any commands or pokes that update the screen will overlap with the GENBKUP updates of the screen.

To return to GENBKUP:

- Enter Poke **120** for the messages page.
- Operate the **CMD** key; (causing a **NG** response)
- The GENBKUP screen is not refreshed until a technician input is requested.
- Then continue with GENBKUP normally.

**Note 3:** If GENBKUP gets hung, the technician can force an abort by entering GENBKUP from another terminal and following the instructions on the screen that can force the first terminal process to abort.

**Note 4:** Abnormal aborts and timeouts should be accompanied by an abort message. These messages are listed in the output message manual (**RCV:MENU:GENBKUP**).

3. At the MCC, type and enter:

**d** for a disk backup  
or **rd** for restart of disk backup.

**Note:** In addition to the following responses FSBLK audit, FSLINK audit, and compare-disk-to-core results are also printed. If GENBKUP encounters any problems, an informative message will be output to the screen and ROP directing the technician actions.

Response for restart sequence:

---

This option provides the ability to be able to generate a Software Backup Disk without having to re-execute the CMPR:DISK:CORE, COPY:PTN, and BKUP:ODD commands associated with GENBKUP running in a normal fashion. However with any added feature that circumvents the integrity checks, certain conditions must be satisfied in order to successfully complete the Software Backup Disk procedure:

GENBKUP was previously executed within the LAST 24 hours.  
NO BKUP:ODD command was executed since GENBKUP last ran.><  
NO COPY:PTN command has been executed -AND- NO BWM has been made OFFICIAL.

Realizing that most of the integrity checks WILL NOT be performed, do you wish<>  
<>  
to continue? Please Enter 'y' to continue or 'n' to abort:  
<><>  
PLEASE CONFIRM YOUR RESPONSE. ENTER 'y' yes or 'n' no:

---

4. At the MCC, type and enter: **y** twice to continue.

Normal Response on terminal:

---

PROCESSING - ##

GENBKUP PROCEDURE  
SOFTWARE DISK BACKUP

PAGE 1 of 1

Which software backup disk is to be updated?

- 14) MHD 14
- 15) MHD 15
- q) To Quit

Please enter 14, 15, or q:

### 6.21.2.1 Select Disk Backup

1. Decide to which disk (either MHD14 or MHD15) is to be written. Normally the oldest copy should be chosen when a new copy is made.

At the MCC, type and enter: **14**, **15**, or **q** to quit.

**Note:** During the next steps, a list of commands are displayed. While each command is being executed, that line is backlighted and a counter ``PROCESSING - ##'' is incremented while each command is executing to indicate system activity. The counter is restarted for each new command.

Response on terminal:

```

                                GENBKUP  PROCEDURE
PROCESSING - ##                SOFTWARE DISK  BACKUP FOR MHD xx          PAGE 1 of 1

.
.

OP:MHD=xx:INFO

```

Where:        **xx = 14 or 15**

```

                                GENBKUP  PROCEDURE
PROCESSING - ##                AM TEXT  VERIFICATION                    PAGE 1 of x

AUD:FSBLK=1,INS="/dev/root"
AUD:FSLINK=1,INS="/dev/root"
AUD:FSBLK=1,INS="/dev/etc"
AUD:FSLINK=1,INS="/dev/etc"
AUD:FSBLK=1,INS="/dev/db"
AUD:FSLINK=1,INS="/dev/db"
AUD:FSBLK=1,INS="/dev/unixa"
AUD:FSLINK=1,INS="/dev/unixa"
AUD:FSBLK=2,INS="/dev/no5text"
AUD:FSLINK=2,INS="/dev/no5text"
AUD:FSBLK=1,INS="/dev/cft"
AUD:FSLINK=1,INS="/dev/cft"
AUD:FSBLK=1,INS="/dev/dg"
AUD:FSLINK=1,INS="/dev/dg"
AUD:FSBLK=1,INS="/dev/usrbin"

```

AUD:FSLINK=1,INS="/dev/usrbin"

---

---

	GENBKUP	PROCEDURE	PAGE 2 of x
PROCESSING - ##	AM TEXT	VERIFICATION	

CMPR:DISK:CORE,FN="/no5text/prc/DBprims.out"  
CMPR:DISK:CORE,FN="/no5text/prc/RC\_OKPlib"  
CMPR:DISK:CORE,FN="/no5text/prc/rckp"  
CMPR:DISK:CORE,FN="/no5text/prc/DTlib"  
CMPR:DISK:CORE,FN="/no5text/prc/SIlib"  
CMPR:DISK:CORE,FN="/no5text/prc/CClib"  
CMPR:DISK:CORE,FN="/no5text/prc/smkp"  
CMPR:DISK:CORE,FN="/no5text/prc/mskp"  
CMPR:DISK:CORE,FN="/no5text/prc/cmkp"  
CMPR:DISK:CORE,FN="/no5text/prc/okp"

---

---

	GENBKUP	PROCEDURE	PAGE 3 of x
PROCESSING - ##	AM TEXT	VERIFICATION	

CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g"  
CMPR:DISK:CORE,FN="/bootfiles/3bpmgr"  
CMPR:DISK:CORE,FN="/bootfiles/inhadm"  
CMPR:DISK:CORE,FN="/bootfiles/simprc"  
CMPR:DISK:CORE,FN="/bootfiles/dkdrv"  
CMPR:DISK:CORE,FN="/bootfiles/fmprc"  
CMPR:DISK:CORE,FN="/bootfiles/eih"  
CMPR:DISK:CORE,FN="/prc/pldmon"  
CMPR:DISK:CORE,FN="/prc/klmon"

---

---

	GENBKUP	PROCEDURE	PAGE 4 of 5
PROCESSING - ##	AM TEXT	VERIFICATION	

CMPR:DISK:CORE,FN="/prc/aim"  
CMPR:DISK:CORE,FN="/prc/bdf"  
CMPR:DISK:CORE,FN="/prc/fda"  
CMPR:DISK:CORE,FN="/prc/cdn"  
CMPR:DISK:CORE,FN="/illalib"  
CMPR:DISK:CORE,FN="/llalib"  
CMPR:DISK:CORE,FN="/klib"  
CMPR:DISK:CORE,FN="/ecdlib"  
CMPR:DISK:CORE,FN="/pllib"

---

---

	GENBKUP	PROCEDURE	PAGE 5 of 5
PROCESSING - ##	AM TEXT	VERIFICATION	

VFY:FILE,FLIST="/no5text/bkup/CRCfile"

---

**Note:** The following three screens are not displayed if the restart option is used.

---

```

                                GENBKUP  PROCEDURE                PAGE 1 of 1
PROCESSING - ##                ROOT TO BACKUP ROOT PARTITION COPY

WARNING: The system MHDs 0/1 will be simplexed and returned to duplex operation.

OP:MHD=0:INFO
OP:MHD=1:INFO
VFY:MHD=0
VFY:MHD=1
COPY:PTN:ALL, SRC="/no5text/bkup/prim.ptn", DEST="/no5text/bkup/bkup.ptn"

COPY:PTN:ALL COMMAND COMPLETED SUCCESSFULLY!

```

---

**Note:** GENBKUP will proceed to the next step before MHD0 and MHD1 are fully duplex.

---

```

                                GENBKUP  PROCEDURE                PAGE 1 of 2
PROCESSING - ##                ODD BACKUP

The ODD Backup Procedure has two options:

OPTION 1: Inhibit Recent Change for the shortest amount of time possible.
However, the total time for this procedure is increased.

OPTION 2: Allow the time for this procedure to be as short as possible.
However, the time Recent Change is inhibited is greater than option 1.

Please enter 1 (option 1), 2 (option 2), or q (quit):

```

---

2. At the MCC, type and enter: **1**, **2**, or **q** to quit.

Response on terminal:

---

```

                                GENBKUP  PROCEDURE                PAGE 2 of 2
PROCESSING - ##                ODD BACKUP
                                ALW-RC    Option [1,2]

BKUP:ODD                        [Printed and executed if Option 1]
INH:RC
BKUP:ODD
BKUP:ODD,AM                     [May not be printed and executed]
ALW:RC

```

---



---

```

                                GENBKUP  PROCEDURE                PAGE 1 of 1
PROCESSING - ##                AM ODD  VERIFICATION

AUD:FSBLK=2, INS="/dev/no5aodd1"
AUD:FSLINK=2, INS="/dev/no5aodd1"

```

---

---

**Note:** In the next two displays, the command is displayed and executed only if the sodd-partition within the command (such as, /dev/no5soddx) exists in this office configuration. There is no technician action required to determine office configuration.

---

	GENBKUP    PROCEDURE	PAGE 1 of 2
PROCESSING - ##	SM ODD    VERIFICATION	

AUD:FSBLK=3,INS="/dev/no5codd1"  
 AUD:FSLINK=3,INS="/dev/no5codd1"  
 AUD:FSBLK=3,INS="/dev/no5sodd1"  
 AUD:FSLINK=3,INS="/dev/no5sodd1"  
 AUD:FSBLK=1,INS="/dev/no5sodd2"  
 AUD:FSLINK=1,INS="/dev/no5sodd2"

---

	GENBKUP    PROCEDURE	PAGE 2 of 2
PROCESSING - ##	SM ODD    VERIFICATION	

AUD:FSBLK=1,INS="/dev/no5sodd3"  
 AUD:FSLINK=1,INS="/dev/no5sodd3"  
 AUD:FSBLK=1,INS="/dev/no5sodd4"  
 AUD:FSLINK=1,INS="/dev/no5sodd4"  
 AUD:FSBLK=1,INS="/dev/no5sodd5"  
 AUD:FSLINK=1,INS="/dev/no5sodd5"  
 AUD:FSBLK=1,INS="/dev/no5sodd6"  
 AUD:FSLINK=1,INS="/dev/no5sodd6"

AM TEXT, AM ODD, and SM ODD DISK VERIFICATION COMPLETED SUCCESSFULLY

---

	GENBKUP    PROCEDURE	PAGE 1 of 1
PROCESSING - ##	SOFTWARE DISK    BACKUP FOR MHD xx	

OP:MHD=0:INFO  
 OP:MHD=1:INFO

RMV:MHD=15  
 INIT:MHD=15,VFY  
 COPY:ACTDISK:MHD=15,SRC="/dev/vtoc",PTN="/dev/vtocb2"  
 RST:MHD=15  
 COPY:SPDISK:SRC="/no5text/bkup/ppppp.ptn",DEST="/no5text/bkup/bkdsk2.ptn"

SOFTWARE BACKUP DISK PROCEDURE FOR MHD 15 COMPLETED SUCCESSFULLY

REMOVE THE LABEL FROM THE ROP FOR SOFTWARE BACKUP DISK 15 AND PUT IT ON THE MHD.  
 <>  
 PLEASE ENTER "go" TO CONTINUE

---

**Note:** INIT:MHD=15,VFY may not begin promptly if MHD=1 is still restoring from COPY:PTN command.

3. Attach the identification label to the software backup disk that is printed on the ROP, which is similar to the following illustration.

&OFC BASE CNTRL: _____ DATE: _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ SOFTWARE BACKUP DISK: xx nn SM ODD EXISTS ON THIS DISK COMMENTS: _____
--

Where: nn indicates that the SM ODD is on the system disk.  
OTHERWISE, nn = **NO**.

4. At the MCC, type and enter: **GO**

Response on terminal:

---

```

                                GENBKUP  PROCEDURE
PROCESSING - ##                SOFTWARE  DISK BACKUP
                                PAGE 1 of 1

    Which software backup disk is to be updated?

                                14) MHD 14
                                15) MHD 15
                                q) To Quit

    Please enter 14, 15, or q:
  
```

---

5. At the MCC, type and enter: **q** to quit.

Response on terminal:

---

```

                                GENBKUP  PROCEDURE
                                MAIN     MENU

Software backup disk update completed

    Select Option:

                                t) Backup to Tape
                                p) Physical Tape Verification
                                c) Check LDFT tape header
                                d) Software Disk Backup
                                u) Update and Verify Disks
                                v) Verify Disk Data
                                rt) Restart Tape Sequence
                                rd) Restart Sftw Bkup Disk
                                b) Copy DAT to DAT (5E10)
                                q) To Quit

    PLEASE ENTER ONE OF THE ABOVE OPTIONS:
  
```

---



### 6.21.2.2 —Perform GENBKUP Multi Volume DAT

1. At the MCC, type and enter: **t** for a tape backup.
2. From the GENBKUP PROCEDURE display, select the tape drive configuration.

Terminal Response:

---

```

                                GENBKUP  PROCEDURE

0) Tape Drive /dev/mt08 : SCSI DAT
1) Tape Drive /dev/mt18 : SCSI DAT

PLEASE SELECT A TAPE DRIVE AS THE PRIMARY DRIVE:

  (if two DAT drives available the following lines will
   be displayed)

Two DAT AUTO TRANSFER ?<><><>
Please enter y yes, n no, or q quit :
```

---

3. From terminal display, select "Two DAT AUTO TRANSFER"  
choice: **y**(es) - **n**(o) - **q**(uit)

If **yes**, a copy will be made from the PRIMARY DAT DRIVE to a SECONDARY DAT DRIVE.

Terminal Response:

(if two DAT drives are available the following lines will be displayed)

---

```

                                GENBKUP  PROCEDURE

  (if the answer to the previous question is yes, a copy of the
  backup will be made from the PRIMARY DRIVE to the SECONDARY
  DRIVE and the following will be displayed)

PLEASE SELECT A TAPE DRIVE AS THE SECONDARY DRIVE, n - (none):
Two DAT AUTO TRANSFER ?<><><>
Please enter y yes, n no, or q quit:
```

---

**Note 1:** If "yes" is selected, a copy of the backup will be made from the PRIMARY DAT DRIVE to the SECONDARY DAT DRIVE, and a request to identify the secondary drive is made.

**Note 2:** More than one logical volume (TOP TAPE, AMTEXT, AMODD, SMTEXT, SMODDs) will be written on a DAT. Each logical volume will be associated with a session number and volume number. The session numbers will increase a session number and volume number. The session numbers will increase sequentially starting at 1 at the beginning of the tape and may increase up to 9. The volume number will be in an increasing order within a session. There is a one to one correspondence between the volume name and the volume number, as follows:

Volume Number	Volume Name
0	TOP TAPE
1	AMTEXT
2	AMODD
3	SMTEXT
4	SMODD1
5	SMODD2
6	SMODD3
7	SMODD4
8	SMODD5
9	SMODD6

Brand New Tape (Y/N) \_\_\_\_\_

Mount the tape on the tape drive. Enter GO AFTER the tape is mounted:

4. If **Yes**, mount a write-enable tape in place, type and enter **GO**

Terminal Response:

```

                                GENBKUP  PROCEDURE
                                TAPE    BACKUP
Please specify DAT position for GENBKUP?
    b) Beginning of the DAT
    a) Append to the end of DAT
    s) Seek to specific position of the DAT
    q) To quit
PLEASE ENTER ONE OF THE ABOVE OPTIONS:  _

```

5. Select one of the 3 positions to begin writing on the DAT:

**b) Beginning of the DAT** (required selection if DAT is brand new).

Will start writing at the beginning of the DAT. The session number will be 1 and all logical volumes will be selected to be written (TOP TAPE, AMTEXT, AMODD, SMTEXT, SMODDs).  
Go to Step 7.

**a) Append to the end of DAT.**

GENBKUP will determine the number of the last session on the tape and increment the number by one for the new session number.  
Continue with next Step.

**s) Seek to a specific position of the DAT.** The following information will be requested:

Session and volume you want to append to:

APPEND TO SESSION NUMBER: APPEND TO VOLUME NUMBER:

The number of the session you will create:

PLEASE ENTER SESSION NUMBER

Continue with next Step.

Response on terminal:

---

```

GENBKUP  PROCEDURE
TAPE     BACKUP

```

What is to be backed up?

```

g)  AM TEXT
a)  AM ODD
x) * SM TEXT
s) * SM ODD
n)  No More Selection

```

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

6. Select the **x** (SM TEXT) and **s** (SM ODD) options for this procedure. Each selection will be backed up by GENBKUP. One or all volumes can be selected during one GENBKUP session. Once a selection has been made, the selection will be marked by asterisk(s) on the screen. A selection can be toggled on and off by entering it more than once.

When satisfied with the selection, enter **n**, No More Selection.

7. **Note:** GENBKUP will sequentially start the process of backing up each of the selection(s) chosen. The sequence will proceed as follows.

When SMTEXT is selected and begun, the following screen is displayed.

---

```

PROCESSING - 1
GENBKUP  PROCEDURE
PAGE 1 OF 1

```

```

AUD:FSBLK=1,INS="/dev/smtext"
AUD:FSLINK=1,INS="/dev/smtext"
AUD:FSBLK=1,INS="/dev/unixabf"

```

```

AUD:FSLINK=1,INS="/dev/unixabf"

```

```

PROCESSING - 4
SM TEXT SEQUENCE
GENBKUP  PROCEDURE
PAGE 1 OF 1

```

```

COPY:BKDISK:MULTI, SRC="/dev/vtoc1", TD="/dev/mt08",
FN="/no5text/bkup/smtext.ptn", PSESS=1, PVOL=2, SESS=1, VOL=3, EXT, SKP, NODMTMSG

```

Volume completed, label printed on the ROP!!

---

8. A label showing the contents of the logical volume is printed on the ROP similar to the following illustration.

&OFC BASE CNTRL: _____
DATE: _____
VERIFY: NOT DONE
GENERIC: _____
BWM LEVEL: _____
TAPE TYPE: SM TEXT
TAPE SEQ NUMBER: 1
DENSITY: N/A /dev/mt08
COMMENTS:

GENBKUP will go to the next selection, or:

If this is the last selection, go to Step 10.

If not, continue to next Step.

9. When SMODD is selected and begun, the following screen is displayed.
- 

	GENBKUP    PROCEDURE	PAGE 1 OF 1
PROCESSING - 1		
AUD:FSBLK=3,INS="/dev/no5codd1"		
AUD:FSLINK=3,INS="/dev/no5codd1"		
AUD:FSBLK=3,INS="/dev/no5sodd1"		
AUD:FSLINK=3,INS="/dev/no5sodd1"		

	GENBKUP    PROCEDURE	PAGE 1 OF 1
PROCESSING - 3		
SM ODD - NO5SODD1 SEQUENCE		
COPY:BKDISK:MULTI, SRC="/dev/vtoc1", TD="/dev/mt08",		
FN="/no5text/bkup/sodd1.ptn", PSESS=1, PVOL=3, SESS=1, VOL=4, EXT, SKP, NODMTMSG		

Volume completed, label printed on the ROP!!

---

10. A label showing the contents of the logical volume is printed on the ROP similar to the following illustration.

&OFC BASE CNTRL: _____
DATE: _____
VERIFY: NOT DONE
GENERIC: _____
BWM LEVEL: _____
TAPE TYPE: SM ODD - NO5SODD1
TAPE SEQ NUMBER: 1

DENSITY: N/A /dev/mt08 VTOC: /dev/vtoc ; MHDs 2/3 COMMENTS:
---

11. If a request was made to copy from tape to tape, the following screen will be displayed; otherwise, continue to Step 12.

---

GENBKUP PROCEDURE

PAGE 1

PROCESSING - 1  
COPY DAT TO DAT SEQUENCE

COPY:BKTAPE, SRC="/dev/mt08", DEST="/dev/mt38", SESS=1

COPY DAT TO DAT OPERATION SUCCESSFUL

---

12. When session is completed, the screen will display:

---

GENBKUP PROCEDURE  
MAIN MENU

SELECT OPTION:

- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT Tape Header
- d) Software Disk Backup
- u) Update and Verify Disks
- v) Verify Disk Data
- rt) Restart Tape Sequence
- rd) Restart Sftw Bkup Disk
- b) Copy DAT to DAT
- q) To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS: \_\_\_\_

---

13. At the MCC type and enter **q** to exit the procedure.
14. Did the automatic procedure complete successfully?

If **YES**, continue to Section **6.21.2.3**.

If **NO**, then **seek technical assistance**.

### 6.21.2.3 Restore Controls

- At the MCC, type and enter: **ALW:DMQ:SRC=REX;**
- From automatic backup schedule information obtained in Section **6.21.1**, **Step 6**, type and enter:  
**BKUP:ODD:EVERY=a,AT=b;**

**Where:**

- a = number of days for every ODD backup to run.  
 b = time of day in the hour and minutes (for example, 2330 = 11:30).

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.****6.21.3 Perform Manual Backup To Tape**

1. To review partition files, at the MCC type and enter: **EXC:ENVIR:UPROC,FN="/usr/bin/bkupchk";**

Response: **EXC ENVIR UPROC COMPLETED  
 BKUPCHK: PTN FILES CHECK COMPLETE**

2. Did the previous step complete successfully with a "PTN FILES CHECK COMPLETE"?

If **YES**, continue to next Step.

If **NO**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

3. At the MCC, type and enter: **OP:STATUS:FILESYS;**

Response: **OP STATUS FILESYS STARTED  
 /no5text on /dev/no5text read/write on . . .**

4. Review the OP STATUS FILESYS ROP response. Do ALL the partitions shown in the following Table appear in the ROP response?

MOUNT TABLE CONTENTS	
5E12 and EARLIER	5E13 and LATER
/ on /dev/root	/ on /dev/root
/etc on /dev/etc	/etc on /dev/etc
/database on /dev/db	/database on /dev/db
/no5text on /dev/no5text	/no5text on /dev/no5text
/no5odd/cpdata on /dev/no5aodd[1/2]	/no5odd/data0 on /dev/no5aodd[1/2]
/updtmp on /dev/updtmp	/updtmp on /dev/updtmp
/log on /dev/log	/log on /dev/log
/cdmp on /dev/cdmp	/cdmp on /dev/cdmp
/rclog on /dev/rclog	/rclog on /dev/rclog
/etc/bwm on /dev/bwm	/etc/bwm on /dev/bwm
/tmp on /dev/tmp	/tmp on /dev/tmp
/unixa on /dev/unixa	/unixa on /dev/unixa
/unixa/users on /dev/unixabf	/unixa/users on /dev/unixabf
/cft on /dev/cft	/cft on /dev/cft
/diag on /dev/dg	/diag on /dev/dg
/usr/bin on /dev/usrbin	/usr/bin on /dev/usrbin

If **YES**, continue to next Step.

If **NO**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

5. Review the OP STATUS FILESYS ROP response. Do any of the partitions shown in the following Table appear in the ROP response?

MOUNT TABLE CONTENTS:
/ on /dev/broot
/etc on /dev/betc
/database on /dev/bdb

If **YES**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

If **NO**, continue to next Section.

### 6.21.3.1 Run File System Audits

**NOTE:** If audit failures occur, **seek technical assistance** before continuing.

1. Access MCC Page 120
2. At the MCC, type and enter:

```
AUD:FSBLK=1,INS="/dev/root";
AUD:FSLINK=1,INS="/dev/root";
```

```
Response:  AUD {FSBLK | FSLINK} 1 /dev/root COMPLETED
           0 ERRORS FOUND
           0 ERRORS CORRECTED
```

3. At the MCC, type and enter:

```
AUD:FSBLK=1,INS="/dev/etc";
AUD:FSLINK=1,INS="/dev/etc";
```

```
Response:  AUD {FSBLK | FSLINK} 1 /dev/etc COMPLETED
           0 ERRORS FOUND
           0 ERRORS CORRECTED
```

4. At the MCC, type and enter:

```
AUD:FSBLK=1,INS="/dev/db";
AUD:FSLINK=1,INS="/dev/db";
```

```
Response:  AUD {FSBLK | FSLINK} 1 /dev/db COMPLETED
           0 ERRORS FOUND
           0 ERRORS CORRECTED
```

5. At the MCC, type and enter:

```
AUD:FSBLK=2,INS="/dev/no5text";
AUD:FSLINK=2,INS="/dev/no5text";
```

```
Response:  AUD {FSBLK | FSLINK} 2 /dev/no5text COMPLETED
           0 ERRORS FOUND
           0 ERRORS CORRECTED
```

6. At the MCC, type and enter:

```
AUD:FSBLK=1,INS="/dev/cft"
AUD:FSLINK=1,INS="/dev/cft"
AUD:FSBLK=1,INS="/dev/dg"
AUD:FSLINK=1,INS="/dev/dg"
AUD:FSBLK=1,INS="/dev/usrbin"
AUD:FSLINK=1,INS="/dev/usrbin"
```

```
Response:  AUD {FSBLK | FSLINK} 1 /dev/... COMPLETED
```

**0 ERRORS FOUND  
0 ERRORS CORRECTED**

7. At the MCC, type and enter:

**AUD:FSBLK=1,INS="/dev/unixa";  
AUD:FSLINK=1,INS="/dev/unixa";**

Response: **AUD {FSBLK | FSLINK} 1 /dev/unixa COMPLETED  
0 ERRORS FOUND  
0 ERRORS CORRECTED**

8. At the MCC, type and enter:

**AUD:FSBLK=1,INS="/dev/smtxt";  
AUD:FSLINK=1,INS="/dev/smtxt";  
AUD:FSBLK=1,INS="/dev/unixabf";  
AUD:FSLINK=1,INS="/dev/unixabf";**

Response: **AUD {FSBLK | FSLINK} 1 /dev/... COMPLETED  
0 ERRORS FOUND  
0 ERRORS CORRECTED**

### 6.21.3.2 Run Text Compares of Disk and Core Images

1. **NOTE:** If non-compare errors occur, **seek technical assistance** before continuing.

At the MCC, type and enter:

**CMPR:DISK:CORE,FN="/no5text/prc/Slib"; (uppercase Sl; lowercase lib)  
CMPR:DISK:CORE,FN="/klib";**

Response: **CMPR ERR 0  
DISK AND CORE ARE EQUAL FOR /no5text/prc/Slib  
DISK AND CORE ARE EQUAL FOR /klib  
CMPR DISK CORE COMPLETED**

2. At the MCC, type and enter:

**CMPR:DISK:CORE,FN="/no5text/prc/DBprims.out";  
CMPR:DISK:CORE,FN="/no5text/prc/DLib";  
CMPR:DISK:CORE,FN="/no5text/prc/CClib";  
CMPR:DISK:CORE,FN="/no5text/prc/smkp";  
CMPR:DISK:CORE,FN="/no5text/prc/mskp";  
CMPR:DISK:CORE,FN="/no5text/prc/cmkp";  
CMPR:DISK:CORE,FN="/no5text/prc/okp";**

Response: **CMPR ERR 0  
DISK AND CORE ARE EQUAL FOR /no5text/prc/...  
CMPR DISK CORE COMPLETED**



3. At the MCC, type and enter:

```
CMPR:DISK:CORE,FN="/prc/pldmon";
CMPR:DISK:CORE,FN="/prc/klmon";
CMPR:DISK:CORE,FN="/prc/aim";
CMPR:DISK:CORE,FN="/prc/bdf";
CMPR:DISK:CORE,FN="/prc/fda";
CMPR:DISK:CORE,FN="/prc/cdn";
```

Response:     **CMPR ERR 0**  
                   **DISK AND CORE ARE EQUAL FOR /prc/...**  
                   **CMPR DISK CORE COMPLETED**

4. At the MCC, type and enter:

```
CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g";
CMPR:DISK:CORE,FN="/bootfiles/3bpmgr";
CMPR:DISK:CORE,FN="/bootfiles/inhadm";
CMPR:DISK:CORE,FN="/bootfiles/simprc";
CMPR:DISK:CORE,FN="/bootfiles/dkdrv";
CMPR:DISK:CORE,FN="/bootfiles/fmprc";
CMPR:DISK:CORE,FN="/bootfiles/eih";
```

Response:     **CMPR ERR 0**  
                   **DISK AND CORE ARE EQUAL FOR /bootfiles/...**  
                   **CMPR DISK CORE COMPLETED**

5. At the MCC, type and enter:

```
CMPR:DISK:CORE,FN="/llalib";
CMPR:DISK:CORE,FN="/llalib";
CMPR:DISK:CORE,FN="/ecdlib";
CMPR:DISK:CORE,FN="/pllib";
```

Response:     **CMPR ERR 0**  
                   **DISK AND CORE ARE EQUAL FOR /...**  
                   **CMPR DISK CORE COMPLETED**

### 6.21.3.3 Verify MHD Integrity

1. At the MCC, type and enter:

```
VFY:FILE,FLIST="/no5text/bkup/CRCfile";
```

Response:     **VFY FILE STARTED**  
                   **VFY FILE IN PROGRESS**  
                   **xx FILES VERIFIED**  
                   **VFY FILE COMPLETED**

2. At the MCC, type and enter: **OP:MHD=0:INFO;**

Response:     Status is **ACT**

Usable is **YES**

3. At the MCC, type and enter: **OP:MHD=1:INFO;**

Response:      Status is **ACT**  
                  Usable is **YES**

4. At the MCC, type and enter: **VFY:MHD=a;**

**Where:**

a =                      0 or 1

Response:      **VFY MHD x STARTED**  
                  **VFY MHD x IN PROGRESS** (every 2 minutes)  
                  **VFY MHD x COMPLETED**

**Where:**

x =                      MHDs being verified.

5. At the MCC, type and enter: **CMPR:MHD=0,RO;**

**Note:** Do not proceed unless the MHDs verify and compare.

#### 6.21.3.4 Copy Disk Partitions to Backup

1. At the MCC, type and enter:

**COPY:PTN:ALL,SRC="/no5text/bkup/prim.ptn",DEST="/no5text/bkup/bkup.ptn";**

Response:      **RMV:MHD x TASK y MSG STARTED**  
                  **RMV MHD x COMPLETED**  
                  **COPY PTN FILE COMPLETED**  
                  **xxxx BLOCKS COPIED** (repeated 4 times)  
                  ...  
                  **RST MHD x TASK Y MSG STARTED**  
                  **RST MHD x IN PROGRESS** (will be output every 2 minutes)  
                  ...  
                  **RST MHD x COMPLETED**

**Note:** The procedure may continue while MHD1 is restoring.

2. **Note:** Before proceeding, ensure that no one is in the process of doing recent changes in the system.

**Access MCC Page 120**

3. At the MCC, type and enter: **INH:RC;**

Response:      **INH RC COMPLETED**

4. At the MCC, type and enter: **BKUP:ODD;**

**Response:** BKUP ODD IN PROGRESS  
 BKUP ODD [FULL] AM COMPLETED  
 BKUP ODD NRODD=a COMPLETED  
 ...  
 BKUP ODD NRODD=z COMPLETED  
 BKUP ODD CMP= 0 COMPLETED  
 BKUP ODD [FULL] RODD COMPLETED  
 BKUP ODD COMPLETED

5. At the MCC, type and enter: **DUMP:FILE:ALL,FN="/no5text/rcv/aimrc";**

**Response:** DUMP FILE ALL COMPLETED  
 x no5doddx is the current disk odd

**Where:**  
 x = indicator of active ODD (1 or 2).

6. Is the value of **x** in Step 5 equal to 1?  
 If **YES**, go to Step 9. If **NO** continue to next Step.

7. At the MCC, type and enter: **BKUP:ODD,AM;**

**Response:** BKUP ODD AM COMPLETED  
 BKUP ODD COMPLETED

8. At the MCC, type and enter: **ALW:RC;**

**Response:** ALW RC COMPLETED

9. At the MCC, type and enter:

**AUD:FSBLK=2,INS="/dev/no5aodd1";**  
**AUD:FSLINK=2,INS="/dev/no5aodd1";**

**Response:** AUD {FSBLK | FSLINK} 2 /dev/no5aodd1 COMPLETED  
 0 ERRORS FOUND  
 0 ERRORS CORRECTED

10. At the MCC, type and enter:

**AUD:FSBLK=3,INS="/dev/no5codd1";**  
**AUD:FSLINK=3,INS="/dev/no5codd1";**

**Response:** AUD {FSBLK | FSLINK} 3 /dev/no5codd1 COMPLETED  
 0 ERRORS FOUND  
 0 ERRORS CORRECTED

11. To determine what SM ODD partitions exist on the switch, at the MCC, type and enter:  
**EXC:ENVIR:UPROC,FN="/etc/parchk",ARGS="/no5text/bkup/parchk.list";**

**Response:**    **EXC ENVIR UPROC COMPLETED**  
                  **smtext rt 1 21 xxxxx**  
                  **no5sodd1 rt 1 39 xxxxx**  
                  **no5sodd2 rt 2 39 xxxxx**  
                  **no5codd1 rt y 40 xxxxx**  
                  **...**  
                  **no5sodd5: not found**  
                  **no5sodd6: not found**

12. Perform this step for each SM ODD partition that exists in the previous step (that is, does not have "not found" after the partition name).

At the MCC, type and enter:

**AUD:FSBLK=x,INS="/dev/no5soddy";**  
**AUD:FSLINK=x,INS="/dev/no5soddy";**

**Where:**

x =                    3, if y = 1  
 x =                    1, if y = 2 through 6

**Response:**    **AUD {FSBLK | FSLINK} x /dev/no5soddy COMPLETED**  
                  **0 ERRORS FOUND**  
                  **0 ERRORS CORRECTED**

13. At the MCC, type and enter:

**AUD:FSBLK=3,INS="/dev/no5sodd";**  
**AUD:FSLINK=3,INS="/dev/no5sodd";**

**Response:**    **AUD {FSBLK | FSLINK} 3 /dev/no5sodd COMPLETED**  
                  **0 ERRORS FOUND**  
                  **0 ERRORS CORRECTED**

### 6.21.3.5 Build Software Backup to Disk

1. **Note 1:** To produce a software backup disk, either MHD14 or MHD15 may be written to. Normally the oldest copy should be chosen when a new copy is made.

Which disk (MHD14 or MHD15) is to be written to?

If **MHD14**, continue to next Section.

If **MHD15**, go to Section **6.21.3.7**

If **BOTH**, continue to next Section.

### 6.21.3.6 Build Software Backup to MHD14

1. At the MCC, type and enter: **RMV:MHD=14;**

**Response:**    **RMV MHD 14 TASK X MSG STARTED**  
                  **RMV MHD 14 COMPLETED**

2. At the MCC, type and enter: **INIT:MHD=14:VFYxxxx;**

**Where:**

xxxx = new, if disk drive is 340 MB.

Response: **INIT MHD 14 IN PROGRESS  
INIT MHD 14 COMPLETED**

3. Did the **INIT** complete normally?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**

4. At the MCC, type and enter: **VFY:MHD=a;**

**Where:**

a = 0 or 1

Response: **VFY MHD x STARTED  
VFY MHD x IN PROGRESS (every 2 minutes)  
VFY MHD x COMPLETED**

**Where:**

x = MHDs being verified.

5. At the MCC, type and enter: **CMPR:MHD=0,RO;**

**Note:** Do not proceed unless the MHDs verify and compare.

6. At the MCC, type and enter:

**COPY:ACTDISK:MHD=14,SRC="/dev/vtoc",PTN="/dev/vtocb1";**

**Response: COPY ACTDISK ON MHD 14 COMPLETED**

7. Did the disk copy complete normally?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

8. At the MCC, type and enter: **RST:MHD=14;**

Response: **RST MHD 14 TASK X MSG STARTED  
RMV MHD 14 STOPPED X'5  
DGN MHD 14 COMPLETED ATP MSG IP  
RST MHD 14 IN PROGRESS  
RST MHD 14 COMPLETED**

9. At the MCC, type and enter:

**COPY:SPDISK:SRC="/no5text/bkup/prmdsk.ptn",DEST="/no5text/bkup/bkdsk2.ptn";**

**Response: RMV MHD1 TASK X MSG STARTED  
RMV MHD1 COMPLETED  
COPY SPDISK COPIED xxxx BLOCKS (printed several times)  
COPY SPDISK COMPLETED  
RST MHD1 TASK X MSG STARTED  
RST MHD1 IN PROGRESS**

10. Did the disk copy complete normally?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

11. Is disk backup to be written to MHD15?

If **YES**, go to Section **6.21.3.7**

If **NO**, go to Section **6.21.3.8**

**Note:** You have completed the disk backup to MHD14.

#### **6.21.3.7 Build Software Backup to MHD 15**

1. At the MCC, type and enter: **RMV:MHD=15;**

**Response: RMV MHD 15 TASK X MSG STARTED  
RMV MHD 15 COMPLETED**

2. At the MCC, type and enter: **INIT:MHD=15:VFYxxxx;**

**Where:**

xxxx = **new** if disk drive is 340 MB.

**Response: INIT MHD 15 IN PROGRESS  
INIT MHD 15 COMPLETED**

3. Did the INIT complete normally?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

4. At the MCC, type and enter: **VFY:MHD=a;**

**Where:**

a = 0 or 1.

**Response: VFY MHD x STARTED  
VFY MHD x IN PROGRESS (every 2 minutes)  
VFY MHD x COMPLETED**

**Where:**

x = MHDs being verified.

5. At the MCC, type and enter: **CMPR:MHD=0,RO;**

**Note:** Do not proceed unless the MHDs verify and compare.

6. At the MCC, type and enter:  
**COPY:ACTDISK:MHD=15,SRC="/dev/vtoc",PTN="/dev/vtocab2";**

**Response: COPY ACTDISK ON MHD 15 COMPLETED**

7. Did the disk copy complete normally?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

8. At the MCC, type and enter: **RST:MHD=15;**

**Response: RST MHD 15 TASK X MSG STARTED  
RMV MHD 15 STOPPED X'5  
DGN MHD 15 COMPLETED ATP MSG IP  
RST MHD 15 IN PROGRESS  
RST MHD 15 COMPLETED**

9. At the MCC, type and enter:

**COPY:SPDISK:SRC="/no5text/bkup/prmdsk.ptn",DEST="/no5text/bkup/bkdsk2.ptn";**

**Response: RMV MHD1 TASK X MSG STARTED  
RMV MHD1 COMPLETED  
COPY SPDISK COPIED xxxx BLOCKS (printed several times)  
COPY SPDISK COMPLETED  
RST MHD1 TASK X MSG STARTED  
RST MHD1 IN PROGRESS**

10. Did the disk copy complete normally?

If **YES**, continue to next Section.

If **NO**, then **seek technical assistance**.

**Note:** You have completed the disk backup to MHD15.

#### 6.21.3.8 Build SM Text Tape(s)

1. Obtain software update levels of no5text and smtext partitions for the tape label to be created by the next steps.

At the MCC, type and enter: **OP:VERSION;**

**Response: OP STATUS COMPLETED**

OP VERSION	(Date - Time)	
PARTITION	VERSION	BWM

ECD	5ex(x)xx.xx	
/	5ex(x)xx.xx	BWMnn-nnnn
/no5text	5ex(x)xx.xx	BWMnn-nnnn
/no5text/im	5ex(x)xx.xx	BWMnn-nnnn

2. Attach the identification label to the software backup disk that is similar to the following illustration.

&OFC BASE CNTRL: _____ DATE: _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ SOFTWARE BACKUP DISK: xx nn SM ODD EXISTS ON THIS DISK COMMENTS: _____
--

**Where:** nn indicates that the SM ODD is on the system disk.  
OTHERWISE, nn = **NO**.

3. Mount the first SM text write-enabled tape in place.
4. At the MCC, type and enter either (a) or (b):

(a) For Single Volume Tape format (the correct tape density must be identified):

**COPY:BKDISK:START:SRC="/dev/vtoc1",TD="/dev/mtxx",  
FN="/no5text/bkup/smttext.ptn",TPSIZE=2300(60M for DAT)zzzz;**

**Where:**

/dev/mtxx = /dev/mt00 (6250 bpi) for *KEYSTONE III* tape drives (KS23113, List 14).  
 /dev/mtxx = /dev/mt08 for all other tape drives.  
 zzzz = ,EXT if TD is /dev/mt00.  
 zzzz = does not exist if TD is /dev/mt08.

(b) For Multi Volume Tape format:

**COPY:BKDISK:MULTI,SRC="/dev/vtoc1",TD="/dev/mt08",  
FN="/no5text/bkup/smttext.ptn",PSESS=u,PVOL=v,SESS=x,  
VOL=3,EXT,SKP,NODMTMSG;**

**Response: COPY BKDISK IN PROGRESS  
COPY BKDISK COMPLETED. DISMOUNT TAPE AND LABEL  
or  
COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE**

5. After tape rewinds, unmount, remove write-enable capability, and label tape with following information:

&OFC BASE CNTRL: _____ DATE: _____ VERIFY: _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: _____ TAPE SEQ NUMBER: _____
---



DENSITY: _____ VTOC: _____; MHDs _____ COMMENTS: _____
--

6. If the output message is:  
**COPY BKDISK DISMOUNT SOFTWARE RELEASE TAPE LABEL AND MOUNT NEXT TAPE**, mount next SM Text write-enable tape and continue tape write operation.

At the MCC, type and enter: **COPY:BKDISK,ACK:TPSIZE=2300(60M for DAT);**

**Response:** Same as previous **COPY:BKDISK:START** response.

7. **Note:** If more than one tape is required, each tape must be mounted on the tape drive and verified separately.

To verify the SM Text tape(s), type and enter either (a) or (b) for each tape:

(a) For Single Volume Tape format:

**VFY:TAPE,TD="/dev/mtxx":RETRY=3;;**

**Where:**

xx =                **00** or **08** from Step 4.

(b) For Multi Volume Tape format:

**VFY:TAPE,TD="/dev/mt08":RETRY=3,SESS=x,VOL=3;;**

**Response:**    **VFY TAPE STARTED**  
                   **VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0**  
                   **DATA MISMATCHES 0**

8. Did the verify complete successfully?  
 If **YES**, continue to next Step.  
 If **NO**, then **seek technical assistance**.
9. Remove the SM Text tape from tape drive.

### 6.21.3.9 Build SM ODD Tape(s)

1. Mount the first SM ODD write-enable backup tape in place.
2. Determine what SM ODD partitions exist on the switch, at the MCC, type and enter:  
**EXC:ENVIR:UPROC,FN="/etc/parchk",ARGS="/no5text/bkup/parchk.list";**

**Response:**    **EXC ENVIR UPROC COMPLETED**  
                   **smtext rt 1 21 xxxxx**  
                   **no5sodd1 rt 1 39 xxxxx**  
                   **no5sodd2 rt 2 39 xxxxx**  
                   **no5codd1 rt y 40 xxxxx**  
                   **. . .**  
                   **no5sodd5: not found**  
                   **no5sodd6: not found**

**Where:**

y = 1, if no5sodd1 exists.  
 y = 2, if no5sodd1 is not found.

3. Select the first SM ODD partition that exists in the previous step (that is, does not have ``not found" after the partition name).
4. At the MCC, type and enter either (a) or (b):

(a) For Single Volume Tape format (the correct tape density must be identified):

**COPY:BKDISK:START:SRC="/dev/vtocx",TD="/dev/mtxx",  
 FN="/no5text/bkup/ppppp.ptn",TPSIZE=2300(60M for DAT)zzzz;**

**Where:**

/dev/mtxx = /dev/mt00 (6250 bpi) for *KEYSTONE III* tape drives (KS23113, List 14).  
 /dev/mtxx = /dev/mt08 for all other tape drives.  
 zzzz = ,EXT if TD is /dev/mt00.  
 zzzz = does not exist if TD is /dev/mt08.  
 vtocx = See Table 6.21-1 .  
 ppppp.ptn = See Table 6.21-1 .

(b) For Multi Volume Tape format:

**COPY:BKDISK:MULTI, SRC="/dev/vtocx",TD="/dev/mt08",  
 FN="/no5text/bkup/ppppp.ptn",PSESS=u,PVOL=v,SESS=x,  
 VOL=yy,EXT,SKP,NODMTMSG;**

**Where:**

vtocx = See Table 6.21-1 .  
 ppppp.ptn = See Table 6.21-1 .

**Table 6.21-1 Copy-To-Tape Variables**

/etc/parchk	/dev/vtocx	/ppppp.ptn
<b>OUTPUT</b>		
no5sodd1 rt 1	/dev/vtoc1	sodd1.ptn
no5sodd2 rt 2 &		
no5codd1 rt 1	/dev/vtoc2	sodd2.ptn
no5sodd2 rt 2 &		
no5codd1 rt 2	/dev/vtoc2	codd.ptn
no5sodd3 rt 3	/dev/vtoc3	sodd3.ptn
no5sodd4 rt 4	/dev/vtoc4	sodd4.ptn
no5sodd5 rt 5	/dev/vtoc5	sodd5.ptn
no5sodd6 rt 6	/dev/vtoc6	sodd6.ptn

**Response: COPY BKDISK IN PROGRESS  
 COPY BKDISK COMPLETED. DISMOUNT TAPE AND LABEL**

or

**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE**

5. After tape rewinds, unmount, remove write-enable capability, and label tape with the following information:

&OFC BASE CNTRL: _____ DATE: _____ VERIFY: _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: _____ TAPE SEQ NUMBER: _____ DENSITY: _____ VTOC: _____; MHDs _____ COMMENTS: _____
---

6. If the output message is:  
**COPY BKDISK DISMOUNT SOFTWARE RELEASE TAPE LABEL AND MOUNT NEXT TAPE**, mount next SM ODD write-enable tape and continue tape write operation.

At the MCC, type and enter: **COPY:BKDISK,ACK:TPSIZE=2300(60M for DAT);**

**Response:** Same as previous **COPY:BKDISK:START** response.

7. **Note:** All SM ODD partitions must be copied during the same backup session.

Are there any more SM ODD partitions to be copied to backup tapes?

If **YES**, select the next SM ODD partition, mount next SM ODD backup write-enable tape for a single volume tape format or append to multivolume tape format, and repeat from Step 4.

If **NO**, continue to next Step.

8. **Note:** If more than one tape was required, each tape must be mounted on the tape drive and verified separately.

To verify the SM ODD tape(s), type and enter either (a) or (b) for each tape:

(a) For Single Volume Tape format:

**VFY:TAPE,TD="/dev/mtxx":RETRY=3;;**

**Where:**

xx = 00 or 08 from Step 4.

(b) For Multi Volume Tape format:

**VFY:TAPE,TD="/dev/mt08":RETRY=3,SESS=x,VOL=v;;**

**Response:** VFY TAPE STARTED  
 VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0  
 DATA MISMATCHES 0

Did the verify complete successfully?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

#### 6.21.3.10 Restore Controls

1. To restore REX scheduling, at the MCC type and enter: **ALW:DMQ:SRC=REX;**
2. From automatic backup schedule information obtained in Section **6.21.1** , **Step 6**, type and enter:  
**BKUP:ODD:EVERY=a,AT=b;**

**Where:**

- |     |  |
|-----|--|
| a = | number of days for every ODD backup to run.                          |
| b = | time of day in the hour and minutes (for example, 2330 = 11:30p.m.). |

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## **Procedure 6.22: RESERVED — FOR FUTURE USE**

### **PROCEDURE**

1. Reserved — For Future Use

## Procedure 6.23: MAKE FULL OFFICE BACKUP TAPE — 5E10 and LATER

### OVERVIEW

This procedure allows the technician to Make Full Office Backup tapes of the text and/or office dependent data (ODD).

The full office tape backup procedure saves a copy of the office software [text, ODD, and equipment configuration data (ECD) databases] from disk to tape. The full office backup tapes provide a reliable source for system recovery in the event that data in both system disk drives becomes mutilated. This procedure should be done during nonprime hours. The disks will be simplex during any partition copies, partition clears, and restorals.

Four (or more) tape sequences are required: one for AM Text, one for SM Text, one for AM ODD, and one for each disk pair that is allocated for SM ODD. The tapes made on KS23113, LIST 14 (*KEYSTONE*® III) tape drives must be writable at 6250 bits-per-inch (bpi) and should be certified tapes. (Certified tapes are those that have been verified to be writable at 6250 bpi.) The tapes should also be usable across the expected temperature range of the particular office.

To simplify the procedure, an automated process using GENBKUP is used. GENBKUP should be entered from the recent change and verify (RC/V) terminal, or a supplementary trunk and line work station (STLWS), or the master control center (MCC) terminal. After invoking GENBKUP, it will query you for the type of backup that is wanted and tell you when tapes should be mounted and unmounted. GENBKUP executes all audits and creates the AM Text, SM Text, AM ODD, SM ODD tape backup. If any commands find errors during the execution of GENBKUP, the process will quit gracefully with a message indicating the command which found the errors.

The GENBKUP process takes approximately 2 to 6 hours to complete, plus the time to perform ODD backup. Manual office backup to tape is also available and requires approximately 8 to 12 hours. Plan accordingly so the office will not be running simplex disks during prime hours.

When using GENBKUP, the portion of the backup process that runs the **BKUP:ODD**, simplexes disks, clears partitions, and restores partitions may be done separately from the tape (and software backup disk) generation. GENBKUP may be entered from the SCC during nonprime hours. After entering GENBKUP, request the ``u" Update and Verify Disk option. The tapes may be generated during normal shift hours by reentering the GENBKUP Restart Options when the technician is in the office and able to manipulate the backup tapes. Groups of tapes (ODD or text) should always be made in the same GENBKUP session.

Tape backup of the entire office should be done at least once a month or more often if many software updates and/or ECD changes are being added to the office. An office should keep the three latest versions of entire office backup tapes, with the next to the oldest copy being discarded when a new copy is made. The oldest tapes being the tapes that were successfully loaded and used to recover the system. Also, an office should have three tape operating procedure (TOP) tapes available with the oldest one being replaced every 3 to 4 months.

The following steps should be followed regardless if the tape backup is being done manually or automatically with GENBKUP.

**Note:** The Backout Last Overwrite feature cannot be used if the office backup tapes/disks are used to recover the switch.

This section gives an overview of the backup procedure. Those sections of the procedure that can make use of GENBKUP are noted. Those sections noted with ``GENBKUP v-option" are sections that can be run separately by using the verify option of GENBKUP. The use of this verify option is not documented in this procedure.

- Preconditioning:

- Run tape drive operational diagnostics.
- Determine present ODD Backup schedule and clear that schedule.
- Inhibit routine exercise (REX).
- Stop any active or scheduled REX diagnostics.
- Clear all active and scheduled office backups.
- Activate any /no5text or /smttext software updates in the soak state.
- Activate any ECD/SG recent changes that have not been activated.
- Create new TOP tape if needed (GENBKUP or Manually).
- Consistency checks (GENBKUP or Manually):
  - Check consistency of tables used for **COPY:PTN** commands.
  - Check consistency of disk partitions with File Sys Audits.
  - Check consistency between ``core" and disk files with Kernel Compares.
- Create Backup media (GENBKUP or Manually):
  - Re-create backup root partitions.
  - Run **BKUP:ODD**.
  - Make and verify AM Text, SM Text, AM ODD, and SM ODD backup tapes.
  - Label backup tapes (label produced by GENBKUP).
- Restore Controls:
  - Allow REX again.
  - Turn-on the automatic backup schedule again as appropriate.

The following Table 6.23-1 identifies all the procedures available for making the the full office backup tape. There are three primary procedures for tape back up:

- Automated GENBKUP for SCSI 9-track tape drive and *KEYSTONE III*.
- Automated GENBKUP for SCSI digital audio tape (DAT) drive.
- Manual backup for all tape drive units.

**Table 6.23-1 Tape Backup Procedures**

PROCEDURE	ACTIVITY	REMARKS (Tape Drive Configuration)
	Preconditioning	Required for all tape update procedures.
6.23.1	Initialize GENBKUP	Make specific procedure selection process here.
6.23.2	GENBKUP — Multi Volume DAT	This procedure is selected only if office is equipped with a 3B21D processor and there is a SCSI DAT drive cartridge and office is on software release 5E10 and later.
6.23.3	GENBKUP — Single Volume Format	This procedure is selected for all other configurations: Pre-5E10 software release and office is equipped with a 3B20 processor and using a Keystone III tape drive; 5E10 and later software release, office is equipped with a 3B21D processor and using a 9-track SCSI tape drive.
6.23.4	Post GENBKUP Activity	This procedure is required following a automatic backup.
6.23.5	Update and Verify Disks	This is a stand-alone procedure. If office backup to tape is required following the disk backup then the user must return to Procedure <b>6.23.3</b> .
6.23.6	Manual Backup	This procedure applies to the use of all tape drive units.
6.23.7		

**PROCEDURE****6.23.1 PRECONDITIONING**

1. Perform operational tests on tape drive being used.

Reference: *KEYSTONE III* tape drive, **Procedure 4.6**

SCSI 9-Track and DAT, **Procedure 4.20**

**Note:** The manufacturer's tests previously performed on the *KEYSTONE III* tape drive, are no longer required.

2. **Caution:** *“TMP” software updates installed on the switch may cause abnormal terminations of steps in this procedure.*

In the event errors are detected during the procedure, take appropriate corrective action; analyze output message using 235-600-750 *Output Message Manual* as a first-level reference; then, if necessary, **seek technical assistance**.

3. Clean tape drive heads.



4. **Caution:** On MCC Page 123, MHD0 and MHD1 must be duplex and all other MHDs should be duplex before starting this procedure. The switch must NOT be in an OVERLOAD STATE (Page 109). It is desirable, but not mandatory, that the control units (CU), all switching modules (SM), and all remote switching modules (RSM) be duplex.

On EAI page, is **BACKUP-ROOT SET** backlighted?

If **YES**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

If **NO**, continue to next Step.

5. Access MCC Page **120**
6. At the MCC, type and enter: **OP:BKUPSTAT;**

**Note 1:** An **NG** may appear if automatic backup is not scheduled.

Response: **OP BKUPSTAT EVERY a AT b**

Where: **a** = the number of days between backups.  
**b** = the time.

**Note 2:** Record the day and the time of the automatic backup schedule. This data will be used at the conclusion to reset the ODD backup schedule.

7. At the MCC, type and enter: **CLR:ODDBKUP;**
8. At the MCC, type and enter: **INH:DMQ:SRC=REX;**
9. At the MCC, type and enter: **OP:DMQ,AM;**

Response: **REQUEST ACTIVE**  
**NONE**  
**REQUEST WAITING**  
**NONE**  
**INHIBIT SOURCES:**  
**REX**

10. Does output from **OP:DMQ** show any active or scheduled REX diagnostics?

If **YES**, continue to next Step.

If **NO**, go to Step 12.

11. Stop each active and/or scheduled REX diagnostics dump. At the MCC, type and enter:  
**STOP:DMQ,AM,ACTIVE;**  
**STOP:DMQ,AM,WAITING;**

12. To display temporary software update(s), on MCC Page **1950**, type and enter **9103**

Response: In field adjacent to poke 9103, **IN PROGRESS** backlights followed by one of the following:

- a) **COMPLETED** a list of temporary software updates is printed at ROP.
- b) **COMPLETED** no list is printed at ROP.

- c) **ABORTED** indicates no temporary updates in the switch and **UPD USRERR 1** is printed at ROP.

13. Which response did you get: a), b), or c)?

If **a)**, continue to next Step.

If **b)** or **c)**, go to Step 16.

14. Make all temporary software updates OFFICIAL or back them out.

Reference: **Procedure 6.9**

15. To avoid differences between the incore version and disk version, backout ``TMP" software update listed in Step 12.

16. Using office RC/V records, are there any temporary ECD/SG recent changes in the switch (that is, ones that have **not** been activated)?

If **YES**, continue to next Step.

If **NO**, go to Step 19.

17. To activate incore ECD changes, access MCC Page **199**,

---

```

database_name:      incore
reviewonly:         n
journaling:         *
Enter Form Name:    activate
1.copy_inc_to_disk: yes
Enter Execute, ...: e
Enter Form Name:    <

```

---

18. To activate rootdmly ECD changes, access MCC Page **199**,

---

```

database_name:      rootdmly
reviewonly          n
journaling:         *
Enter Form Name:    trbegin
1.tr_name:TRBEGIN   Depress carriage return 1 time.
Enter Execute, ...: e
Enter Form Name:    Reenter any and all changes to
                    rootdmly from office RC/V records.
                    trend
1.tr_name:TREND      Depress carriage return 4 times.
Enter Execute, ...: e
Enter Form Name:    <

```

---

**NOTE:** The remainder of the procedure can be completed by using GENBKUP to enter the messages for you or completed manually.

19. How is remainder of office backup to be run?

If using automated **GENBKUP**, Multi Volume DAT, go to Procedure **6.23.3** .  
 If using automated **GENBKUP**, Single Volume DAT, go to Procedure **6.23.4** .  
 If completed **manually**, go to Procedure **6.23.7** .

### 6.23.2 Initialize GENBKUP

1. **Caution:** *This procedure could abort if the 5ESS-2000 switch contains a software update in the temporary state. This would be due to differences between the incore version and the disk version created by a temporary software update. Please check (MCC Page 1960) for this before continuing with this procedure.*

Enter Poke **195** on STLWS terminal (or MCC only if necessary); or type and enter on RC/V terminal: **RCV:MENU:GENBKUP;**

Response: **GENBKUP STARTED**  
**PRM\_0 E800 00xx xxxx 0005 xx xx xx**  
 (If GENBKUP has completed disk verification and updates within the last 24 hours)

Response on terminal:

---

```

                                GENBKUP PROCEDURE
PROCESSING - ##                CHECK INTEGRITY

VERIFYING PTN FILES

    PTN FILES ARE OK

        FINDING OFFICE PARTITIONS

            FOUND ALL PARTITIONS

                CHECKING MOUNT TABLE

                    MOUNT TABLE IS OK

                        PROCEEDING . . . . .
  
```

---

**Note:** The next display will not appear if the office has never made a full office backup.

---

```

                                GENBKUP PROCEDURE
                                LAST SUCCESSFUL BACKUP

COPY PARTITION ALL CMD DONE ON xxx xxx xx xx:xx:xx 19xx
AM TEXT TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
SM TEXT TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
AM ODD TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
SM ODD 1 TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
SM ODD 2 TAPE SEQUENCE MADE ON xxx xxx xx xx:xx:xx 19xx
.
  
```

```

TOP    TAPE          MADE ON xxx xxx xx xx:xx:xx 19xx
SOFTWR BKUP DISK 14 UPDATED ON xxx xxx xx xx:xx:xx 19xx
SOFTWR BKUP DISK 15 UPDATED ON xxx xxx xx xx:xx:xx 19xx

```

Please enter 'go' <to continue> or 'q' <to quit>:

---

2. At the MCC, type and enter: GO

Response on terminal:

---

#### GENBKUP PROCEDURE

##### MAIN MENU

##### WARNING:

BWM IN TEMPORARY STATE CAN CAUSE CMPR:DISK:CORE FAILURE, AND CAN ABORT GENBKUP!

##### SELECT OPTION:

- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT tape header
- d) Software Disk Backup
- u) Update and Verify Disks
- v) Verify Disk Data
- rt) Restart Tape Sequence (see Note 1)
- rd) Restart Sftw Bkup Disk (see Note 1)
- b) Copy DAT to DAT (5E10)
- q) To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

**NOTE 1:** The Restart options will be displayed if GENBKUP has been entered within the last 24 hours and has executed **BKUP:ODD** and **COPY:PTN** commands.

**NOTE 2:** If GENBKUP is run from the MCC or STLWS, the technician may escape to enter commands or pokes by operating the **CMD** key. However, the GENBKUP process will continue to run and update the screen. Any commands or pokes that update the screen will overlap with the GENBKUP updates of the screen.

To return to GENBKUP:

- Enter Poke 120 for the messages page.
- Operate the CMD key; (causing a NG response)
- The GENBKUP screen is not refreshed until a technician input is requested.
- Then continue with GENBKUP normally.

**NOTE 3:** If GENBKUP gets hung, the technician can force an abort by entering GENBKUP from another terminal and following the instructions on the screen that can force the first terminal process to abort.

**NOTE 4:** Abnormal aborts and timeouts should be accompanied by an abort message. These messages

are listed in 235-600-750, *Output Message Manual (RCV:MENU-GENBKUP)*.

3. **Note:** Update and verify disks (u) insures disk data integrity before doing office backup.

Update and verify the disks?

If **YES**, go to Procedure **6.23.6**

If **NO**, continue to next Step.

4. At the MCC, type and enter:

**t** (for a tape backup)

or

**rt** (for restart of tape backup).

**Note:** In addition to the following responses, FSBLK audit, FSLINK audit, and compare-disk-to-core results are also printed. If GENBKUP encounters any problems, an informative message will be output to the screen and ROP directing the technician actions.

Response for restart sequence:

---

This option provides the ability to be able to generate either a TEXT or ODD Backup Tape without having to re-execute the CMPR:DISK:CORE, COPY:PTN, and BKUP:ODD commands associated with GENBKUP running in a normal fashion. However with any added feature that circumvents the integrity checks, certain conditions must be satisfied in order to make a full set of office backup tapes.

FOR ALL BACKUP TAPE SEQUENCES:

GENBKUP was previously executed within the LAST 24 hours.

FOR ALL ODD BACKUP TAPE SEQUENCES:

NO BKUP:ODD command was executed since GENBKUP last ran.

FOR AM TEXT BACKUP TAPE SEQUENCES:

NO COPY:PTN command has been executed ->AND<- NO BWM has been made OFFICIAL.

Realizing that most of the integrity checks WILL NOT be performed, do you wish to continue? Please Enter 'y' <to continue> or 'n' <to abort>:

PLEASE CONFIRM YOUR RESPONSE. ENTER 'y' <yes> or 'n' <no>:

---

5. At the MCC, type and enter: **y** twice to continue.

Normal Response on terminal:

**Note:** During the next steps, a list of commands are displayed. While each command is being executed, that line is backlighted and a counter ``PROCESSING — ##" is incremented while each command is executing to indicate system activity. The counter is restarted for each new command.

6. What is the office tape drive configuration for doing **GENBKUP**?

Reference: **Table 6.23-1**

If **Multi Volume DAT**, continue with **6.23.3**

If **Single Volume Format** drive go to **6.23.4**

### 6.23.3 GENBKUP — Multi Volume DAT

1. From the GENBKUP PROCEDURE display, select the tape drive configuration.

Terminal Response:

---

```

                                GENBKUP  PROCEDURE

0) Tape Drive /dev/mt08 : SCSI DAT
1) Tape Drive /dev/mt18 : SCSI DAT

PLEASE SELECT A TAPE DRIVE AS THE PRIMARY DRIVE:

```

---

2. From terminal display, select "Two DAT AUTO TRANSFER"  
choice: **y**(es) - **n**(o) - **q**(uit)

If **yes**, a copy will be made from the PRIMARY DAT DRIVE to a SECONDARY DAT DRIVE.

Terminal Response:

(if two DAT drives are available the following lines will be displayed)

---

```

                                GENBKUP  PROCEDURE

Two DAT AUTO TRANSFER ?
Please enter y <yes>, n <no>, or q <quit>:

PLEASE SELECT A TAPE DRIVE AS THE SECONDARY DRIVE, n - (none):

```

---

**NOTE 1:** If **yes** is selected, a copy of the backup will be made from the PRIMARY DAT DRIVE to the SECONDARY DAT DRIVE, and a request to identify the secondary drive is made.

**NOTE 2:** More than one logical volume (TOP TAPE, AMTEXT, AMODD, SMTEXT, SMODDs) will be written on a DAT. Each logical volume will be associated with a session number and volume number. The session numbers will increase sequentially starting at 1 at the beginning of the tape and may increase up to 9. The volume number will be in an increasing order within a session. There is a one to one correspondence between the volume name and the volume number, as follows:

Volume Number	Volume Name
0	TOP TAPE
1	AMTEXT
2	AMODD
3	SMTEXT
4	SMODD1
5	SMODD2
6	SMODD3
7	SMODD4
8	SMODD5

9

SMODD6

Terminal Response:

---

Brand New Tape (Y/N) \_\_\_\_\_

---

Mount the tape on the tape drive. Enter GO AFTER the tape is mounted:

---

GENBKUP PROCEDURE  
TAPE BACKUP

Please specify DAT position for GENBKUP?

- b) Beginning of the DAT
- a) Append to the end of DAT
- s) Seek to specific position of the DAT
- q) To quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS: \_

---

3. Select one of the following 2:

(a) Select **YES** if brand new DAT.

b) Beginning of the DAT (required selection if DAT is brand new )

Will start writing at the beginning of the DAT. The session number will be 1 and all logical volumes will be selected to be written (TOP TAPE, AMTEXT, AMODD, SMTEXT, SMODDs).

Go to Step 7.

or

(b) Select **NO** if DAT is not new.

Continue to next Step.

4. After mounting a write enabled tape in place, type and enter **GO**
5. Select one of the following 3 positions to begin writing on the DAT:

b) Beginning of the DAT (required selection if DAT is brand new)

Will start writing at the beginning of the DAT. The session number will be 1 and all logical volumes will be selected to be written (TOP TAPE, AMTEXT, AMODD, SMTEXT, SMODDs).

Go to Step 7.

a) Append to the end of DAT

GENBKUP will determine the number of the last session on the tape and increment the number by one for the new session number.

Go to Step 6.

s) Seek to a specific position of the DAT. The following information will be requested:

Session and volume you want to append to:

APPEND TO SESSION NUMBER: APPEND TO VOLUME NUMBER:

The number of the session you will create:

PLEASE ENTER SESSION NUMBER:

Continue with next Step.

Terminal Response:

---

GENBKUP	PROCEDURE
TAPE	DRIVE

What is to be backed up?

- g) AM TEXT
- x) SM TEXT
- a) AM ODD
- s) SM ODD
- n) No More Selection

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

6. Select one or more backup choices.

**NOTE:** Each selection made will be backed up by **GENBKUP**. One or all volumes can be selected during one **GENBKUP** session. Once a selection has been made, the selection will be marked by an asterisk on the screen. A selection can be toggled on and off by entering it more than once.

When satisfied with the selection, enter **n**, No More Selection.

7. **Note:** GENBKUP starts sequential process of backing up each of the selections chosen. Proceed as indicated by the sequential process:

For TOP TAPE, continue to next Step.

For AMTEXT, go to Step 9

For AMODD, go to Step 10

For SMTEXT, go to Step 11

For SMODD, go to Step 12.

8. TOP TAPE backup response on terminal:

---

GENBKUP	PROCEDURE
---------	-----------

PROCESSING - 1

A top tape will be made so any office on this generic can use it.

COPY:TAPE:TOP,TD="/dev/mt08",COM

---



**NOTE:** Label with contents of the logical volume is printed on the ROP, which is similar to the following illustration.

Table 6.23-2

OFC BASE & CNTRL: _____ DATE: 08:48 _____ VERIFY: NOT DONE GENERIC: _____ BWM LEVEL: _____ TAPE TYPE: TOP TAPE - COMMON TAPE SEQ NUMBER: 1 DENSITY: N/A /dev/mt08 VTOC: N/A ; MHDs N/A COMMENTS:
---

GENBKUP goes to the next selection or if this is the last selection, go to Step 13.

9. If AMTEXT selected:

---

GENBKUP PROCEDURE

PAGE 1 OF x

```

AUD:FSBLK=1,INS="/dev/root"
AUD:FSLINK=1,INS="/dev/root"
AUD:FSBLK=1,INS="/dev/etc"
AUD:FSLINK=1,INS="/dev/etc"
AUD:FSBLK=1,INS="/dev/db"
AUD:FSLINK=1,INS="/dev/db"
AUD:FSBLK=1,INS="/dev/unix"
AUD:FSLINK=1,INS="/dev/unix"
AUD:FSBLK=2,INS="/dev/no5text"
AUD:FSLINK=2,INS="/dev/no5text"
AUD:FSBLK=1,INS="/dev/dg"
AUD:FSLINK=1,INS="/dev/dg"

```

---



---

GENBKUP PROCEDURE

PAGE 2 OF x

PROCESSING - 1

```

AUD:NIDATA=1
AUD:NIDATA=2
AUD:NIDATA=3
AUD:NIDATA=4
AUD:NIDATA=5
AUD:NIDATA=8
AUD:NIDATA=10

```

---



---

GENBKUP PROCEDURE

PAGE 3 OF x

PROCESSING - 1

```
CMPR:DISK:CORE,FN="/no5text/prc/DBprims.out"  
CMPR:DISK:CORE,FN="/no5text/prc/DTlib"  
CMPR:DISK:CORE,FN="/no5text/prc/SIlib"  
CMPR:DISK:CORE,FN="/no5text/prc/CClib"  
CMPR:DISK:CORE,FN="/no5text/prc/smkip"  
CMPR:DISK:CORE,FN="/no5text/prc/mskip"  
CMPR:DISK:CORE,FN="/no5text/prc/cmkip"  
CMPR:DISK:CORE,FN="/no5text/prc/okip"
```

---

## GENBKUP PROCEDURE

PAGE 4 OF x

PROCESSING - 1

```
CMPR:DISK:CORE,FN="/bootfiles/pcpaud"  
CMPR:DISK:CORE,FN="/bootfiles/3bpmgr"  
CMPR:DISK:CORE,FN="/bootfiles/inhadm"  
CMPR:DISK:CORE,FN="/bootfiles/simprc"  
CMPR:DISK:CORE,FN="/bootfiles/dkdrv"  
CMPR:DISK:CORE,FN="/bootfiles/fmprc"  
CMPR:DISK:CORE,FN="/bootfiles/eih"  
CMPR:DISK:CORE,FN="/prc/pldmon"  
CMPR:DISK:CORE,FN="/prc/klmon"
```

---

## GENBKUP PROCEDURE

PAGE 5 OF x

PROCESSING - 1

```
CMPR:DISK:CORE,FN="/prc/aim"  
CMPR:DISK:CORE,FN="/prc/bdf"  
CMPR:DISK:CORE,FN="/prc/fda"  
CMPR:DISK:CORE,FN="/prc/cdn"  
CMPR:DISK:CORE,FN="/illalib"  
CMPR:DISK:CORE,FN="/llalib"  
CMPR:DISK:CORE,FN="/ecdlib"  
CMPR:DISK:CORE,FN="/pllib"
```

---

## GENBKUP PROCEDURE

PAGE 6 OF x

PROCESSING - 1

```
VFY:FILE:FLIST="/no5text/bkup/CRCfile"
```

---

## GENBKUP PROCEDURE

PAGE 1 OF 1

PROCESSING - 2

WARNING: The system MHDs 0/1 will be simplexed and returned to duplex operation

.

VERIFYING STATUS OF MHD 0/1

MHD 0/1 ARE DUPLEXED. PROCEEDING ...

VFY:MHD=0

VFY:MHD=1

COPY:PTN:ALL, SRC="/no5text/bkup/prim.ptn", DEST="/no5text/bkup/bkup.ptn", ACT

**NOTE:** If both AMTEXT and AMODD are selected then the following display and its label will be displayed after ODD backup display.

GENBKUP PROCEDURE

PAGE 1 OF 1

PROCESSING - 2

AM TEXT + ECD SEQUENCE

COPY:BKDISK:MULTI, SRC="/dev/vtoc", TD="/dev/mt08",  
FN="/no5text/bkup/text.ptn", PSESS=1, PVOL=1, SESS=1, VOL=1, MRG, EXT,  
SKP, COM, NODMTMSG

Volume completed, label printed on the ROP!!

**NOTE:** Label with contents of the logical volume is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: NOT DONE GENERIC: _____ BWM LEVEL: _____ TAPE TYPE: AM TEXT + ECD TAPE SEQ NUMBER: 1 DENSITY: N/A /dev/mt08 VTOC: /dev/vtoc ; MHDs 0/1 COMMENTS:
---

GENBKUP goes to the next selection or if this is the last selection, go to Step 13.

10. If AMODD selected:

GENBKUP PROCEDURE

PAGE 1 OF 1

PROCESSING - 1

ODD BACKUP

ALW-RC Option 1

BKUP: ODD

INH: RC

BKUP:ODD  
ALW:RC

The ODD BACKUP section of GENBKUP has successfully completed!

---



---

	GENBKUP	PROCEDURE	PAGE 1 OF 1
PROCESSING - 24			

AUD:FSBLK=2,INS="/dev/no5aodd1"  
AUD:FSLINK=2,INS="/dev/no5aodd1"

---



---

	GENBKUP	PROCEDURE	PAGE 1 OF 1
PROCESSING - 4			
AM ODD SEQUENCE			

COPY:BKDISK:MULTI, SRC="/dev/vtoc", TD="/dev/mt08",  
FN="/no5text/bkup/aodd.ptn", PSESS=1, PVOL=1, SESS=1, VOL=2, EXT, SKP,  
COM,NODMTMSG

Volume completed, label printed on the ROP!!

---

**NOTE:** Label with contents of the logical volume is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: NOT DONE GENERIC: _____ BWM LEVEL: _____ TAPE TYPE: AM ODD TAPE SEQ NUMBER: 1 DENSITY: N/A /dev/mt08 VTOC: /dev/vtoc ; MHDs 0/1 COMMENTS:
--

GENBKUP goes to the next selection or if this is the last selection, go to Step 13.

## 11. If SMTEXT selected:

---

PROCESSING - 1	GENBKUP    PROCEDURE	PAGE 1 OF 1
----------------	----------------------	-------------

```

AUD:FSBLK=1,INS="/dev/smttext"
AUD:FSLINK=1,INS="/dev/smttext"
AUD:FSBLK=1,INS="/dev/unixabf"
AUD:FSLINK=1,INS="/dev/unixabf"

```

---



---



---

PROCESSING - 4	GENBKUP    PROCEDURE	PAGE 1 OF 1
----------------	----------------------	-------------

SM TEXT SEQUENCE

```

COPY:BKDISK:MULTI, SRC="/dev/vtoc1", TD="/dev/mt08",
FN="/no5text/bkup/smttext.ptn", PSESS=1, PVOL=2, SESS=1, VOL=3, EXT,
SKP, NODMTMSG

```

Volume completed, label printed on the ROP!!

---

**NOTE:** Label with contents of the logical volume is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____
DATE: _____
VERIFY: NOT DONE
GENERIC: _____
BWM LEVEL: _____
TAPE TYPE: SM TEXT
TAPE SEQ NUMBER: 1
DENSITY: N/A /dev/mt08
VTOC: /dev/vtoc ; MHDs 0/1
COMMENTS:

GENBKUP goes to the next selection or if this is the last selection, go to Step 13.

## 12. If SMODD selected:

---

GENBKUP    PROCEDURE	PAGE 1 OF 1
----------------------	-------------

PROCESSING - 1

AUD:FSBLK=3,INS="/dev/no5codd1"  
 AUD:FSLINK=3,INS="/dev/no5codd1"  
 AUD:FSBLK=3,INS="/dev/no5sodd1"  
 AUD:FSLINK=3,INS="/dev/no5sodd1"

GENBKUP PROCEDURE

PAGE 1 OF 1

PROCESSING - 3

SM ODD - NO5SODD1 SEQUENCE

COPY:BKDISK:MULTI, SRC="/dev/vtoc1", TD="/dev/mt08",  
 FN="/no5text/bkup/sodd1.ptn", PSESS=1, PVOL=3, SESS=1, VOL=4, EXT,  
 SKP, NODMTMSG

Volume completed, label printed on the ROP!!

**NOTE:** Label with contents of the logical volume is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____
DATE: _____
VERIFY: NOT DONE
GENERIC: _____
BWM LEVEL: _____
TAPE TYPE: SM ODD - NO5SODD1
TAPE SEQ NUMBER: 1
DENSITY: N/A /dev/mt08
VTOC: /dev/vtoc1 ; MHDs 2/3
COMMENTS:

13. If a request to copy from tape to tape (copy DAT to DAT selection b, Procedure **6.23.2**, Step 2), then the following screen will be displayed, otherwise go to the next Step.

GENBKUP PROCEDURE

PAGE 1 OF 1

PROCESSING - 1

COPY DAT TO DAT SEQUENCE

COPY:BKTAPE, SRC="/dev/mt08", DEST="/dev/mt38", SESS=1

COPY DAT-TO-DAT OPERATION SUCCESSFUL!

---

14. Completed session, screen will display:
- 

```

                                GENBKUP  PROCEDURE
                                MAIN    MENU
SELECT OPTION:
    t) Backup to Tape
    p) Physical Tape Verification
    c) Check LDFT Tape Header
    d) Software Disk Backup
    u) Update and Verify Disks
    v) Verify Disk Data
    rt) Restart Tape Sequence
    rd) Restart Sftw Bkup Disk
    b) Copy DAT to DAT
    q) To Quit
```

PLEASE ENTER ONE OF THE ABOVE OPTIONS:  \_\_

---

To exit the GENBKUP, at the MCC, type and enter:  **q**

Go to Procedure **6.23.5** .

#### 6.23.4 GENBKUP — Single Volume Tape

1. Normal Terminal Response:
- 

```

                                GENBKUP  PROCEDURE
                                TAPE    BACKUP
```

What is to be backed up?

```

    g) AM TEXT
    x) SM TEXT
    a) AM ODD
    s) SM ODD
    t) TOP TAPE
    q) To Quit
```

Please enter g, x, a, s, t, or q:

---

Do you need to make a new TOP tape?

If **YES**, continue to next Step.

If **NO**, go to **6.23.4.1** .

2. To make a TOP TAPE, at the MCC, type and enter: **t**

Terminal Response:

---

```

GENBKUP PROCEDURE
MAKE A TOP TAPE

```

```

A LOW DENSITY top tape will be made so any office on this generic can use it.
Mount a tape with a write ring: ENSURE MTC 0 & MT 0 ACTIVE, & tape drive ONLINE.

```

```

Please Enter 'go' <when ready> or 'q' <to quit>:

```

---

3. After mounting a write enabled tape, type and enter **GO**

Terminal Response:

---

```

GENBKUP PROCEDURE
MAKE A TOP TAPE

```

```

PLEASE BE PATIENT. PERFORMING MINI TAPE DRIVE TEST ...

```

```

Writing TOP File out to TAPE at LOW density (/dev/mt08).

```

```

VFY:TAPE,TD="/dev/mt08":RETRY=3

```

```

VFY:FILE:FN="/dev/mt08 i"

```

```

TOP TAPE Verification SUCCESSFUL!

```

```

Unmount the top tape and label it with the LABEL PRINTED on the ROP!

```

```

Please enter 'go' to continue:

```

---

4. Remove the tape from the tape drive and attach the identification label to the tape that is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: SUCCESSFUL SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: TOP TAPE TAPE SEQ NUMBER: 1 DENSITY: /dev/mt08 VTOC: N/A ; MHDs N/A COMMENTS: _____
---

#### 6.23.4.1 Make AM Text Backup Tape

1. At the MCC, type and enter: **GO**

Terminal Response:



# GENBKUP PROCEDURE TAPE BACKUP

What is to be backed up?

- g) AM TEXT
- x) SM TEXT
- a) AM ODD
- s) SM ODD
- t) TOP TAPE
- q) To Quit

Please enter g, x, a, s, t, or q:

2. **Note:** This process makes backup tapes of Text (AM and SM) and/or ODD (AM and SM).

Are only ODD backup tapes to be made at this time?

If **YES**, go to **6.23.4.3**.

If **NO**, continue to next Step.

3. To make the AM Text backup tape, at the MCC, type and enter: **g**

Terminal Response:

---

PROCESSING - ##	GENBKUP PROCEDURE AM TEXT VERIFICATION	PAGE 1 of x
-----------------	---	-------------

```

AUD:FSBLK=1,INS="/dev/root"
AUD:FSLINK=1,INS="/dev/root"
AUD:FSBLK=1,INS="/dev/etc"
AUD:FSLINK=1,INS="/dev/etc"
AUD:FSBLK=1,INS="/dev/db"
AUD:FSLINK=1,INS="/dev/db"
AUD:FSBLK=1,INS="/dev/unixa"
AUD:FSLINK=1,INS="/dev/unixa"
AUD:FSBLK=2,INS="/dev/no5text"
AUD:FSLINK=2,INS="/dev/no5text"
AUD:FSBLK=1,INS="/dev/dg"
AUD:FSLINK=1,INS="/dev/dg"
AUD:FSBLK=1,INS="/dev/usrbin"
AUD:FSLINK=1,INS="/dev/usrbin"

```

---



---

PROCESSING - ##	GENBKUP PROCEDURE AM TEXT VERIFICATION	PAGE 2 of x
-----------------	---	-------------

```

AUD:NIDATA1
AUD:NIDATA2
AUD:NIDATA3

```

AUD:NIDATA4  
 AUD:NIDATA5  
 AUD:NIDATA8  
 AUD:NIDATA9

---



---

	GENBKUP PROCEDURE	PAGE 3 of x
PROCESSING - ##	AM TEXT VERIFICATION	

CMPR:DISK:CORE,FN="/no5text/prc/DBprims.out"  
 CMPR:DISK:CORE,FN="/no5text/prc/RC\_OKPlib"  
 CMPR:DISK:CORE,FN="/no5text/prc/rckp"  
 CMPR:DISK:CORE,FN="/no5text/prc/DTlib"  
 CMPR:DISK:CORE,FN="/no5text/prc/SIlib"  
 CMPR:DISK:CORE,FN="/no5text/prc/CClib"  
 CMPR:DISK:CORE,FN="/no5text/prc/smkp"  
 CMPR:DISK:CORE,FN="/no5text/prc/mskp"  
 CMPR:DISK:CORE,FN="/no5text/prc/cmkp"  
 CMPR:DISK:CORE,FN="/no5text/prc/okp"

---



---



---



---

	GENBKUP PROCEDURE	PAGE 4 of x
PROCESSING - ##	AM TEXT VERIFICATION	

CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g"  
 CMPR:DISK:CORE,FN="/bootfiles/3bpmgr"  
 CMPR:DISK:CORE,FN="/bootfiles/inhadm"  
 CMPR:DISK:CORE,FN="/bootfiles/simprc"  
 CMPR:DISK:CORE,FN="/bootfiles/dkdrv"  
 CMPR:DISK:CORE,FN="/bootfiles/fmprc"  
 CMPR:DISK:CORE,FN="/bootfiles/eih"  
 CMPR:DISK:CORE,FN="/prc/pldmon"  
 CMPR:DISK:CORE,FN="/prc/klmon"

---



---



---



---

	GENBKUP PROCEDURE	PAGE 5 of x
PROCESSING - ##	AM TEXT VERIFICATION	

CMPR:DISK:CORE,FN="/prc/aim"  
 CMPR:DISK:CORE,FN="/prc/bdf"  
 CMPR:DISK:CORE,FN="/prc/fda"  
 CMPR:DISK:CORE,FN="/prc/cdn"  
 CMPR:DISK:CORE,FN="/illalib"  
 CMPR:DISK:CORE,FN="/llalib"  
 CMPR:DISK:CORE,FN="/klib" [Not in 5E2(2)]  
 CMPR:DISK:CORE,FN="/ecdlib"  
 CMPR:DISK:CORE,FN="/pllib"

---



---

PROCESSING - ##
 GENBKUP PROCEDURE  
AM TEXT VERIFICATION
PAGE 6 of x

VFY:FILE,FLIST="/no5text/bkup/CRCfile"

---

**NOTE:** The next three screens are not displayed if the restart option is used.

---

PROCESSING - ##
 GENBKUP PROCEDURE
PAGE 1 of 1

ROOT TO BACKUP ROOT PARTITION COPY

WARNING: The system MHDs 0/1 will be simplexed and returned to duplex operation.

OP:MHD=0:INFO  
 OP:MHD=1:INFO  
 VFY:MHD=0  
 VFY:MHD=1  
 COPY:PTN:ALL, SRC="/no5text/bkup/prim.ptn", EST="/no5text/bkup/bkup.ptn"  
 COPY:PTN:ALL COMMAND SUCCESSFULLY COMPLETED!

---

**NOTE:** GENBKUP will proceed to the next step before MHD0 and MHD1 are fully duplex.

4. **Note:** The following screen will not be displayed if the active AM ODD partition is no5aodd1 or no5dodd1.

Is the following screen displayed?

---

PROCESSING - ##
 GENBKUP PROCEDURE
PAGE 1 of 2

ODD BACKUP

The ODD Backup Procedure has two options:

OPTION 1: Inhibit Recent Change for the shortest amount of time possible. However, the total time for this procedure is increased.

OPTION 2: Allow the time for this procedure to be as short as possible. However, the time Recent Change is inhibited is greater than option 1.

Please enter 1 (option 1), 2 (option 2), or q (quit):

---

If **YES**, continue to next Step.

If **NO**, go to Step 6.

5. **Note:** Before proceeding, insure that no one is in the process of doing recent changes in the system. **OP:RCUSER** can aid in determining recent change activity.

At the MCC, type and enter: **1, 2, or q**

Terminal Response:

---

```

                                GENBKUP PROCEDURE
PROCESSING - ##                ODD BACKUP
                                ALW-RC    Option 1
                                (Or) NO-RC  Option 2

BKUP:ODD                      [Printed and executed if Option 1]
INH:RC
BKUP:ODD
BKUP:ODD,AM                   [May not be printed and executed]
ALW:RC

```

---

6. Normal Response on terminal:

```

                                GENBKUP PROCEDURE
                                PAGE 1 of 1
PROCESSING - ##
AM TEXT SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

MOUNT tape on Tape Drive. Enter 'go' AFTER tape is mounted or 'q'<to quit>: __

```

---

After mounting write enabled tape type and enter: **GO**

Terminal Response:

```

                                GENBKUP PROCEDURE
AM TEXT SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

Should tape verification be done AUTOMATICALLY after each tape is made ??
Please enter y <yes>, n <no>, or q <quit>:

```

---

7. To automatically verify tapes, at the MCC, type and enter: **y**

**Note:** The message **COPY BKDISK DISMOUNT . . . TAPE LABEL AND MOUNT NEXT TAPE** may be output on the ROP. With the verify tape option selected in the previous step, DO NOT remove the tape until the verify is completed as indicated on the screen of the terminal.

Terminal Response:

```

                                GENBKUP PROCEDURE
                                PAGE 1 of 1
PROCESSING - ##
AM TEXT SEQUENCE                yyy DENSITY TAPES

PLEASE BE PATIENT.  PERFORMING MINI TAPE DRIVE TEST.

COPY:BKDISK:START, SRC="/dev/vtoc", TD="/dev/mtxx",
FN="/no5text/bkup/text.ptn", TPSIZE=2300 (60M for DAT) [,EXT],MRG[,COM]
or

```

COPY:BKDISK,ACK:TPSIZE=2300

Where:      **yyy =**  
               **NORMAL: HIGH** (xx = 00)  
               **WARNING: LOW** (xx = 08)  
               **NORMAL: LOW** (xx = 08, not equipped with high-density drive)

GENBKUP PROCEDURE

PAGE 1 of 1

PROCESSING - ##  
 AM TEXT SEQUENCE

yyy DENSITY TAPES

VFY:TAPE,TD="/dev/mtxx":RETRY=3            (If verify option used)

Please unmount the tape and label it with the LABEL PRINTED on the ROP!!  
 AM TEXT Tape sequence completed. Enter 'go' <to continue>:

or

Please UNMOUNT the tape and MOUNT another tape  
 onto the tape drive. Enter GO to continue:

Where:      **yyy =**  
               **NORMAL: HIGH** (xx = 00)  
               **WARNING: LOW** (xx = 08)  
               **NORMAL: LOW** (xx = 08, not equipped with high-density drive)

8. Remove the tape from the tape drive and attach the identification label to the tape that is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: <u>zzz</u> _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: AM TEXT TAPE SEQ NUMBER: _____ DENSITY: _____ VTOC: _____; MHDs _____ COMMENTS: _____
---

Where:      **zzz =**  
               **SUCCESSFUL**, if automatic tape verification was successful.  
               **NOT DONE**, if tape was NOT verified automatically.  
               **NOT SUCCESSFUL**, if automatic tape verification failed.

9. If the output message is **Please UNMOUNT the tape and MOUNT another tape:**

To continue tape write operation, mount next AM Text write enabled tape,  
 type and enter **GO**

#### 6.23.4.2 Make SM Text Backup Tape

1. At the MCC, type and enter: **GO**

Terminal Response:

---

```

GENBKUP PROCEDURE
TAPE BACKUP

```

```

What is to be backed up?

```

```

g) AM TEXT
x) SM TEXT
a) AM ODD
s) SM ODD
t) TOP TAPE
q) To Quit

```

```

Please enter g, x, a, s, t, or q:

```

---

2. To make the SM Text backup tape, at the MCC, type and enter: **x**

Terminal Response:

---

```

PROCESSING - ##                                GENBKUP PROCEDURE                                PAGE 1 of 1
                                                SM TEXT VERIFICATION

AUD:FSBLK=1,INS="/dev/smttext"
AUD:FSLINK=1,INS="/dev/smttext"
AUD:FSBLK=1,INS="/dev/unixabf"
AUD:FSLINK=1,INS="/dev/unixabf"

```

---



---

```

PROCESSING - ##                                GENBKUP PROCEDURE                                PAGE 1 of 1
SM TEXT SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

MOUNT tape on Tape Drive. Enter 'go' AFTER tape is mounted or 'q'<to quit>: __

```

---

3. After mounting write enabled tape type and enter **GO**

Response on terminal:

---

```

                                                GENBKUP PROCEDURE

SM TEXT SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

Should tape verification be done AUTOMATICALLY after each tape is made ??
Please enter y <yes>, n <no>, or q <quit>:

```

- 
4. To automatically verify tapes, at the MCC, type and enter **y**

**Note:** The message **COPY BKDISK DISMOUNT . . . TAPE LABEL AND MOUNT NEXT TAPE** may be output on the ROP. With the verify tape option selected in the previous step, DO NOT remove the tape until the verify is completed as indicated on the screen of the terminal.

Response on terminal:

---

```

                                GENBKUP PROCEDURE                                PAGE 1 of 1
PROCESSING - ##
SM TEXT SEQUENCE                                yyy DENSITY TAPES

PLEASE BE PATIENT.  PERFORMING MINI TAPE DRIVE TEST.

COPY:BKDISK:START, SRC="/dev/vtoc1", TD="/dev/mtxx",
FN="/no5text/bkup/smttext.ptn", TPSIZE=2300 (60M for DAT) [,EXT]

or

COPY:BKDISK,ACK:TPSIZE=2300 [,EXT]
```

---

Where:        yyy =  
                  **NORMAL: HIGH** (xx = 00)  
                  **WARNING: LOW** (xx = 08)  
                  **NORMAL: LOW** (xx = 08, not equipped with high-density drive)

---

```

                                GENBKUP PROCEDURE                                PAGE 1 of 1
PROCESSING - ##
SM TEXT SEQUENCE                                yyy DENSITY TAPES

VFY:TAPE,TD="/dev/mtxx":RETRY=3                (If verify option used)

Please unmount the tape and label it with the LABEL PRINTED on the ROP!!
SM TEXT Tape sequence completed. Enter 'go' <to continue>:

or

Please UNMOUNT the tape and MOUNT another tape
onto the tape drive. Enter GO to continue:
```

---

Where:        yyy =  
                  **NORMAL: HIGH** (xx = 00)  
                  **WARNING: LOW** (xx = 08)  
                  **NORMAL: LOW** (xx = 08, not equipped with high-density drive)

---

5. Remove the tape from the tape drive and attach the identification label to the tape that is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: <u>zzz</u> _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: SM TEXT TAPE SEQ NUMBER: _____ DENSITY: _____ VTOC: _____; MHDs _____ COMMENTS: _____
---

Where:            zzz =  
**SUCCESSFUL**, if automatic tape verification was successful.  
**NOT DONE**, if tape was NOT verified automatically.  
**NOT SUCCESSFUL**, if automatic tape verification failed.

6. If the output message is **Please UNMOUNT the tape and MOUNT another tape:**

To continue tape write operation, mount next SM Text write enabled tape,  
type and enter **GO**

#### 6.23.4.3 Make AM ODD Backup Tape

1. At the MCC, type and enter: **GO**

Response on terminal:

---

#### GENBKUP PROCEDURE TAPE BACKUP

What is to be backed up?

- g) AM TEXT
- x) SM TEXT
- a) AM ODD
- s) SM ODD
- t) TOP TAPE
- q) To Quit

Please enter g, x, a, s, t, or q:

- 
2. To make the AM ODD backup tape, at the MCC, type and enter: **a**
3. **Note:** The following screen is displayed if only the ODD backup was selected in **6.23.4.1**, Step 2 or the restart option is used.

Is the following screen displayed?

---

PROCESSING - ##	GENBKUP PROCEDURE ODD BACKUP	PAGE 1 of 2
-----------------	---------------------------------	-------------

The ODD Backup Procedure has two options:



OPTION 1: Inhibit Recent Change for the shortest amount of time possible.  
However, the total time for this procedure is increased.

OPTION 2: Allow the time for this procedure to be as short as possible.  
However, the time Recent Change is inhibited is greater than option 1.

Please enter 1 (option 1), 2 (option 2), or q (quit):

---

If **YES**, continue to next Step.

If **NO**, go to Step 5.

4. **Note:** Before proceeding, insure that no one is in the process of doing recent changes in the system. **OP:RCUSER** can aid in determining recent change activity.

At the MCC, type and enter: 1, 2, or q

Terminal Response:

---

```

                                GENBKUP PROCEDURE                      PAGE 2 of 2
PROCESSING - ##                                ODD BACKUP
                                ALW-RC      Option 1
                                (Or) NO-RC   Option 2

BKUP:ODD                                [Printed and executed if Option 1]
INH:RC
BKUP:ODD
BKUP:ODD,AM                            [May not be printed and executed]
ALW:RC

```

---

5. Terminal Response:
- 

```

                                GENBKUP PROCEDURE                      PAGE 1 of 1
PROCESSING - ##                                AM ODD VERIFICATION

AUD:FSBLK=2,INS="/dev/no5aodd1"
AUD:FSLINK=2,INS="/dev/no5aodd1"
AUD:FSBLK=2,INS="/dev/no5aodd2"
AUD:FSLINK=2,INS="/dev/no5aodd2"

```

---

```

                                GENBKUP PROCEDURE                      PAGE 1 of 1
PROCESSING - ##
AM ODD SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

MOUNT tape on Tape Drive. Enter 'go' AFTER tape is mounted or 'q'<to quit>: __

```

---

After mounting write enabled tape type and enter **GO**

Terminal Response:

---

```

                                GENBKUP PROCEDURE

AM ODD SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT) .

Should tape verification be done AUTOMATICALLY after each tape is made ??
Please enter y <yes>, n <no>, or q <quit>:

```

---

6. To automatically verify tapes, at the MCC, type and enter: **y**

**Note:** The message **COPY BKDISK DISMOUNT . . . TAPE LABEL AND MOUNT NEXT TAPE** may be output on the ROP. With the verify tape option selected in the previous step, DO NOT remove the tape until the verify is completed as indicated on the screen of the terminal.

Terminal Response:

---

```

                                GENBKUP PROCEDURE                                PAGE 1 of 1

PROCESSING - ##
AM ODD SEQUENCE                                yyy DENSITY TAPES

PLEASE BE PATIENT.  PERFORMING MINI TAPE DRIVE TEST.

COPY:BKDISK:START, SRC="/dev/vtoc", TD="/dev/mtxx",
FN="/no5text/bkup/zzzz.ptn", TPSIZE=2300 (60M for DAT) [,EXT]

or

COPY:BKDISK,ACK:TPSIZE=2300 [,EXT]

```

---

Where:        yyy =  
               **NORMAL: HIGH** (xx = 00)  
               **WARNING: LOW** (xx = 08)  
               **NORMAL: LOW** (xx = 08, not equipped with high-density drive)  
               zzzz = aodd.

---

```

                                GENBKUP PROCEDURE                                PAGE 1 of 1

PROCESSING - ##
AM ODD SEQUENCE                                yyy DENSITY TAPES

VFY:TAPE,TD="/dev/mtxx":RETRY=3                (If verify option used)

Please unmount the tape and label it with the LABEL PRINTED on the ROP!!
AM ODD Tape sequence completed. Enter 'go' <to continue>:

```

or

Please UNMOUNT the tape and MOUNT another tape onto the tape drive. Enter GO to continue:

---

Where:       yyy =  
                   **NORMAL: HIGH** (xx = 00)  
                   **WARNING: LOW** (xx = 08)  
                   **NORMAL: LOW** (xx = 08, not equipped with high-density drive)

7. Remove the tape from the tape drive and attach the identification label to the tape that is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____
DATE: _____
VERIFY: _zzz_____
SOFTWARE RELEASE: _____
SOFTWARE UPDATE LEVEL: _____
TAPE TYPE: AM ODD
TAPE SEQ NUMBER: _____
DENSITY: _____
VTOC: _____; MHDs _____
COMMENTS: _____

Where:       zzz =  
                   **SUCCESSFUL**, if automatic tape verification was successful.  
                   **NOT DONE**, if tape was NOT verified automatically.  
                   **NOT SUCCESSFUL**, if automatic tape verification failed.

8. If the output message is **Please UNMOUNT the tape and MOUNT another tape:**  
 To continue tape write operation, mount next AM ODD write enabled tape, and type and enter **GO**

#### 6.23.4.4 Make SM ODD Backup Tape

1. At the MCC, type and enter: **GO**

Terminal Response:

---

#### GENBKUP PROCEDURE TAPE BACKUP

What is to be backed up?

- g) AM TEXT
- x) SM TEXT
- a) AM ODD
- s) SM ODD
- t) TOP TAPE
- q) To Quit

Please enter g, x, a, s, t, or q:

2. To make the SM ODD backup tapes for all disks, at the MCC, type and enter: **s**

**Note:** In the next three displays, the command is displayed and executed only if the sodd partition within the command (such as /dev/no5soddx) exists in this office configuration. There is no technician action required to determine office configuration.

Terminal Response:

---

```

                                GENBKUP PROCEDURE                PAGE 1 of 2
PROCESSING - ##                SM ODD VERIFICATION

AUD:FSBLK=3,INS="/dev/no5codd1"
AUD:FSLINK=3,INS="/dev/no5codd1"
AUD:FSBLK=3,INS="/dev/no5sodd1"
AUD:FSLINK=3,INS="/dev/no5sodd1"
AUD:FSBLK=1,INS="/dev/no5sodd2"
AUD:FSLINK=1,INS="/dev/no5sodd2"

```

---



---

```

                                GENBKUP PROCEDURE                PAGE 2 of 2
PROCESSING - ##                SM ODD VERIFICATION

AUD:FSBLK=1,INS="/dev/no5sodd3"
AUD:FSLINK=1,INS="/dev/no5sodd3"
AUD:FSBLK=1,INS="/dev/no5sodd4"
AUD:FSLINK=1,INS="/dev/no5sodd4"
AUD:FSBLK=1,INS="/dev/no5sodd5"
AUD:FSLINK=1,INS="/dev/no5sodd5"
AUD:FSBLK=1,INS="/dev/no5sodd6"
AUD:FSLINK=1,INS="/dev/no5sodd6"

```

---

3. Response for Restart Sequence:

---

```

                                GENBKUP PROCEDURE                PAGE 1 of 1
                                SELECT SM ODD TAPE SEQUENCE

Select which NO5SODD partition is to be written to tape:

      rt#                PARTITION                MHDs
      ---                -
      1                no5sodd1                2/3
      2                no5sodd2                4/5
      .                .                .

PLEASE ENTER ONE OF THE ABOVE "rt" NUMBERS (1, .)  --> OR <--
      'q' <TO QUIT>:

```

---

To continue, type and enter the appropriate **rt** number

Terminal Response:

---

```

                                GENBKUP PROCEDURE                                PAGE 1 of 1

PROCESSING - ##
SM ODD - NO5SODDx SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

MOUNT tape on Tape Drive. Enter 'go' AFTER tape is mounted or 'q'<to quit>: __

```

---

Where:        # = 1 to 6

4. **Note:** A tape sequence (one or more tapes) will be written for each disk pair that is allocated to SM ODD.

After mounting write enabled tape, type and enter **GO**

Terminal Response:

---

```

                                GENBKUP PROCEDURE

SM ODD - NO5SODDx SEQUENCE
WARNING:  Tapes MUST be at least 2300 feet long (60M for DAT).

Should tape verification be done AUTOMATICALLY after each tape is made ??
Please enter y <yes>, n <no>, or q <quit>:

```

---

5. To automatically verify tapes, at the MCC, type and enter: **y**

**Note:** The message **COPY BKDISK DISMOUNT . . . TAPE LABEL AND MOUNT NEXT TAPE** may be output on the ROP. With the verify tape option selected in the previous step, DO NOT remove the tape until the verify is completed as indicated on the screen of the terminal.

Terminal Response:

---

```

                                GENBKUP PROCEDURE                                PAGE 1 of 1

PROCESSING - ##
SM ODD - NO5SODDx SEQUENCE                                yyy DENSITY TAPES

PLEASE BE PATIENT.  PERFORMING MINI TAPE DRIVE TEST.

COPY:BKDISK:START, SRC="/dev/vtocx", TD="/dev/mtxx",
FN="/no5text/bkup/ppppp.ptn", TPSIZE=2300 (60M for DAT) [,EXT]

or

COPY:BKDISK,ACK:TPSIZE=2300 [,EXT]

```

---

Where:      **yyy =**  
               **NORMAL: HIGH** (xx = 00)  
               **WARNING: LOW** (xx = 08)  
               **NORMAL: LOW** (xx = 08, not equipped with high-density drive)  
               ppppp.ptn value is shown in the following illustration:

PARTITIONS	/dev/vtocx	/ppppp.ptn
no5sodd1	/dev/vtoc1/sodd1.ptn	
no5sodd2 & no5sodd1	/dev/vtoc2	sodd2.ptn
no5sodd2 & NO no5sodd1	/dev/vtoc2	codd.ptn
no5sodd3	/dev/vtoc3	sodd3.ptn
no5sodd4	/dev/vtoc4	sodd4.ptn
no5sodd5	/dev/vtoc5	sodd5.ptn
no5sodd6	/dev/vtoc6	sodd6.ptn

Terminal Response:

GENBKUP PROCEDURE

PAGE 1 of 1

PROCESSING - ##

SM ODD - NO5SODDx SEQUENCE

yyy DENSITY TAPES

VFY:TAPE,TD="/dev/mtxx":RETRY=3      (If verify option used)

Please unmount the tape and label it with the LABEL PRINTED on the ROP!!

SM ODD - NO5SODDx Tape sequence completed. Enter 'go' <to continue>:

or

Please UNMOUNT the tape and MOUNT another tape  
 onto the tape drive. Enter GO to continue:

Where:      **x = 1 to 6**  
               **yyy =**  
               **NORMAL: HIGH** (xx = 00)  
               **WARNING: LOW** (xx = 08)  
               **NORMAL: LOW** (xx = 08, not equipped with high-density drive)

- Remove the tape from the tape drive and attach the identification label to the tape that is printed on the ROP, which is similar to the following illustration.

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: zzz _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: SM ODD - NO5SODDx _____ TAPE SEQ NUMBER: _____ DENSITY: _____
--

VTOC: \_\_\_\_\_; MHDs \_\_\_\_\_  
 COMMENTS: \_\_\_\_\_

Where:           zzz =  
                   **SUCCESSFUL**, if automatic tape verification was successful.  
                   **NOT DONE**, if tape was NOT verified automatically.  
                   **NOT SUCCESSFUL**, if automatic tape verification failed.

7. If the output message is **Please UNMOUNT the tape and MOUNT another tape:**

To continue tape write operation, mount next SM ODD write enabled tape, and type and enter **GO**

8. For Restart sequences, enter next ``rt" number.

Refer to Step 3.

9. At the MCC, type and enter: **GO**

Response on terminal:

---

GENBKUP PROCEDURE  
TAPE BACKUP

What is to be backed up?

- g) AM TEXT
- x) SM TEXT                   [5E4 and later]
- a) AM ODD
- s) SM ODD
- t) TOP TAPE
- q) To Quit

Please enter g, x, a, s, t, or q:

- 
10. To exit the procedure, at the MCC, type and enter: **q**

Response on terminal:

---

GENBKUP PROCEDURE  
MAIN MENU

**WARNING:**

**BWM IN TEMPORARY STATE CAN CAUSE CMPR:DISK:CORE FAILURE, AND CAN ABORT GENBKUP!**

Select Option:

- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT tape header
- d) Software Disk Backup
- u) Update and Verify Disks

- v) Verify Disk Data
- rt) Restart Tape Sequence
- rd) Restart Sftw Bkup Disk
- b) Copy DAT to DAT
- q) To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

**Note:** If you choose not to automatically verify tapes, the tapes should be verified now using the **p** option. The tape label should be modified to indicate successful verification when the tapes verify successfully.

11. To exit the procedure, at the MCC, type and enter: **q**
12. Did the automatic procedure complete successfully?

If **YES**, continue to **6.23.5**.

If **NO**, then **seek technical assistance**.

### 6.23.5 Post GENBKUP Activity

1. Did the automatic GENBKUP procedure complete successfully?  
If **YES**, continue with next Step.  
If **NO**, then **seek technical assistance**.
2. To reinitialize REX activity, at the MCC, type and enter:  
**ALW:DMQ:SRC=REX;**
3. To reset ODD backup schedule, obtain the **OP BKUPSTAT** data recorded in Procedure **6.23.1**, Step 6.
4. To reset ODD backup schedule type and enter:  
**BKUP:ODD:EVERY=a,AT=b;**

Where:        **a** = number of days for every ODD backup to run (from output message)  
                  **b** = time of day in the hour and minutes (from output message)  
                  (for example, 2330 = 11:30 p.m.)

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 6.23.6 Update and Verify Disks

**NOTE:** The following activity performs a complete update of the disks only. If a tape backup is desired once the disk update is completed, Step 5 provides the instructions.

1. Insure that no one is in the process of doing recent changes in the system.
2. To update and verify the disks, at the MCC, type and enter: **u**

Terminal Response:

---



PROCESSING - ##

ODD BACKUP

The ODD Backup Procedure has two options:

OPTION 1: Inhibit Recent Change for the shortest amount of time possible. However, the total time for this procedure is increased.

OPTION 2: Allow the time for this procedure to be as short as possible. However, the time Recent Change is inhibited is greater than option 1.

Please enter 1 (option 1), 2 (option 2), or q (quit):

3. To initiate ODD backup, at the MCC, type and enter: 1, 2, or q

Terminal Response (for selections 1 or 2):

---

PROCESSING - ##	GENBKUP PROCEDURE ODD BACKUP ALW-RC     Option [1,2]	PAGE 2 of 2
-----------------	--	-------------

BKUP:ODD	[Printed and executed if Option 1]
INH:RC	
BKUP:ODD	
BKUP:ODD,AM	[May not be printed and executed]
ALW:RC	

---

**Note 1:** In addition to the following responses, FSBLK audit, FSLINK audit, and compare-disk-to-core results are also printed. If GENBKUP encounters any problems, an informative message will be output to the screen and ROP directing the technician actions.

Terminal Responses:

**Note 2:** During the following steps, a list of commands are displayed. While each command is being executed, that line is backlighted and a counter "PROCESSING - ##" is incremented while each command is executing to indicate system activity. The counter is restarted for each new command.

---

PROCESSING - ##	GENBKUP PROCEDURE SM TEXT VERIFICATION	PAGE 1 of 1
-----------------	---	-------------

```
AUD:FSBLK=1,INS="/dev/smtxt"
AUD:FSLINK=1,INS="/dev/smtxt"
AUD:FSBLK=1,INS="/dev/unixabf"
AUD:FSLINK=1,INS="/dev/unixabf"
```

---



---

PROCESSING - ##	GENBKUP PROCEDURE AM TEXT VERIFICATION	PAGE 1 of x
-----------------	---	-------------

```
AUD:FSBLK=1,INS="/dev/root"
```

---

AUD:FSLINK=1,INS="/dev/root"  
 AUD:FSBLK=1,INS="/dev/etc"  
 AUD:FSLINK=1,INS="/dev/etc"  
 AUD:FSBLK=1,INS="/dev/db"  
 AUD:FSLINK=1,INS="/dev/db"  
 AUD:FSBLK=1,INS="/dev/unixa"  
 AUD:FSLINK=1,INS="/dev/unixa"  
 AUD:FSBLK=2,INS="/dev/no5text"  
 AUD:FSLINK=2,INS="/dev/no5text"  
 AUD:FSBLK=1,INS="/dev/cft"  
 AUD:FSLINK=1,INS="/dev/cft"  
 AUD:FSBLK=1,INS="/dev/dg"  
 AUD:FSLINK=1,INS="/dev/dg"  
 AUD:FSBLK=1,INS="/dev/usrbin"  
 AUD:FSLINK=1,INS="/dev/usrbin"

---

PROCESSING - ## GENBKUP PROCEDURE PAGE 2 of x  
 AM TEXT VERIFICATION

AUD:NIDATA1  
 AUD:NIDATA2  
 AUD:NIDATA3  
 AUD:NIDATA4  
 AUD:NIDATA5  
 AUD:NIDATA8  
 AUD:NIDATA9

---

PROCESSING - ## GENBKUP PROCEDURE PAGE 3 of x  
 AM TEXT VERIFICATION

CMPR:DISK:CORE,FN="/no5text/prc/DBprims.out"  
 CMPR:DISK:CORE,FN="/no5text/prc/RC\_OKPlib"  
 CMPR:DISK:CORE,FN="/no5text/prc/rckp"  
 CMPR:DISK:CORE,FN="/no5text/prc/DTlib"  
 CMPR:DISK:CORE,FN="/no5text/prc/SIlib"  
 CMPR:DISK:CORE,FN="/no5text/prc/CClib"  
 CMPR:DISK:CORE,FN="/no5text/prc/smcp"  
 CMPR:DISK:CORE,FN="/no5text/prc/mskp"  
 CMPR:DISK:CORE,FN="/no5text/prc/cmcp"  
 CMPR:DISK:CORE,FN="/no5text/prc/okp"

---

PROCESSING - ## GENBKUP PROCEDURE PAGE 4 of x  
 AM TEXT VERIFICATION

CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g"  
 CMPR:DISK:CORE,FN="/bootfiles/3bpmgr"  
 CMPR:DISK:CORE,FN="/bootfiles/inhadm"

CMPR:DISK:CORE,FN="/bootfiles/simprc"  
 CMPR:DISK:CORE,FN="/bootfiles/dkdrv"  
 CMPR:DISK:CORE,FN="/bootfiles/fmprc"  
 CMPR:DISK:CORE,FN="/bootfiles/eih"  
 CMPR:DISK:CORE,FN="/prc/pldmon"  
 CMPR:DISK:CORE,FN="/prc/klmon"

---

	GENBKUP PROCEDURE	PAGE 5 of x
PROCESSING - ##	AM TEXT VERIFICATION	

CMPR:DISK:CORE,FN="/prc/aim"  
 CMPR:DISK:CORE,FN="/prc/bdf"  
 CMPR:DISK:CORE,FN="/prc/fda"  
 CMPR:DISK:CORE,FN="/prc/cdn"  
 CMPR:DISK:CORE,FN="/illalib"  
 CMPR:DISK:CORE,FN="/llalib"  
 CMPR:DISK:CORE,FN="/klib"  
 CMPR:DISK:CORE,FN="/ecdlib"  
 CMPR:DISK:CORE,FN="/plib"

---

	GENBKUP PROCEDURE	PAGE 6 of x
PROCESSING - ##	AM TEXT VERIFICATION	

VFY:FILE,FLIST="/no5text/bkup/CRCfile"

---

	GENBKUP PROCEDURE	PAGE 1 of 1
PROCESSING - ##	ROOT TO BACKUP ROOT PARTITION COPY	

WARNING: The system MHDs 0/1 will be simplex and returned to duplex operation.

COPY:PTN:ALL,SRC="/no5text/bkup/prim.ptn",  
 DEST="/no5text/bkup/bkup.ptn"

---

	GENBKUP PROCEDURE	PAGE 1 of 1
PROCESSING - ##	AM ODD VERIFICATION	

AUD:FSBLK=2,INS="/dev/no5aodd1"  
 AUD:FSLINK=2,INS="/dev/no5aodd1"  
 AUD:FSBLK=2,INS="/dev/no5aodd2"  
 AUD:FSLINK=2,INS="/dev/no5aodd2"

---

**NOTE:** In the next two displays, the command is displayed and executed only if the sodd partition within the

command (such as /dev/no5soddx) exists in this office configuration. There is no technician action required to determine office configuration.

---

PROCESSING - ##	GENBKUP PROCEDURE SM ODD VERIFICATION	PAGE 1 of 2
-----------------	--	-------------

```

AUD:FSBLK=3,INS="/dev/no5codd1"
AUD:FSLINK=3,INS="/dev/no5codd1"
AUD:FSBLK=3,INS="/dev/no5sodd1"
AUD:FSLINK=3,INS="/dev/no5sodd1"
AUD:FSBLK=1,INS="/dev/no5sodd2"
AUD:FSLINK=1,INS="/dev/no5sodd2"

```

---



---

PROCESSING - ##	GENBKUP PROCEDURE SM ODD VERIFICATION	PAGE 2 of 2
-----------------	--	-------------

```

AUD:FSBLK=1,INS="/dev/no5sodd3"
AUD:FSLINK=1,INS="/dev/no5sodd3"
AUD:FSBLK=1,INS="/dev/no5sodd4"
AUD:FSLINK=1,INS="/dev/no5sodd4"
AUD:FSBLK=1,INS="/dev/no5sodd5"
AUD:FSLINK=1,INS="/dev/no5sodd5"
AUD:FSBLK=1,INS="/dev/no5sodd6"
AUD:FSLINK=1,INS="/dev/no5sodd6"

```

---



---

	GENBKUP PROCEDURE MAIN MENU	
--	--------------------------------	--

WARNING:

BWM IN TEMPORARY STATE CAN CAUSE CMPR:DISK:CORE FAILURE, AND CAN ABORT GENBKUP!

Select Option:

- t) Backup to Tape
- p) Physical Tape Verification
- c) Check LDFT tape header
- d) Software Disk Backup
- u) Update and Verify Disks
- v) Verify Disk Data
- rt) Restart Tape Sequence
- rd) Restart Sftw Bkup Disk
- b) Copy DAT to DAT
- q) To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

4. Did the "update and verify disks" procedure complete successfully

If **YES**, continue with next Step.

If **NO**, then **seek technical assistance**.

5. Is a "back up to tape" procedure required?

If **YES**, go to Procedure **6.23.2** and perform Steps 4 and 5. Return to the following Step 6.

If **NO**, continue with next Step.

6. To exit the procedure, at the MCC, type and enter: **q**
7. To restore REX scheduling, at the MCC, type and enter:

**ALW:DMQ:SRC=REX;**

8. From automatic backup schedule information obtained in **6.23.1**, Step 6, type and enter:  
**BKUP:ODD:EVERY=a,AT=b;**

Where:           **a** = number of days for every ODD backup to run  
                       **b** = time of day in the hour and minutes (for example, 2330 = 11:30 p.m.)

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 6.23.7 Perform Manual Backup To Tape

**NOTE:** This procedure performs the manual office backup to tape. Complete **6.23.1**, Steps 1 through 18 before continuing to the next step.

1. Do you need to make a new TOP tape?  
     If **YES**, continue to next Step.  
     If **NO**, go to Step 5.
2. Mount a write-enabled tape to be used as the TOP tape on the tape drive.
3. To write the new TOP tape from the disk image, at the MCC, type and enter:

**COPY:TAPE:TOP,TD="/dev/mt08",COM;**

**Note:** **COPY:TAPE:TOP** will produce a universal TOP tape that is valid for all offices on the same software release.

Response:       **EXC ENVIR UPROC STOPPED**  
                       **xx+x records in**  
                       **xx+x records out**

4. Remove the TOP tape from tape drive.
5. To verify .ptn files, at RC/V or STLWS terminal, type and enter:

**EXC:ENVIR:UPROC,FN="/usr/bin/bkupchk";**

Response:       **BKUPCHK: PTN FILES CHECK COMPLETE**  
                       **EXC ENVIR UPROC COMPLETED**

6. Did the previous step complete successfully?

If **YES**, continue to next Step.

If **NO**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

7. At the MCC, type and enter: **OP:STATUS:FILESYS;**

Response: **OP STATUS FILESYS STARTED**  
**/no5text on /dev/no5text read/write on . . .**

....

↓

....

8. Review the OP STATUS FILESYS ROP response. Do ALL the partitions shown in the following Mount Table 1 appear in the ROP response?

MOUNT TABLE CONTENTS	
5E12 and EARLIER	5E13 and LATER
/ on /dev/root /etc on /dev/etc /database on /dev/db /no5text on /dev/no5text /no5odd/cpdata on /dev/no5aodd[1/2] /updtmp on /dev/updtmp /log on /dev/log /cdmp on /dev/cdmp /rclog on /dev/rclog /etc/bwm on /dev/bwm /tmp on /dev/tmp /unixa on /dev/unixa /unixa/users on /dev/unixabf /cft on /dev/cft /diag on /dev/dg /usr/bin on /dev/usrbin	/ on /dev/root /etc on /dev/etc /database on /dev/db /no5text on /dev/no5text /no5odd/data0 on /dev/no5aodd[1/2] /updtmp on /dev/updtmp /log on /dev/log /cdmp on /dev/cdmp /rclog on /dev/rclog /etc/bwm on /dev/bwm /tmp on /dev/tmp /unixa on /dev/unixa /unixa/users on /dev/unixabf /cft on /dev/cft /diag on /dev/dg /usr/bin on /dev/usrbin

If **YES**, continue to next Step.

If **NO**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

9. Review the OP STATUS FILESYS ROP response. Do ALL the partitions shown in the following Mount Table 2 appear in the ROP response?

MOUNT TABLE CONTENTS
/ on /dev/broot /etc on /dev/betc /database on /dev/bdb

If **YES**, then **STOP. DO NOT CONTINUE. Seek technical assistance.**

If **NO**, continue to **6.23.7.1**

### 6.23.7.1 Run File System Audits

**NOTE:** If there are audit failures, **seek technical assistance** before continuing.

1. Access MCC Page **120**

2. At the MCC, type and enter:

**AUD:FSBLK=1,INS="/dev/root";  
AUD:FSLINK=1,INS="/dev/root";**

Response:     **AUD {FSBLK | FSLINK} 1 /dev/root COMPLETED  
                  0 ERRORS FOUND  
                  0 ERRORS CORRECTED**

3. At the MCC, type and enter:

**AUD:FSBLK=1,INS="/dev/etc";  
AUD:FSLINK=1,INS="/dev/etc";**

Response:     **AUD {FSBLK | FSLINK} 1 /dev/etc COMPLETED  
                  0 ERRORS FOUND  
                  0 ERRORS CORRECTED**

4. At the MCC, type and enter:

**AUD:FSBLK=1,INS="/dev/db";  
AUD:FSLINK=1,INS="/dev/db";**

Response:     **AUD {FSBLK | FSLINK} 1 /dev/db COMPLETED  
                  0 ERRORS FOUND  
                  0 ERRORS CORRECTED**

5. At the MCC, type and enter:

**AUD:FSBLK=2,INS="/dev/no5text";  
AUD:FSLINK=2,INS="/dev/no5text";**

Response:     **AUD {FSBLK | FSLINK} 2 /dev/no5text COMPLETED  
                  0 ERRORS FOUND  
                  0 ERRORS CORRECTED**

6. At the MCC, type and enter:

**AUD:FSBLK=1,INS="/dev/cft"  
AUD:FSLINK=1,INS="/dev/cft"  
AUD:FSBLK=1,INS="/dev/dg"  
AUD:FSLINK=1,INS="/dev/dg"  
AUD:FSBLK=1,INS="/dev/usrbin"  
AUD:FSLINK=1,INS="/dev/usrbin"**

Response:     **AUD {FSBLK | FSLINK} 1 /dev/... COMPLETED  
                  0 ERRORS FOUND  
                  0 ERRORS CORRECTED**

7. At the MCC, type and enter:

AUD:FSBLK=1,INS="/dev/unixa";  
AUD:FSLINK=1,INS="/dev/unixa";

Response: AUD {FSBLK | FSLINK} 1 /dev/unixa COMPLETED  
0 ERRORS FOUND  
0 ERRORS CORRECTED

8. At the MCC, type and enter:

AUD:FSBLK=1,INS="/dev/smtxt";  
AUD:FSLINK=1,INS="/dev/smtxt";  
AUD:FSBLK=1,INS="/dev/unixabf";  
AUD:FSLINK=1,INS="/dev/unixabf";

Response: AUD {FSBLK | FSLINK} 1 /dev/... COMPLETED  
0 ERRORS FOUND  
0 ERRORS CORRECTED

### 6.23.7.2 Run Text Compares Of Disk and Core Images

**NOTE:** If there are non-compare errors, **seek technical assistance** before continuing.

1. At the MCC, type and enter:

CMPR:DISK:CORE,FN="/no5text/prc/Slib"; (uppercase Sl; lowercase lib)  
CMPR:DISK:CORE,FN="/klib";

Response: CMPR ERR 0  
DISK AND CORE ARE EQUAL FOR /no5text/prc/Slib  
DISK AND CORE ARE EQUAL FOR /klib  
CMPR DISK CORE COMPLETED

2. At the MCC, type and enter:

CMPR:DISK:CORE,FN="/no5text/prc/DBprims.out";  
CMPR:DISK:CORE,FN="/no5text/prc/DTlib";  
CMPR:DISK:CORE,FN="/no5text/prc/CClib";  
CMPR:DISK:CORE,FN="/no5text/prc/smcp";  
CMPR:DISK:CORE,FN="/no5text/prc/mscp";  
CMPR:DISK:CORE,FN="/no5text/prc/cmcp";  
CMPR:DISK:CORE,FN="/no5text/prc/okp";

Response: CMPR ERR 0  
DISK AND CORE ARE EQUAL FOR /no5text/prc/...  
CMPR DISK CORE COMPLETED

3. At the MCC, type and enter:

CMPR:DISK:CORE,FN="/prc/pldmon";  
CMPR:DISK:CORE,FN="/prc/klmon";  
CMPR:DISK:CORE,FN="/prc/aim";



**CMPR:DISK:CORE,FN="/prc/bdf";**  
**CMPR:DISK:CORE,FN="/prc/fda";**  
**CMPR:DISK:CORE,FN="/prc/cdn";**

Response:     **CMPR ERR 0**  
                   **DISK AND CORE ARE EQUAL FOR /prc/...**  
                   **CMPR DISK CORE COMPLETED**

4. At the MCC, type and enter:

**CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g";**  
**CMPR:DISK:CORE,FN="/bootfiles/3bpmgr";**  
**CMPR:DISK:CORE,FN="/bootfiles/inhadm";**  
**CMPR:DISK:CORE,FN="/bootfiles/simprc";**  
**CMPR:DISK:CORE,FN="/bootfiles/dkdrv";**  
**CMPR:DISK:CORE,FN="/bootfiles/fmprc";**  
**CMPR:DISK:CORE,FN="/bootfiles/eih";**

Response:     **CMPR ERR 0**  
                   **DISK AND CORE ARE EQUAL FOR /bootfiles/...**  
                   **CMPR DISK CORE COMPLETED**

5. At the MCC, type and enter:

**CMPR:DISK:CORE,FN="/illalib";**  
**CMPR:DISK:CORE,FN="/llalib";**  
**CMPR:DISK:CORE,FN="/ecdlib";**  
**CMPR:DISK:CORE,FN="/pllib";**

Response:     **CMPR ERR 0**  
                   **DISK AND CORE ARE EQUAL FOR /...**  
                   **CMPR DISK CORE COMPLETED**

### 6.23.7.3 Verify MHD Integrity

1. At the MCC, type and enter: **VFY:FILE,FLIST="/no5text/bkup/CRCfile";**

Response:     **VFY FILE STARTED**  
                   **VFY FILE IN PROGRESS**  
                   **xx FILES VERIFIED**  
                   **VFY FILE COMPLETED**

2. To verify MHD integrity, at the MCC, type and enter: **OP:MHD=0:INFO;**

Response:     Status is **ACT**  
                   Usable is **YES**

3. At the MCC, type and enter: **OP:MHD=1:INFO;**

Response:     Status is **ACT**  
                   Usable is **YES**

4. At the MCC, type and enter:

**VFY:MHD=0;**  
**VFY:MHD=1;**

Where: x = MHDs just installed.

Response: **VFY MHD x STARTED**  
**VFY MHD x IN PROGRESS** (every 2 minutes)  
**VFY MHD x COMPLETED**

5. At the MCC, type and enter: **CMPR:MHD=0,RO;**

Response: **PF = PRINTOUT FOLLOWS.** (Followed by **CMPR:MHD** output message.  
**RL = RETRY LATER.** (The system has a **COPY:DIFF-SRC-MHD** input message or another **CMPR:MHD** input message in progress.

**Note:** Do not proceed unless the MHDs verify and compare.

#### 6.23.7.4 Copy Disk Partitions to Backup

1. At the MCC, type and enter:

**COPY:PTN:ALL,SRC="/no5text/bkup/prim.ptn",**  
**DEST="/no5text/bkup/bkup.ptn";**

Response: **RMV:MHD x TASK y MSG STARTED**  
**RMV MHD x COMPLETED**  
**COPY PTN FILE COMPLETED**  
**xxxx BLOCKS COPIED** (repeated 4 times)  
 ...  
**RST MHD x TASK Y MSG STARTED**  
**RST MHD x IN PROGRESS** (will be output every 2 minutes)  
 ...  
**RST MHD x COMPLETED**

**Note:** This procedure may continue while MHD1 is restoring.

2. **Note:** Before proceeding, insure that no one is in the process of doing recent changes in the system.

Access MCC Page **120**

3. At the MCC, type and enter: **INH:RC;**

Response: **INH RC COMPLETED**

4. At the MCC, type and enter: **BKUP:ODD;**

Response: **BKUP ODD IN PROGRESS**  
**BKUP ODD SM=a COMPLETED**  
 ...

BKUP ODD SM=z COMPLETED  
 BKUP ODD [FULL] AM COMPLETED  
 BKUP ODD NRODD=a COMPLETED  
 ...  
 BKUP ODD NRODD=z COMPLETED  
 BKUP ODD CMP= 0 COMPLETED  
 BKUP ODD [FULL] RODD=xx COMPLETED  
 BKUP ODD COMPLETED

5. At the MCC, type and enter: **DUMP:FILE:ALL,FN="/no5text/rcv/aimrc";**

Response: **DUMP FILE ALL COMPLETED**  
**/etc/mount /dev/no5aoddx /no5odd/cpdata**  
**x no5doddx** is the current disk odd

Where: **x** = indicator of active ODD (1 or 2).

6. What is the value of **x** from above Step?

If **1**, go to Step 8.

If **OTHER THAN 1**, continue to next Step.

7. At the MCC, type and enter: **BKUP:ODD,AM;**

Response: **BKUP ODD AM COMPLETED**  
**BKUP ODD COMPLETED**

8. At the MCC, type and enter: **ALW:RC;**

Response: **ALW RC COMPLETED**

9. At the MCC, type and enter:

**AUD:FSBLK=2,INS="/dev/no5aodd1";**  
**AUD:FSLINK=2,INS="/dev/no5aodd1";**

Response: **AUD {FSBLK | FSLINK} 2 /dev/no5aodd1 COMPLETED**  
**0 ERRORS FOUND**  
**0 ERRORS CORRECTED**

10. At the MCC, type and enter:

**AUD:FSBLK=3,INS="/dev/no5codd1";**  
**AUD:FSLINK=3,INS="/dev/no5codd1";**

Response: **AUD {FSBLK | FSLINK} 3 /dev/no5codd1 COMPLETED**  
**0 ERRORS FOUND**  
**0 ERRORS CORRECTED**

#### 6.23.7.5 Identify All SM ODD Partitions

1. To determine what SM ODD partitions exist on the switch, at the MCC, type and enter:

```
EXC:ENVIR:UPROC,FN="/etc/parchk",
ARGS="/no5text/bkup/parchk.list";
```

```
Response:  EXC ENVIR UPROC COMPLETED
smtext rt 1 21 xxxxx
no5sodd1 rt 1 39 xxxxx
no5sodd2 rt 2 39 xxxxx
no5codd1 rt y 40 xxxxx
...
no5sodd5: not found
no5sodd6: not found
```

2. Perform this step for each SM ODD partition that exists in the previous step (that is, does not have ``not found" after the partition name).

At the MCC, type and enter:

```
AUD:FSBLK=x,INS="/dev/no5soddy";
AUD:FSLINK=x,INS="/dev/no5soddy";
```

Where:        **x = 3**, if **y = 1**  
               **x = 1**, if **y = 2** through **6**

```
Response:  AUD {FSBLK | FSLINK} x /dev/no5soddy COMPLETED
0 ERRORS FOUND
0 ERRORS CORRECTED
```

#### 6.23.7.6 Build AM Text Tape

1. Mount the first AM Text backup write-enabled tape in place.
2. At the MCC, type and enter either (a) or (b):

**(a)** For Single Volume Tape format (the correct tape density must be identified):

```
COPY:BKDISK:START:SRC="/dev/vtoc",TD="/dev/mtxx",
FN="/no5text/bkup/text.ptn",TPSIZE=2300(60M for DAT)zzzz,MRG;
```

Where:

**/dev/mtxx = /dev/mt00** (6250 bpi) for *KEYSTONE III* tape drives (KS23113, List 14).

**/dev/mtxx = /dev/mt08** for all other tape drives.

**zzzz = ,EXT** if TD is **/dev/mt00**.

**zzzz** does not exist if TD is **/dev/mt08**.

**(b)** For Multi Volume Tape format:

```
COPY:BKDISK:MULTI,SRC="/dev/vtoc",TD="/dev/mt08",
FN="/no5text/bkup/text.ptn",PSESS=u,PVOL=v,SESS=x,
```

**VOL=1;**

Response: **COPY BKDISK IN PROGRESS**  
**COPY BKDISK COMPLETED. DISMOUNT TAPE AND LABEL**  
 or  
**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE**

3. Obtain software update levels of no5text and smtext partitions for the tape label to be created by the next steps.

At the MCC, type and enter: **OP:VERSION;**

Response: **OP STATUS COMPLETED**

OP VERSION	(Date - Time)	
PARTITION	VERSION	BWM
ECD	5ex(x)xx.xx	
/	5ex(x)xx.xx	BWMnn-nnnn
/no5text	5ex(x)xx.xx	BWMnn-nnnn
/no5text/im	5ex(x)xx.xx	BWMnn-nnnn

4. After tape rewinds, unmount the tape, remove write enable capability, and label tape with the following information:

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: _____ TAPE SEQ NUMBER: _____ DENSITY: _____ VTOC: _____; MHDs _____ COMMENTS: _____
--

5. If the output message is:  
**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE:**  
Mount the next AM Text write enabled tape and continue tape write operation.

At the MCC, type and enter: **COPY:BKDISK,ACK:TPSIZE=2300;**

Response: Same as previous **COPY:BKDISK:START** response (Step 2).

6. **Note:** If more than one tape was required, each tape must be mounted on the tape drive and verified separately.

To verify the AM Text tape(s), type and enter either (a) or (b) for each tape:

(a) For Single Volume Tape format:

**VFY:TAPE,TD="/dev/mtxx":RETRY=3;;**

Where: **xx = 00 or 08** from Step 2.

(b) For Multi Volume Tape format:

**VFY:TAPE,TD="/dev/mt08":RETRY=3,SESS=x,VOL=1::**

Response: **VFY TAPE STARTED  
VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0  
DATA MISMATCHES 0**

7. Did the verify complete successfully?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

8. Remove the AM Text tape from tape drive.

#### 6.23.7.7 Build AM ODD Tape(s)

1. Mount the first AM ODD backup write-enabled tape in place.
2. At the MCC, type and enter either (a) or (b):

(a) For Single Volume Tape format (the correct tape density must be identified):

**COPY:BKDISK:START:SRC="/dev/vtoc",TD="/dev/mtxx",  
FN="/no5text/bkup/aodd.ptn",TPSIZE=2300(60M for DAT)zzzz;**

Where:

**/dev/mtxx = /dev/mt00** (6250 bpi) for *KEYSTONE III* tape drives (KS23113, List 14).

**/dev/mtxx = /dev/mt08** for all other tape drives.

**zzzz = ,EXT** if TD is /dev/mt00.

**zzzz** does not exist if TD is /dev/mt08.

(b) For Multi Volume Tape format:

**COPY:BKDISK:MULTI,SRC="/dev/vtoc",TD="/dev/mt08",  
FN="/no5text/bkup/aodd.ptn",PSESS=u,PVOL=v,SESS=x,  
VOL=2.EXT,SKP,COM,NODMTMSG;**

Response: **COPY BKDISK IN PROGRESS  
COPY BKDISK COMPLETED. DISMOUNT TAPE AND LABEL  
or  
COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE**

3. After tape rewinds, unmount the tape, remove write enable capability, and label tape with the following information:

OFC BASE & CNTRL:_____
DATE:_____
VERIFY:_____
SOFTWARE RELEASE:_____
SOFTWARE UPDATE LEVEL:_____
TAPE TYPE:_____
TAPE SEQ NUMBER:_____
DENSITY:_____
VTOC:_____; MHDs_____
COMMENTS:_____

4. If the output message is:  
**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE:**  
 Mount the next AM ODD tape with a write-enable ring in place and continue tape write operation.

At the MCC, type and enter:

**COPY:BKDISK,ACK:TPSIZE=2300(60Mfor DAT);**

Response: Same as previous **COPY:BKDISK:START** response (Step 2).

5. **Note:** If more than one tape is required, each tape must be mounted on the tape drive and verified separately.

To verify the AM ODD tape(s), type and enter either (a) or (b) for each tape:

(a) For Single Volume Tape format:

**VFY:TAPE,TD="/dev/mtxx":RETRY=3;;**

Where: **xx = 00 or 08** from Step 2.

(b) For Multi Volume Tape format:

**VFY:TAPE,TD="/dev/mt08":RETRY=3,SESS=x,VOL=2;;**

Response: **VFY TAPE STARTED**  
**VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0**  
**DATA MISMATCHES 0**

6. Did the verify complete successfully?  
 If **YES**, continue to next Step.  
 If **NO**, then **seek technical assistance**.
7. Remove the AM ODD tape from tape drive.

#### 6.23.7.8 Build SM Text Tape

1. Mount the first SM Text backup write-enabled tape in place.
2. At the MCC, type and enter either (a) or (b):  
 (a) For Single Volume Tape format (the correct tape density must be identified):

**COPY:BKDISK:START:SRC="/dev/vtoc1",TD="/dev/mtxx",  
FN="/no5text/bkup/smttext.ptn",TPSIZE=2300(60M for DAT)zzzz;**

Where:

**/dev/mtxx /dev/mt00** (6250 bpi) for *KEYSTONE III* tape drives (KS23113, List 14).

**/dev/mtxx= /dev/mt08** for all other tape drives.

**zzzz = ,EXT** if TD is /dev/mt00.

**zzzz** does not exist if TD is /dev/mt08.

(b) For Multi Volume Tape format:

**COPY:BKDISK:MULTI,SRC="/dev/vtoc1",TD="/dev/mt08",  
FN="/no5text/bkup/smttext.ptn",PSESS=u,PVOL=v,SESS=x,  
VOL=3,EXT,SKP,NODMTMSG;**

Response: **COPY BKDISK IN PROGRESS**  
**COPY BKDISK COMPLETED. DISMOUNT TAPE AND LABEL**  
or  
**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE**

3. After tape rewinds, unmount, remove write enable capability, and label tape with the following information:

OFC BASE & CNTRL: _____ DATE: _____ VERIFY: _____ SOFTWARE RELEASE: _____ SOFTWARE UPDATE LEVEL: _____ TAPE TYPE: _____ TAPE SEQ NUMBER: _____ DENSITY: _____ VTOC: _____; MHDs _____ COMMENTS: _____
--

4. If the output message is:

**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE:**  
Mount next SM Text write enabled tape and continue tape write operation.

At the MCC, type and enter: **COPY:BKDISK,ACK:TPSIZE=2300;**

Response: Same as **COPY:BKDISK:START** in Step 2.

5. **Note:** If more than one tape was required, each tape must be mounted on the tape drive and verified separately.

To verify the SM Text tape(s), type and enter either (a) or (b) for each tape:

(a) For Single Volume Tape format:

**VFY:TAPE,TD="/dev/mtxx":RETRY=3;;**



Where: **xx = 00 or 08** from Step 2.

(b) For Multi Volume Tape format:

**VFY:TAPE,TD="/dev/mt08":RETRY=3,SESS=x,VOL=3;;**

Response: **VFY TAPE STARTED  
VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0  
DATA MISMATCHES 0**

6. Did the verify complete successfully?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

7. Remove the SM Text tape from tape drive.

#### 6.23.7.9 Build SM ODD Tape(s)

1. Mount the first SM ODD write enabled backup tape of the sequence.

2. Determine what SM ODD partitions exist on the switch.

3. At the MCC, type and enter:

**EXC:ENVIR:UPROC,FN="/etc/parchk",ARGS="/no5text/bkup/parchk.list";**

Response: **EXC ENVIR UPROC COMPLETED  
smtxt rt 1 21 xxxxx  
no5sodd1 rt 1 39 xxxxx  
no5sodd2 rt 2 39 xxxxx  
no5codd1 rt y 40 xxxxx  
...  
no5sodd5: not found  
no5sodd6: not found**

Where: **y = 1**, if no5sodd1 exists.  
**y = 2**, if no5sodd1 is not found.

4. Select the first SM ODD partition that exists in the previous step (that is, does not have "not found" after the partition name).

5. At the MCC, type and enter either (a) or (b):

(a) For Single Volume Tape format (the correct tape density must be identified):

**COPY:BKDISK:START:SRC="/dev/vtocx",TD="/dev/mtxx",  
FN="/no5text/bkup/ppppp.ptn",TPSIZE=2300(60M for DAT)zzzz;**

Where:

**/dev/mtxx = /dev/mt00** (6250 bpi) for *KEYSTONE III* tape drives (KS23113, List 14).

**/dev/mtxx** = **/dev/mt08** for all other tape drives.  
**zzzz** = **,EXT** if TD is **/dev/mt00**.  
**zzzz** does not exist if TD is **/dev/mt08**.  
**vtocx** = See Table 6.23-3 .  
**ppppp.ptn** = See Table 6.23-3 .

(b) For Multi Volume Tape format:

**COPY:BKDISK:MULTI, SRC="/dev/vtocx", TD="/dev/mt08",  
FN="/no5text/bkup/ppppp.ptn", PSESS=u, PVOL=v, SESS=x,  
VOL=yy, EXT, SKP, NODMTMSG;**

Where:

**vtocx** = See Table 6.23-3 .  
**ppppp.ptn** = See Table 6.23-3 .

Table 6.23-3 Copy-To-Tape Variables

<b>/etc/parchk OUTPUT</b>	<b>/dev/vtocx</b>	<b>/ppppp.ptn</b>
no5sodd1 rt 1	/dev/vtoc1	sodd1.ptn
no5sodd2 rt 2 & no5codd1 rt 1	/dev/vtoc2	sodd2.ptn
no5sodd2 rt 2 & no5codd1 rt 2	/dev/vtoc2	codd.ptn
no5sodd3 rt 3	/dev/vtoc3	sodd3.ptn
no5sodd4 rt 4	/dev/vtoc4	sodd4.ptn
no5sodd5 rt 5	/dev/vtoc5	sodd5.ptn
no5sodd6 rt 6	/dev/vtoc6	sodd6.ptn

Response: **COPY BKDISK IN PROGRESS**  
**COPY BKDISK COMPLETED. DISMOUNT TAPE AND LABEL**  
or  
**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE**

6. After tape rewinds, unmount the tape, remove write enable capability, and label tape with following information:

OFC BASE & CNTRL:	_____
DATE:	_____
VERIFY:	_____
SOFTWARE RELEASE:	_____
SOFTWARE UPDATE LEVEL:	_____
TAPE TYPE:	_____
TAPE SEQ NUMBER:	_____
DENSITY:	_____
VTOC:	_____ ; MHDs _____
COMMENTS:	_____

7. If the output message is:

**COPY BKDISK DISMOUNT TAPE LABEL AND MOUNT NEXT TAPE:**

Mount next SM ODD write enabled tape and continue tape write operation.

At the MCC, type and enter: **COPY:BKDISK,ACK:TPSIZE=2300(60M for DAT);**

Response: Same as previous **COPY:BKDISK:START** response.

8. **Note:** All SM ODD partitions must be copied during the same backup session.

Are there more SM ODD partitions to be copied to backup tapes?

If **YES**, select the next SM ODD partition, mount next SM ODD write enabled backup tape, and repeat from Step 4.

If **NO**, continue to next Step.

9. **Note:** If more than one tape was required, each tape must be mounted on the tape drive and verified separately.

To verify the SM ODD tape(s), type and enter either (a) or (b) for each tape:

(a) For Single Volume Tape format:

**VFY:TAPE,TD="/dev/mtxx":RETRY=3;;**

**Where:**

**xx = 00 or 08 from Step 4.**

(b) For Multi Volume Tape format:

**VFY:TAPE,TD="/dev/mt08":RETRY=3,SESS=x,VOL=v;;**

Response: **VFY TAPE STARTED  
VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0  
DATA MISMATCHES 0**

10. Did the verify complete successfully?

If **YES**, continue to next Step.

If **NO**, then **seek technical assistance**.

11. To restore REX scheduling, at the MCC, type and enter:

**ALW:DMQ:SRC=REX;**

12. Restore ODD automatic backup schedule. Use the information obtained in **6.23.1**, Step 6,

Type and enter:

**BKUP:ODD:EVERY=a,AT=b;**

Where: **a** = number of days for every ODD backup to run  
**b** = time of day in the hour and minutes (for example, 2330 = 11:30 p.m.)

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.24: RESERVED — FOR FUTURE USE**

**PROCEDURE**

1. Reserved — For Future Use

## Procedure 6.25: SM ODD MEMORY GROWTH (5E9.2 AND LATER)

### OVERVIEW

#### A. Office Dependent Data (ODD)—SM Memory Growths

**CAUTION:** Since the growth of ODD is not reversible, extreme caution should be taken before executing ANY ODD growth. A reversal of the UODD and NRODD is ONLY possible if a full initialization with pump is executed prior to backing up the NRODD. Any excessive increases of NRODD or RODD may exhaust limited disk memory. It is highly advisable that all ODDs, ODD hashsums, and critical information files be recently backed up to magnetic tape prior to executing an ODD growth. Having recent copies on tape allows subsequent recoveries if the ODD files are somehow corrupted. Only personnel familiar with the procedures and implications of ODD memory growth should execute any ODD growth.

All the unprotected ODD (UODD), the NRODD (nonredundant ODD), and redundant ODD (RODD) in the switching module (SM) are growable. This procedure contains guideline information to determine the amount of memory available to each type of ODD growth and how to execute each growth.

The method used to determine the amount of used/available/unallocated memory in the SM has been greatly simplified. In addition, the ODD growths no longer require the execution of diagnostics, prior to executing the growth.

#### B. Determining the ODD Growth Size

Because every SM ODD is different (in terms of its feature penetration and the amount of data populated), the size of the growth varies according to each SM. It is up to the person maintaining the ODDs to estimate the growth size based on knowledge of planned line/feature changes as well as by monitoring the effect on memory due to previous changes made to data in the ODDs.

The person maintaining the ODD should look over the previous 24-hour plant reports, especially any output as a result of the OP:ODD input message. From these respective OP ODD reports, a sampling should be made of those days during which an average amount of recent changes occurred. The increase in the amount of used memory in the ODDs, as compared to the previous days output, should be noted. This increase is a good indicator in determining how quickly the ODDs are filling up. A size projection should be made based on the rate at which these figures are increasing to determine when the present allocation will be exhausted.

If it appears that this projection will exceed the amount of memory currently allocated to the ODD, the used ODD already has exceeded this amount, or that the available memory will be less than the minimum required amount of available memory (that is, free space) for the particular ODD, then it is appropriate to execute an ODD growth.

If there is uncertainty about how large to grow an ODD, it is much safer to do a small growth in the range of 64 to 128 Kbytes and then reexamine the OP ODD output. If more ODD memory is still needed, do another small growth until the ODD memory size is deemed to be sufficient based on the memory requirements projections.

### PROCEDURE

1. **CAUTION:** Because the growth of ODD is not reversible, it is highly recommended that:
  - a. An SM ODD backup to tape be performed before continuing, and
  - b. A second SM ODD backup to tape be made following the completion of this ODD growth procedure.

Refer to Procedure 6.23 and Table 6.23-1 . Use only the GENBKUP - SM ODD procedure that is

applicable.

To perform an UODD growth, perform Steps 4 through 8.

**NOTE:** In the software releases of 5E9.2 and later, the UODD size is directly determined by the number of peripherals and customers on the module. UODD growth is a normal part of growing a new module. This was not the case for prior software releases.

2. To perform an NRODD growth, perform Steps 9 through 13.
3. To perform an RODD growth, perform Steps 14 through 19.

4. **NOTE 1:** The OP:ODD input message determines the current amount of used, available, and unallocated ODD memory. This is accomplished at any operational recent change and verify (RC/V) or master control center (MCC) terminal. Once the input message is accepted, observe the terminal screen for the appropriate responses indicated. Note 2 evaluates the responses.

At the MCC, type and enter **OP:ODD,SM=a;**

**Where:**

**a** = SM number

Response:

OP ODD								
SM	RODD	USED=ru	AVAIL=ra	PCT USED=rpu				
NRODD	PCT		UODD	PCT				
USED	AVAIL	USED	USED	AVAIL	USED	UNALLOC	SABM	
SM s	snu	sna	snpu	suu	sua	supu	suna	sbm

**Where:**

**ru** = Number of kilobytes (1024 bytes) used by the redundant ODD

**ra** = Number of kilobytes (1024 bytes) available for use by the RODD

**rpu** = Percentage of RODD memory currently being used

**s** = SM number

**snu** = Number of kilobytes used by the NRODD in SM

**sna** = Number of kilobytes available for use by the NRODD

**snpu** = Percentage of NRODD memory currently being used

**suu** = Number of kilobytes used by the UODD in SM

**sua** = Number of kilobytes available for use by the UODD

**supu** = Percentage of UODD memory currently being used

**suna** = Number of kilobytes unallocated at the end of SM memory and available for acquisition by ODD growths

**sbm** = Number of kilobytes allocated to SAB memory

**NOTE 2:** The number of Kbytes available in the NRODD is used to determine how much memory can be acquired by the UODD growth. The available Kbytes in the NRODD will be reduced by the corresponding UODD growth size. The maximum UODD growth possible is such that the NRODD is left with 80 percent of its memory being used FOLLOWING the UODD growth, or 512 Kbytes, whichever is less.

UODD growth uses the global parameter DBmavsodd for this check. DBmavsodd is the minimum percent available of protected ODD memory that must exist before a minor alarm is issued. This value is ODBE updateable, but should be done with caution. When this limit is reached, a minor

alarm will be issued. When the percent used protected ODD reaches 95%, a major alarm is issued.

Changing DBmavsodd will set the lower bound at which a minor alarm will be output to the receive-only printer (ROP). Having the NRODD to be less than 80 percent full is seen as a good approximation of the amount of available memory needed for recent change transaction workspace. If the size of the UODD growth specified would increase the percentage of used NRODD memory beyond 80 percent, the UODD growth will not execute. The recommended size of the UODD growth should leave the UODD with no more than 90 percent of used memory or less than 128 Kbytes of available UODD memory. These numbers are very general and each office's needs may vary.

**CAUTION:** If DBmavsodd is decreased, minor alarms will be delayed until the lower bound is reached. If the protected ODD has a minimum amount or no available memory left, neither hash reorgs nor recent changes can be done.

5. **NOTE:** It is recommended that a backup of the current NRODD and RODD to disk be done in the event that the UODD growth aborts abnormally. Type and enter: **BKUP:ODD,NRODD=a,RODD;**

Where: **a** = SM number

Response: **BKUP ODD NRODD=a IN PROGRESS  
BKUP ODD NRODD=a COMPLETED  
BKUP ODD RODD IN PROGRESS  
BKUP ODD RODD COMPLETED  
BKUP ODD COMPLETED**

6. To execute the UODD growth, type and enter

**ST:UODDGRW,SM=a,KBYTES=b;**

Where: **a** = SM number  
**b** = the number of kilobytes to grow the UODD.  
The input number of KBYTES must be divisible by 16;  
otherwise, the growth will not execute.

Response: **ST UODDGRW SM=a COMPLETED SUCCESSFULLY**

7. **NOTE:** After this step is done, there is no method of reversing the UODD growth without using the magnetic tape stored versions of the ODDs.

To make the UODD growth permanent by backing up the NRODD to disk, type and enter

**BKUP:ODD,NRODD=a;**

Where: **a** = SM number

Response: **BKUP ODD FULL NRODD=a IN PROGRESS  
BKUP ODD NRODD=a COMPLETED  
BKUP ODD COMPLETED**

8. To perform NRODD growth, perform Steps 10 through 13.

9. **CAUTION:** Specifying a growth size larger than the number of unallocated Kbytes in a remote



switching module (RSM) will result in a corresponding reduction in the number of Kbytes allocated to SAB memory. Reducing the SAB memory allocation will result in the RSM being able to store billing information for a smaller period of time if the RSM should be forced into a stand-alone mode. Only personnel familiar with the use and maintenance of SAB memory should make the determination to shrink SAB memory allocation by executing a NRODD growth.

**NOTE 1:** The NRODD size in a particular SM can be safely increased by the number of unallocated Kbytes in the OP ODD output message as long as sufficient disk memory exists. However, once the unallocated memory has been used, no further RODD or NRODD growths can occur without memory board growths or reduction of SAB memory. The unallocated memory is currently not being used for any purpose and thus is free for NRODD or RODD growths to acquire.

**NOTE 2:** The recommended size of the NRODD, after an NRODD growth, should leave the NRODD with no less than 30 percent available (or 70 percent used) NRODD memory. The administrative recommendation is:

- For ``used" NRODD between 1232 Kbytes and 3072 Kbytes, maintain a minimum of 512 Kbytes of available NRODD memory.
- For ``used" NRODD between 3072 Kbytes and 10240 Kbytes, maintain a minimum of 1024 Kbytes of available NRODD memory.
- For ``used" NRODD above 10240 Kbytes, maintain a minimum of 2048 Kbytes of available NRODD memory.

To determine the current amount of used, available, and unallocated ODD memory, type and enter

**OP:ODD,SM=a;**

Where:            **a** = SM number

Response:

OP ODD								
SM	RODD	USED=ru	AVAIL=ra		PCT USED=rpu			
NRODD	PCT		UODD	PCT				
USED	AVAIL	USED	USED	AVAIL	USED	UNALLOC	SABM	
SM s	snu	sna	snpu	suu	sua	supu	suna	sbm

Where:

**ru** = Number of kilobytes (1024 bytes) used by the redundant ODD

**ra** = Number of kilobytes (1024 bytes) available for use by the RODD

**rpu** = Percentage of RODD memory currently being used

**s** = SM number

**snu** = Number of kilobytes used by the NRODD in SM

**sna** = Number of kilobytes available for use by the NRODD

**snpu** = Percentage of NRODD memory currently being used

**suu** = Number of kilobytes used by the UODD in SM

**sua** = Number of kilobytes available for use by the UODD

**supu** = Percentage of UODD memory currently being used

**suna** = Number of kilobytes unallocated at the end of SM memory and available for acquisition by ODD growths

**sbm** = Number of kilobytes allocated to SAB memory

10.            **NOTE:** It is recommended that a backup of the current NRODD and RODD to disk be done in the

event that the NRODD growth aborts abnormally.

To backup the NRODD and RODD type and enter

**BKUP:ODD,NRODD=a,RODD;**

Where:            **a** = SM number

Response:        **BKUP ODD NRODD=a IN PROGRESS**  
                      **BKUP ODD NRODD=a COMPLETED**  
                      **BKUP ODD RODD IN PROGRESS**  
                      **BKUP ODD RODD COMPLETED**  
                      **BKUP ODD COMPLETED**

11. To execute the NRODD growth, type and enter

**ST:NRODDGRW,SM=a,KBYTES=b;**

Where:            **a** = SM number  
                      **b** = the number of kilobytes to grow the nonredundant ODD. The input number of KBYTES must be divisible by 16; otherwise, the NRODD growth will not execute.

Response:        **ST NRODDGRW SM=a COMPLETED**

12.                **NOTE:** After this step is done, there is no method of reversing the NRODD growth without using the magnetic tape stored versions of the ODDs.

To permanently backup the NRODD, type and enter

**BKUP:ODD,NRODD=a;**

Where:            **a** = SM number

Response:        **BKUP ODD NRODD=a IN PROGRESS**  
                      **BKUP ODD NRODD=a COMPLETED**  
                      **BKUP ODD COMPLETED**

13. To perform an RODD growth, perform Steps 15 through 19.

14.                **CAUTION:** Specifying a growth size larger than the number of unallocated Kbytes in an RSM will result in a corresponding reduction in the number of Kbytes allocated to SAB memory. Reducing the SAB memory allocation will result in the RSM being able to store billing information for a smaller period of time if the RSM should be forced into a stand-alone mode. Only personnel familiar with the use and maintenance of SAB memory should make the determination to shrink SAB memory allocation by executing a RODD growth.

**NOTE 1:** The size of the RODD growth can only be determined after looking at the number of unallocated Kbytes in EVERY SM because the RODD growth increases the redundant ODD on each SM. The RODD size in a particular SM can be safely increased by the number of unallocated Kbytes found in the output of the OP:ODD command. The unallocated memory is currently not being used for any purpose and thus is free for an RODD or NRODD growth to acquire. However, once the unallocated memory has been used, no further RODD or NRODD growths can occur without

memory board growths or reduction of SAB memory. The RODD growth requires that every SM has sufficient memory to increase the RODD by the amount of Kbytes specified in the input message.

**NOTE 2:** The recommended size of the RODD, after a RODD growth, should leave the RODD with no more than 70 percent RODD used memory or less than 256 Kbytes available RODD. The administrative recommendation for 5E9(2) and later is to maintain a minimum of 256 Kbytes of available RODD memory.

To determine the current amount of used, available, and unallocated ODD space, type and enter

**OP:ODD,SM=1&&192;**

Where:            **a** = SM number

Response:

OP ODD SM NRODD USED SM s	RODD PCT AVAIL snu	USED=ru USED sna	AVAIL=ra UODD USED snpu	PCT AVAIL suu	PCT USED=rpu USED sua	UNALLOC supu	SABM suna	sbm
---------------------------------------	-----------------------------	------------------------	----------------------------------	---------------------	-----------------------------	-----------------	--------------	-----

Where:

- ru** = Number of kilobytes (1024 bytes) used by the redundant ODD
- ra** = Number of kilobytes (1024 bytes) available for use by the RODD
- rpu** = Percentage of RODD memory currently being used
- s** = SM number - One entry for every operational SM in the office
- snu** = Number of kilobytes used by the NRODD in SM
- sna** = Number of kilobytes available for use by the NRODD
- snpu** = Percentage of NRODD memory currently being used
- suu** = Number of kilobytes used by the UODD in SM
- sua** = Number of kilobytes available for use by the UODD
- supu** = Percentage of UODD memory currently being used
- suna** = Number of kilobytes unallocated at the end of SM memory and available for acquisition by ODD growths.
- sbm** = Number of kilobytes allocated to SAB memory

15.            **NOTE:** It is recommended that a backup of the entire ODD to disk be done in the event that the RODD growth aborts abnormally.

To backup ODD, type and enter

**BKUP:ODD=a;**

Response:    **BKUP ODD FULL AM IN PROGRESS**  
**BKUP ODD FULL AM COMPLETED**  
**BKUP ODD NRODD=a IN PROGRESS**  
**BKUP ODD NRODD=a COMPLETED**  
**BKUP ODD RODD IN PROGRESS**  
**BKUP ODD RODD COMPLETED**  
**BKUP ODD COMPLETED**

Where:            **a** = SM number - There should be a completed message for every operational SM in the office.

16. Before executing the next step, observe the following warning.

**CAUTION:** The next step causes the RODD in EVERY SM to be permanently grown by the input number of kilobytes. There is no subsequent way to reverse the RODD growth without using the magnetic tape stored versions of the ODDs.

17. To execute the RODD growth, type and enter

**ST:RODDGRW,KBYTES=b;**

Where: **b** = the number of kilobytes to grow the RODD. The input number of KBYTES must be divisible by 16; otherwise, the growth will not execute.

Response: **ST RODDGRW SM=a COMPLETED**

18. To back up all the ODDs to disk, type and enter

**BKUP:ODD;**

Where: **a** = SM number - There should be a completed message for every operational SM in the office.

Response: **BKUP ODD FULL AM IN PROGRESS  
BKUP ODD FULL AM COMPLETED  
BKUP ODD NRODD=a IN PROGRESS  
BKUP ODD NRODD=a COMPLETED  
BKUP ODD RODD IN PROGRESS  
BKUP ODD RODD COMPLETED  
BKUP ODD COMPLETED**

19. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.26: VERIFY SOFTWARE BACKUP DISK

### OVERVIEW

**WARNING:** This procedure could abort if the 5ESS®-2000 switch contains a software update in the temporary state. This would be due to differences between the incore version and the disk version created by a temporary software update. Please check [master control center (MCC) Page 1960] before continuing with this procedure.

This procedure allows the craft to use the automated VFYTXT process to verify that a recently made software backup disk will boot the office.

The words "recently made" used previously mean that the copy of text on the software backup disk is at the same software update level as the 5ESS®-2000 switch. If this is not true, this verification procedure will not work and must not be used.

The software backup disk verification procedure accomplishes the following tasks:

- Makes the disk off-line
- Runs the compare disk to core commands
- Runs the verify file commands
- Makes the disk OOS
- Restores the disk.

**NOTE 1:** If VFYTXT is run from the MCC or STLWS, the craft may escape to enter commands or pokes by operating the **CMD** key. However, the VFYTXT process will continue to run and update the screen. Any commands or pokes that update the screen will overlap with the VFYTXT updates of the screen.

To return to VFYTXT:

- Enter Poke **120** for the messages page.
- Operate the **CMD** key (causing an **NG** response).
- Request a craft input to refresh the VFYTXT screen.
- Continue with VFYTXT normally.

**NOTE 2:** If VFYTXT gets hung, the craft can force an abort by entering VFYTXT from another terminal and following the instructions on the screen to force the first terminal process to abort.

### PROCEDURE

1. To start up VFYTXT, enter Poke **193** on STLWS terminal (or MCC only if necessary), or type and enter on RC/V terminal: **RCV:MENU:VFYTXT;**  
Response on terminal:

---

VFYTXT PROCEDURE  
MAIN MENU

WARNING:

BWMs in a TEMPORARY state can cause a CMPR:DISK:CORE failure, aborting VFYTXT

- t) Verify Generic Text Tape
- d) Verify Software Disk Backup
- q) To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:

---

2. Enter **d** from previous screen.

Response on terminal:

---

VFYTXT PROCEDURE  
SOFTWARE BACKUP DISK VERIFICATION

Which software backup disk is to be verified?

- 14) MHD 14
- 15) MHD 15
- q) To Quit

Please enter 14, 15, or q:

---

3. Enter **14** or **15** from previous screen.

**NOTE:** Now that the software backup disk to be verified has been selected, the following will be printed on the terminal before the verification begins.

Response on terminal:

---

VFYTXT PROCEDURE  
SOFTWARE BACKUP DISK VERIFICATION

Which software backup disk is to be verified?

- 14) MHD 14
- 15) MHD 15
- q) To Quit

Please enter 14, 15, or q:

OP:MHD=x:INFO;

RMV:MHD=x;

Where:        **x** = The selected backup disk to be verified.

**NOTE:** The following is the verification part of the procedure. No user input is needed until the verification is complete. If the verification fails for any reason, this could be a very **CRITICAL PROBLEM** and must be resolved immediately. Failure is indicated by the terminal beeping 5 times, the process dying (terminal screen goes blank and/or is off the VFYTXT page), and a failure dump on the receive-only printer (ROP) of the screen and indicating the command that failed.

Response on terminal:

---

	VFYTXT    PROCEDURE	PAGE 1 of 5
PROCESSING - ##	AM TEXT   VERIFICATION	

```

CMPR:DISK:CORE,FN="/no5text/prc/rckp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/DBprimis.out"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/DTlib"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/CClib"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/smcp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/mscp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/cmcp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/okp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;

```

Response on terminal:

---

	VFYTXT    PROCEDURE	PAGE 2 of 5
PROCESSING - ##	AM TEXT   VERIFICATION	

```

CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/3bpmgr"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/inhadm"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/simprc"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/dkdrv"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/fmprc"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;

```

---

Response on terminal:

---

	VFYTXT	PROCEDURE	PAGE 3 of 5
PROCESSING - ##	AM TEXT	VERIFICATION	

```
CMPR:DISK:CORE,FN="/bootfiles/eih"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/pldmon"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/klmon"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/aim"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/bdf"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/fda"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/cdn"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/illalib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
```

---

Response on terminal:

---

	VFYTXT	PROCEDURE	PAGE 4 of 5
PROCESSING - ##	AM TEXT	VERIFICATION	

```
CMPR:DISK:CORE,FN="/llalib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/klib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/ecdlib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/pllib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
```

---

Response on terminal:

---

	VFYTXT	PROCEDURE	PAGE 5 of 5
PROCESSING - ##	AM TEXT	VERIFICATION	

```
VFY:FILE,FLIST="/no5text/bkup/rootVFY",DN=x,PN=5,MP="/tmp/siv"

VFY:FILE,FLIST="/no5text/bkup/no5textVFY",DN=x,PN=19,MP="/tmp/siv",olmp="/no5tex
t"
```

---



Response on terminal:

---

```
VFYTXT  PROCEDURE
        MAIN  MENU

WARNING:
BWMS in a TEMPORARY state can cause a CMPR:DISK:CORE failure, aborting VFYTXT

        t)  Verify Generic Text Tape
        d)  Verify Software Disk Backup
        q)  To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:
```

---

4. Enter **q** from previous screen.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.27: VERIFY BACKUP AM TEXT TAPES

### OVERVIEW

**WARNING:** This procedure could abort if the 5ESS<sup>®</sup>-2000 switch contains a software update in the temporary state. This would be due to differences between the incore version and the disk version created by a temporary software update. Please check [master control center (MCC) Page 1960] for this before continuing with this procedure.

This procedure allows the craft to use the automated verify text (VFYTXT) process to verify that recently made backup administrative module (AM) text tapes will boot the office.

The words ``recently made" used previously means that the copy of the AM text on the tape is at the same software update level as the 5ESS<sup>®</sup>-2000 switch. If this is not true, this verification procedure will not work and must not be used.

This section gives an overview of the AM text tape verification procedure:

- Load a software release AM text tape that is at the same software update level as the office. If one cannot be found, do NOT continue with this procedure.
- Make the disk off line.
- Run the compare disk to core commands.
- Run the verify file command.
- Make the disk OOS.
- Restore the disk used to load in the software release AM text tape.

**NOTE 1:** If VFYTXT is run from the MCC or supplementary trunk and line work station (STLWS), the craft may escape to enter commands or pokes by operating the **CMD** key. However, the VFYTXT process will continue to run and update the screen. Any commands or pokes that update the screen will overlap with the VFYTXT updates of the screen.

To return to VFYTXT:

- Enter Poke **120** for the messages page
- Operate the **CMD** key (causing an **NG** response)
- The VFYTXT screen is not refreshed until a craft input is requested
- Continue with VFYTXT normally.

**NOTE 2:** If VFYTXT gets hung, the craft can force an abort by entering VFYTXT from another terminal and following the instructions on the screen that can force the first terminal process to abort.

### PROCEDURE

1. To start up VFYTXT, enter Poke **193** on STLWS terminal (or MCC only if necessary), or

type and enter on RC/V terminal: **RCV:MENU:VFYTXT;**

Response on terminal:

---

```
VFYTXT  PROCEDURE
      MAIN  MENU

WARNING:
BWMS in a TEMPORARY state can cause a CMPR:DISK:CORE failure, aborting VFYTXT

      t)  Verify Generic Text Tape
      d)  Verify Software Disk Backup
      q)  To Quit

PLEASE ENTER ONE OF THE ABOVE OPTIONS:
```

---

2. Type and enter: **t** from previous screen.

Response on terminal:

---

```
VFYTXT  PROCEDURE
GENERIC BACKUP TEXT VERIFICATION

The generic text tape must be loaded onto a disk before any
verification of the text can be done. Please choose a disk to
load the tape onto.

      2)  MHD 2
      3)  MHD 3
      4)  MHD 4
      5)  MHD 5
      6)  MHD 6
      7)  MHD 7
      14) MHD 14
      15) MHD 15
      q)  To Quit

Please enter 2, 3, 4, 5, 6, 7, 14, 15, or q:
```

---

3. Enter the number of the disk that is to be loaded with the backup AM text tape.

Response on terminal:

---

```
VFYTXT  PROCEDURE
GENERIC BACKUP TEXT VERIFICATION

OP:MHD=x:INFO;
RMV:MHD=x;
```

---

---

VFYTXT    PROCEDURE  
GENERIC BACKUP TEXT VERIFICATION

Please mount the text backup tape to be verified. After mounting the text backup tape, verify that the tape drive is on-line.

Please enter the tape device to be used.

- a) /dev/mt00
- b) /dev/mt08
- c) /dev/mt10
- d) /dev/mt18

Please enter a, b, c, d

---

4.        **NOTE:** Now that the disk to be loaded with the backup AM text tape has been selected, the tape device to be used to do this backup must be entered.

Type and enter **a, b, c,** or **d** from previous screen.

Response on terminal:

---

VFYTXT    PROCEDURE  
GENERIC BACKUP TEXT VERIFICATION

Please mount the text backup tape to be verified. After mounting the text backup tape, verify that the tape drive is on-line.

Please enter the tape device to be used.

- a) /dev/mt00
- b) /dev/mt08
- c) /dev/mt10
- d) /dev/mt18

Please enter a, b, c, d

READING TAPE

---

**NOTE:** The following is the verification part of the procedure. No user input is needed until the verification is complete. If the verification fails for any reason, this could be a very **CRITICAL PROBLEM** and must be resolved immediately. Failure is indicated by the terminal beeping 5 times, the process dying (terminal screen goes blank and/or is off the VFYTXT page), and a failure dump on the receive-only printer (ROP) of the screen and indicating the command that failed.

Response on terminal:

---

PROCESSING - ##

VFYTXT    PROCEDURE  
AM TEXT   VERIFICATION

PAGE 1 of 5

```

CMPR:DISK:CORE,FN="/no5text/prc/rckp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/CClib"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/smcp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/mscp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/cmcp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/no5text/prc/okp"
OPTNM="/dev/no5text",MPT="/tmp/siv",MHDNUM=x;

```

---

#### Response on terminal:

```

                                VFYTXT  PROCEDURE          PAGE 2 of 5
PROCESSING - ##                AM TEXT  VERIFICATION

CMPR:DISK:CORE,FN="/bootfiles/pcpaud.g"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/3bpmgr"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/inhadm"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/simprc"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/dkdrv"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/bootfiles/fmprc"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;

```

---

#### Response on terminal:

```

                                VFYTXT  PROCEDURE          PAGE 3 of 5
PROCESSING - ##                AM TEXT  VERIFICATION

CMPR:DISK:CORE,FN="/bootfiles/eih"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/pldmon"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/klmon"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/aim"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/bdf"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/fda"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/prc/cdn"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/illalib"

```

```
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
```

---

Response on terminal:

---

```

                                VFYTXT  PROCEDURE
PROCESSING - ##                AM TEXT  VERIFICATION
                                PAGE 4 of 5

CMPR:DISK:CORE,FN="/llalib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/klib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/ecdlib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
CMPR:DISK:CORE,FN="/pllib"
OPTNM="/dev/broot",MPT="/tmp/siv",MHDNUM=x;
```

---

Response on terminal:

---

```

                                VFYTXT  PROCEDURE
PROCESSING - ##                AM TEXT  VERIFICATION
                                PAGE 5 of 5

VFY:FILE,FLIST="/no5text/bkup/rootVFY",DN=x,PN=5,MP="/tmp/siv"

VFY:FILE,FLIST="/no5text/bkup/no5textVFY",DN=x,PN=19,MP="/tmp/siv",olmp="/no5tex
t"
```

---

Response on terminal:

---

```

                                VFYTXT  PROCEDURE
                                MAIN    MENU

WARNING:
BWMS in a TEMPORARY state can cause a CMPR:DISK:CORE failure, aborting VFYTXT

                                t)  Verify Generic Text Tape
                                d)  Verify Software Disk Backup
                                q)  To Quit

                                PLEASE ENTER ONE OF THE ABOVE OPTIONS:
```

---

5. Type and enter: **q** from previous screen.

**Results:** AM backup text tapes verified.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.28: GROW AM ODD MEMORY — 5E9(2) AND LATER

### OVERVIEW

This procedure should be used to increase the size of the administrative module (AM) office dependent data (ODD). It includes growing the protected application segment (PAS) as well as the AM ODD disk space.

### PROCEDURE

**CAUTION 1:** This procedure IS NOT to be used for AM memory growth that is being performed for Software Release Retrofit purposes. The retrofit process will resize the AM ODD memory size as necessary.

**CAUTION 2:** This procedure must only be performed after successfully growing in sufficient AM memory packs.

**CAUTION 3:** This procedure requires a level (EAL:54) initialization of the AM. In a working office, it should be performed only during light traffic.

1. On the 123 page, insure that MHD=0 is **act** and MHD=1 is **act**. If not, restore both primary MHD's to active.
2. Remove MHD=1 from service, type and enter **RMV:MHD=1,UCL;**

**NOTE:** Since this procedure requires a 54 level boot, MHD=1 is left removed from service. This insures the ability to return to a stable environment should the boot fail.

3. To allocate physical memory to the AM ODD (for growth purposes), at the MCC or STLWS type and enter:

**ST:ODDGRW,AM,KBYTES=b;**

Where:            b = the number of Kbytes to be grown in multiples of 16 Kbytes.

Response:        **ST ODDGRW AM COMPLETED**  
                      or  
                      **ST ODDGRW AM NOT STARTED INSUFFICIENT PAS SIZE**  
                      **THE ECD H\_PAS\_SIZE PARAMETER MUST BE UPDATED TO A VALUE OF x**

4. What was the response to **ST:ODDGRW**?

If "**ST ODDGRW AM COMPLETED**", go to Step 9.

If "**ST ODD AM NOT STARTED INSUFFICIENT PAS SIZE**  
**THE ECD H\_PAS\_SIZE PARAMETER MUST BE UPDATED TO A**  
**VALUE OF x**", continue with next Step.

5. To enter ECD recent change, type and enter: **199**
6. Enter the following data as prompted:

1. Database name:	<b>incore</b>
2. reviewonly	<b>n</b>
3. journaling	<b>y</b>
4. print_file	<b>&lt;cr&gt;</b>

```

5. echo_file          <cr>
6. sysgen:            n
7. flat_database:     n
8. hlmode:            n
9. default_dir:       <cr>
Enter Execute...     e

```

---

```

Enter Form Name:      trbegin
1. tr_name:TRBEGIN    <cr>
Enter Execute...     e

```

---

```

Enter Form Name:      btparm
Enter Data Base Operation  u

```

---

```

1. btparm name        BTPARM
Enter Update          c
Change field          20
20 h_pas_size: (Enter "value of x" returned by ST:ODDGRW,AM
                  in Step 3.)

```

```

Change field:         <cr>
Enter Update          u
1. btparm name        <

```

---

```

Enter Form Name:      trend
1. tr_name:TREND      <cr>
2. dis cf checks      <cr>
3. apply tr:          <cr>
4. o missing links:   n
Enter Execute         e

```

---

\*\*\*\*\*

**CAUTION:** The following must be completed, otherwise service will be affected.

\*\*\*\*\*

```

Enter Form Name:      activate
1. copy_inc_to_disk:  yes
Enter Execute         e
Enter Form Name:      <

```

7. To recreate the application-DMERT boot image, type and enter:

**UPD:BLDBOOT:DATA,BOOTIMAGE="/appdmert";**

Response:      **UPD BLDBOOT COMPLETED**

8. To allocate physical memory to the AM ODD (for growth purposes), type and enter:  
**ST:ODDGRW,AM,KBYTES=b;**

Where:          b = the number of Kbytes to be grown in multiples of 16 Kbytes.



Response: **ST ODDGRW AM COMPLETED**

9. On EAI page, to clear all EAI page controls and set CU=0 and primary disk MHD=0 prior to the **54** command, enter the following commands:

**14**  
**10**  
**20**

10. **CAUTION: The following step involves a manual, level 4 initialization for the AM. Call processing will be affected for approximately 1 minute, 12 seconds. All transient calls will be torn down. Please follow local practices with regard to initialization during maintenance period.**

On EAI page, to initialize the switch, enter command **54**

Response: Typical CU recovery sequence.

11. Did the AM recover?

If **Yes**, continue to next Step.

If **No**, go to the EAI page and enter the following commands:

**14**  
**10**  
**22**  
**54**

Boot y/n, type and enter **y**

**NOTE:** At this point the AM will recover on the old h\_pas size.

**STOP.ODD** memory growth has been terminated. **Contact next level of support.**

12. Check the status of the MHDs. At the MCC or STLWS go to page 123.

13. Is either MHD 0 or MHD 1 OOS on page 123?

If **YES**, continue to next Step.

If **NO**, go to Step 15.

14. To restore OOS MHD, type and enter: **RST:MHD=x;**

Where: **x** = Number of OOS MHD.

Response: **RMV MHD x STOPPED h'5**  
**DGN MHD x COMPLETED ATP MESSAGE IN PROGRESS**  
**RST MHD x IN PROGRESS** (every 2 minutes)  
**RST MHD x COMPLETED**

15. To copy the ECD to the backup database, type and enter:

**copy:ptn,all,src="/dev/db",dest="/dev/bdb",act;**

Response:     **COPY PTN ALL COMPLETED**  
                  **xxx BLOCKS COPIED**

16. To preserve memory growth, backup the AM ODD, at the MCC or STLWS, type and enter:

**BKUP:ODD,AM;**

Response:     **BKUP ODD FULL AM COMPLETED**  
                  **BKUP ODD COMPLETED**

17. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 6.29: BACK OUT LAST OFFICIAL SOFTWARE UPDATE(S)****PROCEDURE**

1. This procedure should not be performed if any recent change activities are in progress. Verification of recent change activity should be done before continuing.

To verify that no recent change processes are being run, at the MCC type and enter

**OP:RCUSER;**

**Response: OP RCUSER: a ACTIVE RC USERS**

**Where:**

a = Total number of users executing recent change processes at the time of query.

2. Are there recent change processes active?

If **NO**, continue to next Step.

If **YES**, exit all recent change sessions or wait until there are no active processes before continuing.

3. Access master control center (MCC) Page **1950** — Program Update Maintenance.

**NOTE:** At most, the last three official software updates are displayed in the reverse order. These software updates can be found in the lower left quadrant of the 1950 screen.

4. At the MCC, type and enter: **9900**.

After the command is entered, you will be asked to confirm your decision by typing **Y/N**. **IN PROGRESS** appears if response is **Y**.

Response: **IN PROGRESS** appears next to **9900** command line.

5. Did command complete successfully and is **COMPLETED** displayed next to the **9900** command?

If **YES**, continue to next Step.

If **NO**, repeat Step 4. If command continues to fail, seek technical assistance.

6. If the "new" last Official software update needs to be backed out, go to Step 4.

**NOTE:** No more than three Official software updates can be removed this way.

**Results:** Last OFFICIAL software update(s) are backed out.

7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.30: MANUAL STOP AND START OF SOFTWARE UPDATE EXPANSION

### OVERVIEW

For 5E9 and later software releases, software updates will be sent out (through SCANS or CSCANS) in a compressed format. Normally, with no manual intervention, software update expansion will occur automatically. If automatic software update expansion is not wanted, automatic expansion may be stopped and then manually restarted by following this procedure. Note that the automatic software update expansion is stopped only for a download session that is currently in progress.

### PROCEDURE

1. Access master control center (MCC) Page **1950** — Program Update Maintenance.
2. At the MCC, type and enter: **9650,STOP**.  
Response: **IN PROGRESS** appears next to **9650** command line.
3. Did command complete successfully and is **COMPLETED** displayed next to the **9650** command?  
If **YES**, continue with Step 5.  
If **NO**, repeat Step 2. If command continues to fail, seek technical assistance.
4. Is manual software update expansion desired now for a specific software update, and has that software update been completely received (from SCANS or CSCANS)?  
If **YES**, go to Step 6.  
If **NO**, continue with Step 5.
5. Wait until software update has been completely received and until manual expansion is desired.
6. Access MCC Page **1950** — Program Update Maintenance.
7. At the MCC, type and enter: **9650,y**.  
Where: **y** = 10-character software update name.  
Response: **IN PROGRESS** appears next to **9650** command line.
8. Did command complete successfully and is **COMPLETED** displayed next to **9650** command?  
If **YES**, **STOP. You have manually stopped or started software update expansion.**  
If **NO**, repeat Step 7.  
If command continues to fail, seek technical assistance.

## **Procedure 6.31: RESERVED — FOR FUTURE USE**

### **PROCEDURE**

1. Reserved — For Future Use

## **Procedure 6.32: PERFORM SM OFF-LINE PUMP**

### **PROCEDURE**

1. Refer to Off-Line Boot Procedure in System Recovery — 235-105-250.

## Procedure 6.33: GROW MAIN STORE MEMORY VIA LOW-LEVEL MODE (3B20D)

### OVERVIEW

This procedure applies only to the 3B20D processor. The office must meet all of the following conditions before attempting main store memory growth:

- Within the past 24 hours, the 5ESS®-2000 switch has not experienced any terminal suspends, bootstraps, diagnostic failures, or overloads.
- The disks and input/output processors (IOPs) are in duplex and the control units (CUs) have been in ACTIVE-STANDBY mode (with the exception of routine maintenance and diagnostic request).
- Diagnostics on both CUs have run to successful completion within 24 hours prior to start of growth.
- All administrative module (AM) and/or system problems have been cleared before growth activity begins.
- An optional Safe Stop Point provides the user with the opportunity to incorporate local practices, such as: soak periods, personnel assignments, and shift changes.
- To fully utilize the new memory, a level 52 of the AM is required. This will result in a 1- to 2-minutes of AM/CNI downtime.
- If the memory growth is being performed for a Software Retrofit, Lucent Technologies recommends that the system boot to utilize the memory be performed during the retrofit procedure and **NOT** during this procedure.

### PROCEDURE

#### 6.33.1 Verify Memory Page Size

**NOTE:** This procedure identifies the existing size of the maximum number of memory pages that the operating system can be configured. This value is obtained in the **pages** field of the **btparm** form in the incore data base.

Since the memory will be increased, the value of **pages** must be large enough to accomodate the intended memory growth. If it is not then **pages** value must be increased before proceeding to memory growth.

1. Is this procedure being performed as part of a Software Retrofit?

If **NO**, continue with next Step.

If **YES**, go to Section **6.33.3**.

2. To access the incore database, at recent change and verify (RC/V) terminal, type and enter **199**.

**Response:** Blank **rcvparms** form is displayed on terminal.

3. Type and enter the following values:

Field No.	Name		Value
1	database_name	=	<b>incore</b>
2	reviewonly	=	<b>n</b>
3	journaling	=	<b>*</b>

**Response:** Forms selection page is displayed.

4. To review **btparm** form, type and enter **btparm**

**Response:** Cursor at **btparmname** key field.

5. Type and enter **btparm**

**Response:** **btparm** form is displayed and populated.

6. Record the value of field 7 (**pages**).
7. Type and enter <
8. Type and enter <
9. Compare value of **pages** (Step 5) with corresponding memory arrays and circuit pack type in **Table 6.33-1** to determine if intended memory growth value is correct.
10. Is **pages** value large enough for intended growth?

If **YES**, go to Section **6.33.3**.

If **NO**, continue with Section **6.33.2**.

**Table 6.33-1 Pages Field Values**

NUMBER OF MEMORY ARRAYS	PAGES FIELD VALUE FOR TN28s	PAGES FIELD VALUE FOR TN56s	PAGES FIELD VALUE FOR TN2012s
1	—	—	2048
2	—	2048	4096
3	—	3072	6144
4	2048	4096	8192
5	2560	5120	10240 <b>a</b>
6	3072	6144	12288 <b>a</b>
7	3584	7168	14336 <b>a</b>
8	4096	8192	16384 <b>a</b>
9	4608	9216 <b>a</b>	18432 <b>b</b>
10	5120	10240 <b>a</b>	20480 <b>b</b>
11	5632	11264 <b>a</b>	22528 <b>b</b>
12	6144	12288 <b>a</b>	24576 <b>b</b>
13	6656	13312 <b>a</b>	26624 <b>b</b>
14	7168	14336 <b>a</b>	28672 <b>b</b>
15	7680	15360 <b>a</b>	30720 <b>b</b>
16	8192	16384 <b>a</b>	32768 <b>b</b>

**Notes:**

a. Extended main memory (EMM) or very large main memory (VLMM) feature.

b. VLMM feature only.

### 6.33.2 Update BTPARM Form and Boot

**NOTE:** This procedure updates the **btparm** form (**pages** field) to reflect the memory size for the intended growth. The update is performed at either the master control center (MCC) terminal or the supplementary trunk and line work station (STLWS) terminal.



Once completed, then a boot of the data base is performed.

1. To access the ECD form **rcvparams**; at RC/V or supplementary trunk and line work station (STLWS) terminal, type and enter: **RCV:MENU:RCVECD**;

**Response:** **rcvparams** form is displayed. Cursor at **database\_name** field.

2. Type and enter following values:

Field No.	Name	Value
1	database_name	= incore
2	reviewonly	= n
3	journaling	= *

**Response:** Forms selection page is displayed.

3. To begin update, type and enter **trbegin**

4. Depress **RETURN**

**Response:** Screen prompts for required action.

5. Type and enter **e**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. Data entry form is displayed.

6. To bring up form, type and enter **btparm**

**Response:** **Boot Time Parameters** form is displayed. Cursor at **btparmname** key field.

7. To update form, type and enter **u**

8. Type and enter **btparm**

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **c**

**Change Field:**

10. Type and enter **7**

**Response:** Cursor at **pages** field.

11. Type and enter the required **pages** value from **Table 6.33-1**.

12. Depress **RETURN**

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

13. Type and enter **u**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. **Boot Time Parameters** form is displayed. Cursor at **btparmname** key field.

14. Type and enter **<**

**Response:** Forms selection form is displayed.

15. To end transaction, type and enter **trend**

**Response:** **Transaction End** form is displayed. Cursor at tr\_name field.

16. Depress **RETURN** four times to default all four fields on trend form.

17. Type and enter **e**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. Data entry page is displayed.

18. Type and enter **<**

**Response:** **RCV MENU RCVECD COMPLETED**

19. To boot the system; on the EAI page enter poke command **52**

**Note:** The boot forces a configuration of the CU and MHD.

20. When initialization is complete, restore system to full duplex operation, continue with Section **6.33.3**.

### 6.33.3 Grow Memory

**NOTE:** This procedure requires that both CU 0 and CU 1 memory be grown. Record the memory side that is grown first before beginning. This will insure that the same memory side is not grown twice, for example when personnel changes are made during a shift change. Once the first side is grown, this procedure is repeated for the second side.

1. At the MCC, bring up the EAI page.

2. To force the active CU on line, enter poke command **12**

**Response:** EAI page CU status indicates which CU is FOFL and FONL.

3. To access the ECD form **rcvparams**; at RC/V or STLWS terminal, type and enter: **RCV:MENU:RCVECD**;

**Response:** **rcvparams** form is displayed. Cursor at **database\_name** field.

4. Type and enter the following values:

Field No.	Name		Value
1	database_name	=	<b>incore</b>
2	reviewonly	=	<b>n</b>
3	journaling	=	<b>*</b>

**Response:** Forms selection page is displayed.

5. To begin update, type and enter **trbegin**

6. Depress **RETURN**

**Response:** Screen prompts for required action.

7. Type and enter **e**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. Data entry form is displayed.

8. To bring up form, type and enter **ucb**

**Response:** **UCB** form is displayed.

9. To update form, type and enter **u**

**Response:** Blank ucb form is displayed.

10. Type and enter values for the following key fields:

Field No.	Name		Value
1	k_complex_name	=	<b>CU</b>
2	k_complex_number definition	=	(unavailable CU, 0 or 1)
3	k_unit_name	=	<b>MASC</b>
4	k_unit_number	=	<b>0</b>

**Response:** **ucb** form is displayed and populated.

**Enter Update, Change, Validate, Screen#, or Print:**

11. Type and enter **c**

12. Type and enter **22**

**Response:** Cursor at field 22 **equipage**

13. Type and enter equipage value from **Table 6.33-2**.

**NOTE:** Use the circuit pack type and number of arrays the system will have for the intended memory growth when determining the equipage value in **Table 6.33-2**.

14. Depress **RETURN**

15. To update form, type and enter **u**

**Response:** At top right of screen, **updating . . . FORM UPDATED**. Screen to page 1 of ucb form.

16. Type and enter **<**

17. To end transaction, type and enter **trend**

**Response:** **Transaction End** form is displayed. Cursor at tr\_name field.

18. Depress **RETURN** four times to default all four fields on trend form.

19. Type and enter **e**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. Data entry page is displayed.

20. Type and enter **<**

**Response:** **RCV MENU RCVECD COMPLETED**

**Table 6.33-2 Memory Board Equipage**

NUMBER OF MEMORY BOARDS	EQUIPAGE FIELD VALUE FOR TN28s	EQUIPAGE FIELD VALUE FOR TN56s	EQUIPAGE FIELD VALUE FOR TN2012s
1	0x1	0x1	0x1
2	0x3	0x3	0x3
3	0x7	0x7	0x7

4	0xf	0xf	0xf
5	0x1f	0x1f	0x1f <b>a</b>
6	0x3f	0x3f	0x3f <b>a</b>
7	0x7f	0x7f	0x7f <b>a</b>
8	0xff	0xff	0xff <b>a</b>
9	0x1ff	0x1ff <b>a</b>	0x1ff <b>b</b>
10	0x3ff	0x3ff <b>a</b>	0x3ff <b>b</b>
11	0x7ff	0x7ff <b>a</b>	0x7ff <b>b</b>
12	0xfff	0xfff <b>a</b>	0xfff <b>b</b>
13	0x1fff	0x1fff <b>a</b>	0x1fff <b>b</b>
14	0x3fff	0x3fff <b>a</b>	0x3fff <b>b</b>
15	0x7fff	0x7fff <b>a</b>	0x7fff <b>b</b>
16	0xffff	0xffff <b>a</b>	0xffff <b>b</b>

**Notes:**

- a. Extended main memory (EMM) or very large main memory (VLMM) feature.
- b. VLMM feature only.

**6.33.4 Install New Memory Circuit Pack**

**NOTE:** Before installing the new circuit packs, the unavailable CU must be taken out of service. Once the new memory array packs are installed, power is restored to CU and a diagnostic is run. With a clean diagnostic, the CUs are switched and the process is repeated for the other CU.

- To take the UNAV CU out of service; at the CU power switch (TN5B) toggle the **ROS/RST** key to the **ROS** position.
- To remove power from the CU; at the CU power switch, operate **OFF** switch.

**Response:** REPT POWER REMOVED output message is expected. At CU power switch **OOS** LED lighted.

- CAUTION:** When replacing circuit packs, a grounded antistatic discharge wrist strap must be worn by maintenance personnel to prevent static charge damage to the sensitive circuit pack components.

Reference: 363-105-110, Section 3.26.3.

Install the memory array pack(s) into the new circuit pack locations.

- To restore power to the CU; at the CU power switch, operate **ON** switch.

**Response:** REPT POWER RESTORED output message is expected. At CU power switch **OOS** LED lighted.

- To diagnose the MASC; at the MCC, type and enter:

**DGN:CU=a,MASC=0,RAW,REX;**

Where: a = Unavailable CU member number.

**Response:** ATP MSG COMPL output message is expected.

- To clear the CU force; at the MCC EAI page, type and enter poke command **14**

**Response:** EAI page CU status cleared of forced condition.

7. Has both CU (0 and 1) memories been upgraded?

If **NO**, continue with next Step.

If **YES**, go to Safe Stop Point, Section **6.33.4.1**.

8. To restore the CU to service; at the CU power switch, operate the **ROS/RST** key to the **RST** position.

**Response:** RST COMPLETED output message is expected.  
At CU power switch, **OOS** and **RQIP** LEDs are off.

9. To switch CUs; at the MCC type and enter **SW:CU**;

**Response:** SW CU COMPLETED output message is expected.

#### 6.33.4.1 Safe Stop Point

1. This is a Safe Stop Point. A soak period can be initiated at this time according to local practices. Lucent Technologies recommends that the soak period not exceed 24 hours.
2. Following Safe Stop Point (soak period if performed), continue with next Section.

#### 6.33.4.2 CU Memory Growth Continuation

1. Has both CU (0 and 1) memories been upgraded?

If **YES**, continue with next Step.

If **NO**, return to Section **6.33.3** to upgrade the other CU.

2. To restore the other CU to service; at the CU power switch, operate the **ROS/RST** key to the **RST** position.

**Response:** RST COMPLETED output message is expected.  
At CU power switch, **OOS** and **RQIP** LEDs are off.

#### CU Restored to Standby, Memory Growth Process:

**Response:** 1. **Successful Memory Growth:**  
REPT MMGR005 AVAILABLE MEMORY NOW XXXXX PAGES.

**Response:** 2. **Failed Memory Growth:**  
  
REPT MMGR003 ADD MEMORY FAILED. AVAIL  
MEMORY=XXXXX PAGES  
ATTEMPTED TO GROW MEMORY TO XXXXX PAGES.  
MUST REGEN SYSTEM TO ADD MEMORY.

**NOTE:** (a) If this procedure is for a Software Retrofit and not booted, then the expected response should be a "Failed Memory Growth".  
(b) If the office has gone through this procedure as a normal activity and completed the boot and a "Failed Memory Growth" occurs then a problem does exist.

3. Was there a failure in the memory growth?

If **YES**, (retrofit activity), then continue with next Step.

If **YES**, (normal office activity), seek technical assistance. Do not continue until problem is resolved.

If **NO**, continue with next Step.

4. Allow the system to soak according to local practices before continuing to Section **6.33.5**. Lucent Technologies recommends that the soak period not exceed 24 hours.

### 6.33.5 Update ECD Records

**NOTE:** The memory growth that has been completed must now be updated in the ECD records on the **activate** form and incore ECD is copied to Root ECD on disk.

1. To access the ECD form **rcvparams**; at RC/V or STLWS terminal, type and enter: **RCV:MENU:RCVECD**;

**Response:** **rcvparams** form is displayed. Cursor at **database\_name** field.

2. Type and enter values:

Field No.	Name		Value
1	database_name	=	<b>incore</b>
2	reviewonly	=	<b>n</b>
3	journaling	=	<b>*</b>

**Response:** Forms selection page is displayed.

3. Type and enter **activate**

**Response:** The **activate** form is displayed. Cursor at **copy\_inc\_to\_disk** key field.

4. Type and enter **Y**

**Response:** Copy incore to disk field indicates yes.

5. Type and enter **e**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. display returns to data entry page.

6. Type and enter **<**

**Response:** **RCV MENU RCVECD COMPLETED**

### 6.33.6 Update File Systems

**NOTE:** The file systems are updated and may require several minutes for each update to be completed. If a **COMPLETED** output message response is not received in a reasonable time, then reenter the input message command once more before looking elsewhere for trouble.

1. At RC/V or STLWS terminal, type and enter:

**IN:FILESYS:DIR,FN="/bdb";**

**Response:** **COMPLETED** output message received.

2. At RC/V or STLWS terminal, type and enter:

**ALW:FILESYS:MOUNT,FN="/dev/bdb",BSDIR="/bdb";**

**Response:**    **COMPLETED** output message received.

3. At RC/V or STLWS terminal, type and enter:

**COPY:FILESYS:FILE,SRC="/database/appecd",DEST="/bdb/appecd";**

**Response:**    **COMPLETED** output message received.

4. At RC/V or STLWS terminal, type and enter:

**COPY:FILESYS:CFILE,FN="/bdb/appecd";**

**Response:**    **COMPLETED** output message received.

5. At RC/V or STLWS terminal, type and enter:

**INH:FILESYS:UMOUNT,FN="/dev/bdb";**

**Response:**    **COMPLETED** output message received.

6. At RC/V or STLWS terminal, type and enter:

**CLR:FILESYS:DIR,FN="/bdb";**

**Response:**    **COMPLETED** output message received.

### 6.33.7 Change ECD Minimum Configuration

1. At RC/V terminal, type and enter: **RCV:MENU:RCVECD;**

**Response:**    **rcvparams** form is displayed. Cursor at **database\_name** field.

2. To bring up the primary minimum configuration data base, type and enter **rootdmly**
3. To allow modifications, type and enter **n**
4. To activate the form selection page, type and enter \* (asterisk)

**Response:**    Forms selection page is displayed.

5. Type and enter **trbegin**

**Response:**    The **trbegin** form is displayed. Cursor at **tr\_name** field.

6. Depress **RETURN**

7. Type and enter **e**

**Response:**    At top right of screen, **updating . . . FORM EXECUTED.** display returns to data entry page.

8. To bring up form, type and enter **ucb**

**Response:**    **UCB** form is displayed.

9. To update form, type and enter **u**

**Response:** Blank ucb form is displayed.

10. Type and enter values for the following key fields:

Field No.	Name		Value
1	k_complex_name	=	CU
2	k-complex_number definition	=	0
3	k_unit_name	=	MASC
4	k_unit_number	=	0

**Response:** ucb form is displayed and populated.

**Enter Update, Change, Validate, Screen#, or Print:**

11. Type and enter **c**

12. Type and enter **22**

**Response:** Cursor at field 22 **equipage**

13. Type and enter equipage value from **Table 6.33-2**.

**NOTE:** Use the circuit pack type and number of arrays the system will have for the intended memory growth when determining the equipage value in **Table 6.33-2**.

14. Depress **RETURN**

15. To update form, type and enter **u**

**Response:** At top right of screen, **updating . . . FORM UPDATED**. Screen to page 1 of ucb form.

16. Type and enter values for the following key fields:

Field No.	Name		Value
1	k_complex_name	=	CU
2	k-complex_number definition	=	1
3	k_unit_name	=	MASC
4	k_unit_number	=	0

**Response:** ucb form is displayed and populated.

**Enter Update, Change, Validate, Screen#, or Print:**

17. Type and enter **c**

18. Type and enter **22**

**Response:** Cursor at field 22 **equipage**

19. Type and enter equipage value from **Table 6.33-2**.

**NOTE:** Use the circuit pack type and number of arrays the system will have for the intended memory growth when determining the equipage value in **Table 6.33-2**.

20. Depress **RETURN**

21. To update form, type and enter **u**

**Response:** At top right of screen, **updating . . . FORM UPDATED**. Screen to page 1 of ucb form.



22. Type and enter <
23. Is this procedure being performed as part of a Software Retrofit?  
If **YES**, go to Section **6.33.9** .  
If **NO**, continue with next Step.
24. Is BTPARM form **pages** value large enough for intended growth?  
Reference: Section **6.33.1** Steps 4 through 9.  
  
If **YES**, go to Section **6.33.9** .  
If **NO**, continue with Section **6.33.8** .

### 6.33.8 Increase ECD Memory Page Capacity

**NOTE:** The ECD memory page size parameter must be increased in the ECD BTPARM form to represent the new memory growth.

1. To bring up form, type and enter **btparm**  
**Response:** **Boot Time Parameters** form is displayed. Cursor at btparmname key field.
2. To update form, type and enter **u**
3. Type and enter **btparm**  
**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**
4. Type and enter **c**  
**Response:** **Change Field:**
5. Type and enter **7**  
**Response:** Cursor at **pages** field.
6. Type and enter the new value for **pages** from **Table 6.33-1** .
7. Depress **RETURN**  
**Response:** **Enter Update, Change, Validate, Screen#, or Print:**
8. Type and enter **u**  
**Response:** At top right of screen, **updating . . . FORM EXECUTED. Boot Time Parameters** form is displayed. Cursor at btparmname key field.
9. Type and enter <

### 6.33.9 Update Minimum Configuration Data Base

**NOTE:** All recent change activity is updated in the incore data base.

1. To end transaction, type and enter **trend**

**Response:** **Transaction End** form is displayed. Cursor at tr\_name field.

2. Depress **RETURN** four times to default all four fields on trend form.

3. Type and enter **e**

**Response:** At top right of screen, **updating . . . FORM EXECUTED**. Data entry page is displayed.

4. Type and enter **<**

**Response:** **RCV MENU RCVECD COMPLETED**

### 6.33.10 Update File Systems

**NOTE:** The file systems are updated and may require several minutes for each update to be completed. If a **COMPLETED** output message response is not received in a reasonable time, then reenter the input message command once more before looking elsewhere for trouble.

1. At RC/V or STLWS terminal, type and enter:

**IN:FILESYS:DIR,FN="/bdb";**

**Response:** **COMPLETED** output message received.

2. At RC/V or STLWS terminal, type and enter:

**ALW:FILESYS:MOUNT,FN="/dev/bdb",BSDIR="/bdb";**

**Response:** **COMPLETED** output message received.

3. At RC/V or STLWS terminal, type and enter:

**COPY:FILESYS:FILE,SRC="/database/ecd",DEST="/bdb/ecd";**

**Response:** **COMPLETED** output message received.

4. At RC/V or STLWS terminal, type and enter:

**COPY:FILESYS:CFILE,FN="/bdb/ecd";**

**Response:** **COMPLETED** output message received.

5. At RC/V or STLWS terminal, type and enter:

**INH:FILESYS:UMOUNT,FN="/dev/bdb";**

**Response:** **COMPLETED** output message received.

6. At RC/V or STLWS terminal, type and enter:

**CLR:FILESYS:DIR,FN="/bdb";**

**Response:** **COMPLETED** output message received.

7. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

**Procedure 6.34: CONVERT TN 56 CIRCUIT PACKS TO TN 2012 CIRCUIT PACKS****PROCEDURE**

1. Access Recent Change **ucb** form in the update mode.
2. Enter the following key values for the identified growth unit:  
complex\_name: **CU**  
complex\_number: **1**  
unit\_name: **MASC**  
unit\_number: **0**
3. Change Attribute 22 equipage to **0xff** (physical boards)(=32MB).
4. For Attribute 25 hv: Set bits 5-4 to **11**.

**NOTE:** Bit values are counted from right to left starting with 0. Only the bit specified should be modified.

5. Change Attribute 27 mv to **0x26**.
6. UPDATE the form.

Response: FORM UPDATED will flash once. Screen will return to page 1 of ucb form.

7. Type and enter <
8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.35: LOAD A CARTRIDGE TAPE IN A SCSI DAT DRIVE (3B21D)

### OVERVIEW

The Small Computer System Interface (SCSI) Digital Audio Tape (DAT) Drive has the following identification and associated circuit pack:

SCSI DAT DRIVE	CIRCUIT PACK	(Figure 6.35-1).
NCR006-3503341	UN376, UN376B	
NCR006-3300608	UN376C	

**CAUTION:** Although the manufacturer designed the drive mechanism to prevent the cartridge from being over-inserted, excessive insertion force will damage the drive mechanism components. The cartridge should be inserted gently into the drive. Very little force is required to cause the drive to grab the cartridge, after which, the drive will pull the cartridge into the drive. Excessive force WILL damage the tape loading mechanism.

**NOTE:** For specific information on the 5ESS®-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110 (*Very Compact Digital Exchange Reference Guide*) and 235-120-120 (*Very Compact Digital Exchange User's Guide*).

### PROCEDURE

1. Is the tape activity a "read only" operation?

If **YES**, continue with next step.

If **NO**, go to Step 3.

2. Write protect the cartridge by sliding the tab on the rear of the cartridge so that the hole is open (Figure 6.35-2 ).
3. Gently insert the cartridge tape into the drive until the drive takes hold of the cartridge. This starts the loading sequence. The drive rewinds the tape to **BOT** and goes on line.
4. Is a "Caution" indicated on the front panel of the DAT drive circuit pack?

**NOTE:** A "Caution" signal (high error rate) is a wellness check that could be a poor quality cassette or tape heads may require cleaning. The "Caution" is identified by the following LED display:

Condition		Cassette Indicator	Drive Indicator
Caution	UN376 and UN376B	Green	Alternating Flashing Green and Amber
	UN376C	Any State	Pulse Amber

If **YES**, continue with next step.

If **NO**, go to Step 6.

5. If a new cartridge is being used, replace the cartridge and repeat the procedure. If the caution indication remains, the tape heads may require cleaning (refer to Procedure 4.21 ). Seek technical assistance.
6. Tape is loaded in the DAT drive.

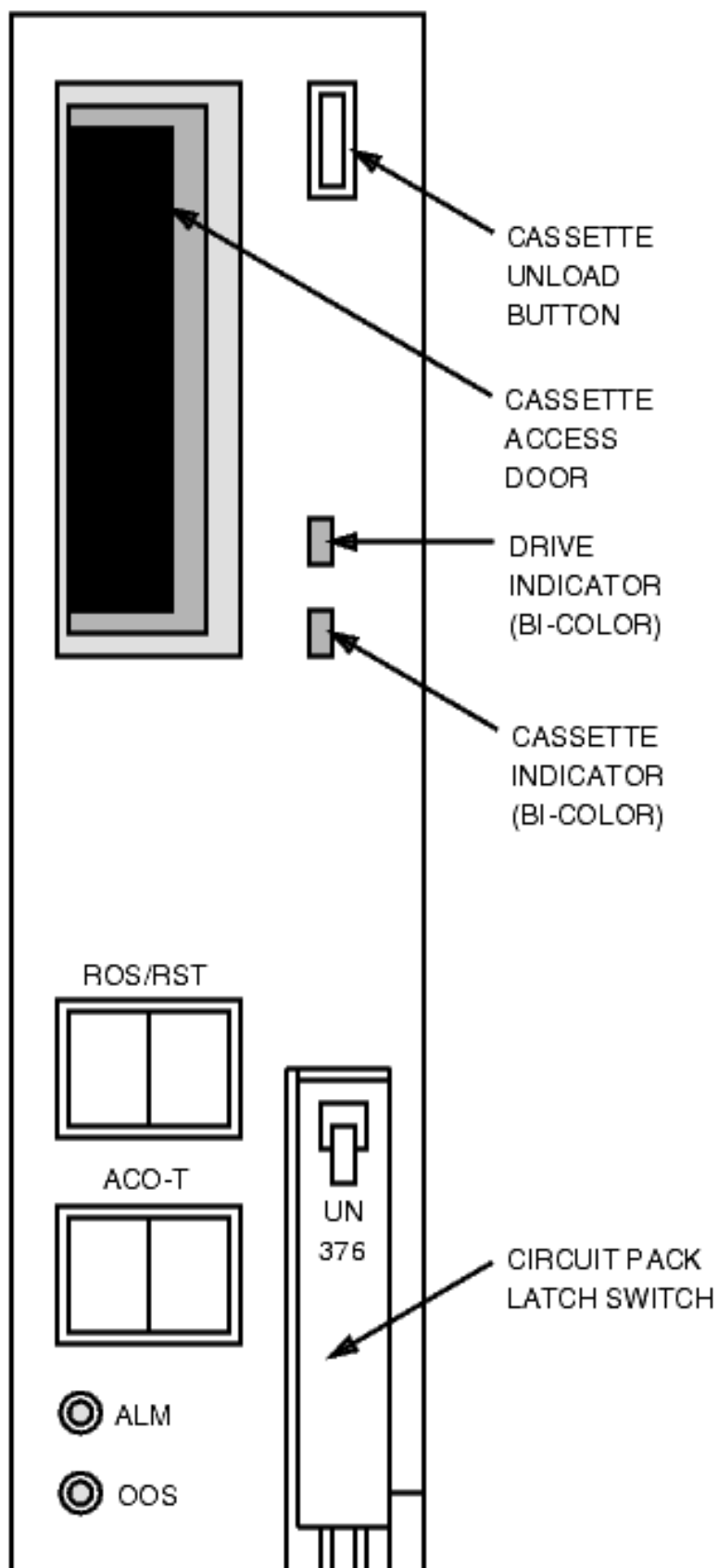


Figure 6.35-1 SCSI DAT Drive Circuit Pack, Front View [UN376,B (NCR006-3503341) or UN376C (NCR006-3300608)]

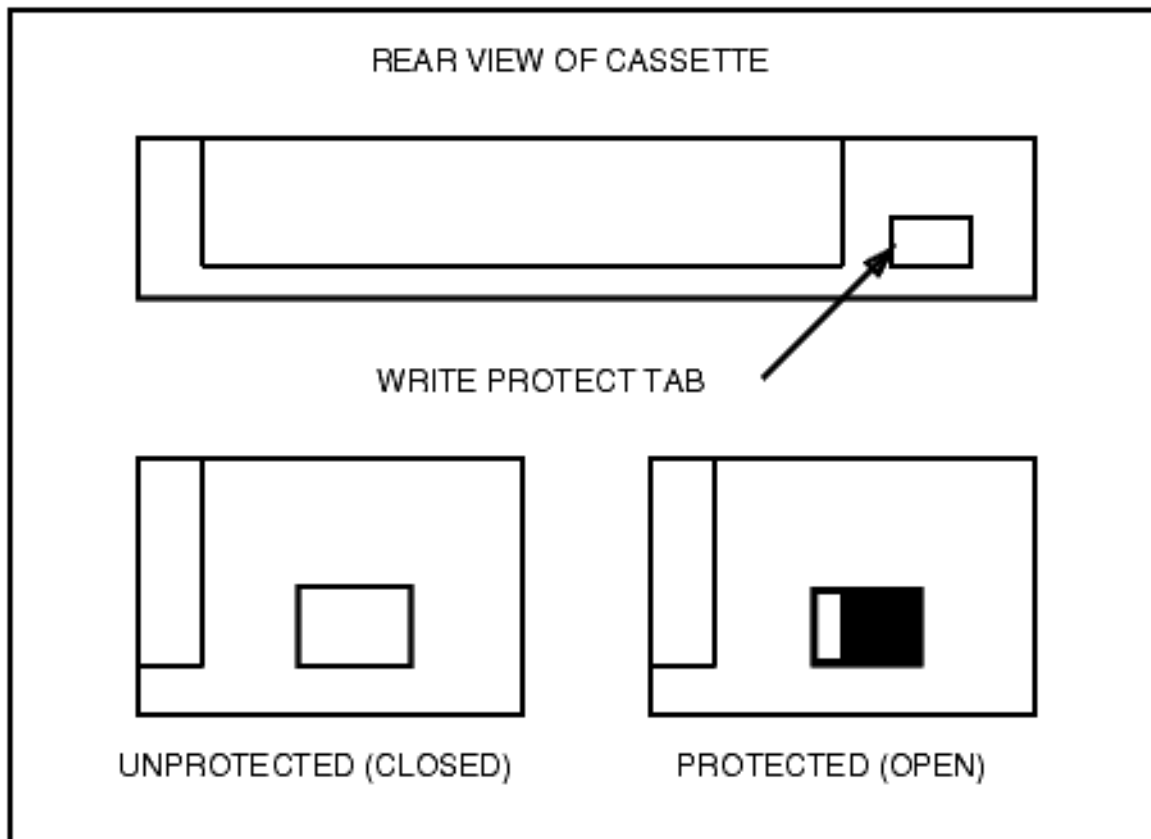


Figure 6.35-2 Cassette Write Protect

7. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

## Procedure 6.36: REMOVE/UNMOUNT TAPE FROM SCSI 9-TRACK TAPE DRIVES (3B21D)

### OVERVIEW

**CAUTION:** Make sure that no tape transactions are in progress to the tape drive before starting the procedure.

**NOTE:** For specific information on the 5ESS®-2000 Switch Compact Digital Exchange (CDX), refer to 235-120-010 (*Compact Digital Exchange Reference Guide*) and 235-120-020 (*Compact Digital Exchange User's Guide*).

### PROCEDURE

1. Take the drive off-line.

For the KS-23909, L21 Tape Drive: Press the **ONLINE** button. When the drive is off-line, **ONLINE** will no longer be displayed.

For the KS-23909, L10 Tape Drive: Press the **RESET** button, or, if in the diagnostic mode, press the **DIAG** button once to return to offline status. **OFFLINE** is displayed.

2. Rewind the tape.

For KS-23909, L21 Tape Drive: Press the **REW/UNL** button. When the tape is rewound, **NO TAPE** is displayed.

**Note:** It is important that the rewind completes and that **NO TAPE** is displayed before the door is opened.

For KS-23909, L10 Tape Drive: Press the **RESET** button while the **RWD/UNL** is pressed. When the tape is rewound, **READY** is displayed.

3. Open tape drive door.
4. Remove the reel.
5. Close tape drive door.
6. Put outer ring on the reel.
7. Store the tape per local procedure.
8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



**Procedure 6.37: REMOVE A CARTRIDGE TAPE FROM A SCSI DAT DRIVE (3B21D)****OVERVIEW**

The Small Computer System Interface (SCSI) Digital Audio Tape (DAT) Drive has the following identification and associated circuit pack, and LED unloading status:

SCSI DAT DRIVE	CIRCUIT PACK	CASSETTE INDICATOR	DRIVE INDICATOR
NCR006-3503341	UN376, UN376B	Flashing Green	Flashing Green
NCR006-3300608	UN376C	Pulse Green	Off

**CAUTION 1:** Ensure that tape transactions are not in progress to the DAT drive before removing the cartridge. This state is identified above.

**CAUTION 2:** If a UN376 circuit pack is to be powered down, to protect the cartridge media from damage, remove the cartridge from the DAT drive before powering down the UN376 circuit pack.

**NOTE:** For specific information on the 5ESS®-2000 Switch Very Compact Digital Exchange (VCDX), refer to 235-120-110 (*Very Compact Digital Exchange Reference Guide*) and 235-120-120 (*Very Compact Digital Exchange User's Guide*).

**PROCEDURE**

1. Press the **UNLOAD** button on the DAT drive.

Response: The unload sequence is started. The tape is rewound to the BOT, unthreaded from the drive mechanism and ejected.

2. The cartridge is now ready for storage or data transportation.
3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.38: MAKE ASM TAPE BACKUP

### OVERVIEW

This procedure directs the technician to copy the Administrative Services Module (ASM) disk files to tape backup. The disk files can be either Lucent created files or Customer created files.

The ASM backup tapes provide a reliable source for system recovery in the event that data in both system disk drives become corrupted. This procedure should be performed during low-traffic periods.

It is suggested that ASM backup be performed during the time that the 5ESS<sup>®</sup>-2000 switch Administration Module is backed up.

**Identify User Access to the ASM** — The preferred user access to the ASM is via Ethernet port using Telnet. Telnet access requires a username login and password.

An alternate access is available via the ASM console link — ASMLNK. This link directly connects the Administration Module (AM) to the ASM and is available from either the Trunk Line Work Station (TLWS) or the Supplementary Trunk and Line Work Station (STLWS).

In all routine operations and maintenance procedures the term **CONNECT** and **DISCONNECT** are used to identify the ASM access **CONNECT** sequence and the **DISCONNECT** sequence with the Ethernet port or the ASMLNK. The following sequences describe the actions that are required to **CONNECT** and **DISCONNECT**.

### CONNECT

- Ethernet

**NOTE:** Network security practices disallow Telnet access using the *root* login. You may log in to the ASM using any other valid login and password. This procedure can only be executed by the user *root*. If you use Telnet to access the ASM you will have to change login to that of the user *root* after your initial login.

- (1) Type and enter **telnet** *host\_name* or **telnet** *host\_name\_ip\_address*.

**Where:** *host\_name* = ASM name and  
*host\_name\_ip\_address* = ASM IP address.

**Response:** login:

- (2) Log in to the ASM using a valid login and password.

**Response:** host-name#

- (3) To change to the *root* login, type and enter:

host-name# **su<sup>^</sup>-<sup>^</sup>root**

**Where:**

<sup>^</sup> = space

Supply the corresponding *root* password when prompted.

- ASMLNK

**NOTE:** The ASM console allows you to log in to the ASM as the user *root*. Network security restrictions do not apply in this case since you are accessing the ASM over a direct AM-to-ASM link.

- (1) At the (S)TLWS, to obtain a *UNIX*® prompt, type and enter **RCV:MENU:SH;**
- (2) To bring up the ASM console link, type and enter **dsmcon**  
**Response:** CONNECTED
- (3) Press the **ENTER** key.  
**Response:** host-name console login: \_\_\_\_\_.
- (4) Log on to ASM using a valid *root* login and password.  
**Response:** host-name#

## DISCONNECT

- Ethernet
  - (1) Type and enter **exit**
- ASMLNK
  - (1) At the ASM prompt (host-name#), type and enter **exit**
  - (2) At the (S)TLWS, type and enter ~. (tilde and period)
  - (3) At the (S)TLWS, type and enter **exit**

## PROCEDURE

### 6.38.1 Preconditions

1. The following should be performed prior to tape backup:

- (1) At the (S)TLWS, type and enter **124**
- (2) Is the **ASM-0** icon green?

If **YES**, continue with next Step.

If **NO**, resolve problem, go to **235-105-220**, *Corrective Maintenance Procedures*.

- (3) Clean ASM DDS-3 tape drive heads (Table 6.38-1 ).

**NOTE:** Use only a DDS-approved cleaning tape cartridge to clean the tape drive.

**Table 6.38-1 HEAD CLEANING SCHEDULE**

Daily DDS Cartridge Use	Cleaning Interval
1 or less	8 Weeks
2	4 Weeks
3	3 Weeks
4 or more	Weekly

## 2. Determine Tape Backup Duration — For Lucent Created Files

Total execution time for this procedure depends on three sequential activities:

- (1) Synchronization of disk0 with disk1 is terminated.
- (2) Data from partitions 3 through 7 of disk1 are copied to the backup tape.
- (3) Disk0 and disk1 are resynchronized.

The most significant time component of the three is the second one: copying of data from disk to tape. Tape transfer time depends on the size of disk drive data content. Nominal transfer rate is 1 MB(mega byte) (1.95K blocks)/second, or 60 MB (117K blocks)/minute. A full 18 GB (giga byte) disk drive would require approximately 5 hours for complete transfer.

## 3. Calculate Tape Back Up Time — For Lucent Created Files

To estimate an approximate time of tape back up, do the following:

- (1) CONNECT
- (2) Type and enter

```
df^k|^grep^dsk/d|^tr^s^"^|^cut^d"^^-f3
```

**Where:**        ^ = space

**Response:**    The output consists of five lines of data (the five disk partitions). Each line is kilobytes of data transferred. The sum of the five lines divided by 60,000 is the approximate time of tape back up in minutes. The maximum time could be five hours.

- (3) DISCONNECT

4. Tape backup can be performed for either Lucent created files or Customer created files.

**NOTE:** The ASM will backup all disk files created and/or provided by Lucent for usage on the ASM. Backing up any Customer created and/or modified disk files is the responsibility of the Customer.

For **Lucent Created Files** go to 6.38.2

For **Customer Created Files** go to 6.38.2 and then to 6.38.3

### 6.38.2 Backup Lucent Created Disk Files

1. Insert a 4mm DDS-3 125m tape cartridge into the ASM tape drive.

**NOTE:** Insure that **Write Enable** is selected on the tape: switch on rear of cassette is closed for **Write Enable**.

2. CONNECT
3. To start tape backup, type and enter **dsbackup**

**Note 1:** To determine tape back up duration refer to Section **6.38.1** , Step 2.

**Note 2:** While tape backup is running, at the MCC page 124, the ASM-0 icon is in the **DGR** state and second line of text reads "DISK1 MAINT", because the disk mirror is intentionally broken to permit the backup.

**Response:**     Preparing for the Backup  
                      d3: submirror d23 is offlined  
                      d4: submirror d24 is offlined  
                      d5: submirror d25 is offlined  
                      d6: submirror d26 is offlined  
                      d7: submirror d27 is offlined  
                      Starting Backup  
                      110050 blocks  
                      d3: submirror d23 is onlined  
                      d4: submirror d24 is onlined  
                      d5: submirror d25 is onlined  
                      d6: submirror d26 is onlined  
                      d7: submirror d27 is onlined  
                      dsbackup completed successfully

**Note 3:** Tape back up failure has occurred if the output indicates a "version mismatch between AM and ASM". A prompt, "Would you like to continue? (y=yes)"

Enter **n**

**Note 4:** Tape back up failure has occurred if the output contains the phrase "ASM not backed up".

4. DISCONNECT
5. At the MCC page 124, is the ASM-0 icon in the **NORMAL** state or in the **DGR** state with a second line reading **DISK1 Resync** ?

If **NORMAL**, then continue with next Step.

If **DGR**, wait 20 minutes and recheck the ASM-0 icon. If it still indicates **DGR** then resolve problem, go to **235-105-220, Corrective Maintenance Procedures**.

6. Did "tape backup failure" occur?

If **YES**, go to Step 10.

If **NO**, continue with next step.

7. Remove tape from drive.
8. Label and store tape according to local procedures.
9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
10. Remove tape from drive and seek **technical assistance**.

**NOTE:** Tape backup failure may have occurred due to any one of the following:

- Tape is not in **write enable** selection.

- Tape drive heads are dirty.
- Poor tape quality.

11. With the problem corrected, return to **Step 1**.

### 6.38.3 Backup Customer Created Disk Files

**NOTE 1:** This section is provided by Lucent as an aid to the Customer in performing a backup of non-Lucent provided disk files.

**NOTE 2:** This section is not typically part of the ASM backup procedure since it is required that the ASM be brought up in single-user mode (i.e., non-UNIX, base operating system) and requires that all running ASM applications be terminated and subsequently restarted.

**NOTE 3:** The following steps will make a complete backup of the root file system. All ASM applications will be unavailable during the backup process. The Customer should ensure that this procedure is scheduled during a time period of low switch activity.

1. Perform procedure Section 6.38.2 , if not previously done.
2. CONNECT using ASMLNK only.
3. Type and enter **dsdown**
4. To halt the system, after issuing a warning to all users: type and enter  
**shutdown -i0 -y -g0**
5. Reboot the system in single-user mode: type and enter **boot -s**
6. Prompt: log in with login name "root".
7. Insert a new tape cartridge into the ASM tape drive.
8. Copy root file system to tape: type and enter  
**find ^/^ -print ^|^cpio ^-ocv ^> ^/dev/rmt/0c**

**Where:**

^ = space

**NOTE:** This step may take 7-8 minutes to complete. Wait for tape backup to complete.

9. Return ASM to service: type and enter **init 3**
10. Remove the tape, label and store tape according to local procedures.
11. DISCONNECT using ASMLNK only.
12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 6.39: RESTORE ASM DISK FILES FROM CONFIGURATION BACKUP TAPE

### OVERVIEW

This procedure directs the technician to restore or copy the Administrative Services Module (ASM) disk files from the configuration backup tape. This is required following an unrecoverable disk file corruption.

A viable operating system is required before beginning this procedure. If the ASM does not reliably boot, then it may be necessary to perform recovery.

The ASM will restore all disk files created and/or provided by Lucent which are backed up to tape using Procedure 6.38. The Customer is responsible for Customer created and/or installed disk files saved on a backup tape using Procedure Section 6.38.3

**Identify User Access to the ASM** — The preferred user access to the ASM is via Ethernet port using Telnet. Telnet access requires a username login and password.

An alternate access for **emergency use only** is available via the ASM console link — ASMLNK. This link directly connects the Administration Module (AM) to the ASM and is available from either the Trunk Line Work Station (TLWS) or the Supplementary Trunk and Line Work Station (STLWS).

In all routine operations and maintenance procedures the term **CONNECT** and **DISCONNECT** are used to identify the ASM access CONNECT sequence and the DISCONNECT sequence with the Ethernet port or the ASMLNK. The following sequences describe the actions that are required to **CONNECT** and **DISCONNECT**.

### CONNECT

- Ethernet

**NOTE:** Network security practices disallow Telnet access using the *root* login. You may log in to the ASM using any other valid login and password. This procedure can only be executed by the user *root*. If you use Telnet to access the ASM you will have to change login to that of the user *root* after your initial login.

- (1) Type and enter **telnet** *host\_name* or **telnet** *host\_name\_ip\_address*.

**Where:**

*host\_name* = ASM name

*host\_name\_ip\_address* = ASM IP address

**Response:** login:

- (2) Log in to the ASM using a valid login and password.

**Response:** host-name#

- (3) To change to the *root* login, type and enter:

host-name# **su^-^root**

**Where:**

^ = space

Supply the corresponding *root* password when prompted.

- ASMLNK

**NOTE:** The ASM console link allows you to log in to the ASM as the user *root*. Network security restrictions do not apply in this case since you are accessing the ASM over a direct AM-to-ASM link.

- (1) At the (S)TLWS, to obtain a *UNIX*® prompt, type and enter **RCV:MENU:SH;**
- (2) To bring up the ASM console link, type and enter **dsmcon**  
**Response:** CONNECTED
- (3) Press the **ENTER** key.  
**Response:** host-name console login: \_\_\_\_\_.
- (4) Log on to ASM using a valid *root* login and password.  
**Response:** host-name#

## DISCONNECT

- Ethernet

- (1) Type and enter **exit**

- ASMLNK

- (1) At the ASM prompt (host-name#), type and enter **exit**
- (2) At the (S)TLWS, type and enter ~. (tilde and period)
- (3) At the (S)TLWS, type and enter **exit**

## PROCEDURE

### 6.39.1 Restore ASM Disk Files

1. What files are to be restored?  
If Lucent Created Files, go to Section **6.39.2**  
If Customer Created Files, go to Section **6.39.3** and then to **6.39.2**

### 6.39.2 Restore Lucent Created Disk Files

1. CONNECT
2. Insert backup tape into ASM DDS-3 tape drive.

**NOTE:** Insure that **Write Protect** is selected on the tape: switch on rear of cassette is open for **Write Protect**.

3. Restore the ASM disks files, select the appropriate UNIX command from **Table 6.39-1**.



**NOTE:** There are four possible restore configurations:

- **Full restore** — copies all files from the backup tape to the original file locations on the disk drive.
- **Selective restore, single file** — copies a single file from the backup tape to the original file location on the disk drive. The full path name of the file must be specified.
- **Selective restore, multiple files** — copies more than one file from the backup tape to the original file locations on the disk drive. Each set of files to be restored must be blank-separated on the command line. The full path name of the files must be specified.
- **Selective restore, directory** — copies a specific directory and all its subtending files and subdirectories from the backup tape to the original directory location on the disk drive. The full path name of the directory must be specified. Only one directory at a time can be restored.

**Table 6.39-1 Restore ASM Disk Files**

UNIX COMMANDS FOR RESTORING ASM DISK FILES	
(1)	Full — <b>dsrestore^-f</b>
(2)	Selective, Single File — <b>dsrestore^-i^/app/asm/var/asm.ini</b>
(3)	Selective, Multiple Files — <b>dsrestore^-i^/app/asm/var/asm.ini^/app/rc/no5text/rcv/libRCdata.so</b>
(4)	Selective, Directory — <b>dsrestore^-r^/app/asm</b>

Note: The "^" = a space.

**Response:** File Restore Complete

4. Remove tape from drive and return to original location.
5. DISCONNECT
6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 6.39.3 Restore Customer Created Disk Files

**NOTE 1:** This section is provided by Lucent as an aid to the Customer in performing a backup of non-Lucent provided disk files.

**NOTE 2:** This section is not typically part of the ASM restore procedure since it is required that the ASM be brought up in single-user mode (i.e., non-UNIX, base operating system) and requires that all running ASM applications be terminated and subsequently restarted.

**NOTE 3:** This section assumes that Procedure Sections 6.38.2 and 6.38.3 were previously performed in that order.

**NOTE 4:** The following steps make a complete restoral of the root file system. The Customer should ensure that this procedure section is scheduled during a time period of low switch activity.

1. CONNECT using ASMLNK only.
2. Type and enter **dsdown**
3. Halt the system: type and enter **shutdown -i0 -y -g0**
4. Reboot the system in single-user mode: type and enter **boot -s**
5. Prompt: log in with login name root.

6. Insert backup tape cartridge from Procedure Section **6.38.3** into the ASM tape drive.
7. Restore the root file system from tape: type and enter  
**cpio^-icvdmul^<^/dev/rmt/0c**  
Where ^ = space
8. Return ASM to service: type and enter **init 3**
9. Remove the backup tape and store according to local procedures.
10. DISCONNECT using ASMLNK only.
11. Perform Procedure Section **6.39.2**
12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## 7. REMOTE OFFICE TEST LINE

### 7.1 GENERAL

This section describes the functions and equipment of the remote office test line (ROTL) for the 5ESS®-2000 switch.

The ROTL is a feature that allows interoffice trunk testing automatically from a Centralized Automatic Reporting on Trunks (CAROT) system. The CAROT system is a computerized system that automatically accesses and tests trunks for a maximum of 14 offices simultaneously. The 5ESS®-2000 switch ROTL supports the following capabilities:

- Transmission tests—100, 102, and 105 test lines
- Connection appraisal—100, 102, and 105 test lines
- Security callback
- Trunk make-busy and restore
- Trunk status request
- Balance and long-term test.

**NOTE:** The 100, 102, and 105 test lines are at the far end of the trunk. Transmission test calls and connection appraisal calls are placed via ROTL toward the distant test lines. The ROTL supports test calls toward the indicated test lines by providing trunk access and seizure, outpulsing of the digits necessary to reach the test line, and a tone detection capability which recognizes when the indicated test line has answered the test call.

The same transmission tests performed by CAROT/ROTL can be requested locally with the **TST:TRK** input message and with poke commands at the trunk and line work station (TLWS).

The ROTL functions are answering calls from CAROT controller, receiving information in the form of multifrequency (MF) digits, and causing trunks to be accessed and attached to the responder for transmission measurement.

**NOTE:** ROTL-initiated trunk testing is denied on trunks carrying 5ESS®-2000 switch for AUTOPLEX® System 1000 traffic.

The switch should be equipped with at least two ROTL ports. It has the ability to park incoming ROTL calls by returning test progress tone back to the CAROT system while ROTL waits for the resources needed to complete the calls. The tone detector that listens for recycling is the resource that is unavailable. The number of ROTL calls that can be parked is determined by the number of ports assigned to ROTL. The number of ROTL calls that can be served simultaneously is determined by the lesser of the number of ports and the number of transmission test function (TTF) or global digital services function (GDSF) guard data guard (GDG) transceiver circuits available to ROTL. The minimum TTF configuration contains one measurement circuit pack (TN304). A GDSF may have 0, 4, or 6 GDG transceiver circuits based on the configuration of the GDSF unit. The TTF measurement circuit pack or the GDSF GDG transceiver circuit is capable of supporting one ROTL call. Some of the circuits on this circuit pack and the GDSF are shared with other test features and contention can occur. The most heavily used resource is the responder and ROTL is given a higher priority than other users of this resource. Additional TTF measurement circuit packs (TN304) may be added in a global digital service unit (GDSU) group if unequipped circuit pack locations in the unit are available.

Each TN304 circuit pack will accommodate one ROTL call. GDSF circuit packs may be added to the DSU3 in a SM-2000 or an SM may add the combined service unit (CSU) which includes a GDSF. Both SM-2000 and SM

GDSFs can be configured to provide GDG transceiver circuits.

Two TTFs can be assigned in an SM if the SM is equipped with two global digital service units (GDSUs). Thirty-two GDSFs can be assigned in an SM-2000 and one or two GDSFs are available in an SM. Any number of SMs can be equipped with TTFs or GDSFs. To make use of the additional TTFs or GDSFs, ROTL ports would have to be assigned across the respective SMs.

Other ROTL functions are determining the test call instructions, seizing the trunk, and causing outpulsing over the trunk under test to the distant office.

## 7.2 EQUIPMENT

In the 5ESS<sup>®</sup>-2000 switch, the ROTL hardware functions are provided by the TTF or GDSF. The TTF is a group of circuit packs in the global DSU and the GDSF is a unit in the DSU3 or CSU. These circuit packs are not provided exclusively for ROTL, but ROTL utilizes the capability provided by this hardware to perform its functions. The ROTL software uses the TTF and GDSF to perform the following functions:

- Detect tones from CAROT (not MF-priming digits)
- Perform call disposition analysis for the trunk under test
- Perform measurements, encode the results, and send them to CAROT
- Send a detailed error code to CAROT in response to a ring forward
- Internally connect a digital path from the trunk under test to the CAROT path.

The TTF and GDSF accesses voice-frequency channels only through the bit stream as provided over the peripheral interface data bus (PIDB). Direct control resides within the module controller of the module in which it is located, and such control is exercised by software interaction over the peripheral interface control bus (PICB).

## 7.3 TRUNK CONDITIONING

### 7.3.1 GENERAL

The CAROT Test Center can perform the following functions:

- Perform a security callback
- Remove trunks from service
- Restore trunks to service
- Request the status of a trunk or group of trunks [in-service or out of service (locked out or disabled)].

These functions are requested by the test center via MF commands.

### 7.3.2 TRUNK MAKE-BUSY AND RESTORE

When the 5ESS<sup>®</sup>-2000 switch system software receives a request to make a trunk remote maintenance-busy or a request to restore the trunk to service, the response is as follows:

- (a) A determination is made whether or not authorization has been established for the make-busy or restore request. If authorization has not been established (that is, a security callback has been performed), a

120-interruptions per minute (IPM) low tone is sent to the control location.

- (b) If authorization has been established, the trunk identification and the action request (make-busy or restore trunk) is passed to the software controlling trunk status Lucent Technologies 3B20D/21D computer memory.
- (c) When the trunk status has been updated, a message is returned to the ROTL and a message is printed in the 5ESS®-2000 switch. The printed message lists the action taken.
- (d) The ROTL then returns a proper tone response to the CAROT controller. Refer to Table 7-1 for proper tone responses.

**Table 7-1 ROTL Response for Make-Busy or Restore**

RESPONSE	CONDITION
Test Progress Tone-2225 Hz	Trunk made busy or restored.
Two Burst Test Progress Tone <sup>a</sup> (2225 Hz)	Trunk made busy and automatic maintenance limit has been exceeded.
60-IPM Low Tone	Request refused because automatic maintenance limit would be exceeded or trunk is traffic busy.
120-IPM Low Tone	Security callback for ROTL unlock was not successful.
<b>Notes:</b>	
a. Each tone and quiet separation period is 520 ± 80 ms.	

The make-busy and restore request is handled by the 5ESS®-2000 switch software and an MF receiver that is shared with call processing.

### 7.3.3 SECURITY CALLBACK

To prevent unauthorized remote locations from taking trunks out of service, several conditions must be satisfied prior to affecting the condition of a trunk. First, the remote location must identify itself as being on an authorized list. The identification (ID) digit, supplied in the priming, must correspond to a valid entry in the office dependent data (ODD) relation "ROTLCB". Second, the 5ESS®-2000 switch must place a call to a prestored directory number and connect the tone detector to the callback circuit. Third, the remote location must transmit the unlocking frequency (1004 Hz) to the ROTL over the callback circuit. Fourth, the ROTL (tone detector) must recognize the unlocking frequency and must declare that authorization has been established. The authorization list states whether a particular test center is authorized to exceed the automatic maintenance limit (AML). Currently, only manual test centers are allowed to exceed the AML. The AML limits the total number of trunks in a trunk group which can be in an out-of-service condition at any one time. Once a security callback is performed, it is effective until the caller disconnects.

### 7.3.4 TRUNK STATUS REQUESTS

In addition to conditioning trunks, any test center can request the maintenance-busy status of either a single trunk or a trunk group. A single-trunk request is followed by the trunk identity (trunk group and member), and it asks if that trunk is currently available to customer traffic. A group request asks if any trunk in the group is maintenance-busy, and if so, if there are more trunks than the AML permits maintenance-busy in the group. The proper tone responses are summarized in Table 7-2.

**Table 7-2 ROTL Response for Trunk or Trunk Group Status Request**

RESPONSE	CONDITION
Two Burst Test Progress Tone <sup>a</sup> (2225 Hz)	Some trunks in group are made busy, but automatic maintenance limit has not been reached.
60-IPM Low Tone	Individual Trunk - Trunk out of service.
60-IPM Low Tone	Trunk Group -

	The number of trunks in the group out of service at or above the automatic maintenance limit.
120-IPM Low Tone	Priming information error.
Test Progress Tone-2225 Hz	Individual Trunk - Trunk in service.
Test Progress Tone-2225 Hz	Trunk Group - All trunks in group in service.
<b>Notes:</b>	
a. Each tone and quiet separation period is $520 \pm 80$ ms.	

## 7.4 TESTS PERFORMED BY ROTL

### 7.4.1 GENERAL

The 5ESS®-2000 switch ROTL is capable of making test calls to 100-type, 102-type, and 105-type far-end transmission test lines. The transmission measuring circuits perform loss and noise measurements, and self-checks on an originating and terminating basis. Far-to-near transmission loss and near-end noise measurements are made in conjunction with the 100-type test line. Only far-to-near loss measurements are made with the 102-type test line. The 105-type test line provides 2-way transmission loss and noise measurements, noise with tone, gain slope, and return-loss measurements.

The test center (Figure 7-1 ) originates a call to the ROTL office via a direct distance dialing (DDD) network connection. The call is processed with the central office switching equipment in the same manner as a regular call. When the ROTL has been seized, it returns a 2225-Hz test progress tone to the test center. When the 5ESS®-2000 switch is prepared to receive test priming information (an MF receiver is connected), the test progress tone is turned off. This is an indication to the test center to transmit priming information to ROTL. This priming information includes the type of action to be performed. Any error detected in the priming information will result in 120 IPM being returned by ROTL. When the action specified is a transmission test, the priming information also includes the trunk under test identity and the far-end test line (FETL) digits. Refer to Figure 7-2 for a summary of ROTL priming information. At the conclusion of each action (either successful or unsuccessful), ROTL can be given a recycle command (1 second of 1300 Hz). The ROTL will return to the state of preparing to receive digits. The ROTL will send the test progress tone and when it is ready to receive a new command, the test progress tone will terminate. At the conclusion of all testing, CAROT sends a drop access command (2 seconds of 1300 Hz) which causes ROTL to disconnect. If CAROT disconnects, ROTL will also disconnect and release all resources associated with the call.

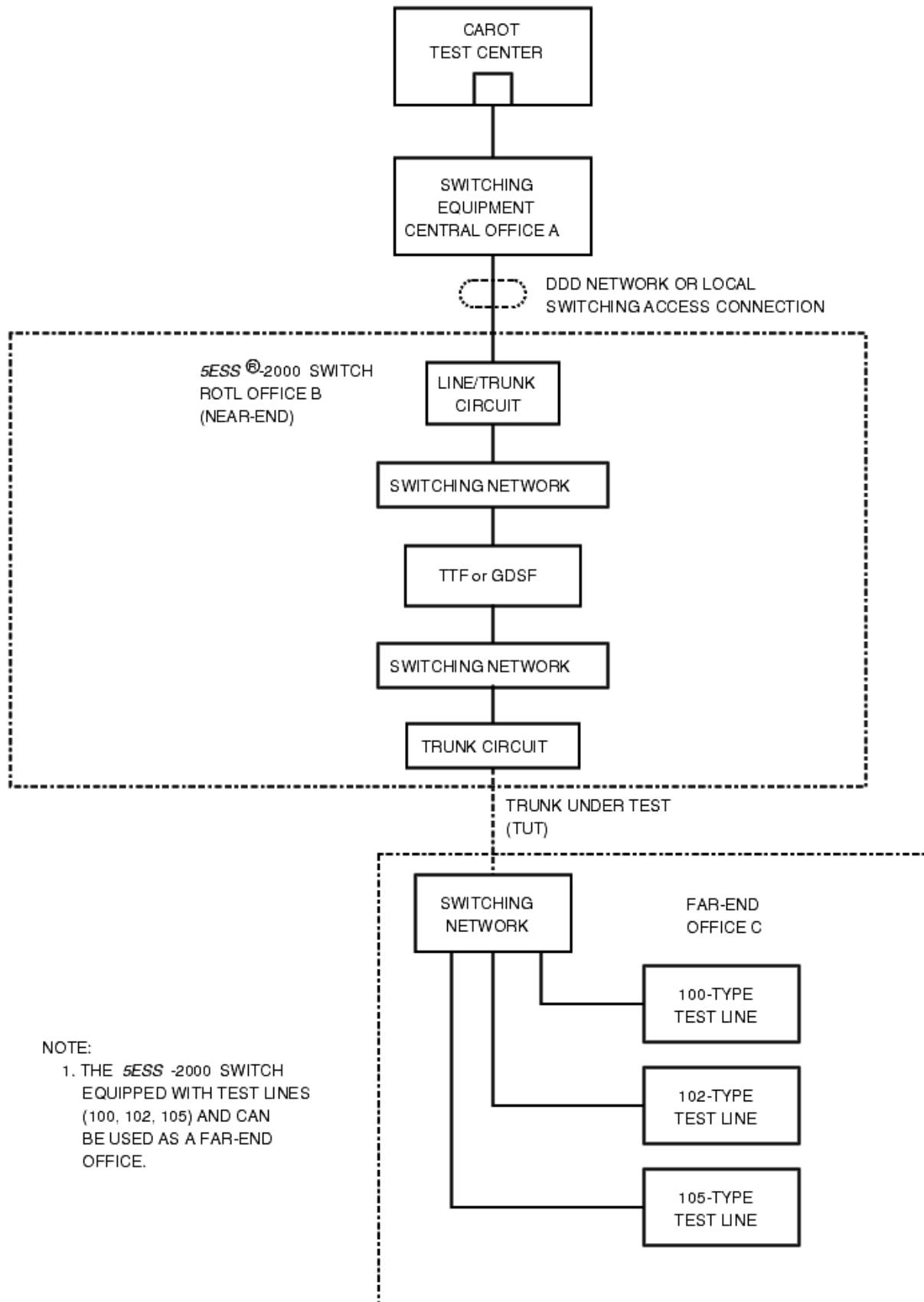


Figure 7-1 5ESS -2000 Switch ROTL Application

ROTL USAGE			DIGITS TRANSMITTED TO ROTL MF RECEIVER (NOTE)						
			1	2	3	4	. . . . . 24 (max)		
Transmission Test		100-type	KP	0	0	M O D I F I E R	Trunk Group (4)	Trunk Member (4)	Far-End Test Line Number* + ST <sup>2</sup> (≤ 11 digits)
		102-type	KP	0	2				
		105type	KP	0	5				
	Override Made Busy	100-type	KP	1	0				
		102-type	KP	1	2				
		105-type	KP	1	5				
Balance and Long Term Tests	Override Made Busy	KP	4	0		Trunk Identifier			
		KP	4	1					
Make Busy and Restore	Make Trunk Remote Busy	KP	5	0		Trunk Identifier		ST	
	Restore Trunk Made Remote Busy	KP	5	1					
Trunk Status Request	Individual Trunk	KP	5	2		Trunk Identifier			
	Trunk Group by Trunk	KP	5	3					
	Trunk Group by Group	KP	5	4					
Callback Unlock Request			KP	5	5	ID	ST		
Connection Appraisal	100-type		KP	6	0	Far-End Test Line Number <sup>2</sup> + ST (≤ 15 digits)			
	102-type		KP	6	2				
	105-type		KP	6	5				
<b>Note:</b> KP = Key Pulse (Start Pulse) ST = Stop Pulse									
* Exact digits to be oupulsed									
<sup>2</sup> 7-, 10-, or 11-digit directory number of far-end test line.									

Figure 7-2 ROTL Priming Information

## 7.4.2 REMOTE OFFICE RESPONDER TESTING

### 7.4.2.1 Transmission Tests (100-Type Test Line)

This test is a 1-way (far-to-near) loss and/or noise transmission test to a 100-type test line in the far-end office. The



test center transmits MF test priming information to the 5ESS®-2000 switch which is interpreted by the ROTL program. The ROTL program decodes the priming information and connects a TTF or GDSF tone detector to the trunk under test (TUT) and reserves a TTF responder or GDSF GDG transceiver. If neither of these resources are available, ROTL will queue them. When the TUT is seized, a 0.5-second burst of test progress tone is sent to CAROT by ROTL. The FETL number is outpulsed exactly as received in the priming. The far-end office connects to a 100-type test line. Then, the far-end office transmits a nominal 1004-Hz for a nominal 5.5 seconds to the ROTL office. This tone is followed by a quiet termination. The tone is detected by ROTL and another 0.5-second burst of test progress tone is sent from ROTL to CAROT. If prior to the 1004-Hz tone any audible rings or other signals (low tone) are heard by ROTL, it will send low tone to CAROT that follows the envelope of the received signal. Reorder or busy tone will appear to be heard directly from the far end by CAROT, but actually the tones have been regenerated. If the test progress tone is heard instead of the expected milliwatt tone, reorder will be sent to CAROT. The near-end responder is activated and a third 0.5-second burst of test progress tone is sent to CAROT. This tone is the signal that CAROT can start making measurements. If the responder in the near-end office is requested by the test center to make a 1000-Hz loss measurement, the near-end responder measures the received signal from the trunk under test. The responder then generates a measurement data signal consisting of a 1200-Hz guard tone and a 2200-Hz data tone followed by a 1200-Hz trailing guard tone. The duration of the data tone is proportional to the amplitude of the received signal. The measurement data signal is forwarded to the test center. Then, the ROTL office sends a 1000-Hz signal to the test center for as long as the 1000-Hz signal is present from the far-end office. The near-end responder resets when the tone is turned off by the far-end office to await additional MF commands from the test center. The ROTL will continue to wait for measurement commands until one of the following is received:

- CAROT disconnects
- Recycle
- Release
- Release/make-busy.

The maximum elapsed time is 3 minutes.

#### **7.4.2.2 Transmission Tests (102-Type Test Line)**

This test is a 1-way loss test (far-to-near) to a 102-type test line in the far-end office. It follows a pattern similar to the 100-type test line. The test center transmits MF test priming information to the 5ESS®-2000 switch which is interpreted by the ROTL program as a request to connect to the trunk under test. The terminating 102-type test line directory number is then outpulsed to the far-end office over the trunk under test. Unlike the 100 test, no TTF responder or GDSF GDG transceiver is reserved at this point. When the test line is seized at the far-end office, the 102-type test line transmits  $1000 \pm 10$  Hz at 0 dBm to the ROTL office. When this tone is detected, the second burst of test progress tone is sent to CAROT as in the 100-type test line call. At this point, ROTL requests a TTF responder or GDSF GDG transceiver. The third burst of test progress tone is started when the responder is requested, terminated, available, and ready to make measurements. These types of test lines interrupt the signal periodically at approximately 10-second intervals. The responder in the ROTL office makes a loss measurement only when the tone is present so that the interruption in the 1000 Hz from the 102-type test line does not cause any error in the measurement.

### **7.4.3 RESPONDER-TO-RESPONDER TESTING**

#### **7.4.3.1 Transmission Tests (105-Type Test Line)**

##### **7.4.3.1.1 General**

Responders provide 2-way transmission loss and noise measurements and a variety of other measurements of the trunk under test. The test center controls the measurements of trunks between the near-end office and a far-end office containing the 105-type test line. All measurement results on the trunk under test are sent back to the test center in the form of frequency-shift data signals.

The 105 call follows a pattern similar to the 100-type and 102-type test line calls. When the trunk under test has been seized, the first burst of test progress tone is sent and the directory number of the far-end 105-type test line is outpulsed. The far-end sends back test progress tone while it is queuing for a responder. The test progress tone is terminated when the far-end responder is ready. The termination of this test progress tone causes the second burst of test progress tone to be sent to CAROT by ROTL. After the connection has been established and the far-end responder has been connected, ROTL makes a bid for the near-end responder at the ROTL office. The third burst of test progress tone is sent to CAROT while waiting on a responder as in the 102-type test line call. When the responder is available, control is given to the CAROT Test Center. The test center controls the action of the responder.

#### **7.4.3.1.2 Loss Measurements**

Loss measurements are initiated when the test center sends a 2/6-MF command signal, which requests loss measurements, to the ROTL responder and to the far-end responder.

The ROTL responder sends the 1200-Hz guard tone to the test center. Simultaneously, the far-end responder sends a 1004-Hz (1-mw) test tone over the trunk under test. This tone level is to be measured by the ROTL responder.

The ROTL responder measures the 1-kHz signal received from the far-end responder. It converts the measured loss to a 2200-Hz data tone. Then, the ROTL responder transmits the 2200-Hz data tone to the test center immediately following the 1200-Hz guard tone. The 2200-Hz data tone is followed by a second 1200-Hz guard tone. The ROTL responder also transmits a 1000-Hz (1-mw) test tone to the far-end responder after the far-to-near transmission test has been made. The 1000-Hz test tone transmitted to the far end from the ROTL responder allows the near-to-far loss on the trunk under test to be measured.

The far-end responder measures the level of the 1000-Hz signal from the ROTL responder. The received signal is converted to a 2200-Hz data signal which is transmitted back toward the test center along with guard tone on both sides of the data signal. The value of the measurement is indicated by the length of time that the responder sends 2200 Hz. The relationship between the measurement and length of the 2200-Hz signal is logarithmic. The ROTL responder detects the 1200-Hz guard tone. When the guard tone is detected, the trunk under test is bridged to the access connection. The access connection routes the measurement results to the test center. After completing the loss measurements, the responders return to a signal-receive state awaiting further command signals from the test center.

#### **7.4.3.1.3 Noise Measurements**

Noise measurements are initiated when the test center sends the appropriate 2/6-MF command signals to the ROTL responder and far-end responder.

The far-end responder terminates the trunk under test. The ROTL responder measures the near-end noise, converts the measurements into a 2200-Hz data signal, and transmits this signal (as guard-data-guard) to the test center. The test center then sends a second 2/6-MF signal to the responders.

The far-end responder recognizes the MF signal and measures the far-end noise. During the measurement, the ROTL responder provides a termination for the trunk under test. The far-end responder transmits a 1200-Hz guard tone, followed by the 2200-Hz data signal, and then 1200-Hz guard tone toward the test center. The ROTL responder detects the 1200-Hz guard tone and bridges (cuts through) the trunk under test to the access connection, so that the guard-data-guard (2200-Hz data signal) from the far-end responder can be sent to the test center. The responders then return to a signal-receive state awaiting further MF command signals from the center.

The test center causes self-checks to be made on both near-end (simulated) and far-end responders for loss, noise, and other tests that are requested. The results of the self-checks are transmitted back to the test center. These tests consist of the following:

- Return-loss measurement
- Noise with tone measurement
- Gain-slope measurements.

The return-loss measurement is initiated when the near-end responder receives 2 or 3 MF digits as a request for a return-loss measurement. It relays the layer 2 (and 3, if required) MF digit(s) which denote the test desired to the far-end responder (Table 7-3 ).

**Table 7-3 Interpretation of Responder MF Commands**

MF SIGNALS Hz	LAYER 0 <sup>a</sup>	LAYER 1 <sup>a</sup>	LAYER 2 <sup>a</sup>	LAYER 3 <sup>a</sup>
700 + 900	600, 0, 105	-	Loss Self-Check: The responder closes a loop to measure its input and output of 1004 Hz (0 dBm)	High frequency return self-check measurement
700 + 1100	600, 0, 102	-	Loss Measurement at 1004 Hz (0 dBm)	High frequency return loss measurement
700 + 1300	600, 0, 100	-	Noise Self-Check: Far-end responder checks itself (1004 Hz at -67 dBm)	-
700 + 1500	-	-	-	-
700 + 1700	-	-	Echo return loss measurement	Echo return loss self-check measurement
900 + 1100	-	-	C-noise measurement with far-end responder	-
900 + 1300	Release	Release	Release	Release
900 + 1500	-	-	Low frequency return loss measurement	Low frequency return loss self-check measurement
900 + 1700	-	-	Loss measurement at 1004 Hz at -16 dBm	Self-check measurement at 1004 Hz at -16 dBm
1100 + 1300	-	-	Loss measurement at 404 Hz at -16 dBm	Self-check measurement at 404 Hz at -16 dBm
1100 + 1500	-	-	Noise self-check measurement on responder in the ROTL office	-
1100 + 1700	Layer	Layer	Layer	-
1300 + 1500	-	-	Noise measurement with the responder in the ROTL office	-
1300 + 1700	-	-	Loss measurement at 2804 Hz at -16 dBm	Self-check measurement at 2804 Hz at -16 dBm
1500 + 1700	-	-	Noise measurement in the presence of a 1004-Hz tone at -16 dBm	Noise with tone self-check measurement through the appropriate filters
<b>Notes:</b>				

a. Dashes indicate unassigned code-state combinations.

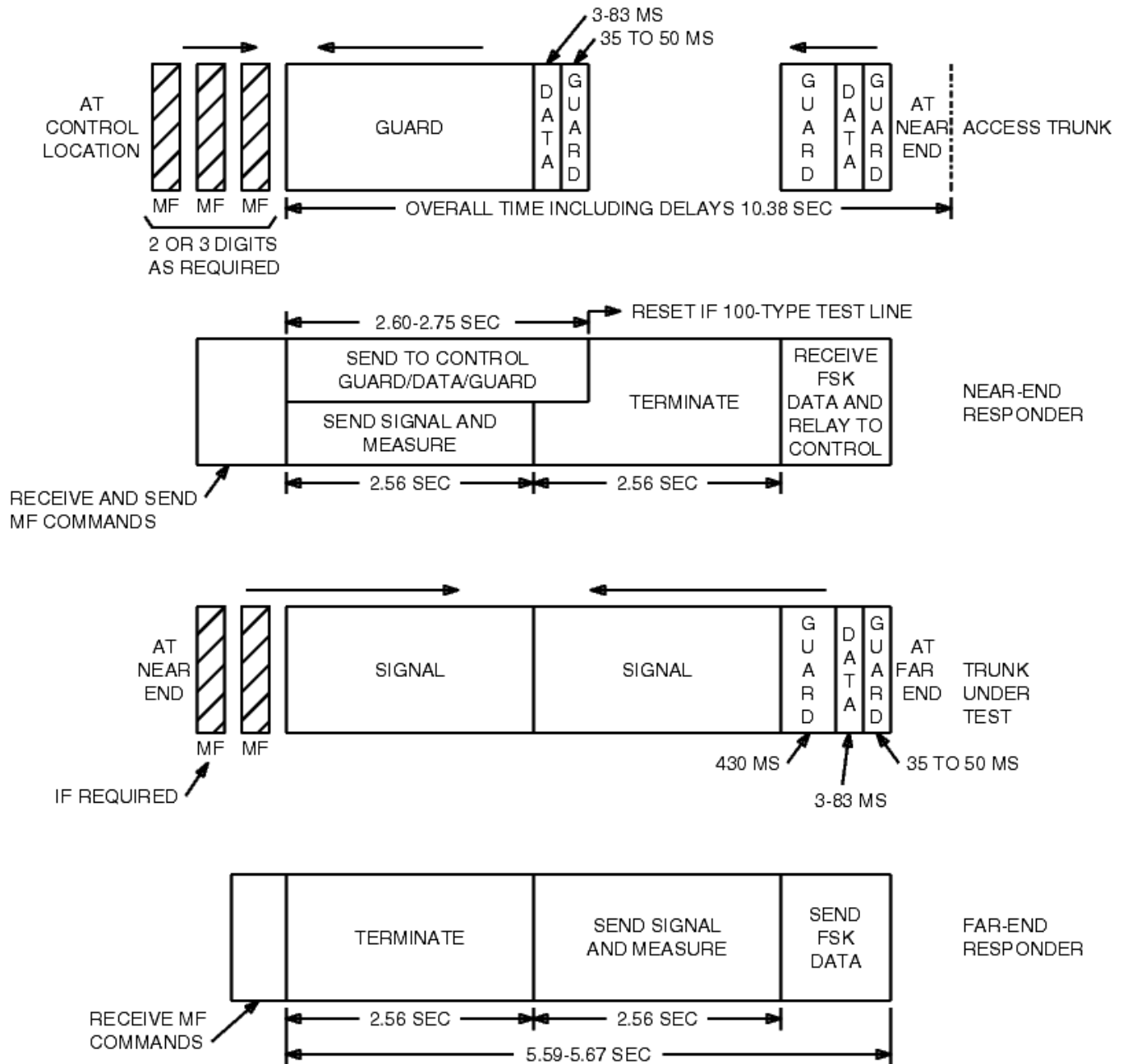
The far-end responder applies quiet termination for 2.56 seconds upon receipt of the MF command. The three return-loss tests are: echo return-loss, singing return-loss, and singing return-high loss. All three tests have the same timing.

As soon as the near-end responder receives the test request, it starts sending a guard tone (1200 Hz) to the control location. A guard tone is sent for 2.6 to 2.75 seconds. At the same time, the near-end starts transmitting the proper signal to the far end and also measuring the return-loss. The "return-loss" signal is not a signal sent by the far-end responder but is the portion of the transmitted signal which is reflected back. The transmit-measure process lasts for 2.56 seconds. Note that the 2.56-second quiet termination provided by the far-end responder will not be in exact synchronism with the near-end quiet termination due to transmission delays.

After the near-end responder completes the measurement, it sends data (2200 Hz) to the control location. The duration of the data signal is proportional to the return-loss measurement. Then the near-end sends a guard tone for 25 to 50 milliseconds. As soon as the near-end completes the measurement, it also applies a quiet termination to the trunk under test. This quiet termination lasts for 2.56 seconds. At the end of the 2.56-second quiet termination interval, the near-end is ready to receive data from the far-end. It will wait for data for 2.56 seconds, and if none is received in that period, the near-end resets. If data is received, the near end relays it to the control location, and at the end of the signal, resets.

After the far-end receives the test request (MF) digit, it applies a quiet termination for 2.56 seconds as previously described. It then transmits the test signal (according to which return-loss test is being performed) and measures the return signal for 2.56 seconds. It then transmits the measurement to the near-end in the guard-data-guard format as described for the near-end responder. The far-end responder then resets.

Note that the time intervals as shown in (Figure 7-3 ) for the far- and near-end responders are not synchronous. Transmission delays are not shown.



## NOTE:

1. TRANSMISSION DELAYS NOT SHOWN

**Figure 7-3 Timing Interval for Return Loss Measurements**

The noise with tone measurement is the same as the loss measurement described in Part 7.4.3.1.2 of this section except for the following:

- The received tone is processed in the noise measurement path with the addition of a 1000-Hz band rejection filter.
- The transmitted tone from the far-end responder toward the near end is always 1004 Hz at -16 dBm. This is the first action that the far-end responder takes after satisfactorily receiving a command to make the noise with tone

measurement.

The gain slope measurements involve making loss measurements at the following three frequencies and levels:

- 404 Hz at -16 dBm
- 1004 Hz at -16 dBm
- 2804 Hz at -16 dBm.

The three frequencies are used to measure the bandwidth of the trunk which is the range of frequencies that the trunk can transmit.

Table 7-3 summarizes the ROTL responder interpretation of the MF signals from CAROT or other locations. The column labeled "MF Signals" shows the sum of two frequencies. The power of the two tones is measured as though the tones were continuous.

There are four columns called "LAYER" numbered 0 through 3. These indicate the state of the MF receiver in the responder. The first two layers, 0 and 1, are used only for a near-end responder interfacing with a ROTL. The purpose of layer 0 is to inform the responder (in the ROTL office only) that the impedance of the trunk under test is 600 ohms, that the office is arranged for testing at test point 0, and that the far-end test line is code 100, 102, or 105. This information is transmitted via the first MF pulse received in the 0 layer of the MF receiver. When the responder in the ROTL office is in the 0 or 1 layer, no MF information is forwarded to the far end of the trunk under test.

The release MF signal in any layer causes the responder to signal the test line that the trunk under test should be released. If the two pulses are received in succession, then the responder will signal the ROTL that the trunk under test should be made busy and then released. A delay of 200 ms is begun, after the receipt of the first 900 Hz plus 1300 Hz MF signal, to check for the occurrence of another 900 Hz plus 1300 Hz MF signal within that interval.

The layer MF pulse causes the MF detector in the responder to go to the next higher state (for example, from layer 0 to layer 1). When an MF signal other than RL or layer is received with the MF receiver in layer 0, it must shift to layer 2 so that the next MF will be interpreted as a test instruction and be transmitted to the far end of the trunk under test. Note that the far-end responder is initially in layer 2. Layers 0 and 1 signals are not transmitted to the far end.

When the responder is used with a code 105-type test line or a miniresponder is used at the terminating end of the trunk under test, the initial state of the MF receiver must be layer 2. This is necessary because the first MF pulse will contain test rather than conditioning information. At the conclusion of a transmission test, CAROT normally sends a release digit (MF 5 digit) to accomplish the following:

- Release the test equipment
- Return the trunk to its prior test condition
- Recycle ROTL in preparation for a new set of priming.

The CAROT can also send a release/make-busy command (two MF 5 digits). This command recycles ROTL but leaves the trunk in an out-of-service/maintenance/CAROT (OOS/MTCE/CAROT) state. The CAROT can also send a recycle command (1 second, 1300 Hz) which has the same effect as the release. The recycle command can be given at any time and is also used at the conclusion of each nontransmission test command to recycle ROTL. The ROTL responses to the previous three commands are summarized in Tables 7-4 and 7-5.

**Table 7-4 ROTL Responses to Recycle, Release, and Release/Make Busy After Transmission Tests**

CAROT COMMAND SENT TO ROTL <sup>a</sup>	ROTL RESPONSE TO COMMAND <sup>a</sup>	MEANING
Release or recycle	Test progress tone  60-IPM low tone (busy)	Normal, trunk release, ready for new priming at end of test progress tone. A supervisory hit or disconnect was detected on the trunk under test during testing. (A recycle command is normally sent by CAROT to recycle ROTL after this response is receive.)
Release make busy	Test progress tone  120-IPM low tone (reorder)  60 IPM (busy)  Silence	Normal, trunk make busy, ready for new priming at end of test progress tone. No authorization to remove trunks (security callback not performed). Could not busy trunk, probably due to AML being exceeded. A recycle authorization sent by CAROT. ROTL will return 60 IPM indicating that a hit or disconnect was detected on the trunk under test. A second recycle is required to recycle ROTL.
<b>Notes:</b> a. There is no monitoring for supervisory hits or disconnects on 102-type tests, or on connection appraisal. At any time, ROTL sends 120-IPM low tone (reorder) to CAROT; there may be additional information available from ROTL. This information can be requested by sending a ring forward request (1300 Hz for 100 ms). Ring forward is not used by the 5ESS®-2000 switch ROTL in normal testing as it does not perform operational tests. The response to ring forward will be in the guard-data-guard format. An alternative is to request a noise measurement. It will also trigger the guard-data-guard reply, which can be interpreted as a noise reading and converted to the error code. Table 7-5 lists the 5ESS-2000 switch ROTL errors.		

Table 7-5 Ring Forward Error Replies

92A PULSE LENGTH (milliseconds)	H310 NOISE READING (dB) ( a )	MEANING
9	18	Unknown, no further information
17	22	Route failure to test trunk
25	26	Failed to set up path to trunk
33	30	Failure during call disposition analysis
41	34	Failure at trunk under test
49	38	Failure to close path to trunk
57	42	Could not understand priming
65	46	No answer supervision received on trunk
73	50	Security callback has not been completed
81	54	Hardware failure
89	58	Failed to activate (seize) trunk
97	62	Failure during outpulsing
105	66	Glare seen on trunk
113	70	Interrupt seen at trunk process
121	74	TTF CUT tone detector or GDSF GDG tone transceiver detected wrong tone
129	78	Data base error
137	82	Failed to get a wink
153	90	Failed to send milliwatt on a BALT test
<b>Notes:</b> a. The noise readings are taken using either the 92A or H310 test sets, the two common test sets used for ROTL. The H310 test set is only capable of determining the ring forward error by making a noise measurement. The error reply is converted into an equivalent noise reading in dB. The 92A test set can make the noise measurement, or it has provisions for measuring the duration of the error tone directly in milliseconds.		

#### 7.4.4 BALANCE AND LONG-TERM TEST

The terminal balance function of the ROTL involves connecting a tone-and-quiet source to a selected outgoing trunk from the ROTL central office. Upon receipt of the same information as a transmission test, except for a different request code, a call is originated by the ROTL over the selected trunk. When the call terminates, a 1000-Hz start test tone burst is expected by ROTL. After it occurs, the tone-and-quiet source is attached to the trunk in the ROTL office. This source provides 10 seconds of 1004-Hz (0 dBm) tone followed by a 30-minute period of quiet balance termination during which balance measurements or adjustments can be made at the far end of the CAROT trunk or line. The test is terminated by receiving a disconnect on the trunk under test. After 60 seconds of quiet termination, the ROTL is no longer associated with this test, and a recycle signal from the test center will have no effect. Prior to this, a recycle will be accepted.

#### **7.4.5 CONNECTION APPRAISAL TEST**

The Connection Appraisal feature provides for conducting a transmission test on a connection setup from the 5ESS®-2000 switch office to a test line in a distant office with normal routing and trunk selection. More than one trunk may be used in a built-up connection. The directory number of the far-end transmission test line is included in the priming information. When priming is complete, a test line in a far-end office is dialed up. When the test line is seized, the test sequence proceeds in a manner similar to a routine transmission test.

For a connection appraisal test, the ROTL originates a call in a subscriber-like manner by using digits contained in the priming information sent from the control location. The sequence of signals is identical to that for trunk transmission tests with the following variations:

- Call processing trunk hunting mechanisms are used to determine the trunk to be used for the call.
- There is no monitoring for supervisory hits.
- The overall connection, instead of a particular trunk, is measured.
- There is no make-busy capability.

#### **7.5 OFFICE DEPENDENT DATA REQUIREMENTS**

Office dependent data is required in the 5ESS®-2000 switch for the ROTL feature. The CAROT accesses ROTL through the DDD network by dialing a directory number assigned to ROTL which will terminate at test software in the 5ESS®-2000 switch. Since a directory number is assigned to ROTL, the ROTL directory number must be associated with a unique route index. A route index defines how a call is to be routed. The route index associated with the ROTL directory number routes to a trunk group of ROTL test ports. The ROTL test ports must be assigned in the switching modules with transmission test functions.

The 5ESS®-2000 switch data base must contain the callback directory number of the CAROT and any directory number of authorized manual location(s) for the ROTL security callback. The ROTL security call is described in Part 7.3.3 of this section. This list of authorized locations must be defined in the 5ESS®-2000 switch. The list also contains the authority for each directory number (none, manual, or automatic). The "none" maintenance test mode inhibits any and all callers from a given CAROT from changing the trunk status of the tested trunks. All "manual" mode locations have the authority to remove trunks from service allowing the automatic maintenance limit to be exceeded. The "auto" maintenance test mode indicates that the CAROT or control location can automatically remove trunks from service if they fail specific tests. The automatic maintenance limit with the "auto" mode cannot be exceeded. The automatic maintenance limit is established by the operating telephone company customer and states the number of trunks that can be removed from service.

The screening index and digit analysis selector that will be used for ROTL security callback and connection appraisal calls must be defined. The screening index and digit analysis selector are accessed during digit analysis of ROTL calls.



The assignment of office dependent data is made via the initial office data administration run or recent change menus and view. The data assignments required for ROTL consist of the following:

- A trunk group and trunk group member for ROTL test ports
- Route index to the trunk group of ROTL test ports
- Line class code for ROTL
- ROTL test line
- Digit analysis selector and screen index data
- CAROT code and security callback data.

The data assignments in the 5ESS<sup>®</sup>-2000 switch can be made via the video display terminal, Teletype 4025BS teletypewriter terminal, VT100<sup>™</sup> video terminal, or equivalent, by using the interactive process provided by the recent change menus and views. With systems using program documentation standards commands, use the following input messages to access the recent change menus and views. **RCV:MENU:APPRC,PRINT;**

With systems using the man-machine language (MML) commands (5E8 and later software releases), use RCV:MENU,DATA APPRC,PRINT; to access the recent change menus and views. Refer to the 5ESS<sup>®</sup>-2000 Switch Input Message Manual, 235-600-700 for further details.

The recent change view transition procedures differ depending on the software release in the office. If you are not familiar with the procedures for going from one view to another, refer to the appropriate section for further details concerning the recent change menus and views. The appropriate documents are listed in Section 7.6 , REFERENCES, of this manual.

Refer to recent change views 5.1, 5.5, 10.2, 4.1, 1.5, 8.1, and 14.2 which are necessary to make the data assignments for ROTL.

## 7.6 REFERENCES

The following documents may be consulted for additional information:

- 235-600-700: *Input Message Manual—5ESS<sup>®</sup>-2000 Switch*
- 235-600-750: *Output Message Manual—5ESS<sup>®</sup>-2000 Switch*
- 235-080-100: *5ESS<sup>®</sup>-2000 Switch Translation Guide*
- 235-118-247: *Recent Change Procedures— Software Release 5E9(2)*
- 235-118-248: *Recent Change Reference— Software Release 5E9(2)*
- 235-118-249: *Recent Change Procedures— Software Release 5E10*
- 235-118-250: *Recent Change Reference— Software Release 5E10*
- 235-118-251: *Recent Change Procedures— Software Release 5E11*
- 235-118-252: *Recent Change Reference— Software Release 5E11*

## 8. FAN AND ALARM TESTS

### GENERAL

This section contains detailed level procedures for fan and alarm tests.

Master control center (MCC) display Page 105/106 is used to summarize building/power alarm status, to provide inhibit/allow controls for building alarms, and to provide controls for alarm retire mode.

When an alarm condition is present and it is not inhibited, the respective display indicator will backlight, except the FIRE indicator. The FIRE indicator flashes in addition to the backlighting. In the SUMMARY STATUS AREA, the associated alarm level (CRITICAL, MAJOR, or MINOR) will backlight, and BLDG/PWR will start flashing. Also, an audible alarm will sound.

When an alarm is inhibited, the respective indicator will have "INH" written in and will be backlighted; BLDG INH in the SUMMARY STATUS AREA will also backlight.

Building alarms 02-27 are the only alarms on MCC display Page 105/106 which can be inhibited by the craft. Any other inhibit present would be the result of a system inhibit.

The indicator near the top right-hand portion of MCC display Page 105/106 shows the retire mode (MANUAL or AUTOMATIC). Manual mode requires craft action (depressing the alarm retire key on the MCC) to stop CRITICAL and MAJOR alarms from flashing and to shut off the audible alarms. Automatic mode stops the flashing and shuts off the audible alarms after 5 seconds.

**Procedure 8.1: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — for Future Use

## Procedure 8.2: TEST CRITICAL OFFICE ALARM

### PROCEDURE

1. Obtain office engineering records Form 5840(02) TG-5, SCAN POINT NUMBER ASSIGNMENT RECORD, showing alarm scan point assignments.
2. Ensure office is in duplex mode (that is, both input/output processor 0 and 1 up) before proceeding.
3. Select a **CRITICAL** office alarm from office engineering records.
4. At the master control center (MCC) terminal, type and enter **105**.

Response: **105/106 BLDG/POWER & ALARM CNTRLs** menu page displayed.

5. On Page 105/106, ensure that **CRITICAL** alarm selected for test is not inhibited.
6. Using local procedures, simulate a **CRITICAL** alarm condition for selected office alarm.

Response: Audible alarm chimes at fast rate (critical).

At MCC Summary Status Area, **CRITICAL** alarm indicator backlights and **BLDG/PWR** flashes red.

On Page 105/106, alarm block for selected **CRITICAL** alarm backlights (flashes for **FIRE** alarm).

At receive-only printer (ROP), **\*C REPT ALM BPSC a b** message is printed.

Where: **a** = number of office alarm selected for test.  
**b** = name of office alarm selected for test.

7. At the MCC terminal keyboard, depress the **ALM RLS** function key.

Response: At MCC, **CRITICAL** alarm status indicator clears and **BLDG/PWR** turns steady blue.

8. Remove **CRITICAL** alarm condition from selected office alarm.

Response: At MCC, **BLDG/PWR** clears.

On Page **105/106**, alarm block for selected **CRITICAL** alarm **OFF**.

At ROP, **REPT ALM BPSC a b CLEARED** message printed.

9. Have all **CRITICAL** office alarms been tested?

If **YES**, go to Step 12.

If **NO**, continue with Step 10.

10. Select another **CRITICAL** office alarm.

11. Now repeat from Step 4.
12. Record results of alarm test(s).
13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.3: TEST MAJOR OFFICE ALARM

### PROCEDURE

1. Obtain office engineering records Form 5840(02) TG-5 SCAN POINT NUMBER ASSIGNMENT RECORD, showing alarm scan point assignments.
2. Ensure office is in duplex mode (that is, input/output processor 0 and 1 up) before proceeding.
3. Select a **MAJOR** office alarm from office engineering records.
4. At the master control center (MCC) terminal, type and enter **105**.

Response:      **105/106 BLDG/POWER & ALARM CNTRLS** menu page displayed.

5. On Page 105/106, ensure that **MAJOR** alarm selected for test is not inhibited.
6.            **CAUTION:** Due to possible difficulty or potential damage to unit when attempting to force a true alarm condition, a short across the scan lead or an open in the scan lead loop should be used to simulate an alarm condition for alarms where no comment is given in Table 8.3-1 .

Using examples in Table 8.3-1 , simulate **MAJOR** alarm condition for selected office alarm.

Response:      Audible alarm chimes at slow rate.

At MCC Summary Status area, **MAJOR** alarm indicator backlights and **BLDG/PWR** flashes yellow.

On Page 105/106, alarm block indicator for selected **MAJOR** alarm backlights.

At receive-only printer (ROP), \*\* **REPT ALM BPSC a b** message printed.

Where:          **a** = number of office alarm selected for test.

**b** = name of office alarm selected for test.

7. At the MCC keyboard, depress **ALM RLS** function key.

Response:      At MCC, **MAJOR** alarm status indicator clears and **BLDG/PWR** turns steady blue.

8. Remove **MAJOR** alarm condition from selected office alarm.

Response:      At the MCC, **BLDG/PWR** clears.

On Page 105/106, alarm block for selected **MAJOR** alarm **OFF**.

At ROP, **REPT ALM BPSC a b CLEARED** message printed.

9. Have all **MAJOR** office alarms been tested?

If **YES**, go to Step 12.

If **NO**, continue with Step 10.

10. Select another **MAJOR** office alarm.
11. Repeat from Step 4.
12. Record results of alarm test(s).

**Table 8.3-1 Simulate Office Alarms**

<b>ALARM</b>	<b>COMMENT</b>
Critical Fire	Use local procedures.
Fire Alarm Trouble	Use local procedures.
High Temperature	Apply heat to sensor.
Low Temperature	Apply ice to sensor.
Air Dryer	Remove fuse of power ON air dryer.
Door Intrusion	Open door.
Air Conditioner	Remove power at A/C disconnect.
Miscellaneous Power Supplies	<b>a</b>
SLC <sup>®</sup> Carrier ANACONDA PBX	<b>a</b>
Miscellaneous Alarm Circuit	<b>a</b>
Discharge Fuse Failure	On power plant, short pins 8 and 9 on any of the circuit breakers.
Inverter Failure	To simulate loss of -48 volts from the inverter, short pins 2 and 3 on TB5 of K1 relay of the inverter.
Inverter Transfer Alarm	Operate the TEST switch at the front of inverter.
Low Voltage	With conditions permitting, power down all battery charging rectifiers. Low voltage alarm will activate when plant voltage monitor reads between -48.25 and -51.25 volts.
High Voltage	Increase voltage output of one rectifier enough to raise plant voltage monitor to -53.25 volts. If alarm does not activate, then follow the procedure in the footnote ( <b>a</b> ).
Rectifier Failure	Power any single rectifier down.
Fuse ALM PDF	Insert blown indicator fuse in at least one fuse position of each fuse block.
Alarm Battery ALM	Insert blown indicator fuse in Alarm Battery Source.
CO BATT DISCHG	Power all battery charging rectifiers down.
STBY PLANT ALM	See STBY PLANT manual.
Commercial Power Failure	Operate TEST switch at front of inverter.
Miscellaneous	<b>a</b>
<b>Notes:</b>	
a. Due to possible danger, difficulty, or potential damage to unit when attempting to force a true alarm condition, a short across the scan lead or an open in the scan lead loop should be used to simulate an alarm for alarms where no comment is given. The "TERM" column of the office engineering records indicates whether an alarm is normally opened or closed.	

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.4: TEST MINOR OFFICE ALARM

### PROCEDURE

1. Obtain office engineering records Form 5840(02) TG-5 SCAN POINT NUMBER ASSIGNMENT RECORD, showing scan point assignments.
2. Ensure office is in duplex mode (that is, both input/output processor 0 and 1 are up) before proceeding.
3. Select a **MINOR** office alarm from office engineering records.
4. At the master control center (MCC) terminal, type and enter **105**.

Response:      **105/106 BLDG/POWER & ALARM CNTRLS** menu page displayed.

5. On Page 105/106, ensure that **MINOR** alarm selected for test is not inhibited.
6.            **CAUTION:** Due to possible danger, difficulty, or potential damage to unit when attempting to force a true alarm condition, a short across the scan lead or an open in the scan lead loop should be used to simulate an alarm condition for alarms where no comment is given in Table 8.3-1 .

Using examples in Table 8.3-1 , simulate **MINOR** alarm condition for selected office alarm.

Response:      Minor alarm horn sounds (if office is so equipped).

At MCC Summary Status area, **MINOR** alarm indicator backlights and **BLDG/PWR** flashes white.

On Page 105/106, alarm block for selected **MINOR** alarm backlights.

At receive-only printer (ROP), \* **REPT ALM BPSC a b** message printed.

Where:          **a** = number of office alarm selected for test.

**b** = name of office alarm selected for test.

7. At the MCC keyboard, depress **ALM RLS** function key.

Response:      At MCC, **MINOR** alarm status indicator clears and **BLDG/PWR** turns steady blue.

8. Remove **MINOR** alarm condition from selected office alarm.

Response:      At MCC, **BLDG/PWR** clears.

On Page 105/106, alarm block for selected **MINOR** alarm **OFF**.

At ROP, **REPT ALM BPSC a b CLEARED** message printed.

9. Have all **MINOR** office alarms been tested?

If **YES**, go to Step 11.



If **NO**, continue with Step 10.

10. Select another **MINOR** office alarm. Proceed to Step 4.
11. Record results of alarm test(s).
12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.5: TEST MAJOR MISCELLANEOUS ALARM

### PROCEDURE

1. Obtain office engineering records Form 5840(02) TG-5 SCAN POINT NUMBER ASSIGNMENT RECORD, showing alarm scan point assignments.
2. Ensure office is in duplex mode (that is, input/output processor 0 and 1 are up) before proceeding.
3. Select a **MAJOR** miscellaneous alarm from office engineering records.
4. At the master control center (MCC) terminal, type and enter: **119**.

Response:     **119 MISCELLANEOUS ALARMS** menu page displayed.

5. On Page 119, ensure that **MAJOR** alarm selected for test is not inhibited.
6.             **CAUTION:** Due to possible danger, difficulty, or potential damage to unit when attempting to force a true alarm condition, a short across the scan lead or an open in the scan lead loop should be used to simulate an alarm condition for alarms where no comment is given in Table 8.3-1 .

Using examples in Table 8.3-1 , simulate **MAJOR** alarm condition for selected miscellaneous alarm.

Response:     Audible alarm chimes at slow rate.  
At MCC Summary Status area, **MAJOR** alarm indicator backlights and **MISC** flashes yellow.

On Page 119, alarm block for selected **MAJOR** alarm backlights.  
On page 116, **ALARM** backlights in the **MISCELLANEOUS ALARMS** indicator.  
At receive-only printer (ROP), **\*\* REPT ALM MISC a b** message printed.

Where:        **a** = number of miscellaneous alarm selected for test.

**b** = name of miscellaneous alarm selected for test.

7. At the MCC keyboard, depress **ALM RLS** function key.

Response:     At MCC, **MAJOR** alarm status indicator clears and **MISC** turns steady blue.

8. Remove **MAJOR** alarm condition from selected miscellaneous alarm.

Response:     At MCC, **MISC** clears.

On Page 119, alarm block for selected **MAJOR** alarm **OFF**.

On Page 116, **ALARM** indicator clears.

At ROP, **REPT ALM MISC a b CLEARED** message printed.

9. Have all **MAJOR** miscellaneous alarms been tested?

If **YES**, go to Step 11.

If **NO**, continue with Step 10.

10. Select another **MAJOR** miscellaneous alarm. Proceed to Step 4.
11. Record results of alarm test(s).
12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 8.6: TEST MINOR MISCELLANEOUS ALARM****PROCEDURE**

1. Obtain office engineering records Form 5840(02) TG-5 SCAN POINT NUMBER ASSIGNMENT RECORD, showing scan point assignments.
2. Ensure office is in duplex mode (that is, both input/output processor 0 and 1 up) before proceeding.
3. Select a **MINOR** miscellaneous alarm from office engineering records.
4. At the master control center (MCC) terminal, type and enter **119**.

Response:     **119 MISCELLANEOUS ALARMS** menu page displayed.

5. On Page 119, ensure that **MINOR** alarm selected for test is not inhibited.
6.             **CAUTION:** Due to possible danger, difficulty, or potential damage to unit when attempting to force a true alarm condition, a short across the scan lead or an open in the scan lead loop should be used to simulate an alarm condition for alarms where no comment is given in Table 8.3-1 .

Using examples in Table 8.3-1 , simulate a **MINOR** alarm condition for selected miscellaneous alarm.

Response:     Minor alarm horn sounds (if office is so equipped).  
                  At MCC Summary Status area, **MINOR** alarm indicator backlights and **MISC** flashes white.  
                  On Page 119, alarm block for selected **MINOR** alarm backlights.  
                  On Page 116, **ALARM** backlights in the **MISCELLANEOUS ALARMS** indicator.  
                  At receive-only printer (ROP), \* **REPT ALM MISC a b** message printed.

Where:        **a** = number of miscellaneous alarm selected for test.  
                  **b** = name of miscellaneous alarm selected for test.

7. At the MCC keyboard, depress **ALM RLS** function key.

Response:     At MCC, **MINOR** alarm status indicator clears and **MISC** turns steady blue.

8. Remove **MINOR** alarm condition from selected miscellaneous alarm.

Response:     At MCC, **MISC** clears.  
  
                  On Page 119, alarm block for selected **MINOR** alarm **OFF**.  
  
                  On Page 116, **ALARM** indicator clears.  
  
                  At ROP, **REPT ALM MISC a b CLEARED** message printed.

9. Have all **MINOR** miscellaneous alarms been tested?

If **YES**, go to Step 11.

If **NO**, continue with Step 10.

10. Select another **MINOR** miscellaneous alarm. Proceed to Step 4.
11. Record results of alarm test(s).
12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 8.7: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For Future Use

**Procedure 8.8: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For Future Use

**Procedure 8.9: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For Future Use



**Procedure 8.10: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For Future Use

**Procedure 8.11: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For Future Use

## Procedure 8.12: TEST OFFICE ALARMS—REMOTE SWITCHING MODULE

### PROCEDURE

1. Obtain office engineering records containing alarm scan point assignments for remote switching module(s) [RSM(s)].
2. Select SM group (1-48, 49-96, 97-144, or 145-192) for RSM office alarms test.
3. At the master control center (MCC), type and enter: **14x**  
 Where: **x = 1** for SMs 1-48, **2** for SMs 49-96, **3** for SMs 97-144, or **4** for SMs 145-192.  
 Response: **14x - SM y STATUS SUMMARY** page displayed.  
 Where: **y = 1 - 48** if **x = 1**, **49 - 96** if **x = 2**, **97 - 144** if **x = 3**,  
 or **145 - 192** if **x = 4**.
4. At the MCC, type and enter: **114**  
 Response: **114 - EQUIPPED SM STATUS SUMMARY** page displayed.
5. On page display, select equipped in-service RSM(s) for office alarm tests, and record RSM number(s).
6. Ensure personnel are at selected RSM site to activate alarms and monitor on-site alarm responses.
7. Ensure voice communications are established between host office and selected RSM site.
8. At RSM site verify office alarms installed (see Table 8.12-1 for TYPICAL assignments).
9. At RSM miscellaneous frame (MISC) cabinet, verify that Resistor Panel and Office Alarm Unit (TN934) are installed.
10. At RSM switching module control (SMC) cabinet, verify RSM local alarm panel (ED 5D-570-30-1) is installed.
11. At the MCC, type and enter: **1400a**,  
 Where: **a = Number of selected RSM**.  
 Response: **1400 - SM a RSM BLDG/PWR ALARMS** page displayed.
12. On 1400 page display, ensure that NO alarms are inhibited.
13. Using office engineering records and 1400 page display, select alarm in **RSM POWER ALARMS** group for testing.
14. **CAUTION:** If attempting to force a true alarm condition can result in possible danger, difficulty, or potential damage to the unit, the alarm should be simulated as described in the footnote at the end of Table 8.12-2.

Activate selected power alarm, per Table 8.12-2.

Response: Applicable audible alarm level indicator sounds for 5 seconds.

At RSM local alarm panel (Figure 8.12-1 ), applicable alarm level (**CRITICAL**, **MAJOR**, or **MINOR**), and **BLDG/POWER/MISC** indicators turn ON.  
 At MCC, applicable alarm level summary status indicator goes ON.  
**SM** summary status indicator flashes ON 5 seconds, then remains ON.  
 On 1400 page display, applicable indicator (for example **HIGH VOLTAGE**) in **RSM POWER ALARMS** group goes ON.  
 At receive-only printer (ROP), **REPT ALM RBPSC x SET** message printed.

Where: x = Number of RBPSC (RSM building/power scan point) (**00-49**).

15. At RSM local alarm panel (Figure 8.12-1 ), depress **ALARM RETIRE** switch.

Response: Alarm level indicator goes OFF.  
**BLDG/PWR/MISC** indicator remains ON.

16. Verify RBPSC assignment agrees with office records.

17. Deactivate power alarm.

Response: At RSM local alarm panel, **BLDG/PWR/MISC** indicator goes OFF.  
 On page display, applicable indicator OFF in **RSM POWER ALARMS** group.  
 At ROP, **REPT ALM CLR RBPSC x RESET** message printed.

18. **NOTE:** As many office alarms should be tested as time will permit.

Will another power alarm be tested?

If **YES**, go to Step 13.

If **NO**, continue with Step 19.

19. On 1400 page display, select alarm in **RSM BUILDING ALARMS** group for testing.

20. **CAUTION:** If attempting to force a true alarm condition can result in possible danger, difficulty, or potential damage to the unit, the alarm should be simulated as described in the footnote at the end of Table 8.12-2 .

At RSM site, activate selected BLDG alarm per Table 8.12-2 .

Response: Applicable audible alarm indicator sounds for 5 seconds.  
 At RSM local alarm panel, applicable alarm level and **BLDG/PWR/MISC** indicators go ON.  
 At MCC, applicable alarm level summary status indicator ON 5 seconds, then goes OFF.  
**BLDG/PWR** summary status indicator flashes ON 5 seconds then remains ON.  
 On 1400 page display, x y z indicator in **RSM BUILDING ALARMS** group goes ON.  
 At ROP, **REPT ALM RBPSC x SET** message printed.

Where: x = Number of selected RBPSC (**00-31**)  
 y = Alarm identifier (such as **FIRE**, **HI TEMP**, etc.)  
 z = Alarm level identifier (**CR**, **MJ**, or **MN**)

21. At RSM local alarm panel, depress **ALARM RETIRE** switch.

Response: Alarm level indicator goes OFF.  
**BLDG/PWR/MISC** indicator remains ON.

22. At RSM site, deactivate selected building/miscellaneous alarm.

Response: At RSM local alarm panel, **BLDG/PWR/MISC** indicator goes OFF.  
 On page display, x y z indicator in **BUILDING ALARMS** group OFF.  
 At ROP, **REPT ALM CLR RBPSC x RESET** message printed.

Where: x = Same RBPSC number  
 y = Same alarm identifier  
 z = Same alarm level identifier.

23. **NOTE:** As many office alarms should be tested as time permits.

Will another building alarm be tested?

If **YES**, go to Step 19.

If **NO**, continue with Step 24.

24. Select previously tested building alarm in RBPSC range of 02-27 for alarm inhibit testing.

25. At the MCC, type and enter: : **6x**

Where: x = 2-digit number of selected RBPSC (**02-31**).

Response: On 1400 page display, **INH** indicator ON in selected alarm block in **RSM BUILDING ALARMS** group.  
 At ROP, **INH ALM BPSC x COMPLETED** message printed.

26. **CAUTION:** If attempting to force a true alarm condition can result in possible danger, difficulty, or potential damage to the unit, the alarm should be simulated as described in the footnote in Table 8.12-2 .

**NOTE:** Since alarm is inhibited, it should be insensitive to activated alarm condition.

Activate alarm condition for selected alarm per Table 8.12-2 .

Response: No audible or visible alarms are activated.

27. Deactivate alarm condition.

28. At the MCC, type and enter: : **7x**

Where: x = Same 2-digit RBPSC number.

Response: On 1400 page display, **INH** indicator deleted from selected building alarm block.  
 At ROP, **ALW ALM BPSC x COMPLETED** message printed.

29. Does previously tested building alarm in range of RBPSC 02-27 remain for alarm inhibit testing?

If **YES**, go to Step 24.

If **NO**, continue with Step 30.

30. Select previously tested building alarm RBPSC 00-01, or previously tested power alarm in range of RBPSC 28-49 for alarm inhibit testing.

31. **NOTE:** RBPSCs 00, 01, and 28 through 49 range cannot be inhibited because of their importance to any RSM.

On page 105/106, type and enter: **6x**

Where: **x** = Selected 2-digit RBPSC number (**00,01,32-49**).

Response: At ROP, **INH ALM RBPSC x ABORTED INVALID SCAN POINT NUMBER** message printed.

32. Will another alarm in range of RBPSC 00,01, and 28-49 be tested?

If **YES**, go to Step 30.

If **NO**, continue with Step 33.

33. Does RSM remain to be tested in selected SM group?

If **YES**, go to Step 6.

If **NO**, continue with Step 34.

34. Will RSM office alarms be tested in another SM group?

If **YES**, go to Step 1.

If **NO**, STOP.

35. Does RSM remain to be tested?

If **YES**, go to Step 6.

If **NO**, STOP.

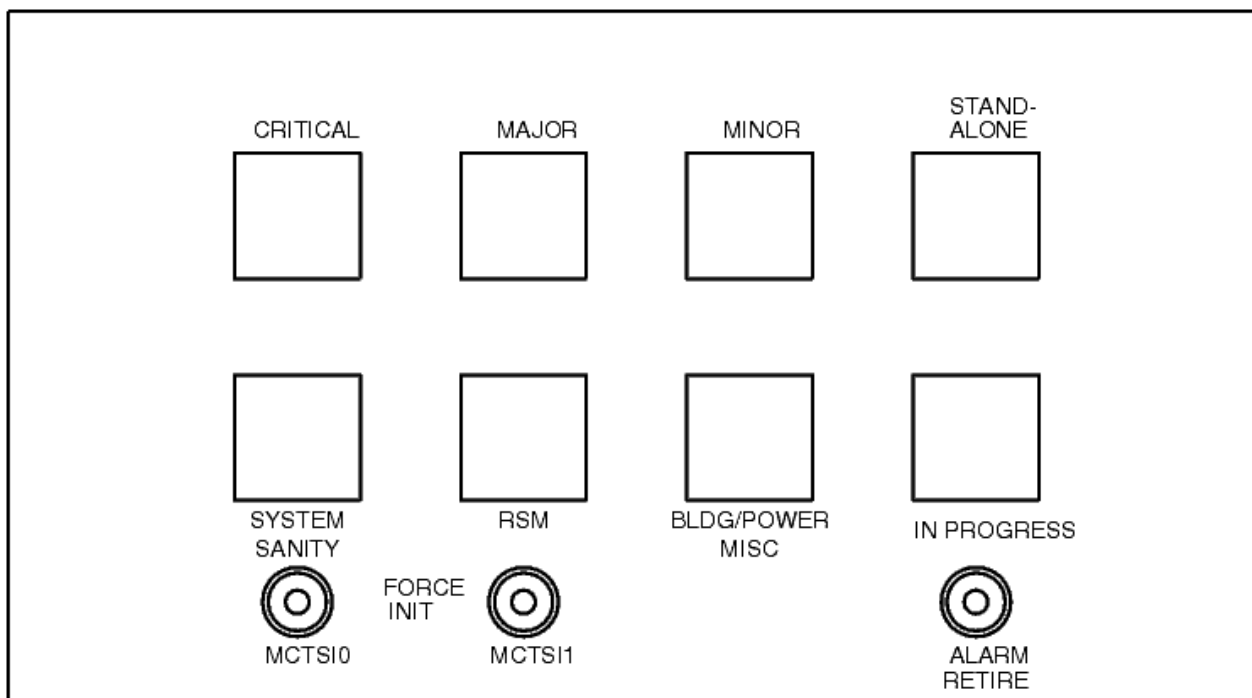


Figure 8.12-1 RSM Local Alarm Panel

Table 8.12-1 Typical Scan Point Assignments Office Alarms - Remote Switching Module

SCAN POINT	UNIT/FRAME/CONDITION	ALARM LEAD
SC00	Fire Alarm <sup>a</sup>	Critical
SC01	Fire Alarm Trouble <sup>a</sup>	Major
SC02	High Temperature <sup>b</sup>	Major
SC03	Low Temperature <sup>b</sup>	Major
SC04	Air Dryer Trouble <sup>b</sup>	Major
SC05	Air Conditioner <sup>b</sup>	Major
SC06	Low Voltage <sup>b</sup>	Major
SC07	Low Humidity <sup>b</sup>	Major
SC08	High Humidity <sup>b</sup>	Major
SC09	Door Alarm <sup>b</sup>	Minor
SC10	Window Alarm <sup>b</sup>	Minor
SC11	Carrier Alarm <sup>b</sup>	Minor
SC12 thru SC31	<sup>c</sup>	—
SC32	Discharge Fuse Alarm <sup>a</sup>	Major
SC33	Inverter Failure Alarm <sup>a</sup>	Major
SC34	Miscellaneous Power Failure Alarm <sup>a</sup>	Major
SC35	Miscellaneous Power Failure Alarm <sup>a</sup>	Major
SC36	Miscellaneous Power Failure Alarm <sup>a</sup>	Minor
SC37	Rectifier Failure Alarm <sup>a</sup>	Major
SC38	Alarm Battery Failure Alarm <sup>a</sup>	Major
SC39	CO Battery Discharge Alarm <sup>a</sup>	Major
SC40	High Voltage Alarm <sup>a</sup>	Major
SC41	Commercial Power Failure Alarm <sup>a</sup>	Major
SC42	Standby Plant Low Fuel Alarm <sup>a</sup>	Minor
SC43 Standby Plant Operating	Major	

Alarm <sup>a</sup>		
SC44	Standby Plant Rectifier Failure Alarm <sup>a</sup>	Minor
SC45	Standby Plant Failure Alarm <sup>a</sup>	Major
SC46	Misc. Cabinet Fuse Alarm-0 <sup>a</sup>	Major
SC47	Misc. Cabinet Fuse Alarm-1 <sup>a</sup>	Major
SC48	PDF-0 Fuse Failure Alarm <sup>a</sup>	Major
SC49	PDF-1 Fuse Failure Alarm <sup>a</sup>	Major
<b>Notes:</b> a. Mandatory assignment.  b. Typical assignment: actual assignment determined by the operating telephone company (OTC).  c. Assignment determined by OTC.		

**Table 8.12-2 Activation of Office Alarms Remote Switching Module**

ALARM	COMMENT
Critical Fire	See fire alarm manual to activate fire sensing device.
Fire Alarm Trouble	See fire alarm manual
High Temperature	Apply heat to sensor.
Low Temperature	Apply ice near sensor.
Air Dryer	Remove fuse of power ON air dryer.
Door Intrusion	Open door.
Air Conditioner	Remove power at A/C disconnect.
Miscellaneous Power	Remove power source.
Miscellaneous Alarms	<sup>a</sup>
Discharge Fuse Fail	Short pins 8 and 9 on one of the circuit breakers.
Miscellaneous Power	<sup>a</sup>
Low Voltage	If conditions permit, power down all battery charging rectifiers. Low Voltage alarm will activate when plant voltage is between -48.25 V and -51.25 V. If alarm does not activate when voltage goes below -48.25 V, power up rectifiers and follow procedure described in footnote( <sup>a</sup> ).
Rectifier Fail	Power any single rectifier down.
Fuse ALM PDF	Insert blown indicator fuse in at least one fuse position of each fuse block of each PDF (power distribution frame).
Alarm Battery	Insert blown indicator fuse in Alarm Battery Source.
Battery Discharge	Power all battery charging rectifiers down.
Standby Plant	See STBY (standby) PLANT manual.
High Voltage	If rectifiers have been properly balanced, DO NOT try to simulate a High Voltage alarm by altering Rectifier Control. If conditions permit, increase voltage output of one rectifier enough to raise plant voltage to -53.25 V. If alarm is not activated, then follow procedure described in footnote( <sup>a</sup> ).
Commercial Power Failure	<sup>a</sup>
<b>Notes:</b> a. Where possible danger, difficulty, or potential damage to a unit exists when attempting to simulate an alarm condition, locate the scan leads nearest to its sensor and simulate the alarm at that point. Either open the scan lead loop, or short scan leads, as applicable. Unfortunately, this method does NOT verify the actual sensing device, but in many cases it is the safest method.	



## Procedure 8.13: PERFORM SWITCHING MODULE FAN ALARM TESTS

### OVERVIEW

**CAUTION:** With the exception of SM cabinets equipped with J5D003BE-1 fan units, do not remove fuses to simulate fan alarms. Perform one of the following on the fan unit control board to simulate a fan failure that results in system alarm responses: **RESET** button, or the **RESET/TEST** switch, or the **TEST** button.

This procedure checks the system responses for fan alarm circuits. The test provides for the fan alarms in the switching module control (SMC) cabinet and the line trunk peripheral (LTP) cabinet. With the exception of J5D003BE-1 fan units where fuse removal is required, the test simulates a fan failure by performing one of the following on the fan unit control board:

- Depressing the power **RESET** button (CM242, CM233A, KS2388L3, KS23884L3)
- Pushing up the **RESET/TEST** switch (KS23884L1C)
- Depressing the **TEST** button (KS23884L1D).

Two people are required to perform these tests for all fan unit types except the J5D003BE-1 fan unit. One person should be at the SM/SM-2000 and the other person at the MCC. This is due to the need to hold a button/switch on the SM/SM-2000 while observing responses at both the SM/SM-2000 and the MCC.

Before beginning the procedure determine the type of units to be tested.

### PROCEDURE

1. At the master control center (MCC) terminal, type and enter: **1010,x**

Where:           x = Selected SM/SM-2000 number.

Response:       **1010 - SM x y STATUS** page displayed.

Where:           y = SM/SM-2000 type (for example, HSM).

2. Select the SM/SM-2000 cabinet to be tested.
3. At the rear of the selected SM/SM-2000 cabinet, open the door to access the fan unit.
4. Is the Fan Unit in this cabinet a J5D003BE-1 or J5D003BE-2?

If **NO**, go to Step 5.

If **YES**, has the unit been updated per ED5D195-10? (An updated unit has 3 LEDs mounted in a vertical column.)

If **NO**, go to Step 10.

If **YES**, continue to Step 5.

5. Visually locate one of the following at the Fan Unit:

- **RESET** button

- **RESET/TEST** switch
- **TEST** button

and the red light-emitting diodes (LEDs) that indicate fan unit status.

6. Perform one of the following on the fan unit control board (10 second limit — see following note):

- Depress and hold the power **RESET** button
- Push and hold the **RESET/TEST** switch
- Depress and hold the **TEST** button.

**NOTE:** Do not perform the following longer than 10 seconds:

- Holding the **RESET** button down
- Holding the **RESET/TEST** switch up
- Holding the **TEST** button down.

If you should perform this action longer than 10 seconds a TEST mode is entered with all fans locked to full speed.

To reset this condition push down the **RESET/TEST** switch, or press the **RESET** button, momentarily.

Response: The red **FAN ALARM** LED lights.

The audible MAJOR alarm sounds.

The yellow **FAN ALARM** LEDs on top front and rear of the cabinet light.

At the MCC terminal, the MAJOR indicator lights and the SM indicator flashes.

On the **1010 - SM x y — STATUS** page, the **FAN ALM** indicator associated with the SM/SM-2000 cabinet lights.

At the receive-only printer (ROP), the **REPT ALM FAN SM=x AISLE=z** report is printed.

Where: x = Selected SM/SM-2000 number.  
y = SM/SM-2000 type (for example, HSM).  
z = Aisle number.

7. Release one of the following:

- **RESET** button
- **RESET/TEST** switch
- **TEST** button.

Response: The red **FAN ALARM** LED goes off.

The yellow **FAN ALARM** LEDs on top front and rear of the cabinet go off.

At the MCC terminal, the SM indicator goes off (if all SMs/SM-2000s are operational).

On the **1010 - SM x y — STATUS** page, the **FAN ALM** indicator associated with the SM/SM-2000 cabinet clears.

At the receive-only printer (ROP), the **REPT ALM CLR FAN SM=x AISLE=z** report is printed.

Where: x = Selected SM/SM-2000 number.  
y = SM/SM-2000 type (for example, HSM).  
z = Aisle number.

8. At the selected SM/SM-2000 x cabinet, close the rear door.

Where: x = Selected SM/SM-2000 number.

9. Have the fan alarms in all the SM/SM-2000 cabinets been tested?

If **YES**, **STOP YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, to test the fan alarms in the next SM/SM-2000 cabinet, repeat from Step 1.

10. At the front of the SM cabinet, open door and remove the **A** and **B** fuses for Fan 1.

Response: The red **FAN ALARM** LED lights.  
The audible MAJOR alarm sounds.  
The yellow **FAN ALARM** LEDs on the top front and rear of the cabinet light.  
At the MCC terminal, the MAJOR indicator lights and the SM indicator flashes.  
On the **1010 - SM x y — STATUS** page, the **FAN ALM** indicator associated with the SM cabinet lights.

At the ROP, the **REPT ALM FAN SMx AISLE=z** report is printed.

Where: x = Selected SM number.  
y = SM type (for example, HSM)  
z = Aisle number.

11. Replace fuses **A** and **B** for Fan 1 and perform one of the following on the fan unit control board:

- Depress the power **RESET** button
- Push the **RESET/TEST** switch
- Depress the **TEST** button.

Response: The red **FAN ALARM** LED goes off.  
The yellow **FAN ALARM** LEDs on the top front and rear of the cabinet go off.  
At the MCC terminal, the SM indicator goes off (if all SMs/SM-2000s are operational).  
On the **1010 - SM x y — STATUS** page, the **FAN ALM** indicator associated with the SM

cabinet clears.

At the ROP, the **REPT ALM CLR FAN SM=x AISLE=z** report is printed.

Where:       $x$  = Selected SM number.  
               $y$  = SM type (for example, HSM)  
               $z$  = Aisle number.

12. Have the fan alarms in all the SM/SM-2000 cabinets been tested?

If **NO**, to test the fan alarms in the next SM/SM-2000 cabinet, repeat from Step 1.

If **YES**, **STOP YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.14: PERFORM COMMUNICATIONS MODULE/TIME-MULTIPLEXED SWITCH FAN ALARM TESTS

### OVERVIEW

**CAUTION:** Do not remove fuses to simulate fan alarms. The RESET button on the fan unit power control board is used to simulate a fan failure that results in system alarm responses.

This procedure checks the system responses for fan alarm circuits. The test provides for the fan alarms in the communications module (CM) and the time-multiplexed switch (TMS). The test simulates a fan failure that causes a momentary loss of power, by depressing the power **RESET** button on the fan unit control board. The exchange indicators (alarms, reports, and display pages) are checked to verify the proper responses.

### TEST FAN UNIT ALARMS

### PROCEDURE

1. At the master control center (MCC) terminal, type and enter: **115**

Response      **115 - COMMUNICATION MODULE SUMMARY** page displayed (CM2)  
or  
                  **115 - MSGS/TMS SUMMARY** page displayed (CM1).

2. Select the CM cabinet to be tested.
3. At the rear of the selected CM cabinet, open the door to access the fan unit.
4. Visually locate the **RESET** button and red light-emitting diodes (LEDs) that indicate fan unit status.
5. Push and hold the **RESET** button for several seconds.

Response:      The red **FAN ALARM** LED lights.  
                      The audible MAJOR alarm sounds.  
                      The yellow **FAN ALARM** LEDs on the top front and rear bezels light.  
                      At the MCC terminal, the MAJOR indicator lights and the CM indicator flashes.  
                      On 115 Page display, the **FAN ALARM** indicator associated with the CM cabinet lights.  
                      At the receive-only printer (ROP), the **REPT ALM FAN FS CM x** report is printed.

Where:          **x** = Selected CM or TMS number.

6. Release the **RESET** button.

Response:      The red **FAN ALARM** LED goes off.  
                      The yellow **FAN ALARM** LEDs on top front and rear bezels go off.  
                      At the MCC terminal, the CM indicator goes off (if all CMs are operational).  
                      At the ROP, the **REPT ALM CLR FAN CM x** report is printed.

Where:          **x** = Selected CM number.

7. At the selected **CM x** cabinet, close the rear door.

Where:            **x** = Selected CM number.

8. Close the front door.
9. Have the fan alarms in all the CM cabinets been tested?

If **YES**, **STOP YOU HAVE COMPLETED THIS PROCEDURE**

If **NO**, to test the fan alarms in the next CM cabinet, repeat from Step 2.

## Procedure 8.15: REPLACE FAN UNIT AIR FILTER

### OVERVIEW

This procedure replaces the fan unit filter in three types of fan units: J5D003BE and J5D003BN (SM bays), and J5D003FH (CM2C and SM 2000 cabinets). The following identifies the type of filter required for the fan units:

Fan Unit Type	Filter Type Required <sup>a</sup>	Number of Filters Required per Unit
J5D003BE	UAF233 or UAF262	1
J5D003BN	UAF233 or UAF262	1
J5D003FH	UAF233 or UAF262	2
<b>Notes:</b>		
a. The UAF233 filter is disposable. The UAF262 filter can be cleaned and reused.		

**NOTE 1:** Service air filters at least every 6 months per equipment test list or more often if conditions dictate.

**NOTE 2:** The air filter replacements can be ordered from:  
Universal Air Filter Company, Sauget, IL 62206

**NOTE 3:** Three fan blockers (part number 22785DP, COMCODE 845312107) may be required for filter replacement. (Order from: Auburn Plastics, 4535 W. Fullerton, Chicago, IL 60639, tel. 773-254-4900.)

### PROCEDURE

- CAUTION:** Do not vacuum the used air filter UAF233. The used air filter should be replaced with a new air filter.
- Open cabinet front door to expose fan unit air filter.
- Open cabinet rear door.
- NOTE:** Fan blockers should not be placed on fans that are located at the front of the cabinet, or on temperature controlled fans, regardless of location. The temperature controlled fan units are J5D003FH-1 and J5D003FH-2.

Place fan blockers on all three rear fans to restrict the air flow while the air filter is being changed. These fan blockers reduce the air flow in the cabinet.

- Remove old air filter by sliding filter back until it clears mounting channels.
- Insert new air filter in mounting channels.
- Slide filter forward until it is fully seated.
- If fan blockers were installed in Step 4, remove them.
- Close rear cabinet door.
- Close front cabinet door.
- To clean UAF262 filters use vacuum or wash with mild detergent and warm water. If sprayed, aim directly on foam in direction of air flow.

To dry, do not expose unit to high temperatures or direct sunlight. Allow filter to become completely dry before inserting into equipment.

12. Dispose of UAF233 air filter per local procedures.
13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 8.16: REPLACE FAN TRAY AIR-FILTERS IN SCSI CABINET

### OVERVIEW

This procedure replaces the UAF204 filter in the SCSI (small computer systems interface) cabinet in the Administration Module Fan Cooling Unit ED4C387-30. There are two filter units side-by-side in the unit above the fans.

**NOTE 1:** Service the filters at least every 6 months per equipment test list or more often if conditions dictate.

**NOTE 2:** The Model UAF204 (COMCODE 40285357) air filter (14.1x11.4x.52 inches) replacement can be ordered from:  
Universal Air Filter Company, Sauget, IL 62206

### PROCEDURE

1. At the cooling unit, tilt the filter cover door top back and in.
2. Remove the old filter.
3. Insert the new filter.
4. Close the cover door.
5. Repeat Steps 2 through 4 for the other filter unit.
6. Dispose of the old air filters per local procedures.
7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.17: REPLACE 340-MB MOVING HEAD DISK (MHD) AIR FILTER

### OVERVIEW

**NOTE:** Service filters at least every 6 months per equipment test list or more often if conditions dictate.

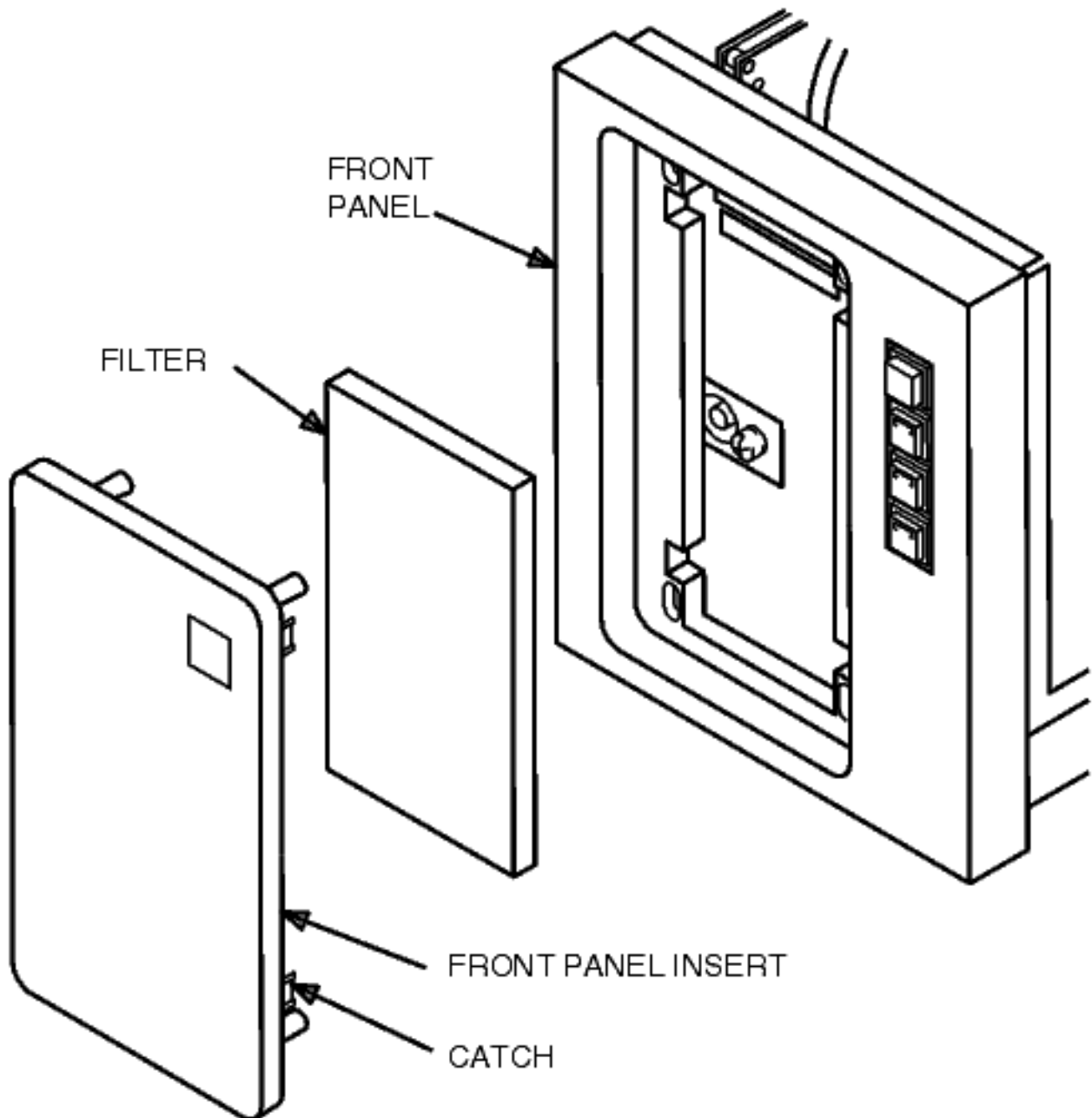
The disk drive should be spun down during filter replacement for two reasons: (1) If drive is powered up, loose dirt which may fall from the filter during removal could be sucked into the drive; (2) Repowering the drive after filter replacement invokes an auto-realignment process of the read/write heads.

### PROCEDURE

1. Remove MHD from service using Procedure **10.19** . This procedure will leave the RST/ROS switch on the MHD in the ROS position.
2. At the particular MHD, spin down the disk by depressing the **START** button.  
Response: **START** LED is flashing at first. As soon as the **START** LED goes off, the disk is spun down.
3. At the power switch, depress the **OFF** switch to remove the power.  
Response: **REPT POWER REMOVED MHD a**  
At the power switch, the **ALM** and **OFF** LEDs light.  
  
Where: a = member number of the particular MHD.
4. At the MHD, remove the front panel by pulling forward the disengage catches (see Figure 8.17-1 ).
5. Remove the used filter.
6. Is a spare filter available?  
If **YES**, install the new filter and proceed to Step 12.  
If **NO**, continue with the next step.
7. **NOTE:** The following steps need only be performed when no spare filter is present and the air filter needs replacement badly.
8. Remove the used air filter.
9. Clean the used filter by washing it with detergent.
10. Let the used filter dry and spray it afterwards with filter coat.
11. Reinstall the filter.
12. Replace the front panel insert by aligning catches in the front panel, and push until the catches snap into place.
13. At the power switch, depress the **ON** switch.

Response: At the power switch, the **OFF** and **ALM** LEDs go out.  
**REPT POWER RESTORED MHD a**  
**RST MHD a STOPPED x'5**

Where: a = member number of the particular MHD.



**Figure 8.17-1 Front View of Disk Drive**

14. Spin up the drive by depressing the **START** button at the particular MHD.

Response: The **START** LED starts flashing. As soon as the **START** LED is on, the drive is spun up.

15. At the MHD power switch, operate the **RST/ROS** switch to **RST**.

Response:     **RST MHD a COMPLETED**  
At the power switch, the **OOS** and **RQIP** LEDs go off.

16. Do more MHDs need filter replacement?

If **YES**, repeat from Step 1.

If **NO**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.18: REPLACE FAN UNIT AIR FILTERS IN ISLU DRAWER-TYPE UNITS

### OVERVIEW

This procedure replaces the UAF235 filter in the ISLU (integrated service line unit) drawer-type fan unit. The unit contains three fans and one UAF235 filter. The filter is accessed from the rear of the drawer unit.

**NOTE 1:** Service air filters at least every 6 months per equipment test list or more often if conditions dictate.

**NOTE 2:** The Model UAF235 air filter replacements can be ordered from:  
Universal Air Filter Company, Sauget, IL 62206

### PROCEDURE

1. **CAUTION:** Do not vacuum the used air filters UAF235. The used air filters should be replaced with new air filters.
2. Open the cabinet rear door.
3. **NOTE 1:** The upper cable assembly serves the fan alarm CP which monitors the fans in the drawer unit. The state of the alarm circuit is normally open. Unplugging the cable assembly will not be detected by the 5ESS<sup>®</sup>-2000 switch.

**NOTE 2:** It is not necessary to use a fan blocker when replacing the fan unit air filter in a drawer because all three fans stop when the upper cable assembly is unplugged from the 256A fan alarm CP.

Unplug the upper cable assembly from the 256A fan alarm CP. Apply gentle outward pressure on both sides of the latching block. Carefully unplug the cable assembly using caution to pull the assembly straight off. See Figure 8.18-1 .

Response: All 3 fans stop.

4. Remove the old air filter by sliding the filter back until it clears the mounting channel.
5. Insert the new air filter in the mounting channel.
6. Slide the filter forward until it is fully seated.
7. **CAUTION:** Be careful not to bend the pins on the 256A CP.

Plug in the upper cable assembly that was unplugged in Step 3. Gently push the cable assembly on until it is locked.

Response: All 3 fans run.

8. Repeat Steps through 7 for each drawer in the cabinet, and continue with the next step.
9. Close the rear cabinet door.
10. Dispose of the old air filters per local procedures.

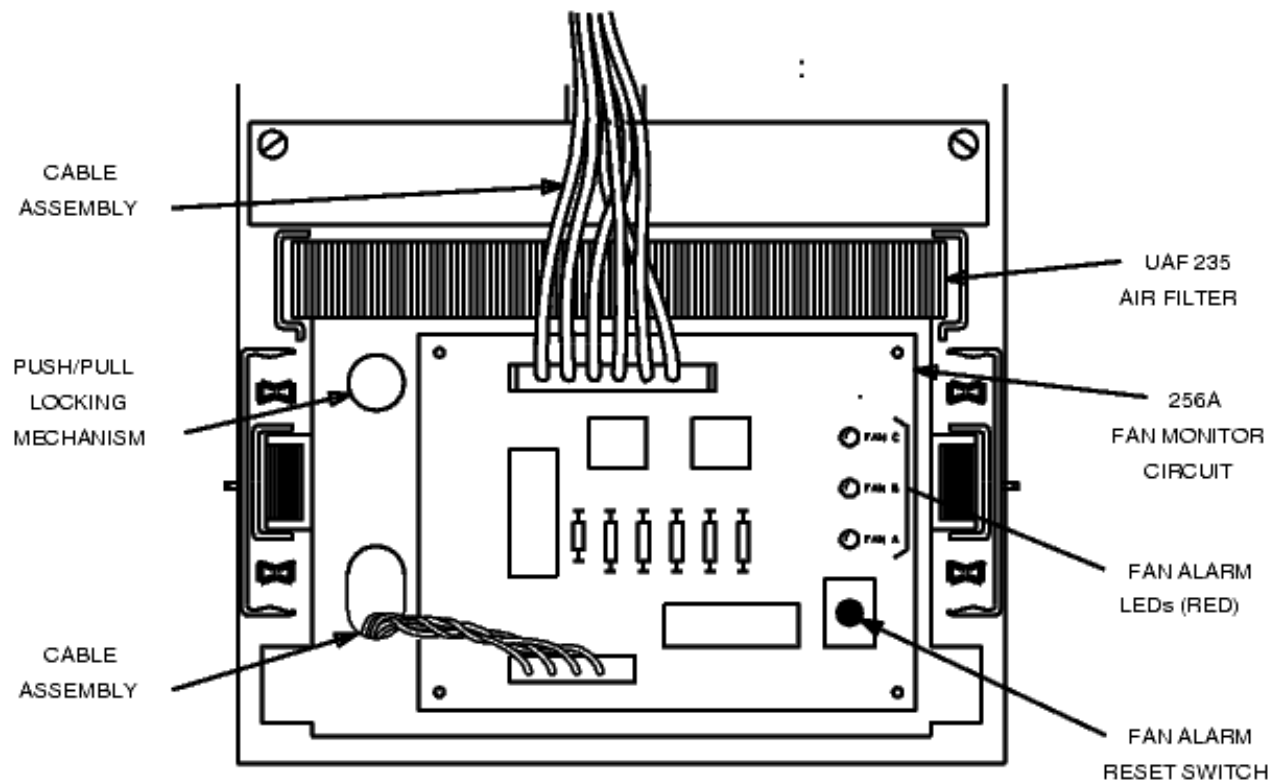


Figure 8.18-1 Rear View of Drawer-Type Unit

11. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

## Procedure 8.19: TEST PROCESSOR CONTROL FRAME OR PROCESSOR CABINET ALARMS

### OVERVIEW

**NOTE 1:** Terminal common processor displays must indicate all units active (ACT) and one control unit (CU) standby (STBY) before starting this procedure.

**NOTE 2:** Before starting this procedure, control unit (CU) 1 should be active (ACT) and CU 0 should be standby (STBY). If CU 1 is not ACT, use the **SW:CU 1** message to make CU 1 active.

### PROCEDURE

1. Select CU 0, disk file controller (DFC) 0, and input/output processor (IOP) 0 for testing.
2. At selected CU, check selected CU light-emitting diodes (LEDs).

Reference: **Procedure 8.20**

3. In order to remove selected CU from service via power switch, at TN5B power switch, operate **ROS/RST** switch to **ROS** position and wait for **RMV COMPLETED** message.

Response: **RMV COMPLETED** message received if associated IOP is in service.  
Unit label indicates **OOS MAN**.  
**OOS** and **ROS** LEDs lighted.

4. At selected disk file controller (DFC), check DFC LEDs.

Reference: **Procedure 8.20**

5. In order to remove selected DFC from service via power switch, at TN3B power switch, operate **ROS/RST** switch to **ROS** position and wait for **RMV COMPLETED** message.

Response: **RMV COMPLETED** message received if associated IOP is in service.  
**OOS** and **ROS** LEDs lighted.

6. At appropriate processor bay, remove and immediately replace fuse **F10A**.
7. Verify that **OFF** LEDs are lighted on respective **495FA** or **494GA** power units.
8. Verify that **REPT POWER DOWN** or **REPT UNAVAILABLE** message is received and major alarm indicated at terminal.
9. At TN5 power switch, operate **ON** switch.

Response: **REPT POWER UP** or **REPT OUT OF SERVICE** or **REPT FAULT CLEARED** message is received.  
Unit label indicates **OOS** or **OOS MAN**.  
**OOS** LED is lighted on CU power switch.

10. Perform Steps 11 through 14 for each of the units listed in the following illustration.

POWER UNIT	ILLUSTRATION CABINET/FRAME LOCATION
495FA - A	064 - 002
495FA - B	064 - 003
495FA - D	056 - 003
495FA - G	038 - 005
495FA - F	047 - 004 (Growth unit may not be equipped.)

11. Unlatch and unseat power unit.

12. Verify the following responses.

Response: **ALM** and **OFF** LEDs are lighted on unit power switch.  
Major audible alarm is indicated at master control center (MCC) terminal.  
**REPT FAULT** or **REPT POWER DOWN** or **REPT UNAVAILABLE** message received.

13. Relatch power unit unseated in Step 11.

14. Have all power units listed in the illustration in Step 10 been tested?

If **YES**, continue with the next step.

If **NO**, repeat from Step 10 for next power unit.

15. At selected CU power switch, operate **ON** switch.

Response: **REPT POWER UP** or **REPT OUT OF SERVICE** or **REPT FAULT CLEARED** message received.  
Unit label indicates **OOS** or **OOS MAN**.  
**OOS** LED lighted on selected CU power switch.

16. At selected processor bay, replace fuse **F4A** with tripped fuse.

17. Verify the following responses.

Response: Minor audible alarm.  
**FAN A** LED lighted.  
**REPT SINGLE FAN FAILURE** message printed.

18. Replace fuse **F3A** with tripped fuse.

19. Verify the following responses.

Response: Major audible alarm.  
**FAN B** LED lighted.  
**REPT MULTIPLE FAN FAILURE** message received.

20. Replace both tripped fuses with good fuses.

21. At cooling unit, depress **ON/RESET** switch.

22. Is **REPT MULTIPLE FAN ALARM CLEARED** message received, and are **FAN A** and **B** LEDs off?



If **YES**, go to Step 24.

If **NO**, continue with the next step.

23. At the MCC terminal, type and enter:

**RESET:FANALM CU a;**

Where: a = 0 or 1.

Response: **REPT MULTIPLE FAN ALARM CLEARED** message received.  
**FAN A** and **B** LEDs off.

24. Have fuses **F2A** and **F1A** been tested?

If **YES**, go to Step 26.

If **NO**, continue with the next step.

25. Substitute **F2A** for **F4A** and **F1A** for **F3A** and repeat from Step 16.

26. At selected CU power switch, operate **ROS/RST** switch to **RST** position and wait for selected CU and all subunit **RST COMPLETED** messages to be received.

27. **NOTE:** All subunits and CU are diagnosed and restored to service.

Verify the following responses.

Response: **RST COMPLETED** message received.  
At common processor display page, unit label indicates **ACT** (CU indicates **STBY**).  
At selected CU power switch, **OOS** and **RQIP** LEDs off.

28. At selected processor bay, for selected DFC, remove and immediately replace fuse **F5A**.

29. Verify that **OFF** LEDs are lighted on respective **495A** or **494GA** power units.

30. Verify that **REPT POWER DOWN** or **REPT UNAVAILABLE** message is received and major alarm is indicated at terminal.

31. At selected processor bay, for selected DFC, operate **TN3** power switch to **ON**.

Response: **REPT POWER UP** or **REPT OUT OF SERVICE** or **REPT FAULT CLEARED** message is received.  
Unit label indicates **OOS** or **OOS MAN**.  
**OOS** LED is lighted on designated unit power switch.

32. Unlatch and unseat the selected DFC power unit 495FA - C located in cabinet 047 and frame location 016.

33. Verify that the following responses are obtained.

Response: **ALM** and **OFF** LEDs lighted on DFC power switch.  
Major audible alarm indicated at terminal.  
**REPT FAULT** or **REPT POWER DOWN** or **REPT UNAVAILABLE** message received.

34. Relatch DCF power unit that was unlatched in Step 32.

35. At selected DFC power switch TN3, in applicable PC bay, operate **ON** switch.

Response: **REPT POWER UP** or **REPT OUT OF SERVICE** or **REPT FAULT CLEARED** message received.

Unit label indicates **OOS** or **OOS MAN**.

**OOS** LED lighted on selected DFC power switch.

36. At selected DFC power switch TN3, operate **ROS/RST** switch to **RST** position and wait for selected DFC and all subunit **RST COMPLETED** messages.

37. **NOTE:** The selected DFC and all subunits are diagnosed and restored to service.

Verify the following responses.

Response: **RST COMPLETED** message received.

At common processor display page, selected DFC label indicates **ACT** (CU indicates **STBY**).

At selected DFC power switch, **OOS** and **RQIP** LEDs off.

38. At selected IOP, check selected IOP LEDs.

Reference: **Procedure 8.20**

39. At power switch TN6 for selected IOP, operate **ROS/RST** switch to **ROS** position and wait for selected IOP and subunit **RMV COMPLETED** messages.

40. Verify the following responses.

Response: IOP **RMV COMPLETED** or **REPT UNAVAILABLE** message received.

IOP label indicates **OOS** or **OOS MAN**.

**OOS** and **ROS** LEDs on IOP power switch lighted.

41. At processor bay for selected IOP, remove and immediately replace fuse **F22A**.

42. Verify the following responses.

Response: **OFF** LEDs lighted on respective **495A** or **494GA** power units.

**REPT POWER DOWN** or **REPT UNAVAILABLE** message received with major alarm indicated at terminal.

**POWER ALARM** LED lighted on all **TN9** power units.

43. At **TN6** power switch for selected IOP, operate **ON** switch.

Response: **REPT POWER UP** or **REPT OUT OF SERVICE** or **REPT FAULT CLEARED** message is received.

Unit label indicates **OOS** or **OOS MAN**.

**OOS** LED lighted on selected IOP power switch.

44. Perform Steps 45 through 50 for each of the power units listed in the following illustration.

POWER UNIT	ILLUSTRATION CABINET/FRAME LOCATION
495FA - H	036 - 178
494GA - C	036 - 024
495FA - E	045 - 016

45. Unlatch and unseat power unit.
46. Is IOP growth unit being tested?
- If **YES**, continue with the next step.
- If **NO**, go to Step 48.
47. Verify that **ALM** LED is lighted on IOP power switch and **POWER ALARM** and **OOS** LEDs are lighted on **TN9** CPs, and go to Step 49.
48. Verify the following responses.
- Response: **ALM** and **OFF** LEDs are lighted on IOP power switch.  
Major audible alarm is indicated at MCC terminal.  
**REPT FAULT** or **REPT POWER DOWN** or **REPT UNAVAILABLE** message received.  
**POWER ALARM** and **OOS** LEDs are lighted on all **TN9** CPs.
49. Relatch power unit unseated in Step 45.
50. Have all power units listed in the illustration in Step 44 been tested?
- If **YES**, continue with the next step.
- If **NO**, repeat from Step 44 for next power unit.
51. At selected IOP **TN6** power switch, operate **ON** switch.
- Response: **REPT POWER UP** or **REPT OUT OF SERVICE** or **REPT FAULT CLEARED** message is received.  
Unit label indicates **OOS** or **OOS MAN**.  
**OOS** LED lighted on selected IOP power switch.
52. At selected IOP **TN6** power switch, operate **ROS/RST** switch to **RST** position and wait for selected IOP and all subunit **RST COMPLETED** messages.
53. **Note:** All subunits and unit are diagnosed and restored to service.
- Verify the following responses.
- Response: **RST COMPLETED** message is received.  
At common processor display page, unit label indicates **ACT** (CU indicates **STBY**).
54. At the MCC terminal, type and enter: **OP:OOS;**
- Response: **OP OOS COMPLETED NONE**

55. Has test been run for both CU 0, DFC 0, IOP 0, and CU 1, DFC 1, AND IOP 1?

If **YES**, **STOP**. Processor control frame or processor cabinet alarms tested.

If **NO**, continue with the next step.

56. At the MCC terminal, in order to make CU 0 active, type and enter: **SW:CU 0**;

Response: **SW CU 0 COMPLETED** is received.

57. Select CU 1, DFC 1, and IOP 1 for testing and repeat from Step 2.

## Procedure 8.20: CHECK LIGHT-EMITTING DIODES (LEDs)

### PROCEDURE

1. Locate unit power switch in Table 8.20-1 .

2. Toggle **ACO/T** switch to right.

Response: All power switch LEDs are lighted.

3. Is **TN5** power switch being tested?

If **YES**, continue with the next step.

If **NO**, go to Step 5.

4. Verify that all **TN10** LEDs are lighted and that **STATUS** indicates **B**.

5. Is **TN6** power switch being tested?

If **YES**, continue with the next step.

If **NO**, go to Step 7.

6. Verify that both LEDs are lighted on all **TN9** circuit packs.

7. Return **ACO/T** switch to normal (left).

**Results:** Light-emitting diodes (LEDs) checked.

**Table 8.20-1 Unit Power Switch**

UNIT a	POWER SWITCH	CABINET/FRAME b
CU 0	TN5	PC Bay 0
CU 1	TN5	PC Bay 1
DFC 0	TN3	PC Bay 0
DFC 1	TN3	PC Bay 1
IOP 0	TN6	PC Bay 0
IOP 1	TN6	PC Bay 1
340-MB MHD a	ED-4C481	T/D 0
340-MB MHD b	ED-4C481	T/D 1

**Notes:**

- CU = Control Unit.  
DFC = Disk File Controller.  
IOP = Input/Output Processor.  
MB = Megabyte.  
MHD = Moving Head Disk.  
a = MHD 0, 1, 2, and 3.  
b = MHD 4 through 11.
- PC = Processor Control.  
T/D = Tape/Disk Cabinet.

8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 8.21: TEST POWER CONTROL UNIT LEDs (300-MB MHDs)****PROCEDURE**

1. At 300-megabyte (MB) moving head disk (MHD) frame control unit, momentarily operate **ACO/T** switch.

Response: All power control unit light-emitting diodes (LEDs) light.

2. Verify the above response was obtained.
3. Verify that all LEDs light when **TEST/RTMJ** switch is held in the **TEST** position momentarily.

**Results:** Power control unit LEDs (300-MB MHDs) tested.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 8.22: TEST 340-Mb MOVING HEAD DISK (MHD) ALARM****PROCEDURE**

1. Remove MHD from service.

Reference:     **Procedure 10.19**

2. At the particular MHD, spin down the disk by depressing the **START** button.

Response:     **START** LED is flashing at first. As soon as the **START** LED goes off, the disk is spun down.

3.             **NOTE:** A description of the various disk configurations (or layouts) can be found in Section 9 of this document. See Section 9.2 .

At 340-Mb MHD power supply, pull **MAIN** circuit breaker to off (Figure 8.22-1 ).

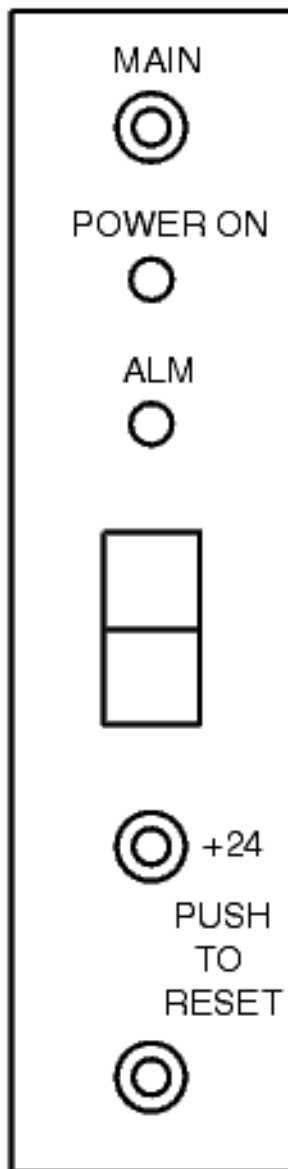


Figure 8.22-1 340-Mb MHD KS-22997, L2 Power Supply

4. At power switch, verify that **ALM** and **OFF** LEDs are lighted (Figure 8.22-2 ).



Figure 8.22-2 ED-4C481 Power Switch



5. Verify that **REPT POWER DOWN MHD** message is received and major and minor audible alarms sound.
6. At power switch, depress **ACO/T** momentarily, and then depress **OFF** switch.
7. At power supply, push **MAIN** circuit breaker (CB) to on.
8. Spin up the drive by depressing the **START** button at the particular MHD.

Response: The **START** LED starts flashing. As soon as the **START** LED is on, the drive is spun up.

9. At the MHD power switch, operate the **RST/ROS** switch to **RST**.

Response: **RST MHD a COMPLETED**  
At the power switch, the **OOS** and **RQIP** LEDs go out.

**Results:** 340-Mb moving head disk (MHD) alarm tested.

10. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.23: TEST OFFICE EXIT PILOT ALARM CIRCUITS

### OVERVIEW

This procedure provides information to verify the operation of alarm circuits. To determine the state of the alarm circuits requires that a fault be simulated resulting in appropriate displays at the master control center (MCC) terminal and output message(s) on the receive only printer (ROP).

Caution needs to be exercised when performing this procedure so that no call processing is interrupted. It is recommended that this procedure be performed during minimum 5ESS®-2000 switch call processing periods.

### PROCEDURE

1. Select a CRITICAL building alarm. (Refer to Table 8.23-1 .)
2. Making a short, simulate CRITICAL alarm condition for the building alarm selected in Step 1.  
Response: At the MCC, the corresponding MCC indicators updated to show the alarm.  
At the ROP, **REPT ALM a b c** message is printed.  
At the exit pilot alarm lamp array, the red CRITICAL alarm lamp is on.
3. At the MCC terminal, press the **ALM RLS** function key to release the alarm.  
Response: Visual and audible alarm indications are removed.  
At the exit pilot alarm lamp array, the red CRITICAL alarm lamp remains on.
4. At the MCC terminal, to turn off the exit pilot lamps, type and enter: **CLR:LAMPS;**  
Response: At the ROP, printout follows (PF) is printed.  
At the ROP, CLR LAMPS COMPLETED is printed.  
At the exit pilot alarm lamp array, the red CRITICAL alarm lamp goes off.
5. Reset the CRITICAL building alarm selected in Step 1 to the nonalarmed state.  
Response: At the MCC terminal, the corresponding MCC indicators are updated to show that no alarm condition exists.  
At the ROP, **REPT ALM a b c** message is printed.
6. Select a MAJOR building alarm from the office records.
7. Using local procedures, simulate a MAJOR alarm condition for the building alarm selected in Step 6.  
Response: At the MCC terminal, the corresponding MCC indicators are updated to show the alarm.  
At the ROP, **REPT ALM a b c** message is printed.  
At the exit pilot alarm lamp array, the red MAJOR alarm lamp is on.
8. At the MCC terminal keyboard, depress the **ALM RLS** function key to retire the alarm.  
Response: Visual and audible alarm indications are removed.

At the exit pilot alarm lamp array, the red MAJOR alarm lamp remains on.

9. At the MCC terminal, to turn off the exit pilot lamps, type and enter: **CLR:LAMPS;**

Response: At the ROP, PF is printed.  
At the ROP, CLR LAMPS COMPLETED is printed.  
At the exit pilot alarm lamp array, the red MAJOR alarm lamp goes off.

10. Reset the MAJOR building alarm selected in Step 6 to the nonalarmed state.

Response: At the MCC terminal, the corresponding MCC indicators are updated to show that no alarm condition exists.  
At the ROP, **REPT ALM** a b c message is printed.

11. Select a MINOR building alarm from the local office records.

12. Using local procedures, simulate a MINOR alarm condition for the building alarm selected in Step 11.

Response: At the MCC terminal, the corresponding MCC indicators are updated to show the alarm.  
At the ROP, **REPT ALM** a b c message is printed.  
At the exit pilot alarm lamp array, the yellow MINOR alarm lamp is on.

Where: **c** = MINOR building alarm selected in Step 11.

13. At the MCC terminal, press the **ALM RLS** function key to release the alarm.

Response: Visual and audible alarm indications are removed.  
At the exit pilot alarm lamp array, the yellow MINOR alarm lamp remains on.

14. At the MCC terminal, to turn off the exit pilot lamps, type and enter: **CLR:LAMPS;**

Response: At the ROP, PF is printed.  
At the ROP, CLR LAMPS COMPLETED is printed.  
At the exit pilot alarm lamp array, the yellow MINOR alarm lamp goes off.

15. Reset the MINOR building alarm selected in Step 11 to the nonalarmed state.

Response: At the MCC terminal, the corresponding MCC indicators are updated to show that no alarm condition exists.  
At the ROP, **REPT ALM** a b c message is printed.

Where: **c** = MINOR building alarm selected in Step 11.

**Results:** Office exit pilot alarm circuits tested.

**Table 8.23-1 Alarm Simulation**

ALARM	COMMENT
Critical	Use local procedures.
Fire alarm trouble	Use local procedures.
High temperature	Apply heat to sensor.
Low temperature	Apply ice to sensor.

Air dryer	Remove fuse of power ON air dryer.
Door intrusion	Open door.
Air conditioner	Remove power at AC power outlet.
Miscellaneous power supplies	Not applicable.
Miscellaneous alarm circuit	Not applicable.
Discharge fuse fail	On power plant, short pins 8 and 9 on any of the circuit breakers.
Inverter fail	To simulate loss of -48 volts from the inverter, short pins 2 and 3 on TB5 of K1 relay of the inverter.
Inverter transfer alarm	Operate the TEST switch at the front of the inverter.
Miscellaneous	Not applicable.
Low voltage	With conditions permitting, power down all battery charging rectifiers. A low-voltage alarm will activate when plant voltage monitor reads between -48.25 and -51.25 volts.
Rectifier fail	Power any single rectifier down.
Fuse ALM PDF	Insert blown indicator fuse in at least one fuse position of each fuse block.
Alarm battery ALM	Insert blown indicator fuse in Alarm Battery Source.
CO BATT DISCH	Power all battery charging rectifiers down.
STBY Plant ALM	Not applicable.
High voltage	Increase voltage output of one rectifier enough to raise plant voltage monitor to -53.25 volts.
Commercial power failure	Operate TEST switch at the front of the inverter.

**16. STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 8.24: ISLU FAN ALARM TESTS

### OVERVIEW

**CAUTION:** Any equipment that is taken out of service by these fuse/alarm tests must be allowed to recover before proceeding with this procedure.

This procedure verifies that the major alarm condition caused by an inoperative fan in an ISLU drawer can be detected and that the proper indications are given.

The following tests should be performed on **each** fan of each ISLU drawer. Testing each alarm in this procedure will verify the hardware retire (reset button) and the software retire (input message).

Only one fan can be tested in the ISLU at a time. Each ISLU drawer contains three (3) fans (A, B, and C) and each fan shares a fuse with one of the Line Groups (LG) in the drawer.

Table 8.24-1 indicates the ISLU Line Group fuse relationship. When you select an ISLU Line Group fuse, a fan in the base of the drawer is also selected.

**Table 8.24-1 ISLU Line Group Fuse/Fan Relationship**

FAN	DRAWER			
	1	2	3	4
A	LG 3	LG 7	LG 11	LG 15
B	LG 2	LG 6	LG 10	LG 14
C	LG 1	LG 5	LG 9	LG 13

### PROCEDURE

- At the master control center (MCC) terminal, ensure the alarm status is normal by typing and entering:  
**1010,x.**

Where:           x = SM number

- Select a single fan to test using Table 8.24-1 to determine the necessary information.
- Remove from service the Line Group of the fan to be tested by entering **RMV:ISLULGC=a-b-c,UCL;**

Where:           a = SM number.  
                    b = ISLU number  
                    c = Line Group Controller number

Response:       **RMV ISLULGC=a-b-c COMPLETED**

- At the SM, unseat the Line Group circuit pack [KCD 3 or KCD 3(B)] for the related Line Group fuse being tested.
- At the SM, remove the fuse associated with the ISLU Line Group fan.

Response:

- (A) Audible MAJOR alarm gongs.
- (B) After about 10 seconds, red LED at the rear of the ISLU drawer corresponding to fan

being tested lights.

- (C) The yellow Fan Alarm LEDs light on front and rear bezel covers of frame.
- (D) The **MAJOR** indicator at the top of the MCC screen lights and the **SM** rectangle flashes.
- (E) At MCC 1010,x page, the **FAN ALM** indicator lights RED and the **SM STAT** status indicator shows **FAN/FUSE** in reverse video.
- (F) The message **REPT ALM FAN SM=x** [5E9(1) and earlier] or **REPT ALM FAN SM=x AISLE=z** [5E9(2) and later] appears on the ROP.

Where:        x = SM number  
                   z = Aisle number

6. At the MCC, press the **ALM RLS** key.

Response:

- (A) Audible MAJOR alarm retires.
- (B) **MAJOR** indicator goes OFF.
- (C) **SM** indicator stops flashing.

7. At the SM, insert the fuse removed in Step 5.
8. At the SM, reseal the Line Group circuit pack [KCD 3 or KCD 3(B)] that was unsealed in Step 4.
9. Restore the Line Group by entering **RST:ISLULGC=a-b-c;**

Where:        a = SM number  
                   b = ISLU number  
                   c = Line Group Controller number

Response:     **RST ISLULGC=a-b-c COMPLETED**

10. At the SM, test the hardware alarm retire by pressing the red reset button on the rear of the ISLU drawer next to the fan alarm LEDs.

Response:

- (A) Red LED corresponding to fan being tested turns off.
- (B) Yellow LEDs extinguish on front and rear bezel covers of frame.
- (C) At MCC 1010,x page, the **FAN ALM** indicator returns to normal video and the **SM STAT** status indicator returns to normal.
- (D) The message **REPT ALM CLR FAN SM=x** [5E9(1) and earlier] or **REPT ALM CLR FAN SM=x AISLE=z** [5E9(2) and later] appears on the ROP.

Where:        x = SM number  
              z = Aisle number

11. To test the software alarm retire, select the same fan as selected in Step 2.
12. Remove from service the Line Group of the fan to be tested by entering **RMV:ISLULGC=a-b-c,UCL;**

Where:        a = SM number.  
              b = ISLU number  
              c = Line Group Controller number

Response:     **RMV ISLULGC=a-b-c COMPLETED**

13. At the SM, unseat the Line Group circuit pack [KCD 3 or KCD 3(B)] for the related Line Group fuse being tested.
14. At the SM, remove the fuse associated with the ISLU Line Group fan.

Response:

- (A) Audible MAJOR alarm gongs.
- (B) After about 10 seconds, red LED at the rear of the ISLU drawer corresponding to fan being tested lights.
- (C) The yellow Fan Alarm LEDs light on front and rear bezel covers of frame.
- (D) The **MAJOR** indicator at the top of the MCC screen lights and the **SM** rectangle flashes.
- (E) At MCC 1010,x page, the **FAN ALM** indicator lights RED and the **SM STAT** status indicator shows **FAN/FUSE** in reverse video.
- (F) The message **REPT ALM FAN SM=x** [5E9(1) and earlier] or **REPT ALM FAN SM=x AISLE=z** [5E9(2) and later] appears on the ROP.

Where:        x = SM number  
              z = Aisle number

15. At the MCC, press the **ALM RLS** key.

Response:

- (A) Audible MAJOR alarm retires.
- (B) **MAJOR** indicator goes OFF.
- (C) **SM** indicator stops flashing.

16. At the SM, insert the fuse removed in Step 14.

17. At the SM, reseal the Line Group circuit pack [KCD 3 or KCD 3(B)] that was unseated in Step 13.

18. At MCC type and enter: **CLR:FANALM,SM=x;**

Where: x = SM number

Response:

- (A) Red LED corresponding to fan being tested turns OFF.
- (B) Yellow LEDs extinguish on front and rear bezel covers of frame.
- (C) At MCC 1010,x page, the **FAN ALM** indicator returns to normal video and the **SM STAT** status indicator returns to normal.
- (D) The message **REPT ALM CLR FAN SM=x** [5E9(1) and earlier] or **REPT ALM CLR FAN SM=x AISLE=z** [5E9(2) and later] appears on the ROP.

Where: x = SM number  
z = Aisle number

19. Restore the Line Group by entering **RST:ISLULGC=a-b-c;**

Where: a = SM number  
b = ISLU number  
c = Line Group Controller number

Response: **RST ISLULGC=a-b-c COMPLETED**

20. Repeat Steps 2 through 19 to test each additional ISLU fan alarm.

21. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## 9. MOVING HEAD DISK PROCEDURE DESCRIPTION

### 9.1 OVERVIEW

This section contains general description information for reconfiguring moving head disks (MHD) to provide greater system storage capacity.

Section 10 contains detailed level procedures for converting, connecting, or replacing MHD. It also contains disk reconfiguration procedures and remote disk configuration procedures.

**CAUTION 1:** During normal operations, work within a couple of file systems can trigger *UNIX*<sup>®</sup> file system alarms. These alarms normally warn the switch owner of situations where a file system is likely to run out of file space unless actions are taken to prevent the space exhaustion. Though, in the cases of /updtmp (or /update 5E9 or later) and /nododd/imdataX, these file systems can become and (in the case of /no5odd/imdataX), stay full legally because of software update application or NRODD growth, respectively.

**CAUTION 2:** It is potentially hazardous to use non-KS spare disks with the 5ESS<sup>®</sup>-2000 switch. The use of spare disks that are not purchased through Lucent Technologies and which, therefore, do not conform to our KS specifications is not recommended. These non-KS disks are not properly formatted and do not have the defect tables written on them. Since it is not recommended that the 5ESS-2000 switch write to non-KS disks, there is a high risk of a spare not being immediately available if a failure should occur. This situation is potentially service affecting.

The 5E9 and later software releases require a "large" primary small computer system interface (SCSI) disk. Therefore, if the growth of SCSI disks to an office currently equipped with only storage module device (SMD) disks is contemplated, a conversion to SCSI primary disks with SMD disks as outboard disks is recommended since the 5E9 and later software releases require this conversion.

### 9.2 DISK RECONFIGURATION DESCRIPTION

#### 9.2.1 GENERAL

Each disk configuration requires a minimum number of disk pairs. In some cases, additional disks pairs can be added (disk growth) to increase the automatic message accounting (AMA) data storage capacity of the office. Disk growth is limited by the maximum number of disk pairs that the disk configuration will support.

Two base disk configurations, **63** and **66**, are supported in the 5E9 and later software releases. Both the 63 and 66 configurations contain 2 base disk pairs and can support up to 5 optional disk pairs in a mixed SMD-SCSI office, and up to 13 optional pairs in an all SCSI office. The 63 configuration is the smallest capacity base disk configuration. The first pair of disks is a pair of 600-MB or 1-GB SCSI disks. The second pair is either two 322-MB SCSI disks or two 340-MB SMD disks. The 66 is the largest capacity base disk configuration which contains two pairs of either 600-MB or 1-GB SCSI disks. The 5E9 software release support five layouts for optional disk pairs in the SCSI disk configurations. The options are as follows:

- **Option 1:** This option provides two disk partitions (each equal to one-half of the available disk space) for AMA data.
- **Options 2 - 4:** These options, respectively, provide for one partition of SM ODD equal to 25 percent, 50 percent, and 75 percent of the available disk space. Two AMA partitions then, respectively, share the remaining 75 percent, 50 percent, and 25 percent of the available disk space.
- **Option 5:** This option provides one disk partition for SM ODD. Two small disk partitions are also provided for AMA data to satisfy the requirements of the AMA data storage process.

The 5E10 and later software releases support three layouts for 1GB optional disk pairs running in an office with a 3B21D processor. The options are as follows:

- **Option 1:** This option provides two disk partitions (each equal to one-half of the available disk space) for AMA data.
- **Option 2:** This option provides one partition for SM ODD equal to 25 percent of the available disk space, and two partitions of AMA data share the remaining 75 percent of available disk space.
- **Option 3:** This option provides one partition for SM ODD equal to 50 percent of the available disk space, and two partitions of AMA data share the remaining 50 percent of available disk space.

If the growth of SCSI disks to an office currently equipped with only SMD disks is contemplated, a conversion to SCSI primary disks with SMD disks as outboard disks is recommended since the 5E9 software release will require this conversion. The maximum number of disk pairs remains the same as it would be for an office with 340-MB disk drives. Offices that have all SCSI disk drives can have up to 15 disk pairs, however, the last 8 disk pairs (MHD 16 through MHD 31) can only be configured as Option 1 disk pairs.

Table 9-1 shows the number of disk pairs required by each base disk configuration, and the maximum number of optional disk pairs supported by each base configuration.

**Table 9-1 Required - Optional Disk Pairs Per Base Disk Configuration**

SOFTWARE RELEASE	BASE DISK CONFIGURATION		
	1010 <sup>a</sup>	66	63
5E9(1)	NA	2 - 13	2 - 13
5E9(2)	NA	2 - 13	2 - 13
5E10	2 - 5	2 - 13 <sup>b</sup>	2 - 13 <sup>b</sup>
5E11	2 - 5	2 - 13 <sup>b</sup>	NA
5E12	2 - 5	NA	NA
<b>Notes:</b>			
a. Available only in offices having a 3B21D processor prior to the 5E12 release.			
b. Available only in offices with all SCSI disk drives.			

Table 9-2 shows the optional disk configuration for 322MB and 600MB disk drives for software releases 5E9 through 5E11, given in percentages of ODD and AMA. Table 9-3 shows the disk configurations for 1GB optional disks for software releases 5E10 and later in offices running on the 3B21 processor. In 5E12, 1GB disks are used in offices running on either the 3B21 or 3B20 processor.

**Table 9-2 Optional Disk Configuration**

OPTION #	% SM-ODD	% AMA
1	0	100
2	25	75
3	50	50
4	75	25
5	100	0

**Table 9-3 Optional 1GB Disk Configuration**

OPTION #	% SM-ODD	% AMA
1	0	100
2	25	75
3	50	50

The terms growth, conversion, retrofit, and reconfiguration, as applied to the disks, are defined as follows:

**Growth** is a hardware procedure that adds an additional disk, or disk pair, to an existing office. *Growth* includes addition of SCSI frames and disks for preparation of a retrofit.

**Conversion** is a procedure that replaces one type of disk hardware with a newer type.

**Retrofit** is a procedure that replaces an existing software release with a later software release or a newer version of the existing software release. Refer to the 235-105-24X series of release specific retrofit manuals for 5E9(2) and earlier. Refer to the 235-106-10X series for 5E10.

**Reconfiguration** is a procedure that replaces the current disk configuration with a disk configuration that has more system storage capacity, for example, 63 to 66.

The disk reconfigurations that are possible are as follows:

#### DISK RECONFIGURATION SUPPORTED BY THE 5E9 AND LATER SOFTWARE RELEASES

CURRENT BASE DISK CONFIGURATION	NEW BASE DISK CONFIGURATION	
	63	66
63	o	x
66		o

Where:      o = Reconfiguration of optional disks (Base remains the same).  
              x = Reconfiguration of base disks (and optional disks).

New start offices that run on the 3B21D processor come with 1GB base pair disk drives that are formatted with 1GB VTOCs. For the 5E10 release, only optional disk pairs may be reconfigured when running on the 3B21D processor.

## 9.2.2 DISK RECONFIGURATION OVERVIEW

From a very high-level view, disk reconfiguration has some of the following characteristics of software release retrofit:

- The disks are divided into an on-line system (composed of the even-numbered disks) and an off-line system (composed of the odd-numbered disks).
- A new disk configuration is built on the off-line disk system.
- The system is booted onto the new disk configuration.
- After some system sanity tests are performed, the disks are duplexed.
- If any of the sanity tests fail, the system is booted back onto the original disk configuration.

The major difference between software release retrofit and disk reconfiguration is the amount of new data that is brought into the office. The only new data required for a disk reconfiguration are the volume table of contents (VTOC) files for the new disk configuration. The new equipment configuration data base (ECD) and system generation (SG) data bases are evolved from the existing data bases on the switch. The ODD and other data for the new disk configuration are copied from the old disk configuration.

The disk reconfiguration procedure is designed to be completed in a single 8-hour shift. During this shift, all recent changes (RC) must be blocked. All persons that regularly install RCs must be notified in advance of the disk reconfiguration procedure.

Disk reconfiguration consists of a written procedure and a set of tools to support that procedure. Normally the disk reconfiguration tools are transmitted to an office electronically using the software change administration and notification system (SCANS) utility just prior to the time of the reconfiguration procedure. To obtain a current copy of the disk reconfiguration tools, contact the North American Regional Technical Assistance Center (NARTAC) at **1-800-225-7822**. More than one set of tools may exist for software releases that have had manufacturing update loads that changed the disk layouts.

## **9.2.3 PREPARATION FOR A DISK RECONFIGURATION**

### **9.2.3.1 OVERVIEW**

In order to increase the probability of a successful disk reconfiguration, some verification and testing of the existing system should be done ahead of time.

**NOTE:** This verification and testing should be performed several days before the actual reconfiguration procedure is scheduled.

### **9.2.3.2 Determining the Current Disk Configuration**

The disk reconfiguration procedure for the 5E9 and later software releases contain a procedure that determines the current disk base configuration and the configuration of any optional disks. The results are displayed on the master control center (MCC) video terminal and are printed on the read-only printer (ROP). In the 5E9 and later software releases, it is not necessary to know the current disk configuration as long as the office has a valid disk configuration.

### **9.2.3.3 Off-Line Pump All SMs**

Disk reconfiguration checks the validity of the SM ODDs on the new disk configuration by off-line pumping all of the SMs in the office. This also verifies that the RLsmconf ODD relation is correctly built in the 5E9 and later software releases. This test is meaningful if, and only if, all SMs can be off-line pumped before the disk reconfiguration procedure is performed.

## **9.2.4 ASSIGNMENT OF OPTIONAL DISKS**

In the 5E9 and later software releases, one of the disk reconfiguration tools provides a conversational interface with the user. This tool must be run from a recent change and verify (RC/V) or supplementary trunk and line work station (STLWS) terminal. This tool allows the user to specify all of the disk reconfiguration parameters from a set of menus. If the user makes an invalid choice, an error message will be printed and the menu will be redisplayed so the user can make another choice. The configuration of each optional disk pair in the new disk configuration is determined during this step. Disk reconfiguration does not allow optional disk pairs to be assigned completely at random. It always tries to minimize the number of disk pairs containing the SM ODD by imposing the following rules:

- Optional disk pair ``n" can be assigned as option 2 or option 3 if, and only if, disk pair ``n-1" is a required disk pair (part of the base configuration), or it is an optional disk pair that has been assigned as option 3.
- Optional disk pair ``n" can always be assigned as option 1.

Following these rules minimizes the number of disk pairs containing SM ODD, which minimizes the number of backup tape sequences that have to be written to do a full office backup. This minimizes the time it would take to ``dead start" an office from tape. It also minimizes the possibility of having to reload all of the AM and SM ODDs from tape due to duplex disk failures.

## **9.2.5 CONTENTS OF THE DISK RECONFIGURATION TOOLS**

### 9.2.5.1 OVERVIEW

The disk reconfiguration tools are made up of shell scripts, VTOCs, RCV keystroke files, data/information files, and ``C" object files. Usually the disk reconfiguration tools are implemented as shell scripts. However, in some cases it is much easier, and more efficient, to use a ``C" program. Disk reconfiguration scripts (tools) that are normally called directly from a terminal are referred to as first-level scripts. Second-level scripts (tools) are normally called from first-level scripts instead of a terminal. The keystroke files are used to modify and evolve the ECD and SG data bases for the new disk configuration.

Table 9-4 gives the contents of the disk configuration tools for the current software releases.

**Table 9-4 Contents of Disk Reconfiguration Tools for Current Software Releases**

TYPE OF FILE	SOFTWARE RELEASE						
	5E8	5E9(1)	5E9(2)	5E10	5E11	5E12	5E13
C Object File	7	7	7	7	7	7	7
First-Level Scripts	14	14	14	14		21	21
Second-Level Scripts	8	8	8	8	15	15	15
ECD Keystroke Files	66	66	66	81	81	81	81
SG Keystroke Files	66	66	66	81	81	81	81
VTOC files	70	70	70	87	85	83	83
Data/Information Files	18	18	18	22	13	9	9

### 9.2.5.2 Clear Off-Line Superblock (COFLSB)

All file system (FS) partitions that grow in size or move on the disk must have their superblocks rebuilt according to the new disk layout. Since the *UNIX*<sup>®</sup> operating system provides no tool for the off-line disk, one had to be written. The COFLSB program is used to attach to a partition on off-line disk and to clear the partition's superblock. The COFLSB provides a mount off-line partition (MOP) type of interface to the invoking script that allows it to read or write the off-line partition for a maximum period of 4 hours. When the invoking script is done accessing the off-line partitions, it kills the COFLSB process. When COFLSB terminates normally (due to a time-out or a kill command), it unmounts the off-line partition. If COFLSB is aborted due to a system recovery (51 or higher), the off-line partition may not be unmounted and may remain in the mount table. This condition can only be cleared by calling COFLSB to remount the partition and then killing COFLSB. The RMVOFLMNTS script will remove a hung-mount table entry caused by an abnormal COFLSB termination.

The RMVOFLMNTS script performs the following operations when it finds a hung-mount table entry due to an abnormal COFLSB termination:

- Determines which off-line partition has the hung-mount point
- Calls COFLSB to remount the off-line partition
- Kills the COFLSB process.

The RMVOFLMNTS script is called at the beginning of the COPYODDOFL and MISCOFLINIT scripts before they use COFLSB to mount an off-line partition. It can also be called directly by entering the following message at the master control center (MCC) video terminal:

**EXC:ENVIR:UPROC,FN="/updtmp/site/rmvoflmnts",ARGS="MCC";**

Response: **RMVOFLMNTS COMPLETED.**

### 9.2.6 ODD INFORMATION FILES

The 5E9 and later software releases contain a minimum of four and a maximum of nine ODD partitions that must be copied from the active disk system to the off-line disk system during the disk reconfiguration procedure. These files are as follows:

- **no5dodd1:** This FS partition contains the AM disk ODD. Since this partition contains only raw data, it is copied from the active disk to the off-line disk as a partition.
- **no5aodd1:** This FS partition contains the disk backup of the AM resident ODD. This partition also contains the communication module processor (CMP) ODD file. This partition is copied from the active disk to the off-line disk on a file-by-file basis.
- **no5codd1:** This FS partition contains the critical information and hashsum files for all of the SMs in the office. This partition also contains the redundant SM ODD file. This partition is copied from the active disk to the off-line disk on a file-by-file basis.
- **no5sodd1:** This FS partition contains the ODDs for all of the SMs in the office. This partition is copied from the active disk to the off-line disk on a file-by-file basis.
- **no5sodd(1-6):** In 5E9 and later software releases, at least one partition is required and up to six partitions could exist in either the current or new disk configuration. These FS partitions contain the ODDs for all of the SMs in the office (with the exception of the redundant SM ODD file). These partitions are copied from the active disk to the off-line disk on a file-by-file basis.

Since the ODDs are unique to each office, the disk reconfiguration procedure can only do a limited amount of checking to verify that the ODDs on the off-line disk are complete and correct. In the final analysis, the correctness of the ODDs must be determined by those performing the reconfiguration procedure. Information will be printed during the COPYODDOFL procedure to aid in this determination.

Up to five information files will be printed on the receive-only printer (ROP) while the ODD partitions are being copied. These files are all created in the /updtmp/temp directory and contain the following information:

- **info.am:** This file is printed after the administrative module (AM) ODD partition (no5aodd1) has been copied to the off-line disk. The first part contains a list of the files in the no5aodd1 partition of the active system. The second part contains a list of the files that were copied to the off-line system. In both cases, the information is given in the format of the *UNIX*® operating system `ls -las` instruction. When this file is printed on the ROP, you should check the ROP output to ensure that all of the no5aodd1 files that should have been copied to the off-line system were actually copied.

**NOTE:** Since the ECD configuration system scripts will no longer be valid, the directory containing them is not copied to the new disk configuration.

- **info.ci:** This file is printed after the critical information partition (no5codd1) has been copied to the off-line disk. The first part of the file contains a list of the files in the no5codd1 partition of the active system. The second part contains a list of the files that were copied to the off-line system. In both cases, the information is given in the format of the *UNIX*® operating system `ls -las` instruction. When this file is printed on the ROP, check the ROP output to ensure that all of the no5codd1 files that should have been copied to the off-line system were actually copied.
- **info.sm:** This file is printed after the SM ODD (no5sodd1) has been copied to the off-line disk. The first part of the file contains a list of the files in the no5sodd1 partition of the active system. The second part contains a list of the files that were copied to the off-line system. In both cases, the information is given in the format of the *UNIX*® operating system `ls -las` instruction. When this file is printed on the ROP, check the ROP output to ensure that all of the no5sodd1 files that should have been copied to the off-line system were actually copied.

In software releases 5E9 and later, this file is printed after the SM ODD partitions [no5sodd(1-6)] have been copied to the off-line disk. The first part of the file contains a list of the ODD files in each of the no5sodd(1-6) partitions of the active system. The second part contains a list of the ODD files that were copied to each of the no5sodd(1-6) partitions on the off-line system. In both cases, the information is given in the format of the *UNIX*® operating system `ls -las` instruction. When this file is printed on the ROP, check the ROP output to ensure that all of the no5sodd(1-6) files that should have been copied to the off-line system were actually copied.

**NOTE:** An SM ODD file will not necessarily be in the same partition on the off-line system as it was on the on-line system.

- **infofile:** This file is printed at the conclusion of the procedure. It contains information about the AM ODD and each SM ODD on the off-line disk. The information printed includes the software release, data, processor, oda-issue, etc. Check the ROP output to ensure that all ODD files were accessed, and determine if the data printed is appropriate for your office.

**Note:** Information fields will not be populated for SMs that have been grown since office cut-over or last office retrofit.

- **debug:** This file contains timing information about the partitions and the files that were copied from the active system to the off-line system. It gives the starting and completion times for each partition that was copied, the completion time for each file that was copied, the *UNIX*® operating system processes used to copy each file, and the return codes from each of the *UNIX*® operating system processes. Initially this file was to be used for timing analysis and as an aid in debugging the script (hence the name). Later it was realized that this file could provide valuable information if the script should fail, so the file was left in the script.

A word of caution is in order. The return code from the vcp command will almost always be a 1 (fail) when copying an extent file. This does not mean that the command failed. It occurs because the extent files are usually not an integral number of blocks (512 bytes) in size. This causes the vcp command to get an input error when it runs out of data while copying the last block of the file.

- **error:** The error file is used to collect all of the information messages and all of the apparent error messages that are printed by the processes called by the COPYODDOFL procedure. The contents of this file are useful if, and only if, the procedure fails. This file must be printed manually. In the 5E9 and later software releases, this file will be printed on the ROP if the COPYODDOFL procedure fails.
- **uoaodd\_info:** In 5E9 and later software releases, when the SM ODD files are copied from the active to the off-line disk system, there is no guarantee that the files will remain in the same disk partition. An ODD relation (RLsmconf) in the cpodd.out file of the AM ODD partition contains information for each equipped SM in the system, including the suffix number for the partition containing the SM's ODD file. The disk reconfiguration procedure contains a program (UOAODD) to update the disk partition information in the RLsmconf relation on the off-line disk system.

The uoaodd\_info file is generated by the UOAODD process when it is called in the COPYODDOFL procedure. The file always contains the original contents of the RLsmconf relation for the equipped SMs and the number of SM ODD files found on the off-line disk system. If it was necessary to update the off-line RLsmconf relation, the file will also contain the contents of the updated RLsmconf relation. This file will be printed on the ROP if the UOAODD process fails.

Any of the previous files can be dumped on the ROP by typing the following message at the MCC:

**EXC:ENVIR:UPROC,FN="/bin/sh",ARGS="-c-"/bin/lpr</updtmp/temp/xxx";**

Where:           **xxx** = The name of the file to be printed.

### 9.2.7 REMOTE DISK CONFIGURATION

**CAUTION 1:** If both MHD 0 and MHD 1 have been swapped with other MHDs using the remote disk configuration feature, the system will most likely not recover from a level 52 or higher boot. When remote disk configuration is used, the system should be allowed to remain in this condition for as short a time as possible.

**CAUTION 2:** Because the reconfiguration consists of ECD changes, care should be taken so that an incore activate does not copy the changes to disk. However, because the configuration is incore only, a level 53 or higher boot will restore the original MHD configuration.

**CAUTION 3:** Whenever the mate of an active MHD is restored, a copy of the active MHD is copied over. It is important to remember that when a swapped disk is being restored, its old contents are being destroyed. If a level 53 or higher boot occurs, the system will go to its original MHD configuration-not knowing that disk contents have changed. If the system tries to run on such a disk, the result could be unpredictable.

The remote disk configuration feature provides the ability to remotely swap disks without having to dispatch personnel to the office. When an MHD fails in an office, the remote disk configuration feature can be used to perform a software switch of the failed MHD and another MHD. When this is done, the two MHDs swap identities for the purpose of file access. For example, if MHD ``b" fails and MHD ``c" is a warm spare, the remote disk configuration feature can swap MHD ``b" and MHD ``c" in software. When MHD ``c" is restored after the swap, it gets a copy of the mate of MHD ``b" (MHD ``a"). This leaves MHDs ``a" and ``c" as a duplex pair. The following is a step-by-step summary:

- **a, b** - duplex pair, both active
- **a, b** - pair, **b** failed (OOS)
- Swap **b** and **c**
- **a, c** - pair, **c** OOS
- Restore **c**
- **a, c** - pair, **c** restoring by copying from **a**
- **a, c** - duplex pair, both active.

The selection of the MHDs to be swapped is important. If an office has a warm spare on the same DFC as the failed MHD, that warm spare is the ideal choice. Because the swap is done between MHDs on the same DFC, the resulting duplex pair still employs both DFCs. If there are no warm spares in an office, care should be taken in selecting an MHD because, after the swap, the former mate will be simplex.

The procedure for the swap is straightforward. If MHD ``b" is the failed MHD and MHD ``c" is the choice for the swap, the following messages should be used:

```
RMV:MHD=c;
SW:MHD=b,MHD=c; and
RST:MHD=c;
```

Where: **b** is already out of service (OOS)  
**c** goes OOS  
**b** and **c** are swapped  
**c** gets a copy of the contents of **MHD a** (the mate to **b**) and goes active (ACT).



After the previous messages are entered, a **REPT MHD** output message will be printed showing the paired MHDs on their corresponding MDCT forms with the swapped MHDs indicated by an ``\*". This output message will repeat approximately every hour as long as the configuration is nonstandard. A manual request to produce this information can be entered by using the **OP:MHD:CFG** input message.

The MCC Display Page **123/125** can be used to check the status of the MHDs. If the MHD swap involves an MHD that is marked essential (such as one of the primary disk pair), Page **123** will reflect these MHDs going through the unequipped and growth states as the swap changes the essential bit.

When the swap(s) is done and the MHDs have been replaced or repaired, a single input message can put the system back into the standard configuration. At the MCC, type and enter: **SW:MHD=ALL:STANDARD;**

If this request cannot run to completion (because one of the swapped MHDs is not OOS, for example), the input message can be repeated after corrective action has been taken.

Refer to 235-600-700, *Input Message Manual*, for more information concerning the previous referenced input messages.

## 9.2.8 AUTO DISK CONFIGURATION

### 9.2.8.1 General

The *auto spare disk* feature is part of software releases 5E9 and later. Whenever the feature detects an MHD that has been removed from service, except by a manual input command, it starts a timer. When the timer expires in about 30 minutes, the feature again looks at the MHD. If the MHD is still out of service, the feature is triggered.

Upon being triggered, the feature checks that all the MHDs are presently configured in their normal state and that the spare MHD (14 is the spare for the DFC 0 MHDs and 15 is the spare for the DFC 1 MHDs) is active. It then verifies that the defective MHD's mate (for example, MHD 0 and 1 are mated, as are 2 and 3, etc.) can read every track on it. Next, the feature removes the spare MHD from service.

The feature then uses ECD recent change (RCVECD) to configure the ECD to mate the spare MHD with the (defective MHD's) mate MHD. The defective MHD is left unmated. For example, if the defective MHD was 0, then MHDs 14 and 1 would be mated and MHD 0 would be left unmated. Finally, the spare MHD will be restored duplex with the mate MHD.

At some later time, when the defective MHD has been repaired, the user enters a command or poke to normalize the configuration. The feature first verifies that the mate MHD can read all tracks. It then removes from service the spare MHD and the (previously) defective MHD. Next, the ECD is restored to the normal configuration. Finally, both MHDs are restored to service and the feature is ready to be retriggered.

If any step in the initial (before the defective MHD is repaired) procedures fails, then a major alarm is generated and an error report is printed on the ROP. The alarm repeats about every 15 minutes until (1) the defective MHD is restored to service, (2) any manual configuration of any MHD completes successfully, or (3) the feature is inhibited for the entire office.

### 9.2.8.2 User Interface

#### 9.2.8.2.1 General

The automatic MHD configuration feature interfaces to the user by display pages and input/output messages. The following sections give an overview of these messages and display pages.

#### 9.2.8.2.2 Input Messages

The user is provided with input messages to inhibit and allow the feature on a per-MHD basis as well as on the entire office. The formats of these messages are as follows:

**INH:AUTOCFG[:MHD=x];**  
**ALW:AUTOCFG[:MHD=x];**

Input messages are also provided to manually switch the configuration of the MHDs. These messages provide the following functions: switch the configuration of any two MHDs, configure a spare MHD for a specified defective MHD, and configure the office to the normal MHD configuration either office wide or on a specified MHD. The formats of these messages are as follows:

**SW:MHD=x:MHD=y;**  
**SW:MHD=x:REPLACE;**  
**SW:MHD=ALL:STANDARD;**  
**SW:MHD=x:STANDARD;**

In addition, an input message is provided to generate an output message showing the current configuration of the MHDs and any inhibits that are active on the feature. The format of this message is as follows: **OP:MHD:CFG;**

### 9.2.8.2.3 Output Messages

Output messages of this feature provide the craft with in-progress and completion status for both manually and automatically started configuration commands. The format of these messages is as follows:

**REPT SW MHD . . . [ IN PROGRESS | COMPLETED | FAILED ]**  
*<reason(s) for FAILED>*

Both manually requested and periodic (when off-normal) output messages are provided to show the MHD configuration and the feature's inhibit status. The format of these messages is as follows:

**REPT MHD CONFIGURATION**  
*<configuration of MHDs>*  
*<automatic MHD configuration inhibit status>*

### 9.2.8.2.4 Display Pages

#### 9.2.8.2.4.1 General

Three display pages are used by this feature. They are the disk status page (Page 123), the automatic MHD configuration control page (Page 178), and the automatic MHD configuration status page (Page 179). In 5E9 and later software releases, the automatic MHD configuration status page extends into Page 180.

#### 9.2.8.2.4.2 Disk Status Page (Page 123)

Display Page 123 displays the in-service/out-of-service status of all the MHDs. This is the only page that is displayed when the system is running in full DIOP [both primary MHDs (0 and 1 normally) are failed]. As a non-normal configuration of the MHDs effects the DIOP recovery procedures (the data on the configured spare MHD must be reloaded from tape), an indication of any non-normal configured MHDs is shown on this page.

When all the MHDs are in their normal configuration, this indicator shows the status of the feature (that is, **OFF**, **READY**, **INHIBITED**, or **IN PROGRESS**).

#### 9.2.8.2.4.3 Automatic MHD Configuration Control Page (Page 178)

Display Page 178 provides pokes for all of the normal input commands of this feature. It also provides a display area that indicates which, if any, configuration command is currently executing and what the command is currently doing (that is, verifying an MHD, updating the ECD, etc.).

#### 9.2.8.2.4.4 Automatic MHD Configuration Status Page (Page 179)

Display Page 179 shows, in detail, the configuration of all the MHDs.

#### 9.2.8.3 Control Files

This feature was designed to Bell Communications Research, Inc., specifications. One of the specifications stipulated that "turning on" and "turning off" (as opposed to "allow" and "inhibit") were to be noncasual operations, since each telephone company may want to do these as matter of policy within their company. As such, the following instructions in this section should not be executed until such time as the telephone company decides upon and publishes their policy for this feature.

As shipped, this feature is "off" and cannot be turned "on" by any of the previous commands. To turn "on" this feature, type and enter the following commands:

```
EXC:ENVIR:UPROC,FN="/bin/touch",ARGS="/etc/inhmhd";
STOP:EXC,ANY,UCL,FN="/no5text/prc/SMaprts";
ALW:AUTOCFG,MHD=0;
ALW:AUTOCFG,MHD=1;
ALW:AUTOCFG,MHD=14;
ALW:AUTOCFG,MHD=15;
ALW:AUTOCFG;
```

Either MHD 14 or MHD 15 is required for operation of this feature; however, both MHD 14 and MHD 15 should be used to get the most benefit.

As shipped, this feature will only replace a failed MHD 0 or MHD 1. This is indicated on the REPT MHD CONFIGURATION output message by the phrase "EXCLUDED FROM OFF-NORMAL CONSIDERATION" being displayed next to all inhibited MHDs except 0, 1, 14, and 15.

It is possible to allow this feature to replace the other MHDs (2 through 13) also. To enable this feature for additional MHDs, enter the following command for each additional MHD:

```
EXC:ENVIR:UPROC,FN="/bin/sh",ARGS="echo[:MHD][:ALW=x>>/etc/definhmhd";
```

Where:           x = MHD number (for example, 2)

After the additional MHDs have been specified, enter the following command:

```
STOP:EXC,ANY,UCL,FN="/no5text/prc/SMaprts";
```

## **10. MOVING HEAD DISK PROCEDURES**

### **GENERAL**

Section 10 contains detailed level procedures for converting, connecting, or replacing moving head disks (MHDs). It also contains disk reconfiguration procedures and remote disk configuration procedures.

## Procedure 10.1: CONNECT OFF-LINE SPARE DISK IN A RUNNING SYSTEM (340MB MHD 3B20D ONLY)

### PROCEDURE

1. **CAUTION:** Operational testing of the off-line spare MHD by rotating it into service should not be performed more often than once every 7 days. Great care must be taken when detaching and attaching the connector to the disk file controller (DFC) since pins can be bent.
2. On the front panel of off-line spare moving head disk (MHD), verify that the logical indicator plug labeled 0 is installed.
3. Check power and ground for the off-line spare MHD to insure that they meet the manufacturer's requirements.
4. Remove defective MHD from service.

Reference: **Procedure 10.6**

5. To power down off-line spare MHD, raise cover on start switch and push the **START** switch. Wait for disk to stop spinning (**READY** lamp stops flashing and remains off).
6. To power down defective MHD, raise cover on start switch and push the **START** switch. Wait for disk to stop spinning (**READY** lamp stops flashing and remains off).
7. To power down the defective MHD power controller, simultaneously depress the **OFF** switch and the **MOR** switch.
8. To power down the off-line spare MHD power controller, simultaneously depress the **OFF** switch and the **MOR** switch.
9. At the rear of the cabinet for the defective MHD, disconnect scan and signal distribute (SCSD) cable from the back of the power controller.
10. At the rear of the cabinet for the off-line spare MHD, reconnect the SCSD that was removed from the defective MHD controller.
11. Remove disk file controller (DFC) for bad MHD from service.

Reference: **Procedure 10.7**

12. Power down and remove cables for defective MHD.

Reference: **Procedure 10.12**

13. Connect cables for off-line spare MHD.

Reference: **Procedure 10.5**

14. **NOTE:** The logical indicator plug "0" enables the DFC to properly select the MHD, which is essential for using an "off-line" spare disk configuration. Plug "0" is for logical device 0 (MHD-0 and

MHD-1), and Plug "1" is for logical device 1 (MHD-2 and MHD-3).

If a logical indicator plug labeled 0 was not available in Step 1 of this procedure, then switch the logical indicator plug from the defective MHD into the spare MHD.

15. To power up the power controller for the off-line spare MHD, depress the **ON** switch on the power controller.
16. Power up and restore DFC to service.

Reference:     **Procedure 10.4**

17.               **CAUTION:** Damage to diodes located in the inverter can result if the MHD is powered up too rapidly or if steps are performed out of sequence.

Wait approximately 10 minutes before continuing with this procedure.

18. To power up the off-line spare MHD, with disk installed, raise the cover on the start switch and push the **START** switch. Wait for the disk to come up to speed (**READY** lamp stops flashing and remains on).
19. Format and verify formatting of MHD.

Reference:     **Procedure 10.3**

20. Restore MHD to service.

Reference:     **Procedure 10.2**

21. Test off-line spare MHD by using KS-22034, field test unit or by rotating the off-line spare MHD into service every 7 days for operational testing.

**Results:** Off-line spare disk connected in a running system.

22. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.2: RESTORE MOVING HEAD DISK (MHD) TO SERVICE****PROCEDURE**

1. At master control center (MCC), to restore MHD to service, type and enter: **RST:MHD=a;**

Where:            **a** = unit number of MHD.

Response:        **RST MHD=a COMPLETED** is printed.

2. At MCC, to verify that MHD is restored to service, type and enter: **OP:OOS;**

Response:        List of out-of-service (OOS) units is printed.

3. Using OOS list, verify that MHD is restored to service.

**Results:** Moving head disk (MHD) restored to service.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.3: FORMAT AND VERIFY FORMATTING OF MOVING HEAD DISK (MHD)

### OVERVIEW

**CAUTION:** This procedure is intended for new disks. This procedure is NOT intended to be performed on in-service disks. If you are having a problem with a disk for which you think reformatting is necessary, you should determine the problem via defect management which will automatically perform an initialization.

### PROCEDURE

1. To format the MHD, at the master control center (MCC), type and enter: **INIT:MHD=a;**

Where:            **a** = unit number of MHD.

Response:        **INIT MHD=a COMPLETED** is printed

2. At the MCC, to verify that MHD is formatted, type and enter: **VER:MHD=a;**

Where:            **a** = unit number of MHD.

Response:        **VER MHD=a COMPLETED** is printed

**Results:** Format and verify formatting of moving head disk (MHD) completed.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 10.4: POWER UP AND RESTORE DFC TO SERVICE

### PROCEDURE

1. **Note:** When disk file controller (DFC) is powered up, diagnostics are run automatically and DFC is automatically restored to service.

At DFC to be powered up, depress **ON** switch.

Response: **OFF** LED goes out and **RQIP** LED momentarily lights to indicate request was honored.

2. At the master control center (MCC), to verify that the DFC has been restored to service, type and enter:  
**OP:OOS,a;**

Where: **a** = Name of restorable unit(s).

Response: Requested out-of-service (OOS) unit(s) is printed.

3. Verify that DFC powered up in Step 1 is in service.
4. **NOTE:** If MHD is powered down, MHD diagnostics will abort; otherwise, MHD diagnostics should pass and restore MHD to service successfully.

Before proceeding, wait for all diagnostics to pass (except for MHD), and wait for DFC to be restored to service.

**Results:** Power up and restore DFC to service.

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.5: CONNECT CABLING TO OFF-LINE SPARE MHD****PROCEDURE**

1. **Caution:** *Great care must be taken when detaching and attaching the connector to the disk file controller (DFC) since the backplane pins can be bent.*
2. At the DFC of the defective moving head disk (MHD), connect the signal (data) cable of the spare MHD to the DFC at the DFC end.
3. At the DFC of the defective MHD, connect the control cable of the spare MHD to the DFC at the DFC end.

**Results:** Cabling connected to off-line spare MHD.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.6: REMOVE MOVING HEAD DISK (MHD) FROM SERVICE****PROCEDURE**

1. **NOTE:** MHD be verified using **Procedure 10.13** before removing the MHD from service.

It is recommended that the MHD being removed from service and the mate

At the master control center (MCC), to remove the MHD from service, type and enter: **RMV:MHD=a;**

Where: **a** = Member number

Response: **RMV MHD=a COMPLETED** is printed.

2. At the MCC, to verify that the MHD is out-of-service, type and enter: **OP:OOS,a;**

Where: **a** = Name of restorable unit(s).

Response: Requested out of service (OOS) unit(s) is printed.

3. Verify that MHD that was removed from service in Step 1 is out of service.

**Results:** Moving head disk (MHD) removed from service.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.7: REMOVE DISK FILE CONTROLLER (DFC) FROM SERVICE****PROCEDURE**

1. At the master control center (MCC), to remove the specified DFC and associated moving head disks (MHDs) from service, type and enter: **RMV:DFC=a;**

Where:            **a** = Member number.

Response:        **RMV DFC=a COMPLETED** is printed.

2. At the MCC, to verify that the DFC a is out of service, type and enter: **OP:OOS,a;**

Where:            **a** = Name of restorable unit(s)

Response:        Requested out-of-service (OOS) unit(s) is printed.

3. Verify that the DFC that was removed from service in Step 1 is OOS.

**Results:** Disk file controller (DFC) removed from service.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.8: POWER DOWN AND REMOVE CABLES FROM DFC-0****PROCEDURE**

1. At the disk file controller 0 (DFC-0), to power down the DFC-0, simultaneously depress **OFF** switch and **MOR** switch.

Response:     **OFF** LED lights.

2. Disconnect and remove signal (data) cable between DFC-0 and MHD-2.
3. Remove the bus terminating resistor (BTR) plug from MHD-2.
4. Disconnect and remove the daisy chain control cable from MHD-0 (previous unit) to MHD-2.
5. Install new control cable to output of MHD-0 and install BTR to free end of this cable.
6. Install new control cable between DFC-0 and MHD-0.
7. Install new control cables onto MHD-2 (input and output).
8.               **CAUTION:** Do not connect MHD-2 to any DFC.

Connect BTR to output control cable of MHD-2.

**Results:** Power down and remove cables from DFC-0.

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.9: REPLACE 340-MB MOVING HEAD DISK DRIVE

### OVERVIEW

**CAUTION:** Damage may result if the next steps are performed before the MHD is thoroughly warm. Start procedure only after disk is environmentally conditioned.

For disks that were stored in greatly different temperatures than the office ambient, allow 1 hour per 27°F (15°C) before powering up the MHD.

### PROCEDURE

1. **NOTE:** The new disk drive should be provided with an instruction manual and a manufacturer's defect table listing.

Refer to Section 1.10 of this manual to obtain manufacturer's address and phone number and order any related documentation that is not provided with the new disk drive.

2. Refer to **Procedure 10.19** to remove from service each moving head disk (MHD) on the disk file controller (DFC) that controls the defective MHD.

At the disk to be removed from service, toggle **RST/ROS** switch to **ROS** position. (Procedure **10.19** does this for disk).

3. At master control center (MCC) terminal, remove the DFC controlling the affected disk drive from service by typing and entering: **RMV:DFC=a;**

Where: **a** = DFC number of DFC controlling the affected disk drive.

Response: **RMV DFC a COMPLETED**

4. Spin down all drives controlled by DFC a by depressing the **START** button at the particular moving head disk.

Response: **START** LED is flashing at first. As soon as the **START** LED goes off, the disk has been spun down.

5. Power down all drives controlled by DFC a by depressing the **OFF** switch at the power switch, located under the particular drive.

Response: **REPT POWER DOWN MHD a**  
At the power switch, the **ALM** and **OFF** LEDs light.

Where: **a** = moving head disk member number.

6. At **DFC a**, press **OFF** switch to power down **DFC a**.

Response: **REPT POWER DOWN DFC a**  
At the power controller, the **OFF** LED lights.

Where: **a** = DFC number controlling the affected disk drive.

7. Carefully slide out the affected drive and uncable it. Slide the defective MHD forward a few inches to aid in physically identifying the drive from the rear of the unit prior to cable removal.

**NOTE:** Use Table 10.9-1 to identify the correct cable connection for the affected disk drive.

**Table 10.9-1 Moving Head Disk Drive Cable Configuration**

CABLE PLUG NUMBER	MOVING HEAD DISK DRIVE NUMBER
1	2, 3
2	4, 5
3	6, 7
4	8, 9
5	10, 11
6	12, 13
7	14, 15

8. Remove ID plug from old MHD and insert it in new MHD according to Table 10.9-1.
9. At **DFC a**, momentarily toggle the **ACO/T** key to the **ACO/T** position then back to the left, then depress the **ON** switch to power up **DFC a**.

Response: At the power control, the **OFF** LED goes off.  
**REPT POWER UP DFC a**

Where: **a** = the number of the DFC controlling the affected disk drive.

**NOTE:** The power-up of the DFC depends on the placement of the ROS switch and the health of the "/prc/psm" process which will trigger MHD DGNs. In a large multi-MHD office, it is quicker to have these tests fail than to wait for them to complete or "stop:rst" them. To reduce confusion, wait for these failures before proceeding.

10. At the MCC, type and enter: **RST:DFC=a:CONT;**

Where: **a** = Controlling DFC.

Response: **RST DFC a COMPLETED**

11. At the disk drive maintenance panel, set the **Diagnostic Mode Switch** to the **down** position for normal operation.
12. Power up all drives controlled by **DFC a** by depressing the **ON** switch at the particular power switches.

Response: At the power switch, the **ALM** and **OFF** LEDs go off.  
**REPT POWER UP MHD a**

Where: **a** = moving head disk member number.

13. Spin up all drives by depressing the **START** button at the particular moving head disk.

Response 1: The **START** LED begins flashing for about 2 to 3 minutes. When the drive completes its spin up, the **START** LED stops flashing and remains lighted.

Response 2: Hex display on disk drive maintenance panel displays **00**

14. At the MCC, to obtain the defect table listing, type and enter:  
**DUMP:MHD=a:DEFECT:MFGR;**

Where:            **a** = Member number of the replaced moving head disk.

Response:        **DUMP MHD a DEFECT TABLE COMPLETED**

15. Compare the manufacturer's defect table, delivered with the disk, with the one generated by the system. Are they the same?

If **YES**, proceed to Step 17.

If **NO**, continue with the next step.

16.                **NOTE 1:** The defect table generated by the system may be corrupted due to improper installation of the new disk drive.

**NOTE 2:** If the disk drive being installed is a used one coming from storage then the defect table that is provided may be out of date. In this case use the defect table generated by the system.

What type of disk is being installed?

If **NEW**, then repeat from Step 1, to rule out improper drive installation.

If **USED**, then save new defect table, discard the old one, and continue with next step.

17. At the MCC, type and enter: **INIT:MHD=a:VFY,NEW;**

Where:            **a** = Member number of the replaced moving head disk.

Response:        **INIT MHD a COMPLETED**

18. If disk is a software backup disk (MHD 14 or MHD 15), type and enter:  
**EXC:ENVIR:UPROC,FN="/etc/rcvtoc",ARGS=x;**

Where:            **x** = MHD number to be restored

Response:        **EXC ENVIR UPROC /etc/rcvtoc COMPLETED**  
                      **vcp: disk copy completed**  
                      **vcp: disk copy completed**  
                      **/etc/rcvtoc VTOC READ AND COMPARE SUCCESSFUL**

19. At disk, toggle and/or verify that the **RST/ROS** switch is in **RST** position.

**NOTE:** If **RST/ROS** needs to be toggled to RST the disk should start to restore and Step 20 may not be necessary.

The **RQIP** and **OOS** LEDs will remain on while the MHD is restoring. At the end of the restore period (10-15 minutes), the **RQIP & OOS** LEDs go off. If not, perform Step 20.

Response:        **RESTORE MHD a COMPLETED**



20. At the MCC, type and enter: **RST:MHD=a;**

Where:            **a** = Member number of the replaced moving head disk.

Response:        At power switch, the **OOS** and **RQIP** LEDs go off.  
**RST MHD a COMPLETED**

21. At the MCC, to obtain the defect table listing, type and enter:  
**DUMP:MHD=a:DEFECT:ALL;**

Where:            **a** = Member number.

Response:        **DUMP MHD a DEFECT TABLE COMPLETED**

22. Save both defect tables.

23. Are all moving head disks that were removed from service now restored to service?

If **YES**, STOP.

If **NO**, then Repeat Step 19 or 20 for each out of service moving head disk.

**Results:** 340-MB moving head disk drive replaced.

24. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.10: EXECUTE THE ACTIVATE FORM****PROCEDURE**

1. At the master control center (MCC), do Steps 2 through 5.
2. On **forms selection** page, to access **activate** form, type and enter: **activate**.

Response: **activate** form is displayed.

3. To copy the incore data to disk, type and enter: **y**
4. To execute the **activate** form, type and enter: **e**

Response: **FORM EXECUTED** flashes at top of screen  
**forms selection** page is displayed.

5. To exit the recent change session, type and enter: **<**

Response: **forms selection** page is displayed.

**Results:** Activate form executed.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.11: UPDATE DATA BASE BACKUP

### PROCEDURE

1. **NOTE:** This updates the application backup root file system and thereby eliminates the possibility of removing the new channel.
2. At master control center (MCC), do Steps 3 through 8.
3. To make a directory for the file system, type and enter:  
**IN:FILESYS,DIR,FN="/bdb";**
4. To mount the bdb file system, type and enter:  
**ALW:FILESYS,MOUNT,FN="/dev/bdb",BSDIR="/bdb";**
5. To copy the data base files to the backup partition, type and enter:  
**COPY:FILESYS,FILE,SRC="/database/appecd", DEST="/bdb/appecd";**
6. To move the area into a contiguous area, type and enter:  
**COPY:FILESYS,CFILE,FN="/bdb/appecd";**
7. To inhibit the use of the previous mounted file system, type and enter:  
**INH:FILESYS,UMOUNT,FN="/dev/bdb";**
8. To remove the directory, type and enter:  
**CLR:FILESYS,DIR,DN="/bdb";**  
  
**Results:** Backup data bases updated.
9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.12: POWER DOWN AND REMOVE CABLING FROM DEFECTIVE MOVING HEAD DISK (MHD)

### PROCEDURE

1. **CAUTION:** Great care must be taken when detaching and attaching the connector to the disk drive since the connector can break if screwed down too tightly.

At specified disk file controller (DFC), simultaneously depress **OFF** switch and **MOR** switch.

Response: **OFF** LED lights.

2. At defective moving head disk (MHD), disconnect signal (data) cable connecting defective MHD to DFC at DFC end.
3. At defective MHD, disconnect the control cable connecting DFC and MHD at DFC end.

**Results:** Defective MHD powered down and cabling removed.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.13: VERIFY MHD INTEGRITY

### OVERVIEW

This procedure verifies moving head disk (MHD) integrity and does not require simplexing the MHD community; therefore, it is not necessary for a craftperson to be at the site when this procedure is performed. This procedure makes use of the compare (**CMPR**) and verify (**VFY**) commands. These commands test the same areas as the diagnostics. Only one **CMPR:MHD** or **VFY:MHD** command should be running at a time. (Allow 1 hour for each command to complete.) Also, the commands should be run out of hours when administrative module (AM) or communication module (CM) routine exercise (REX) procedures are not running.

It is recommended that the **CMPR** and **VFY** commands be executed on each duplex MHD and the **VFY** command be executed on each simplex MHD on a weekly basis either by using manual input or automatically by including the commands in CRONTAB. This procedure can be used for either the manual or automatic method.

### PROCEDURE

1. Is MHD integrity verification to be performed using manual commands or scheduled to run automatically?

If **USING MANUAL COMMANDS**, go to next step.

If **SCHEDULED TO RUN AUTOMATICALLY**, go to Step 7.

2. At the master control center (MCC) or remote video terminal, type and enter: **CMPR:MHD=x,RO;**

Where: **x** = The number of the MHD to be verified. (**DO NOT** select MHD14 or MHD15 for this command because both are simplex MHDs.)

Response: **CMPR MHD a** is printed in response message. (Approximately 1 hour may elapse before the **CMPR MHD** message is printed.)

3. Wait at least 1 hour (for **CMPR MHD** message) before continuing with this procedure.

4. At the MCC or remote video terminal, type and enter: **VFY:MHD=x;**

Where: **x** = The number of the MHD to be verified.

Response: **VFY MHD** is printed in response message.

5. Have all disks at the site been verified?

If **YES**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, continue with the next step.

6. Wait 1 hour and repeat from Step 1 for each disk at the site.

7. **NOTE:** The following steps can be used to edit the CRONTAB file in order to schedule the **CMPR:MHD** and **VFY:MHD** commands to execute automatically at scheduled times. Figure 10.13-1 shows an example to run the **CMPR:MHD** at 1 AM and the **VFY:MHD** at 2 AM on MHD 0 every Saturday.

---

```
00 01 * * 6 cd /cft/sh1;/cft/bin/pdsenv "CMPR:MHD 0,RO!"
00 02 * * 6 CD /cft/sh1;/cft/bin/pdsenv "VFY:MHD 0!"
```

\* means don't care.

All commands in the crontab must be in PDS format.

**Figure 10.13-1 Example to Run CMPR:MHD at 1 a.m. and VFY:MHD at 2 a.m. on MHD 0 Every Saturday**

8. At a recent change terminal or trunk line work station, type and enter the following message in order to enter UNIX<sup>®</sup> System: **RCV:MENU:SH**

Response: The # prompt is displayed.

9. In order to enter lib, type and enter: **cd /usr/lib**

Response: The # prompt is displayed.

10. **CAUTION:** A backup of the crontab should be made before attempting any modifications, to prevent destroying the original copy.

In order to enter CRONTAB, type and enter: **/cd unixa/spool/cron/crontab**

Response: The # prompt is displayed.

To save changes to the CRONTAB file(s), and continue to work, hit the Esc key to get out of the editing mode, then colon w <:w> followed by the Carriage Return to incorporate the changes you have made to that point.

If no other changes are required, and you want out of the editing mode, hit the Esc key, followed by the <Shift ZZ> to file and exit.

**NOTE:** If the office has more then MHD 0 & 1, then they should be included in the crontab but should be scheduled at different times or days. The cron job must also be restarted to execute the current updates.

11. In order to enter the append mode, type and enter: **a**
12. **NOTE:** Only one **CMPR:MHD** or **VFY:MHD** command should be run at a time. Allow 1 hour for each command to complete (response message printed). Also, these commands should be run during hours when AM or CM REX procedure is not running.

In order to schedule the **CMPR:MHD** command, type and enter: **mm hh dd MM DD "CMPR:MHD x!"**

Where:

- mm** = Minutes of the hour this command is to be executed (00-59).
- hh** = Hour in which this command is to be executed (00-23).
- dd** = Day of the month the command is to be executed (1-31).
- MM** = Month the command is to be executed (1-12).
- DD** = Day of the week (0=Sunday - 6=Saturday) the command is to be executed.
- x** = The number of the MHD.

13. In order to schedule the **VFY:MHD** command, type and enter: **mm hh dd MM DD "VFY:MHD x!"**

Where:

- mm** = Minutes of the hour this command is to be executed (00-59).
- hh** = Hour in which this command is to be executed (00-23).
- dd** = Day of the month the command is to be executed (1-31).
- MM** = Month the command is to be executed (1-12).
- DD** = Day of the week (0=Sunday - 6=Saturday) the command is to be executed.
- x** = The number of the MHD.

**Results:** MHD integrity verified.

14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.14: RECENT CHANGE UPDATE PERFORMED DURING DISK RECONFIGURATION

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter command **199** in order to access the equipment configuration data base (ECD).

Response:     **database\_name:**

2. Type and enter: **incore**.

Response:     **review only:**

3. Type and enter: **n**.

Response:     **journaling:**

4. Type and enter: **\***.

Response:     **Enter Form Name (or ?):**

5. Type and enter: **trbegin**.

Response:     **tr\_name:**

6. Type and enter: **<ret>** (return key).

Response:     **Enter Execute, Change....**

7. Type and enter: **e**.

Response:     **Enter Form Name (or ?):**

8. Type and enter: **ucb**.

Response:     **Enter Database Operation**  
                 **I=Insert R=Review U=Update...**

9. Type and enter: **u**.

Response:     **k\_complex name:**

10. Type and enter: **<ret>**.

Response:     **k\_complex number:**



11. Type and enter: **<ret>**.

Response:     **k-unit name:**

12. Type and enter: **MHD**.

Response:     **k\_unit\_number:**

13. Type and enter: **0**.

Response:     The UCB form for MHD 0 is displayed  
              **Enter Update, Change....**

14. Type and enter: **c**.

Response:     **Change Field:**

15. Type and enter: **21**.

Response:     **major\_status:**

16.            **NOTE:** For major\_status:, enter the same value that is already in the field so that this procedure will not change the data base.

Type and enter: **OFL**.

Response:     **Change Field:**

17. Type and enter: **<ret>**.

Response:     **Enter Update, Change....**

18. Type and enter: **u**.

Response:     **k\_complex\_name:**

19. Type and enter: **<**.

Response:     **Enter Form Name (or ?):**

20. Type and enter: **trend**.

Response:     **tr\_name:**

21. Type and enter: **<ret>**.

Response:     **dis\_cf\_checks:**

22. Type and enter: <ret>.

Response:     **apply\_tr:**

23. Type and enter: <ret>.

Response:     **o\_missing\_links:**

24. Type and enter: <ret>.

Response:     **Enter Execute, Change....**

25. Type and enter: e.

Response:     **Enter Form Name:**

26. Type and enter: <.

**Results:** Recent change update performed during disk reconfiguration.

27. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 10.15: POWER UP 300-MB SMD MOVING HEAD DISK DRIVE****PROCEDURE**

1. If the 46-volt breaker is off, reset the 46-volt breaker.

2. Push the fault indicator light.

Response: The fault indicator light goes off.

3. Push the **start** switch to turn the drive on.

4. Wait for the disk to come up to speed (**READY** lamp stops flashing and remains on).

**Results:** 300-MB moving head disk drive powered up.

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.16: SWAP DISK PACKS IN 300-MB SMD MOVING HEAD DISK DRIVE

### OVERVIEW

This procedure describes the swapping of disk packs in the 300-MB storage module device (SMD) moving head disk (MHD) drive. The covers of the disk drive should never be left open longer than the time it takes to change disks.

### PROCEDURE

1. On moving head disk (MHD=x) to be swapped, raise the cover on the start switch and push the switch.

Response: **READY** lamp begins to flash.

2. Wait for disk to stop spinning (**READY** lamp stops flashing).
3. Remove bottom of an empty disk pack cover assembly.
4. Open **outer** cover of disk drive.
5. Open **inner** cover of disk drive.
6. Place disk pack cover over disks **immediately**.
7. Turn handle **counterclockwise** until it is tight.
8. Lift the disk pack clear of the drive **carefully**.
9. Put bottom cover on the disks.
10. Put disk pack on shelf and label appropriately.
11. Load the pack to be mounted by opening the outer pack access cover and the inner pack access cover and placing the pack on the spindle. Be sure to disengage the bottom dust cover from the disk pack before setting the pack on the spindle.
12. Turn the pack clockwise until it is secured to the spindle lockshaft.
13. Lift the top dust cover clear of the drive and store it with the bottom dust cover.
14. Close the inner pack access cover immediately to prevent entry of dust and contamination of the disk surfaces. Close the outer pack access cover.
15. Turn off the 46-volt breaker on the drive power supply. All the other breakers should be on, including the main AC.
16. Press the **start** switch in order for the blowers to start purging the pack.

Response: **FAULT** light on.  
**READY** lamp flashes.

17. Wait for the pack to be purged the desired amount of time.

18. Push the **start** switch to turn the drive off.
19. Reset the 46-volt breaker.
20. Push the fault indicator light.

Response: The fault indicator light goes off.

21. Push the **start** switch to turn the drive on.
22. Wait for the disk to come up to speed (**READY** lamp stops flashing and remains on).
23. Return to the procedure that directed you here.

**Results:** Disk packs in 300-MB SMD moving head disk drive swapped.

24. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.17: CONVERT MHD OPTIONAL DISK PAIR TO 2GB - 5E14 AND LATER

### OVERVIEW

This procedure reconfigures small computer system interface (SCSI) moving head disks (MHD) to a 2 gigabyte (2GB) storage capacity, specifically for optional pair MHDs.

The following four conditions must be satisfied before proceeding with this procedure.

- Switch must be running on the 5E14 software release.
- The primary MHD pair 0 and 1 must have already been converted to 2GB Volume Table of Contents (VTOC).
- Any software backup disks (MHDs 14 and/or 15) must have already had the ECD modified to accept a 2GB VTOC.
- The optional disk pair that is now installed, and is to be converted, must have physical memory capacity of at least 2GB in size (Table 10.17-1).

To verify correct circuit pack configuration, type and enter **OP:MHD=x,info**; where x= MHD number for even and odd optional disk pair.

**Table 10.17-1 MHD Memory Capacity**

Circuit Pack No.	KS, List No.	Physical Memory Capacity
UN375D	KS23908L30	2GB
UN375E	KS23908L41	4GB
UN375F	KS23908L50	9GB

If all of the above conditions are not met then this procedure can not be performed. Refer to 5E14 Retrofit Manual 235-106-104 for satisfying any of the above conditions.

The following activities will be accomplished in this procedure.

- Verify correct Disk File Controller (DFC) configuration.
- Reconfigure ECD for even-side MHD for 2GB VTOC.
- Update incore for changes made for even-side MHD.
- Reconfigure ECD for odd-side MHD for 2GB VTOC.
- Update incore for changes made for odd-side MHD.

**CAUTION:** This procedure should be performed during off-peak hours and in its entirety. It is necessary to simplex the optional disk pair when modifying the ECD of each. The chances of a service-impacting outage, though small, are increased whenever disk pairs are simplexed. Performing this procedure in its entirety and with minimal interruptions lessens the time during which the optional disks are operating in simplex mode while each mate is out-of-service (OOS) and having its ECD updated.

Doubling the size of a disk's VTOC from 1GB to 2GB effectively doubles the restoration time of the drive. Optional drive pairs that are physically 2GB or greater may be reconfigured to have 2GB VTOCs. This doubles the previous storage capacity, but also doubles the restore time for each disk in a targeted pair.

## PROCEDURE

### 10.17.1 Initialize ECD Recent Change and Verify

1. At the Supplementary Trunk & Line Workstation (STLWS), select CMD mode.
2. To enter the ECD, type and enter command **199**

**Response:** RCV ECD Parameter info form displayed.  
Cursor at **database\_name** attribute.

### 10.17.2 Verify Disk File Controller (DFC) Configuration

1. Type and enter **incore**

**Response:** Cursor at **reviewonly** attribute.

2. Type and enter **y**.

**Response:** Cursor at **journaling** attribute

3. Type and enter **\***

**Response:** **executing... FORM EXECUTED.**  
Cursor at **Enter Form Name** attribute.

4. To enter the Unit Control Block (ucb) form, type and enter **ucb**

**Response:** Blank ucb form displayed with field names.

5. Type and enter two CARRIAGE RETURNS

**Response:** Cursor is at field number 3, **k\_unit\_name**.

6. Type and enter **DFC**

**Response:** Cursor moves to field 4, **k\_unit\_number**

7. Type and enter **0**

**NOTE:** DFC-odd will be of the same vintage as DFC-even and will have a *u\_model* value identical to DFC-even.

**Response:** Remaining fields are populated.  
**Enter Review, Validate, screen#, or Print:**

8. To move to screen 4, type and enter **4**

**Response:** Screen 4 is displayed.

9. Take note of the value of field number 66 (*u\_model* field).

Refer to Table 10.17-2 to identify the DFC component corresponding to the *u\_model* field 66 values.

**Table 10.17-2 MHD MV Equipage Value**

Field "66" Value	MHD DFC ID	mv Value (xxxx)
------------------	------------	-----------------

9	DFC(UN580)	0x13
8	DFC2(UN373)	0x12
7	DFC1(UN294,v1)	0x11

- What is the value of the *u\_model* field 66?

If **9,8, or 7**, then continue with next Step.

If **other**, then **seek technical assistance**, and do not continue until DFC configuration has been resolved.

- Record the value of the corresponding *mv* field (xxxx). This value will be used during the ECD update.
- To exit RCV, type and enter two <

**Response:** RCV is exited, STLWS screen is back to normal with cursor at the CMD prompt.

### 10.17.3 Update ECD Records For 2GB VTOC - Even MHD

#### 10.17.3.1 Remove Even-Numbered MHD From Service

- At the STLWS, select MSG mode.

At the STLWS, to remove the MHD (about to be converted), type and enter **RMV:MHD=x;**

**Response:**    **RMV MHD x Started**  
                   **RMV MHD x Completed**

**Where:**

x =                    even-numbered MHD

- At the STLWS, select CMD mode.
- Select page 123 to confirm removal of MHDx.

#### 10.17.3.2 Initialize ECD Data Base

- Type and enter command **199**

**Response:**    **RCV ECD Parameter info** form displayed.  
                   Cursor at **database\_name** attribute.

- Type and enter **incore**

**Response:**    Cursor at **reviewonly** attribute.

- Type and enter **n**

**Response:**    Cursor at **journaling** attribute.

- Type and enter **\***

**Response:**    **executing... FORM EXECUTED.**  
                   Cursor at **Enter Form Name** attribute.

- Type and enter **trbegin**



**Response:** **Transaction Begin** form displayed.  
Cursor moves to **tr\_name** attribute.

6. Enter **CARRIAGE RETURN**.

**Response:** Enter Execute, Change, Substitute, Validate, or Print:

7. Type and enter **e**.

**Response:** **executing... FORM EXECUTED**  
Cursor at **Enter Form Name** attribute.

### 10.17.3.3 Update EQUIPAGE and MV Fields For Even-Numbered MHD

1. Type and enter **ucb**

**Response:** Enter Database Operation.  
I=Insert R=Review U=Update D=Delete:

2. Type and enter **u**

**Response:** Cursor at **k\_complex\_name** attribute.

3. Enter 2 **CARRIAGE RETURNS**.

**Response:** Cursor at **k\_unit\_name** attribute.

4. Type and enter **MHD**

**Response:** Cursor at **k\_unit\_number** attribute.

5. Type and enter **x**

**Where:**  
x = even-numbered MHD

**Response:** Remaining fields are populated.  
**Enter Update, Change, Substitute, Validate, Screen#, or Print:**

6. Type and enter **c**

**Response:** **Change Field**

7. Type and enter **22**

**Response:** Cursor moves to **equipage** attribute.

8. Type and enter **0x11**

**Response:** **Change Field**

9. Type and enter **27**

**Response:** Cursor moves to **mv** attribute.

10. Type and enter **xxxx**

**Where:**

xxxx =                *mv* value recorded in Section 10.17.2 , Step 11.

**Response:**    **Change Field**

11. Enter **CARRIAGE RETURN**

**Response:**    **Enter Update, Change, Substitute, Validate, Screen#, or Print:**

12. Type and enter **u**

**Response:**    **updating... FORM UPDATED**  
Cursor moves to **k\_complex\_name** attribute.

13. Type and enter **<**

**Response:**    Cursor at **Enter Form Name** attribute.

14. Type and enter **trend**

**Response:**    Transaction End form displayed.  
Cursor at **tr\_name** attribute.

15. Enter **CARRIAGE RETURN**.

**Response:**    Cursor at **dis\_cf\_checks** attribute.

16. Type and enter **\***

**Response:**    **executing... FORM EXECUTED**

**NOTE:** If RCV errors were encountered, seek technical assistance before continuing.

#### 10.17.3.4 Update Incore Changes To Root Database

**NOTE:** The STLWS terminal should still be active with the ECD RC/V in the CMD mode and the cursor at the **Enter Form Name** attribute.

1. Type and enter **activate**

**Response:**    **activate form** with cursor at  
**copy\_inc\_to\_disk:YES**

2. Enter **CARRIAGE RETURN**.

**Response:**    **Enter Execute, Change, Substitute, Validate, or Print:**

3. Type and enter **e**

**Response:**    **executing... FORM EXECUTED.**  
Cursor at **Enter Form Name** attribute.

4. Type and enter **<**

**Response: REPT RCV COMPLETED**

#### 10.17.3.5 Restore Even MHD to Service

1. At the STLWS terminal, select MSG mode.
2. To restore even MHD to service, type and enter **RST:MHD=x;**

**Where:**

x = number of even MHD

**Response: RST MHD x Started  
RST MHD x Completed**

3. To verify MHD restored to ACTIVE state, toggle CMD mode, and select page 123.

**Response: MHD x ACTIVE**

If MHD did not go ACTIVE, **Seek technical assistance**, and do not continue until MHD x is ACTIVE.

#### 10.17.4 Update ECD Records For 2GB VTOC - Odd-Numbered MHD

##### 10.17.4.1 Remove Odd-Numbered MHD From Service

1. At the STLWS, select MSG mode.
2. At the STLWS, to remove the MHD (about to be converted), type and enter **RMV:MHD=x;**

**Where:**

x = odd-numbered MHD

**Response: RMV MHD x Started  
RMV MHD x Completed**

3. At the STLWS, select CMD mode.
4. Select page 123 to confirm removal of MHDx.

##### 10.17.4.2 Initialize ECD Data Base

1. Type and enter command **199**

**Response: RCV ECD Parameter info** form displayed.  
Cursor at **database\_name** attribute.

2. Type and enter **incore**

**Response: Cursor at reviewonly** attribute.

3. Type and enter **n**

**Response: Cursor at journaling** attribute.

4. Type and enter \*

**Response:** executing... FORM EXECUTED.  
Cursor at **Enter Form Name** attribute.

5. Type and enter **trbegin**

**Response:** **Transaction Begin** form displayed.  
Cursor moves to **tr\_name** attribute.

6. Enter **CARRIAGE RETURN**.

**Response:** Enter Execute, Change, Substitute, Validate, or Print:

7. Type and enter **e**.

**Response:** executing... FORM EXECUTED  
Cursor at **Enter Form Name** attribute.

#### 10.17.4.3 Update EQUIPAGE and MV Fields - Odd-Numbered MHD

1. Type and enter **ucb**

**Response:** Enter Database Operation.  
I=Insert R=Review U=Update D=Delete:

2. Type and enter **u**

**Response:** Cursor at **k\_complex\_name** attribute.

3. Enter 2 **CARRIAGE RETURNS**.

**Response:** Cursor at **k\_unit\_name** attribute.

4. Type and enter **MHD**

**Response:** Cursor at **k\_unit\_number** attribute.

5. Type and enter **x**

**Where:**  
x = odd-numbered MHD

**Response:** Remaining fields are populated.  
**Enter Update, Change, Substitute, Validate, Screen#, or Print:**

6. Type and enter **c**

**Response:** **Change Field**

7. Type and enter **22**

**Response:** Cursor moves to **equipage** attribute.

8. Type and enter **0x11**

**Response:**    **Change Field**

9.    Type and enter **27**

**Response:**    Cursor moves to **mv** attribute.

10.   Type and enter **xxxx**

**Where:**

xxxx =            *mv* value recorded in Section 10.17.2 , Step 11.

**Response:**    **Change Field**

11.   Enter **CARRIAGE RETURN**

**Response:**    **Enter Update, Change, Substitute, Validate, Screen#, or Print:**

12.   Type and enter **u**

**Response:**    **updating... FORM UPDATED**  
Cursor moves to **k\_complex\_name** attribute.

13.   Type and enter **<**

**Response:**    Cursor at **Enter Form Name** attribute.

14.   Type and enter **trend**

**Response:**    Transaction End form displayed.Cursor at **tr\_name** attribute.

15.   Enter **CARRIAGE RETURN**.

**Response:**    Cursor at **dis\_cf\_checks** attribute.

16.   Type and enter **\***

**Response:**    **executing... FORM EXECUTED**

**NOTE:** If RCV errors were encountered, seek technical assistance before continuing.

#### 10.17.4.4 Update Incore Changes To Root Database

**NOTE:** The STLWS terminal should still be active with the ECD RC/V in the CMD mode and the cursor at the **Enter Form Name** attribute.

1.    Type and enter **activate**

**Response:**    **activate form** with cursor at  
**copy\_inc\_to\_disk:YES**

2.    Enter **CARRIAGE RETURN**.

**Response:**    **Enter Execute, Change, Substitute, Validate, or Print:**

3.    Type and enter **e**

**Response:**    **executing... FORM EXECUTED.**  
                  Cursor at **Enter Form Name** attribute.

4.    Type and enter <

**Response:**    **REPT RCV COMPLETED**

#### **10.17.4.5 Restore Odd MHD to Service**

1.    At the STLWS terminal, select MSG mode.
2.    To restore odd MHD to service, type and enter **RST:MHD=x;**

**Where:**  
          x =                    number of odd MHD

**Response:**    **RST MHD x Started**  
                  **RST MHD x Completed**

3.    To verify MHD restored to ACTIVE state, toggle CMD mode, and select page 123.

**Response:**    **MHD x ACTIVE**

If MHD did not go ACTIVE, **Seek technical assistance**, and do not continue until MHD x is ACTIVE.

4.    **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.18: OFF-LINE PUMP ALL SWITCHING MODULES (SMs)

### OVERVIEW

The term switching module (SM) as used in this procedure refers to all modules; local SMs (LSMs), home SMs (HSMs), remote SMs (RSMs), etc. The disk reconfiguration procedure 10.21 requires an off-line pump of all SMs after switching to the new disk configuration. This is done as a final test to ensure the validity of the SM office dependent data (ODD). All SMs must be off-line pumped before the start of the disk reconfiguration procedure so that the off-line pump performed in the reconfiguration procedure will be a meaningful test.

**NOTE:** The following steps will perform an off-line pump of the module processor in each SM in the office.

### PROCEDURE

1. Check all SMs for duplex communication links (CLINKs). If any SM does not have duplex CLINKs, manually restore another CLINK to that SM. This step can be performed in parallel with Step 2, but it must be completed before attempting to perform Step 3.
2. **NOTE:** If any module controller/time slot interchange unit (MCTSI) is out of service (OOS) in any SM, it must be restored to service before continuing with the next step.

Determine the status of the MCTSIs by either of the following methods:

Using master control center (MCC) display Page **1190,x** (where **x** = member number of an SM), verify that both MCTSIs in all SMs are either active (ACT) or standby (STBY).

or

At the MCC, type and enter: **OP:SYSSTAT,UCL;**

Response:      **OP SYSSTAT SUMMARY                      LAST RECORD**  
                  **SYS:    NORMAL**  
                  **AM:     NORMAL**  
                  **w xSM y,z: ..... <repeated for each SM>**

Where:           **w** = The SM configuration - B (Basic), S (Standard), or L (Loaded).  
                  **x** = The type of the SM - L (local SM), H (host SM), R (remote SM), O (optically remote module), or T (two-mile optically remote module).  
                  **y** = The member number of the SM.  
                  **z** = The active MCTSI (0 or 1) in SM y.

3. **NOTE:** If the status printed for an SM includes **MATE\_OOD**, one of its MCTSIs is OOS and must be restored. Access Page **1190,x** and restore that SM to duplex.
4. **CAUTION:** Do not proceed to the next step until all MCTSIs are either active (ACT) or standby (STBY), and all SMs have duplex CLINKs.

Ensure no off-normal status other than INHIBITS-MTCE is indicated for any SM. After all SMs are duplex, reenter the **OP:SYSSTAT,UCL** message again.

**NOTE:** The following steps will switch and force MCTSI 0 active in all SMs.

5. If CM system status indicator is not normal, go to MCC Page 1209 and ensure the office network and timing complex (ONTC) indicates ACTIVE MAJOR/MINOR before proceeding.

6. Access MCC Pages 141, 142, etc.

7. **CAUTION:** When each MCTSI Side 0 is switched and forced active by ORD:CPI, that MCTSI is "reset" and undergoes a single-process purge (SPP).

**NOTE:** The **1&&192** in the following message (Step a) is used to simultaneously broadcast an "ORD:CPI" to all SMs (with no delay between each message). If any range other than **1&&192** is used, there will be a 15-second *delay* between each message.

(a) To switch and force MCTSI Side 0 active for all SMs, type and enter: **ORD:CPI=1&&192,CMD=SW-0;**

Response: **ORD CPI 192 CMD SW 0 COMPLETED**  
On MCC Pages 141, 142, etc., all SMs should indicate **FORCED**.

Comment: If the switch and force fails, repeat Step a. If it fails again, proceed to Steps b, c, and d if necessary.  
If successful, proceed to Step 8.

(b) If the switch and force failed, type and enter: **ORD:CPI=1&&x,CMD=SW-0,UCL;**

Where: **x** = *highest*-numbered SM (not 192)

Response: **ORD CPI a CMD SW 0 COMPLETED**

Comment: For this particular message (Step b), the range 1&&192 cannot be used. If your office contains an SM number 192, use the range **1&&191** and then use the following message (Step c) for SM 192.

(c) For any SM that still fails to switch and force, type and enter the unconditional message:  
**ORD:CPI=x,CMD=SW-0,UCL;**

Where **x** = SM number

Response: **ORD CPI x CMD SW 0 COMPLETED**

(d) If any SM still fails to switch and force, on MCC Page **1800,x** type and enter: **420**

(Y or N) Y

8. **THIS IS IMPORTANT.** If any SM fails the MCTSI switch (Step 7) record the member number, analyze the problem, and resolve it before continuing.  
**Seek technical assistance if necessary.**

9. **NOTE:** This step will perform an off-line pump of each SM in the office.  
**ST:OPUMP,SM=1&&#,ACTDISK,VFY;**

**ST:OPUMP,SM=1&&#,ACTDISK,VFY,NPERF;**

Where: **#** = The member number of the highest-numbered SM in the office.

Comment: It will take approximately 9 minutes to get the **first** response of "MATE PUMP" for an SM.



Response: **ST:OPUMP,SM=1&&192,OFLDISK,VFY,NPERF;**  
**REPT SM=a OFFLINE PUMP COMPLETED** (on ROP)  
 ...  
**REPT SM=z OFFLINE PUMP COMPLETED** (on ROP)

Use MCC Pages 181, 182, etc., to view the off-line pump status for the SMs. The following is a list of the different states of the mate memory that will be displayed on MCC Page 181 during off-line pump.

STATUS	DESCRIPTION
OPUMPHLD <sub>n</sub>	Off-line pump hold, nth attempt
OPUMP <sub>n</sub>	Off-line pumping, nth attempt
OHASHCK <sub>n</sub>	Off-line pump hashsum check, nth attempt
OVRFY <sub>n</sub>	Off-line verifying (n indicates the number of minutes in progress)
OPUMPF <sub>FAIL</sub>	Off-line SM Pump failed
OVRFY <sub>FAIL</sub>	Off-line verification failed
OVRFIED	Off-line verification complete

On MCC Pages 181,182, etc., ensure that all SMs indicate **MATE PUMP** or **OVRFIED** before proceeding.

10. Record the member number of any SM that failed to pump (did not go to MATE PUMP+) in the previous step.
11. In order to clear the MCTSI force in all SMs, type and enter: **ORD:CPI=1&&#,CMD=CLR;**

Where: **#** = The member number of the highest-numbered SM in the office.

Response: **ORD CPI x CMD CLR COMPLETED** <repeated for each SM>

Where: **x** = The member number of an SM.

12. **NOTE:** This step will duplex the MCTSI in all SMs. Type and enter: **RST:MCTSI=a&&b-c,UCL**

Where: **a** = The member number of the lowest-numbered SM in the office.  
**b** = The member number of the highest-numbered SM in the office.  
**c** = The MCTSI (0 or 1) number.  
**x** = The member number of each SM in the office.

Response: **RST:MCTSI=x-1,UCL; PF** <repeated for each SM>  
**INrange: RST:MCTSI= completed**

13. **THIS IS IMPORTANT.** If any SM fails the off-line pump (Step 9), analyze the problem and resolve it before attempting the disk reconfiguration procedure. **Seek technical assistance if necessary.**

**Results:** All switching modules (SMs) off-line pumped.

14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.19: REMOVE OPERATIONAL MHD FROM SERVICE

### OVERVIEW

When removing a target moving head disk (MHD) from service, this procedure verifies the integrity of the mate MHD before removing the target MHD from service. This procedure makes use of the verify (**VFY**) command to assure that the target MHD can be restored to duplex operation with the mate MHD.

### PROCEDURE

1. In this procedure MHD **x** is the target MHD to be removed from service, MHD **y** is the mate of the MHD to be removed from service.
2. At the master control center (MCC) verify the mate MHD. Type and enter: **VFY:MHD=y;**

Where:            **y** = mate of the MHD to be removed from service.

Response:        **VFY MHD y COMPLETED**

3. At the disk to be removed from service, toggle the RST/ROS switch to **ROS**.

Response:        **RQIP** LED lights.  
                     **OOS** LED lights.  
                     **RQIP** LED goes off without flashing.  
                     **RMV MHD x COMPLETED**

Where:            **x** = MHD number to be removed from service.

**CAUTION:** If the number of the MHD in this step is not the correct MHD, this MHD must be returned to service (toggle the RST/ROS to RST). After toggling the RST/ROS switch to RST, repeat procedure for correct MHD.

**Results:** Operational MHD removed from service.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.20: UPDATE DEFECT TABLE OF SCSI DISK DRIVES (322MB, 600MB, 1GB)

### OVERVIEW

**CAUTION:** Contact your next level of technical support for assistance before performing this procedure.

This procedure is used to add defects to the combined (growing) defect table of a small computer system interface (SCSI) disk drive.

### PROCEDURE

1. Remove any existing file having the same name as the file to be created. At the MCC, type and enter:  
**CLR:FILESYS:FILE,FN="/updtmp/MHDx";**

Where:            **x** = MHD number of disk.

Response:        **CLR FILESYS FILE COMPLETED**  
                     or  
                     **CLR FILESYS FILE STOPPED rm: /updtmp/MHDx non-existent**

2.                    **CAUTION:** Do NOT use block numbers obtained before last successful ``defect adding" procedure.

Make a list of the numbers of the defective blocks to be added to the defect table. This list is obtained using the **VFY:MHD=x** command. The block numbers must be in ascending sequence (lowest block number first to highest block last).

3. Start the following entries with **n = 0**.
4. Type and enter: **IN:FILE:APND:FN="/updtmp/MHDx",LINE=n!**

Where:            **x** = MHD number of disk.  
                     **n** = Incrementing number for each entry to the file (starting with 0).

5. Type and enter: **yyyy;**

Where:            **yyyy** = number of defective block.

Response:        **IN FILE APND COMPLETE**  
                     **n xxxx** (If there are any lines previously entered, **n = 1** or higher)  
                     (n+1) **yyyy**  
                     **EOF**

6. Have all defect block numbers been added to the file?

If **YES**, continue with the next step.

If **NO**, increase the line number (**n**) by one, and repeat from Step 4.

7. Dump the file just created. Type and enter: **DUMP:FILE:ALL,FN="/updtmp/MHDx";**

Where:            **x** = MHD number of disk.

Response:        **DUMP FILE ALL COMPLETED xxxxx**  
The contents of the defect block file.

8. Does this dump file equal the source list?

If **YES**, continue with the next step.

If **NO**, **STOP** and seek technical assistance.

9. Verify the disk that will remain in service while the disk in question is being updated. Type and enter: **VFY:MHD=y;**

Where:            **y** = number of the MATE MHD to the disk in question.

Response:        **VFY MHD y COMPLETED**

10. Does this disk verify successfully?

If **YES**, continue with the next step.

If **NO**, **STOP** and seek technical assistance.

11. Remove disk from service. Type and enter: **RMV:MHD=x;**

Where:            **x** = MHD number of disk.

Response:        **RMV MHD x COMPLETED**

12. Load new defect blocks. Type and enter: **LOAD:MHD=x:DEFECT:FN="/updtmp/MHDx";**

Where:            **x** = MHD number of disk.

Response:        **LOAD MHD x DEFECT TABLE COMPLETED**  
**n DEFECTS LOADED**  
**SCSI DEFECT COUNT CHECK COMPLETED**

Where n is number blocks entered.

**NOTE:** Check to verify that the 5ESS<sup>®</sup>-2000 switch accepted the blocks in the defect table by entering the following command. **DUMP:MHD=x,DEFECT;**

13. Format the disk using the updated defect list. Type and enter: **INIT:MHD=x;**

Where:            **x** = MHD number of disk.

Response:        **INIT MHD x COMPLETED**

14. Remove the file so that it cannot be reused. Type and enter: **CLR:FILESYS:FILE,FN="/updtmp/MHDx";**

Where:            **x** = MHD number of disk.

Response:     **REPT CLR FILESYS COMPLETE**

15. Verify the disk. Type and enter: **VFY:MHD=x;**

Where:         **x** = MHD number of disk.

Response:     **VFY MHD x COMPLETED**

16. Did the verify succeed?

If **YES**, continue with the next step.

If **NO**, record the NEW block failures and repeat from Step 2.

17. Restore MHD to service. Type and enter: **RST:MHD=x;**

Where:         **x** = MHD number of disk.

Response:     **RST MHD x COMPLETED**

**Results:** Defect table of SCSI disk drive updated.

18. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.21: PERFORM DISK RECONFIGURATION PROCEDURE

### OVERVIEW

Disk reconfiguration is not a tool that will clean up a dirty system. In fact, it will probably make things worse than they already are. The office must meet **ALL** of the following conditions before attempting a disk reconfiguration:

- An off-line pump must have been successfully performed on all SMs in the office.

Reference: 235-105-210, **Procedure 10.18**

- The integrity of each MHD in the office must have been successfully verified within the 48-hour period preceding the start of this procedure.

Reference: 235-105-210, **Procedure 10.13**

- The system backup tapes should be recent. If they are not, the tape backup procedure should be run.

Reference: 235-105-210, **Procedure 6.23.**

- Any temporary software updates in the system must be removed before using this procedure.
- Any regular software updates that are still in the soak state must be made permanent or backed out before using this procedure.
- Disk compares (CMPR) or any other routine that reserves disk devices must not be run during disk reconfiguration. Temporarily suspend or inhibit any automatic jobs (ODD back-ups, disk compares, etc.) that are usually run during off-hours if the reconfiguration is planned to occur coincidentally.
- The CUs must be duplexed (CU 0 active - CU 1 standby).
- All disk pairs must be duplex (active - active) in the INCORE data base and "out of service" (OOS) in the ROOT data base.
- All disks in the GROW state must be powered down.
- The ONTC must be duplex (active major - active minor) and must not be degraded.
- All DLIs and RLIs must be either active or standby (no DLIs or RLIs out of service).
- The CLINKs to all SMs must be duplex.
- All MCTSIs must be duplex (active - standby).
- A functional RCV or STLWS terminal must be available in the office in order to use this procedure.

If it is necessary to back out of the reconfiguration prior to the system boot (Step 52) but after "markmhdsofl" (Step 39), skip ahead to Step 103 ("rstoddmhds") to restore the now off-line odd MHDs. Since the system is still running on the old configuration of the even side active disks, rebooting the switch is not necessary to back out. Restoring the odd-numbered MHDs via "rstoddmhds" will result in the copying of partitions and files from the active even-numbered disks, thereby eliminating the repartitioning of the odd side performed by the previous steps.

In software release 5E12, the "11" configuration is supported on both the 3B20D and 3B21D processors.

Prior to the 5E12 software release only the 600 and 322 megabyte (MB) VTOC (volume table of contents) were allowed on the secondary disk pair (63 configuration) and could be used on the 3B20D processor.

In the 5E12 a small or medium VTOC (322 or 600 MB) is still allowed on the outboard (optional) drives. However, if 1 gigabyte (GB) hardware is available on a particular pair of drives these should be optimized and reconfigured to have 1 GB VTOC.

The following provides disk configuration terminology clarification:

- The "1" identifies the 1 GB formatted drive with the large logical layout.
- The "6" identifies a 600 MB formatted drive with a medium logical layout.
- The "3" identifies a 322 MB formatted VTOC (small logical layout) used on small SCSI, medium SCSI, or large SCSI disk drives.
- The "11" is a two base disk pair configured as a large SCSI and large SCSI.
- The "66" is a two base disk pair configured as a medium SCSI and medium SCSI.

The disk reconfiguration tools will descend the disk chain and format all optional disk pairs to contain a VTOC that is the largest possible for a particular disk pair. All remaining disk pairs will have small logical layouts.

**CAUTION:** Do not attempt a disk reconfiguration if the office does not meet all of the conditions listed in the Overview.

**NOTE 1:** Disk reconfiguration should be started and completed in a single session. This is because the office MHDs will be in simplex mode for most of the procedure.

**NOTE 2:** The term SM, as used in this procedure, refers to all modules (LSMs, HSMs, RSMs, ORMs, TRMs, etc.).

**NOTE 3:** Many commands are entered at the master control center (MCC) during this procedure. The commands to be entered are given in the man-machine language (MML) format only.

**NOTE 4:** The primary responses expected for each command are given in the procedure. Some commands will generate additional output messages that are not specifically documented in the procedure. As long as the primary responses are received, any additional messages can be treated as supplementary information, or ignored.

## PROCEDURE

1. This step can be performed one or more shifts prior to the actual disk reconfiguration procedure.

Perform a full office backup (GENERIC/ECD/ODD) of the current disk configuration.

Reference: 235-105-210, **Procedure 6.23.**

**CAUTION:** Do not continue until this step has been successfully completed.

2. All recent change activity must be stopped and remain stopped during the entire disk reconfiguration procedure. Notify everyone to get out of recent change - **this includes RMAS.**

Enter the following message: **INH:RC;**

Response:     **INH RC COMPLETED**

3. Enter the following message to remove any scheduled ODD backups:

**CLR:ODDBKUP;**

Response:     **CLR ODDBKUP COMPLETED**

4. Enter the following message to perform a complete ODD backup for the AM and all SMs:

**BKUP:ODD;**

Response:     **BKUP ODD FULL AM COMPLETED**  
                  **BKUP ODD NRODD=x COMPLETED** (repeated for each SM)  
                  **BKUP ODD RODD=x COMPLETED** (only one SM)  
                  **BKUP ODD CMP=y COMPLETED**  
                  **BKUP ODD COMPLETED**

Where:        **x** = SM member number  
                **y** = CMP member number.

5. The disk reconfiguration procedure requires the active copy of the AM disk ODD to be in disk partition no5dodd1.

Enter the following message:

**DUMP:FILE:ALL,FN="/no5text/rcv/aimrc";**

Response:     **DUMP FILE ALL COMPLETED**  
                  **1 no5dodd1 is the current disk odd**

6. Was the expected response received in the previous step?

If **YES**, go to Step 10.

If **NO**, continue with the next step.

7. The wrong AM disk ODD partition is being used by the system. An AM only ODD backup must be performed in order to get the system onto the other AM disk ODD partition.

Enter the following message:

**BKUP:ODD,AM;**

Response:     **BKUP ODD FULL AM COMPLETED**  
                  **BKUP ODD COMPLETED**

8. Verify that the correct AM disk ODD partition is now being used by the system. Enter the following message:

**DUMP:FILE:ALL,FN="/no5text/rcv/aimrc";**



Response:     **DUMP FILE ALL COMPLETED**  
                  **1 no5dodd1 is the current disk odd**

9. Was the expected response received in the previous step?

If **YES**, continue with the next step.

If **NO**, **STOP** and seek technical assistance. Do **NOT** continue.

10. Enter the following messages to stop all scheduled routine exercises:

**INH:DMQ:SRC=REX;**

Response:     **OK**

**INH:REX;**

Response:     **OK**

11. On MCC Page 111/112, verify that the CUs are duplex.

If either CU is out of service (OOS), enter Command **30x**

Where:         **x** = OOS CU member number to restore the OOS CU.

**CAUTION:** Do not continue until this step has successfully completed.

12. On MCC Page 111/112, verify that CU 0 is active.

If CU 0 is standby, to switch the CUs, enter the following message:

**SW:CU;**

Response:     The CUs are switched and MCC Page 111/112 is updated.

**CAUTION:** Do not continue until this step has successfully completed.

13. On MCC Page 123/125, verify that all MHDs are active (ACT - backlighted GREEN).

If an MHD is out of service (OOS - backlighted RED), enter the following message:

**RST:MHD=x;**

Response:     **RST MHD x COMPLETED**

Where:         **x** = OOS MHD member number

**NOTE:** All duplex MHDs must be active (ACT - backlighted GREEN) before performing a disk reconfiguration procedure. If an MHD cannot be restored to service, **STOP** and seek technical assistance. Do **NOT** continue.

**CAUTION:** Do not continue until this step has successfully completed.

14. Enter the following message to determine if Automatic MHD Configuration is allowed:

**OP:MHD:CFG;**

Response: **AUTO MHD CONFIGURATION NOT PERMITTED**

15. Was the expected response received in the preceding step?

If **YES**, go to Step 18.

If **NO**, continue with the next step.

16. Enter the following message to inhibit Automatic MHD Configuration during the disk reconfiguration procedure.

**INH:AUTOCFG;**

Response: **OK**

17. Enter the following message to normalize any MHDs that might have been switched with other MHDs:  
**SW:MHD=ALL:STANDARD;**

Response: **REPT SW MHD ALL COMPLETED**  
or  
**NG - ALREADY STANDARD**

**NOTE:** All MHDs must be normalized (no ``\*'' displayed after the MHD number on MCC Page 179/180) and all duplex MHDs must be active (ACT - backlighted GREEN on MCC Page 123/125) before performing a disk reconfiguration procedure.

If any MHD cannot be normalized or restored to service, **STOP** and seek technical assistance. Do **NOT** continue.

**CAUTION:** Do not continue until this step has successfully completed.

18. If a system initialization should occur during the disk reconfiguration procedure, these forces will prevent the system from switching to the new disk configuration.

On the EAI page, to force CU 0 active, enter Command **10**  
to force MHD 0 active enter Command **20**

19. Normally the disk reconfiguration tools are transmitted electronically to an office by Customer Technical Support (CTS) [formerly Product Engineering Control Center (PECC)], or the North American Regional Technical Assistance Center (NARTAC). However, in some rare cases, they could be sent via magnetic tape.

Were your disk reconfiguration tools received electronically?

If **YES**, continue with the next step.

If **NO**, go to Step 22.

20. The files transmitted to the office contain a file named README, or README1, or README2.

To install the disk reconfiguration tools, follow the instructions in this file README, or README1, or

README2.

21. Continue with Step 24.

22. **CAUTION:** Using a tools tape which is not marked as shown below could result in reconfiguring the office to an invalid disk configuration. If you have any doubts about your tools tape, seek technical assistance before proceeding with the disk reconfiguration procedure.

Ensure that there is no ``Write Ring" in the Disk Reconfiguration tools tape.  
Then mount the tools tape on the tape drive.

**NOTE:** This tape must be identified as:

ISSUE G1.0 : xxx DISK RECONFIGURATION TOOLS TAPE

Where: xxx = Software release number.

23. **CAUTION:** You will not be able to read a 6250 BPI tape unless you have a KS23113, LIST 14, tape drive.

Enter the following message:

**COPY:TAPE:IN,TD="/dev/mtxx",BSDIR="/updtmp";**

Where: **xx** = 00 if the tools tape is marked 6250 BPI.  
**xx** = 08 if the tools tape is marked 1600 BPI.

Response: **COPY TAPE IN STARTED**  
< list of files copied from tape >

**COPY TAPE IN COMPLETED**  
**x blocks**

Where: **x** = the number of blocks read from the tools tape. This will vary with different versions of the tools tape.

24. This step verifies all of the disk reconfiguration tools and prints the latest updates, if any, to the written procedure.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/vfytools";**

Response: < latest updates printed on ROP >  
**ALL DISK RECONFIGURATION TOOLS HAVE BEEN VERIFIED**  
**ISSUE G1.0 : xxx DISK RECONFIGURATION - <date>**  
**VFYTOOLS COMPLETED**

Where: xxx = Software release number.

**Note 1:** If a disk reconfiguration tools tape was used, the ``xxx" should be the same as the label on the tools tape.

**Note 2:** If you have any questions about any updates to the disk reconfiguration procedure, **STOP** and seek technical assistance. Do **NOT** continue.

**CAUTION:** Do not continue until this step has successfully completed.

25. This step checks the ROOT data base to make sure that all odd MHDs have a status of OOS.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/chkrootdb";**

Response: < latest updates printed on ROP >  
**THERE WERE x MHD PAIRS FOUND IN THE OFFICE.**

Where: x = number of disks found.  
**ALL MHDs IN THE ROOT DATA BASE ARE OOS.**

**CHKROOTDB COMPLETED**

**NOTE:** If any disks in the Root data base are not OOS, make these OOS at this time or **STOP** and seek technical assistance. Do **NOT** continue.

**CAUTION:** Do not continue until this step has successfully completed.

26. This step determines the current base disk configuration and the configuration of any optional disk pairs in the office.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/diskcon";**

Response:

---

DISK CONFIGURATION AS DETERMINED FROM THE VTOCS AND SG DATA BASE

			VTOCS -----	MHD SIZE -----	SG DATA BASE -----
Base Disk Configuration	=		xxxx	uuu/vvv	xxxx
RT 2	(MHD 4 - MHD 5)	=	wwyy	zzzz	wwyy
RT 3	(MHD 6 - MHD 7)	=	wwyy	zzzz	wwyy
RT 4	(MHD 8 - MHD 9)	=	wwyy	zzzz	wwyy
RT 5	(MHD 10 - MHD 11)	=	wwyy	zzzz	wwyy
RT 6	(MHD 12 - MHD 13)	=	wwyy	zzzz	wwyy
RT 8	(MHD 16 - MHD 17)	=	wwyy	zzzz	wwyy
RT 9	(MHD 18 - MHD 19)	=	wwyy	zzzz	wwyy
RT 10	(MHD 20 - MHD 21)	=	wwyy	zzzz	wwyy
RT 11	(MHD 22 - MHD 23)	=	wwyy	zzzz	wwyy
RT 12	(MHD 24 - MHD 25)	=	wwyy	zzzz	wwyy
RT 13	(MHD 26 - MHD 27)	=	wwyy	zzzz	wwyy
RT 14	(MHD 28 - MHD 29)	=	wwyy	zzzz	wwyy
RT 15	(MHD 30 - MHD 31)	=	wwyy	zzzz	wwyy

---

Where:	xxxx	=	63, 66, 11, or unknown
	uuu	=	1000 or 600

Note 1
Note 2

vvv	=	1000, 600, 322, 340	Note 3
wwyy	=	[S, M, L][ 0, 25, 50, 75, or 100% AMA]	Note 4
zzzz	=	1000, 600, 322, 340, or Unknown	Note 5

**CAUTION:** The columns under the ``VTOCS" and ``SG DATA BASE" headings must agree with each other line for line. If they do not or if ``Unknown" appears anywhere in either column, you have a serious problem. Do NOT continue with the disk reconfiguration procedure until the problem is resolved. Seek technical assistance if necessary.

**NOTE 1:** xxxx — VTOCS of the disk pair. Beginning in 5E12, the "11" configuration is supported on both the 3B20D and 3B21D processor. Prior to 5E12 the "11" configuration was only supported on the 3B21D processor and then only in 5E10 and 5E11 software release.

**NOTE 2:** uuu — Identifies the physical size of the first disk pair (RT 0 or MHD 0 and MHD 1). In 5E12, only 1 GB SCSI disk drives are allowed on the 3B20D and 3B21D processors. In 5E11, 1 GB and 600 MB SCSI disk drives are allowed.

**NOTE 3:** vvv — Identifies the physical size of the second disk pair (RT 1 or MHD 2 and MHD 3). In 5E12, only 1 GB SCSI disk drives are allowed on the 3B20D and 3B21D processors. In 5E11, 1 GB and 600 MB SCSI disk drives are allowed. The 1 GB and 600 MB are valid secondary disk pair sizes for 5E11. For software releases prior to 5E11, the 322 MB drives may still be used for the secondary disk pair.

**NOTE 4:** wwyy — Identifies the logical size of the optional disk pairs (ww) as being either Small (S) 322 MB, or Medium (M) 600 MB, or Large (L) 1 GB. The percentage (yy) of space allocated to AMA on the disk; 50, 75 or 100% AMA is allowed for 5E10 and later.

**NOTE 5:** zzzz — Identifies the physical size of the disk pair. If one MHD is a 322 MB SCSI (Small) and the other is a 600 MB SCSI then the disk pair will be considered a 322 MB SCSI. The 340 MB drives are not supported for 5E10 and later.

27. The following steps (28 through 37) utilize a conversational dialogue to determine the parameters for this disk reconfiguration procedure. They must be performed from an RCV or STLWS terminal. They **cannot** be performed from the MCC.

Some of the steps in this procedure are conditional and may not be executed during a specific disk reconfiguration procedure. Error messages (not shown in the following steps) could also be displayed. If this happens, follow the instructions displayed on the terminal.

28. Enter the following message at an RCV or STLWS terminal.

**RCV:MENU:SH**

Response:     #

29. Enter the following message at the RCV or STLWS terminal.

**/updtmp/site/checkvars**

Response:     Screen Display responses in Steps 30 through 35 may or may not be displayed. Step 36 Screen Display will be displayed.

30. This screen determines the current disk configuration and is displayed only if there is an error in the interface between the **diskcon** script and the **checkvars** script. The screens are different for the software release.

---

**5E10 and Earlier Software Release**

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 63
2. 66
3. 11 (See Note 1)
4. Terminate The Script.

Enter Selection (1, 2, 3, or 4) :

---

**5E11 Software Release**

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 66
2. 11 (See Note 1)
3. Terminate The Script.

Enter Selection (1, 2, or 3) :

---

**5E12 Software Release**

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 11 (See Note 1)
2. Terminate The Script.

Enter Selection (1 or 2) :

---

**NOTE:** Disk configuration **11** is allowed only if the office is running on the 5E10, or later, software release with a 3B21D processor.

When one of these screens is displayed, type and enter the appropriate digit for the current disk configuration.

If the script should be terminated, type and enter the digit for "Terminate The Script."

Response:     **Verifying the current disk configuration. Please wait.**

31. This screen determines the number of duplex disk pairs in the office.
- 

PLEASE ENTER NUMBER OF DUPLEX DISK PAIRS IN THE OFFICE.

2. Two           (MHD 0 - MHD 3)
3. Three       (MHD 0 - MHD 5)

4. Four (MHD 0 - MHD 7)
5. Five (MHD 0 - MHD 9)
6. Six (MHD 0 - MHD 11)
7. Seven (MHD 0 - MHD 13)
8. Eight (MHD 0 - MHD 13, MHD 16 - MHD 17)
9. Nine (MHD 0 - MHD 13, MHD 16 - MHD 19)
10. Ten (MHD 0 - MHD 13, MHD 16 - MHD 21)
11. Eleven (MHD 0 - MHD 13, MHD 16 - MHD 23)
12. Twelve (MHD 0 - MHD 13, MHD 16 - MHD 25)
13. Thirteen (MHD 0 - MHD 13, MHD 16 - MHD 27)
14. Fourteen (MHD 0 - MHD 13, MHD 16 - MHD 29)
15. Fifteen (MHD 0 - MHD 13, MHD 16 - MHD 31)
16. Terminate The Script.

Enter Selection (2 through 16):

---

When this screen is displayed, type and enter the number (2 - 15) corresponding to the number of duplex disk pairs in the office.

If the script should be terminated, type and enter the number **16**

Response: **Verifying the number of disk pairs. Please wait.**

32. This screen is displayed only if the second pair of disks (MHD 2 and MHD 3) are both 1 GB and/or 600 MB SCSI disks. If they are not, the base disk configuration can not be changed to a **11** or **66** configuration respectively. Instead the disk base pair will remain a **63** configuration.

This screen determines the new base disk configuration.

### 5E9.2 Software Release

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 63
2. 66
3. Terminate The Script.

Enter Selection (1, 2, or 3) :

---

When this screen is displayed, type and enter the digit (1 or 2) corresponding to the desired new base disk configuration.

If the script should be terminated, type and enter the digit **3**

Response: **Checking for valid reconfiguration request. Please wait.**

### 5E10 Software Release

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 63
2. 66
3. 11
4. Terminate The Script.

Enter Selection (1, 2, 3, or 4) :

---

When this screen is displayed, type and enter the digit (1, 2, or 3) corresponding to the desired new base disk configuration.

If the script should be terminated, type and enter the digit 4

Response:      **Checking for valid reconfiguration request. Please wait.**

### 5E11 Software Release

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 66
2. 11
3. Terminate The Script.

Enter Selection (1, 2, or 3) :

---

When this screen is displayed, type and enter the digit (1 or 2) corresponding to the desired new base disk configuration.

If the script should be terminated, type and enter the digit 3

Response:      **Checking for valid reconfiguration request. Please wait.**

### 5E12 Software Release

---

PLEASE ENTER THE CURRENT BASE DISK CONFIGURATION.

1. 11 (See Note 1)
2. Terminate The Script.

Enter Selection (1 or 2) :

---

When this screen is displayed, type and enter the digit (1 or 2) corresponding to the desired new base disk configuration.

If the script should be terminated, type and enter the digit 3

Response:      **Checking for valid reconfiguration request. Please wait.**



33. This screen determines how to configure an optional disk pair in the new disk configuration. There is a different screen for software releases and 5E9.2, and 5E10 and later. It is displayed for each optional disk pair that exists in the new disk configuration. This screen is not displayed for disks in the MHD 16 to MHD 31 range since they can only be assigned the "All AMA" disk pair option.

If there are no optional disk pairs in the new disk configuration, this screen is NOT displayed at all.

### 5E9.2 Software Release

---

PLEASE ENTER THE DISK OPTION FOR RT w (MHD x and MHD y)  
IN THE NEW DISK CONFIGURATION.

1. (All AMA)
2. (75% AMA, 25% SM ODD)
3. (50% AMA, 50% SM ODD)
4. (25% AMA, 75% SM ODD)
5. (All SM ODD)
6. Terminate The Script

Enter Selection (1, 2, 3, 4, 5 or 6):

---

Where:        w = disk pair number.  
              x = member number of the even MHD of the pair.  
              y = member number of the odd MHD of the pair.

When this screen is displayed, type and enter the digit (1 - 5) corresponding to the option desired for the disk pair displayed on the screen.

If the script should be terminated, type and enter the digit **6**

**NOTE:** Optional disk pairs cannot be assigned completely at random. Disk reconfiguration always tries to minimize the number of disk pairs containing the SM ODD. This minimizes the number of tape sequences required for a full office backup, which also minimizes the time required to perform a partial or full office recovery from tape.

Response:     **Processing reconfiguration data. Please wait.**

### 5E10 and later Software Release

---

PLEASE ENTER THE DISK OPTION FOR RT w (MHD x and MHD y)  
IN THE NEW DISK CONFIGURATION.

1. (All AMA)
2. (75% AMA)
3. (50% AMA)
4. Terminate The Script

Enter Selection (1, 2, 3, or 4):

---

Where:        w = disk pair number.  
               x = member number of the even MHD of the pair.  
               y = member number of the odd MHD of the pair.

When this screen is displayed, type and enter the digit (1 - 3) corresponding to the option desired for the disk pair displayed on the screen.

If the script should be terminated, type and enter the digit **4**

**NOTE:** Optional disk pairs cannot be assigned completely at random. Disk reconfiguration always tries to minimize the number of disk pairs containing the SM ODD. This minimizes the number of tape sequences required for a full office backup, which also minimizes the time required to perform a partial or full office recovery from tape.

Response:     **Processing reconfiguration data. Please wait.**

34. This screen is displayed only if the SM ODD on the current disk configuration will use over 90 percent of the available SM ODD space on the new disk configuration. This condition may indicate that the wrong base disk configuration or a wrong optional disk configuration was specified.
- 

WARNING!        WARNING!        WARNING!        WARNING!        WARNING!

THE SM ODD WILL USE xx% OF THE AVAILABLE SPACE ON THE  
 NEW DISK CONFIGURATION. THIS MAY INDICATE THAT THE WRONG  
 BASE DISK CONFIGURATION WAS SELECTED OR THAT A WRONG OPTION  
 WAS SPECIFIED FOR ONE OF THE OPTIONAL DISK PAIRS.

WARNING!        WARNING!        WARNING!        WARNING!        WARNING!

DO YOU WANT TO CONTINUE WITH THIS DISK RECONFIGURATION?

1. YES - Continue.
2. NO - Terminate The Script.

Enter selection (1 or 2):

---

Where:        xx = any number in the range 90 to 100.

If the disk reconfiguration is to be continued, type and enter the digit **1**

If the disk reconfiguration is not to be continued or if the script is to be restarted, type and enter the digit **2**

35. This screen displays exactly how the new disk configuration will be built and gives the option to make a final ``go" or ``no-go" decision.
-

THE NEW DISK CONFIGURATION WILL BE CONSTRUCTED AS FOLLOWS:

```

Base Disk Configuration    =   xxx
RT 2      (MHD 4 - MHD 5)  =   yyy
RT 3      (MHD 6 - MHD 7)  =   yyy
RT 4      (MHD 8 - MHD 9)  =   yyy
RT 5      (MHD 10 - MHD 11) =   yyy
RT 6      (MHD 12 - MHD 13) =   yyy
RT 8      (MHD 16 - MHD 17) =   yyy
RT 9      (MHD 18 - MHD 19) =   yyy
RT 10     (MHD 20 - MHD 21) =   yyy
RT 11     (MHD 22 - MHD 23) =   yyy
RT 12     (MHD 24 - MHD 25) =   yyy
RT 13     (MHD 26 - MHD 27) =   yyy
RT 14     (MHD 28 - MHD 29) =   yyy
RT 15     (MHD 30 - MHD 31) =   yyy

```

IS THIS AN ACCEPTABLE NEW DISK CONFIGURATION?

1. YES - Continue.
2. NO - Terminate The Script.

Enter selection (1 or 2):

---

Where:        xxx = **11, 66, or 63.**  
               yyy = All AMA,  
               75% AMA 25% SM ODD,  
               50% AMA 50% SM ODD,  
               25% AMA 75% SM ODD,  
               or all SM ODD

If the disk configuration is satisfactory, type and enter the digit **1**.

If this is not the desired disk configuration, type and enter the digit ``2" and repeat from Step 29. **SEEK TECHNICAL ASSISTANCE IF NECESSARY.**

Response:        **Assigning SM ODD files to partitions. Please wait.**

36. This screen displays only information and requires no response. It contains the projected AM ODD, SM ODD, and CI Data usage on the new disk configuration followed by the **checkvars** completion message. This information is also printed on the ROP.
- 

ODD AND CI DATA USAGE ON THE NEW DISK CONFIGURATION:

```

AM ODD  (no5aodd1) = xx%
CI DATA (no5codd1) = xx%
SM ODD  (no5sodd1) = xx%
SM ODD  (no5sodd2) = xx%
SM ODD  (no5sodd3) = xx%
SM ODD  (no5sodd4) = xx%

```

```
SM ODD (no5sodd5) = xx%
SM ODD (no5sodd6) = xx%
```

CHECKVARS COMPLETED

---

Where:           xx = a number greater than 0 and less than or equal to 100.

**NOTE:** The SM ODD information will only be printed for partitions that actually exist on the new disk configuration.

37. Type a CTRL-D (control d) character to return the RCV or STLWS terminal to its normal function.
38. The remainder of the disk reconfiguration procedure may be performed at the MCC or STLWS video terminal.

**CAUTION:** Do not continue until all the previous steps have successfully completed.

39. This step splits the moving head disks (MHD) into an on-line disk system (even MHDs) and an off-line disk system (odd MHDs). All odd MHDs (except MHD 15) are removed from service and marked off-line in the on-line ECD data base. All even MHDs (except MHD 14) are marked off-line (OFL) in the off-line ECD data base. This ensures that the correct disks will always be configured during a system initialization.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/markmhdsofl";**

Response:       **MARKMHDSOFL COMPLETED**

- Display MCC Page 123/125 to monitor the progress of this step. Initially, all MHDs are active (ACT - backlighted GREEN).
- Observe the major status changes as each odd MHD is removed from service (OOS - backlighted RED) and taken off-line (OFL - backlighted RED).

**NOTE 1:** A summary of the changes made to the on-line and off-line ECDs is printed on the ROP. Save the ROP output for future reference and/or analysis.

**NOTE 2:** This step mounts a partition on the off line disk with read/write access which causes the generation of mount and unmount PRMs.

**CAUTION:** Do not continue until all odd MHDs (except for simplex disks) display a major status of OFL, and are backlighted RED, and the MARKMHDSOFL COMPLETED message has been printed.

40. In this step, the ECD and SG data bases of the off-line disk system are converted to the new disk configuration.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/convofldb";**

Response:       **ECD2BASE COMPLETED - appecd  
ECD2BASE COMPLETED - ecd  
SG2BASE COMPLETED - appdmert**

**SG2BASE COMPLETED - dmert**  
**CONVOFLDB COMPLETED**

**NOTE 1:** A summary of the operations that were performed on the off-line data base is printed on the ROP. Save the ROP output for future reference and/or analysis.

**NOTE 2:** This step mounts a partition on the off-line disk with read/write access which causes the generation of mount and unmount PRMs.

**CAUTION:** Do not continue until this step has successfully completed.

41. This step replaces the existing VTOC files in the off-line data base partition with VTOC files for the new disk configuration. New VTOCs will be installed on each off-line disk (all odd MHDs except for MHD 15).

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/installvtocs";**

Response: **INSTALLVTOCS COMPLETED**

**NOTE:** This step mounts a partition on the off-line disk with read/write access which causes the generation of mount and unmount PRMs.

**CAUTION:** Do not continue until this step has successfully completed.

42. This step copies the office dependent data (ODD) from the active disk system to the off-line disk system. The length of time that this step takes is directly proportional to the number of SMs in the office.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/copyoddofl";**

Response: **COPY ACTDISK ON MHD 1 COMPLETED**  
 < 3 information files >  
**COPYODDOFL COMPLETED**

**NOTE 1:** This step mounts at least five (5) partitions on the off-line disk with read/write access, which causes the generation of mount and unmount PRMs.

**NOTE 2:** While this script is running, three information files are printed on the ROP — no5aodd1, no5codd1, and no5sodd1. A fourth file, no5dodd1, contains the AM disk ODD as raw data and is copied from the active disk to the off-line disk as a partition. For a complete description of the contents of these files see:

Reference: 235-105-210, **Section 9.2.6**

It is your responsibility to check these files to determine if the off-line disk system contains a complete copy of the office ODD. Files copied to the no5sodd1 partition should match the SM count of the office.

**NOTE 3:** Since all ECS (equipment configuration system) scripts will be invalid after a reconfiguration, they are not copied to the off-line system. Any files that have a zero length are not copied to the off-line system.

**NOTE 4:** As each off-line superblock is cleared, `coflsb` suspends activity as noted in the error file under the /temp directory. This is a normal condition.

**CAUTION:** Do not continue until this step has successfully completed and all ROP output has been thoroughly checked.

43. This step completes the configuration of the off-line disk system. The initialization of the **unixabf**, **rclog**, **log**, and **smlog** partitions are included in this step.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/miscoflinit";**

Response:     **RUNNING CHKROOTDB**  
                   **THERE WERE x MHD PAIRS FOUND IN THE OFFICE.**

Where:         **x = number of disks found.**  
                   **ALL MHDs IN THE ROOT DATA BASE ARE OOS.**

**NOTE 1:** If any disks in the root data base are not OOS, make these OOS at this time or **STOP** and seek technical assistance. Do **NOT** continue.

Response:     **CHKROOTDB COMPLETED**  
                   **MISCOFLINIT COMPLETED**

**NOTE 2:** This step mounts five (5) partitions on the off-line disk with read/write access, which causes the generation of mount and unmount PRMs. For the 5E8 and later Software Releases it will also check the ROOT database to make sure that all odd MHDs have a status of OOS. It will issue a warning message if these disks are not OOS.

**CAUTION:** Do not continue until this step has successfully completed.

44. Enter the following message to clear the AMA maps on all of the off-line disks:

**CLR:AMA:MAPS;**

Response:     **CLR AMA MAPS**  
                   **PARTITION 41 ON OFFLINE MHD x HAS BEEN CLEARED**  
                   **CLR AMA MAPS**  
                   **PARTITION 42 ON OFFLINE MHD x HAS BEEN CLEARED**  
                   < above messages are repeated for each odd MHD >  
                   **CLR AMA MAPS**  
                   **CLEARING OF AMA MAPS HAS COMPLETED**

Where:         **x = the member number of an equipped odd MHD.**

**CAUTION:** Do not continue until the first two response messages have been printed for each odd MHD in the office and the final completion message has been printed.

45. The off-line disk system is now configured. Before booting onto the new system, all AMA data must be transmitted to and received by the billing center. Failure to perform this step will result in lost revenue.

Enter the following message:

**WRT:AMADATA;**

Response: **WRT AMA DATA HAS BEEN WRITTEN TO DISK  
READY TO TRANSFER DATA FROM DISK TO OUTPUT MEDIUM**

46. To verify that all AMA data has been written to disk, enter the following message:  
**OP:AMA,DISK;**

Response: **REPT AMA DISK SUMMARY FOR STREAM ST1(or 2)  
DISK IS CURRENTLY 0% FULL  
NUMBER OF PRIMARY AMA BLOCKS IN USE  
IS APPROXIMATELY: 00**

Note: Due to design constraints there may be a small percentage of AMA data in use on disk at this point. To minimize the loss of AMA records, continue to initiate AMA sessions (Step 45) until the disk is 0% full and number of primary AMA blocks is 0. This may required 2-3 sessions.

***Caution: Do not continue until this step has successfully completed.***

47. This step dumps the contents of the AMA control file. Save this data in case it becomes necessary to initialize the AMA control file after switching to the new system.

Enter the following message:

**OP:AMA:CONTROLFILE;**

Response: **REPT AMA CONTROL FILE FOR STREAM ST1  
< contents of control file >**

48. Perform ALL of the following in preparation for a system boot:
- Using MCC page 1209 check to see if either ONTC is out of service. If either is out of service, restore it to service before continuing.
  - Using MCC page 1260 ensure that the CLINKS to all of the SMs are duplex. If any SM does not have duplex CLINKS, manually restore another CLINK to that SM using MCC page 1900,x (where x = member number of an SM).
  - Ensure that CU 0 is still forced active on MCC Page 111/112. If CU 0 is not forced active, then force it active.  
On the EAI page enter Command **10**
  - To force MHD 1 active, on the EAI page enter Command **22**
  - Ensure that all indicators on the EAI page with the exception of CU 0, MHD 1, and the PRM Trap are either off or set to CLR.
49. Verify that the Port Switches, located at the bottom of each CU cabinet on the 3B20D (on 3B21D, switches are on CKT pack UN377), are both in the AUTO position.
50. Enter the following message to update the other EAI Page:

**SW:PORTSW;**

Response: **SW PORTSW COMPLETED FOR ROP**  
**SW PORTSW COMPLETED FOR MTTY**

**CAUTION:** Do not continue until this step has successfully completed.

51. **CAUTION:** Check again to ensure that CU 0 and MHD 1 are both forced active on the EAI page before continuing with this step.

- Request the AMA Center to poll the office.
- Contact the STP and determine if the office is CNI-equipped according to standard practices.
- Obtain permission to boot the system.

52. On the EAI page, to boot the system, enter Command **54**

**NOTE:** When PRM\_0 EE41 CCCC CCCC CCCC 79 58 00 is printed, call processing is restored.

When PRM\_0 EE41 7111 0000 0001 79 58 00 is printed, CCS/SS7 is available.

53. This step should be performed as soon as the AM initialization has completed and craft I/O is available.

- On MCC Page 123/125, verify that all odd MHDs are ACT (backlighted GREEN) and all even MHDs are OFL (backlighted RED).
- Verify that call processing exists on all SMs.
- Verify that all essential and emergency services are being provided.
- Verify that all traffic reports are approximately normal for this day of week and time of day.

54. If all of the conditions listed in the previous step are satisfied, it is advisable to continue with this procedure. If any of the conditions are not satisfied, it may be advisable to go back to the old disk configuration.

Is the disk reconfiguration procedure to be continued?

If **YES**, continue with the next step.

If **NO**, go to Step 91.

55. This step verifies that all of the file system partitions are correctly mounted during the boot. It inhibits routine exercises (REX) and allows error checks (ERRCHK) for the entire system. It allows hardware checks (HDWCHK), software checks (SFTCHK), and automatic pumps (PUMP) for all SMs.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/chkmounts",args=ucl;**

Response: **CHKMOUNTS COMPLETED**

56. If the previous step determines that one of the input messages failed, a warning message will be printed with



instructions to check the ROP output and/or manually reenter the message.

Was a warning message printed with instructions to reenter a message?

If **YES**, reenter the message and continue with the next step.

If **NO**, go to Step 58.

57. Did the reentered message also fail?

If **YES**, **STOP** and seek technical assistance. Do **NOT** continue.

If **NO**, continue with the next step.

58. This step can be performed in parallel with the following steps, but it must be completed before attempting to perform Step 72.

Using MCC page 1260, check all SMs for duplex CLINKs.

If any SM does not have duplex CLINKs, manually restore another CLINK to that SM using MCC page 1900,x

Where: x = SM member number

59. On MCC Display Page 110, is Box 21 (RC BKOUT) lighted?

If **YES**, continue with the next step.

If **NO**, go to Step 61.

60. Enter the following message:

**EXC:ODDRCVY=CLRBKOUT,AM;**

Response: **EXC:ODDRCVY CLRBKOUT COMPLETED**

61. Enter the following message:

**ALW:RC;**

Response: **ALW RC COMPLETED**

62. The following Recent Change (RC) update will ensure that the ECD data base can be changed from a craft terminal.

Perform an ECD recent change update.

Reference: 235-105-210, **Procedure 10.14**.

63. All the RC forms involved in the preceding step should be completely displayed and all the input values should be accepted.

Did the RC test in the previous step pass?

If **YES**, continue with the next step.

If **NO**, go to Step 91.

64. Get everyone out of recent change and keep them out until the rest of this disk reconfiguration procedure has been completed.

Enter the following message:

**INH:RC;**

Response: **INH RC COMPLETED**

65. This step runs **FSLINK** and **FSBLK** audits on all file system (fs) partitions. It verifies the consistency of the new disk configuration by checking the contents of the VTOCs and the SG data base.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/checkconfig";**

Response: **CHECKCONFIG COMPLETED**

66. If the previous step determines that an FSLINK or FSBLK audit failed, a warning message will be printed with instructions to rerun the failing audit manually.

Was a warning message printed with instructions to rerun an audit?

If **YES**, reenter the audit message(s), and continue with next step.

If **NO**, go to Step 68.

67. Did any manually requested audit also fail?

If **YES**, **STOP** and seek technical assistance. Do **NOT** continue.

If **NO**, continue with the next step.

68. In this step, the AMA disk maps are dumped to verify that all of the available AMA partitions are assigned to one of the AMA streams.

Enter the following message:

**OP:AMA:MAPS;**

Response: The contents of the current AMA maps is printed on the ROP.

**NOTE:** There are always 2 AMA partitions per disk pair. Verify that all AMA partitions of the new disk configuration are assigned to the correct stream.

69. This step verifies the new base disk configuration and the configuration of any optional disk pairs in the office.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/diskcon";**

Response:

---

DISK CONFIGURATION AS DETERMINED FROM THE VTOCS AND SG DATA BASE

			VTOCS	MHD SIZE	SG DATA BASE
			-----	-----	-----
Base Disk Configuration	=		xxxx		xxxx
RT 2	(MHD 4 - MHD 5)	=	wwyy	zzzz	wwyy
RT 3	(MHD 6 - MHD 7)	=	wwyy	zzzz	wwyy
RT 4	(MHD 8 - MHD 9)	=	wwyy	zzzz	wwyy
RT 5	(MHD 10 - MHD 11)	=	wwyy	zzzz	wwyy
RT 6	(MHD 12 - MHD 13)	=	wwyy	zzzz	wwyy
RT 8	(MHD 16 - MHD 17)	=	wwyy	zzzz	wwyy
RT 9	(MHD 18 - MHD 19)	=	wwyy	zzzz	wwyy
RT 10	(MHD 20 - MHD 21)	=	wwyy	zzzz	wwyy
RT 11	(MHD 22 - MHD 23)	=	wwyy	zzzz	wwyy
RT 12	(MHD 24 - MHD 25)	=	wwyy	zzzz	wwyy
RT 13	(MHD 26 - MHD 27)	=	wwyy	zzzz	wwyy
RT 14	(MHD 28 - MHD 29)	=	wwyy	zzzz	wwyy
RT 15	(MHD 30 - MHD 31)	=	wwyy	zzzz	wwyy

---

Where:	xxxx	=	63, 66, 11, or unknown	Note 1
	uuu	=	1000 or 600	Note 2
	vvv	=	1000, 600, 322, 340	Note 3
	wwyy	=	[S, M, L][ 0, 25, 50, 75, or 100% AMA]	Note 4
	zzzz	=	1000, 600, 322, 340, or Unknown	Note 5

**CAUTION:** The columns under the "VTOCS" and "SG DATA BASE" headings must agree with each other line for line. If they do not or if "Unknown" appears anywhere in either column, you have a serious problem. Do NOT continue with the disk reconfiguration procedure until the problem is resolved. Seek technical assistance if necessary.

**NOTE 1:** xxxx — VTOCS of the disk pair. Beginning in 5E12, the "11" configuration is supported on both the 3B20D and 3B21D processor. Prior to 5E12 the "11" configuration was only supported on the 3B21D processor and then only in the 5E10 and 5E11 software releases.

**NOTE 2:** uuu — Identifies the physical size of the first disk pair (RT 0 or MHD 0 and MHD 1). In 5E12, only 1 GB SCSI disk drives are allowed on the 3B20D and 3B21D processors. In 5E11, 1 GB and 600 MB SCSI disk drives are allowed.

**NOTE 3:** vvv — Identifies the physical size of the second disk pair (RT 1 or MHD 2 and MHD 3). In 5E12, only 1 GB SCSI disk drives are allowed on the 3B20D and 3B21D processors. In 5E11, 1 GB and 600 MB SCSI disk drives are allowed. The 1 GB and 600 MB are valid secondary disk pair sizes for 5E11. For software releases prior to 5E11, the 322 MB drives may still be used for the secondary disk pair.

**NOTE 4:** wwyy — Identifies the logical size of the optional disk pairs (ww) as being either Small (S) 322 MB, or Medium (M) 600 MB, or Large (L) 1 GB. The percentage (yy) of space allocated to AMA on the disk; 50, 75 or 100% AMA is allowed for 5E10 and later.

**NOTE 5:** zzzz — Identifies the physical size of the disk pair. If one MHD is a 322 MB SCSI (Small) and the other is a 600 MB SCSI then the disk pair will be considered a 322 MB SCSI. The 340 MB drives are

not supported for 5E10 and later.

70. This step dumps the VTOCs for all of the odd MHDs on the ROP. Save the ROP output for future reference and/or analysis.

AMA and no5sodd partition sizes may be compared to known partition sizes for the desired VTOC to verify the contents of the dump.

Enter the following message for each odd MHD in the office:

**DUMP:MHD=x:VTOC;**

Where:            **x** = the member number of an odd numbered MHD.

Response:        **DUMP MHD x VTOC STARTED**  
                    < contents of VTOC printed on ROP >

**DUMP MHD x VTOC COMPLETED**

Where:            **x** = the member number of the MHD whose VTOC was dumped.

71. The following steps perform an off-line pump of the module processor (MP) in each SM in the office. This verifies the ability to pump each SM and verifies the correctness of the SM ODDs. If an MCTSI is out of service (OOS) in any SM, it must be restored to service before continuing with the next step.

Determine the status of the MCTSIs by either of the following methods:

Using MCC page 1190,x (where x = member number of an SM), verify that both MCTSIs in all SMs are either active (ACT) or standby (STBY),

or

enter the following message: **OP:SYSSTAT;**

Response:        **OP SYSSTAT SUMMARY        LAST RECORD**  
                    **SYS:    INHIBITS-RC MISC**  
                    **AM:     INHIBITS-MTCE-SW**  
                    **w xSM y,z: INHIBITS-MTCE.....** <repeated for each SM>

Where:            w = SM configuration - B (Basic), S (Standard), or L (Loaded).  
                    x = SM type - L (LSM), H (HSM), R (RSM), O (ORM), or T (TRM).  
                    y = SM member number.  
                    z = active MCTSI (0 or 1) in SM y.

**NOTE:** If the status printed for an SM includes **MATE\_OOD**, then one of its MCTSIs is OOS and must be restored.

**CAUTION:** Do not continue with the next step until all MCTSIs are either active (ACT) or standby (STBY), and all SMs have duplex CLINKs.

72. This step switches and forces MCTSI 0 active in all SMs.

Enter the following message:

**ORD:CPI=1&&#,CMD=SW-0;**

Where:        **#** = member number of the highest-numbered SM in the office.

Response:    **ORD CPI x CMD SW 0 COMPLETED** <repeated for each SM>

Where:        **x** = SM member number

**NOTE:** This step results in a single-process purge in each SM that switched.

73. Did the switch pass for all SMs?

If **YES**, go to Step 75.

If **NO**, continue with the next step.

74. Enter the following message for each SM that failed to switch in Step 72:

**ORD:CPI=x,CMD=SW-0,UCL;**

Response:    **ORD CPI x CMD SW 0 COMPLETED**

Where:        **x** = SM member number

**CAUTION:** If an SM fails to switch to side 0 in this step, seek technical assistance. Do NOT continue.

75. Enter the following message to perform an off-line pump of each SM in the office:

**ST:OPUMP,SM=1&&#,ACTDISK,VFY,NPERF;**

Where:        **#** = member number of the highest-numbered SM in the office.

Response:    **REPT SM x OFFLINE PUMP COMPLETED** <repeated for each SM>

Where:        **x** = SM member number

**Action:** The status should go to **MATE PUMP+** on MCC Page 141/142/143/144 for all SMs.

When all SMs have gone to the **MATE PUMP+** state, continue with the next step.

If an SM fails to pump (does not go to MATE PUMP+), **STOP** and seek technical assistance. Do NOT continue.

76. Enter the following message to clear the MCTSI force in all SMs:

**ORD:CPI=1&&#,CMD=CLR;**

Where:        **#** = member number of the highest-numbered SM in the office.

Response:    **ORD CPI x CMD CLR COMPLETED** <repeated for each SM>

Where:        **x** = SM member number

77. Enter the following message to duplex the MCTSI in all SMs:

**RST:MCTSI=a&b-c,UCL;**

Where:        **a** = member number of the first SM in the office  
                  **b** = member number of the highest-numbered SM in the office  
                  **c** = controller 0 or 1.

Response:     **RST MCTSI=x-c COMPLETED** <repeated for each SM>

Where:        **x** = SM member number  
                  **c** = module control unit number

**CAUTION:** Do not continue until this step has successfully completed.

78. The testing of the new disk configuration has been completed.

**CAUTION:** Once this step is completed, you will no longer be able to boot onto the old disk configuration. Do not complete this step until you are ready to commit to the new disk configuration.

When confident that all is well with the new disk configuration, enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/rstevenmhds";**

Response:     **RSTEVENMHDS COMPLETED**

**NOTE:** A summary of the operations that were performed on the on-line ECD is printed on the ROP. Save the ROP output for future reference and/or analysis.

79. On the EAI page, to clear the EAI, enter Command **14**
80. On MCC Page 111/112, to unconditionally restore CU 1, enter Command **301**
81. Customers could have entered new CORCs while this disk reconfiguration was in progress. Perform an ODD backup to save these changes.

Enter the following message:

**BKUP:ODD;**

Response:     **BKUP ODD FULL AM COMPLETED**  
                  **BKUP ODD NRODD= x COMPLETED** <repeated for each SM>  
                  **BKUP ODD RODD= x COMPLETED** <only one SM>  
                  **BKUP ODD CMP=y COMPLETED**  
                  **BKUP ODD COMPLETED**

Where:        **x** = the member number of an SM  
                  **y** = the member number of a CMP.

82. This step allows recent change (RC), allows routine exercises (REX), and removes the disk reconfiguration tools.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/rmvtools";**

Response: **RMVTOOLS COMPLETED**

**CAUTION:** If the script determines that one of the input messages failed, a warning message will be printed with instructions to check the ROP output and/or manually reenter the message. If a reentered message also fails, seek technical assistance. Do NOT continue.

83. Any automatic ODD backups that were scheduled for the office were removed in Step 3. If the automatic schedules are to continue, the ODD backup schedule must be reinitialized.
84. Enter the following message to dump the current contents of the AMA control file:

**OP:AMA:CONTROLFILE;**

Response: **REPT AMA CONTROL FILE FOR STREAM ST1**  
< contents of control file >

85. Compare the current contents of the AMA control file with the contents dumped in Step 47. If there are any differences, restore the original contents of the AMA control file.

Reference: **SET:AMA:CONTROL** message in 235-600-700, *Input Message Manual*

86. Perform a full office backup (GENERIC/ECD/ODD) of the new disk configuration.

Reference: 235-105-210, **Procedure 6.23.**

87. If there are software backup disks (MHD 14 and/or MHD 15) in the office, they must also be updated to reflect the new disk configuration.

Update all software backup disks.

Reference: 235-105-210, **Procedure 6.21.**

88. **CAUTION:** All older disk backups (either disks or tapes) are now invalid. Using one of these backups will restore the office to the old disk configuration. If these backups are to remain in the office, they must be clearly marked. This is your responsibility!

89. If Automatic MHD Configuration was allowed in this office, it will have to be reestablished since it was disallowed during the disk reconfiguration procedure.

Refer to the **ALW:AUTOCFG** and **OP:MHD:CFG** messages in:

Reference: 235-600-700, *Input Message Manual*.

90. This is the end of the disk reconfiguration procedure.

**Results:** Disk reconfiguration performed.

**DISK RECONFIGURATION BACKOUT PROCEDURE, FOLLOWS:**

**PERFORMING THE FOLLOWING STEPS WILL SWITCH THE SYSTEM BACK ONTO THE OLD DISK CONFIGURATION AND ABORT THE DISK RECONFIGURATION PROCEDURE.**

91. **CAUTION:** Performing the following steps switches the system back onto the old disk configuration and aborts the entire disk reconfiguration procedure.
92. The following steps are performed when one of the following occurs:
- A critical test of the new disk configuration has failed.
  - The system will not operate properly on present disk configuration.
  - The disk reconfiguration procedures cannot be completed during the current session for whatever reason.

For these reasons, it will be necessary to boot back onto the old disk configuration.

If these procedures are not followed, the system will be left in an unstable state. The office will not be able to boot on the off-line side.

93. Perform the following in preparation for a system boot:
- On the EAI page, to force CU 0 active, enter Command **10**
  - On the EAI page, to force MHD 0 active, enter Command **20**
  - Ensure that all indicators on the EAI page are either extinguished or set to CLR, with the exception of CU 0, MHD 0, and the PRM Trap.
94. **CAUTION:** Check again to ensure that CU 0 and MHD 0 are both forced active on the EAI page before continuing with this step.

Obtain permission to boot the system.

95. On the EAI page, in order to boot the system, for software releases 5E8 and later, enter Command **54**
96. This step should be performed as soon as the AM initialization has completed and craft I/O is available.
- On MCC Page 123/125, verify that all even MHDs are ACT (backlighted GREEN) and all odd MHDs are OFL (backlighted RED).
  - Verify that call processing exists on all SMs.
  - Verify that all essential and emergency services are being provided.
  - Verify that all traffic reports are approximately normal for this day of week and time of day.
97. Were all of the conditions listed in the previous step satisfied?
- If **YES**, continue with the next step.
- If **NO**, **STOP** and **seek technical assistance immediately**.
98. The following are performed in this step:
- Verifies that all of the file system partitions are correctly mounted during the boot.
  - Inhibits routine exercises (REX) .



- Allows error checks (ERRCHK) for the entire system.
- Allows hardware checks (HDWCHK), software checks (SFTCHK), and automatic pumps (PUMP) for all SMs.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/chkmounts",args="ucl";**

Response:      **CHKMOUNTS COMPLETED**

99. If the previous step determines that one of the input messages failed, a warning message is printed with instructions to check the ROP output and/or manually reenter the message.

Was a warning message printed with instructions to reenter a message?

If **YES**, reenter the message and continue with the next step.

If **NO**, go to Step 101.

100. Did the reentered message also fail?

If **YES**, **STOP** and seek technical assistance. Do **NOT** continue.

If **NO**, continue with the next step.

101. Using MCC page 1260, check all SMs for duplex CLINKs.

If an SM does not have duplex CLINKs, manually restore another CLINK to that SM using MCC page 1900,x (where x = member number of an SM).

102. At this point, **Stop**. Collect as much information as possible from the system concerning the reason for the failure. Continue with the next step if, or when, it is determined that the disk reconfiguration procedure should be aborted.

103. Enter the following message to restore all of the off-line (odd) MHDs.

**EXC:ENVIR:UPROC,FN="/updtmp/site/rstoddmhds";**

Response:      **RSTODDMHDS COMPLETED**

**NOTE:** A summary of the operations that were performed on the on-line ECD is printed on the ROP. Save the ROP output for future reference and/or analysis.

104. On the EAI page, to clear the EAI, enter Command **14**

105. On MCC Page 111/112, to unconditionally restore CU 1, enter Command **301**

106. This step allows recent change (RC), allows routine exercises (REX), and removes the disk reconfiguration tools.

Enter the following message:

**EXC:ENVIR:UPROC,FN="/updtmp/site/rmvtools",args="ucl";**

Response:     **RMVTOOLS COMPLETED**

**CAUTION:** If the script determines that one of the input messages failed, a warning message will be printed with instructions to check the ROP output and/or manually reenter the message. If a reentered message also fails, **STOP and seek technical assistance. Do NOT continue.**

107. Any automatic ODD backups that were scheduled for the office were removed in Step 3. If the automatic schedules are to continue, the ODD backup schedule must be reinitialized.

108. Enter the following message to dump the current contents of the AMA control file:

**OP:AMA:CONTROLFILE;**

Response:     **REPT AMA CONTROL FILE FOR STREAM ST1**  
              < contents of control file >

109. Compare the current contents of the AMA control file with the contents dumped in Step 47.

If there are any differences, restore the original contents of the AMA control file.

Refer to the **SET:AMA:CONTROL** message in:

Reference:     235-600-700, *Input Message Manual*.

110. If Automatic MHD Configuration was allowed in this office, it will have to be reestablished since it was disallowed during the disk reconfiguration procedure.

Refer to the messages **ALW:AUTOCFG** and **OP:MHD:CFG** in:

Reference:     235-600-700, *Input Message Manual*.

111. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.22: REPLACE SCSI MOVING HEAD DISK DRIVE

### OVERVIEW

If you have a 3B20D Processor, begin with Procedure **10.22.1**. If you have a 3B21D Processor, go to Procedure **10.22.2**.

### PROCEDURE

1. Replace SCSI Moving Head Disk Drive

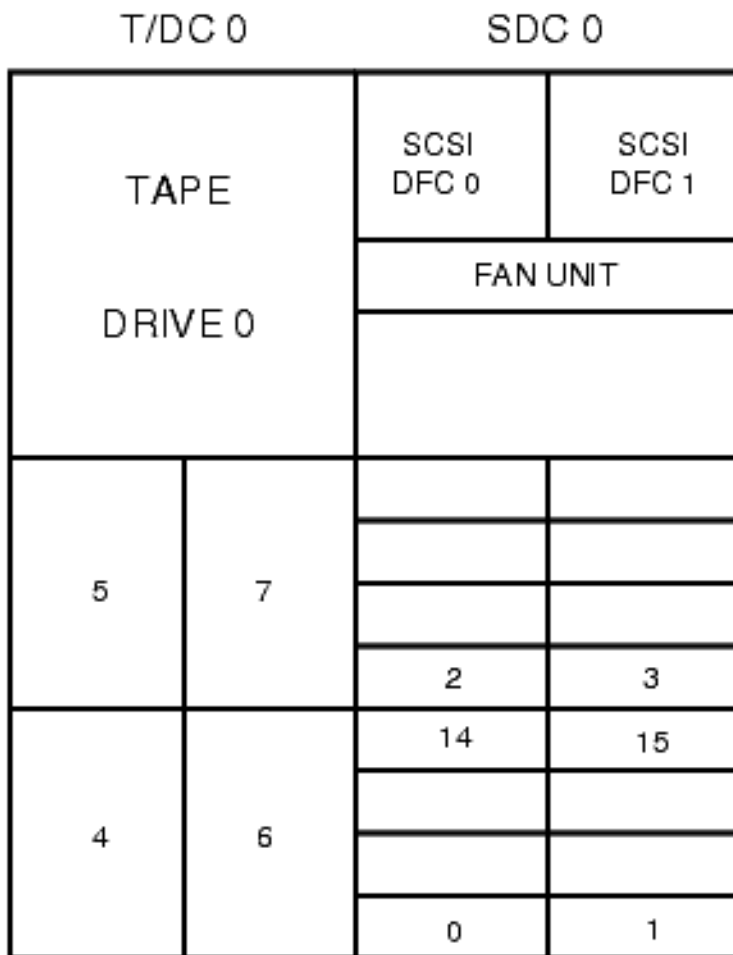
#### 10.22.1 Replace SCSI Moving Head Drive Disk Unit Package (DUP) -- 3B20D Processor

1. Refer to Figures 10.22.1-1 and 10.22.1-2 to determine the appropriate SBUS numbers for the affected drive.

### GROWTH/CONVERSION SCSI CABINET

SCSI DFC 0	SCSI DFC 1
FAN UNIT	
12	13
10	11
6	7
2	3
14	15
8	9
4	5
0	1

Figure 10.22.1-1 SCSI Disk Configuration (3B20D)



**Figure 10.22.1-2 SCSI/SMD Configuration (3B21D)**

2. At the Master Control Center (MCC), remove the SBUS controlling the affected disk drive DUP from service by typing and entering:

**RMV:SBUS=x;**

Response: **RMV SBUS x TASK n MESSAGE STARTED**  
**RMV MHD y COMPLETED** (Repeated for each DUP on SBUSx)  
**RMV SBUS x COMPLETED**

**OOS** LED lights on all drives controlled by SBUSx

Where: x = number of the SBUS controlling the affected MHD DUP from Figures 10.22.1-1 and 10.22.1-2 .  
 y = MHD numbers associated with SBUSx.

3. Power down the drive to be replaced, controlled by SBUSx, by depressing the **OFF** switch located on the affected DUP.

Response: **OFF, ALM and OOS** LEDs light.

4. Remove fuse at the top of the frame for the affected DUP.
5. Disconnect cables from the affected DUP.
6. Remove DUP clamp-down bracket on the front of the disk shelf and carefully slide out the affected drive.
7. Replace the DUP. Set the ID switch on the replacement DUP to the same value as the DUP being replaced via the thumbwheel switch on the front panel of the DUP.
8. Fasten DUP clamp-down bracket.
9. Connect cables.
10. Insert fuse for the affected drive.
11. Power up the new DUP by depressing the **ON** switch on the DUP.

Response: At the MHD power switch, the **ALM** and **OFF** LEDs go off.

#### **REPT POWER UP MHD y**

Where: y = DUP just replaced and powered up.

12. At the MCC, type and enter: **RST:SBUS=x,CONT;**

Response: **RST SBUS x TASK n Message STARTED**  
**RMV SBUS x STOPPED H'5**  
**RST SBUS x IN PROGRESS**  
**RST SBUS x COMPLETED**

Where: n = task number  
x = number of the SBUS controlling the affected DUP

13. At the MCC, type and enter: **INIT:MHD=y:VFY;**

Where: y = number of the replaced DUP.

Response: **INIT MHD y STARTED**  
..  
..  
**INIT MHD y IN PROGRESS**  
..  
..  
**INIT MHD y COMPLETED**

14. If the replaced MHD is a software backup disk (MHD 14 or MHD 15), type and enter:  
**EXC:ENVIR:UPROC,FN="/etc/rcvtoc",ARGS=y;**

Response: **EXC ENVIR UPROC /etc/rcvtoc COMPLETED**  
**vcp: disk copy completed**  
**vcp: disk copy completed**

**/etc/rcvtoc VTOC READ AND COMPARE SUCCESSFUL**

Where: y = 14 or 15

**NOTE:** In the following step, if the affected DUP is a system disk (MHD 0 or MHD 1), restore it first.

15. At the affected DUP, ensure that the **ROS/RST** switch is in the **RST** position. At the MCC, to restore all drives on SBUSx, type and enter:

**RST:MHD=y;**

Response: **RST MHD y TASK n MESSAGE STARTED**  
**OOS LED goes off**  
**RMV MHD y STOPPED H'5**  
**DGN MHD y COMPLETED ATP MESSAGE IN PROGRESS**  
**RST MHD y IN PROGRESS**  
 ..  
 ..  
**RST MHD y COMPLETED**  
**DGN MHD y ATP MESSAGE COMPLETE**

Where: n = task number  
 x = number of the SBUS controlling the affected DUP.  
 y = MHD numbers being restored.

16. To obtain the MHD defect table listing at the MCC, type and enter:

**DUMP:MHD=y,DEFECT;**

Response: **DUMP MHD y DEFECT TABLE STARTED**  
**COMBINED (GROWN) DEFECT TABLE**  
**0 DEFECTS**  
**CYL HEAD SECT**

**DUMP MHD y DEFECT TABLE COMPLETED SCSI DEFECT COUNT CHECK COMPLETED**

Where: y = MHD number

17. Are all DUPs that were removed from service now restored to service?

If **NO**, continue restoration on remaining drives until complete. If any drive fails to restore, replace it using **Procedure 10.22.2**.

If **YES**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 10.22.2 Replace SCSI Moving Head Drive Circuit Pack (UN375) - 3B21D Processor

1. At the MCC, remove the SBUS controlling the affected disk drive circuit pack from service by typing and entering:

**RMV:SBUS=x;**

Response: **RMV SBUS x TASK n MESSAGE STARTED**  
**RMV MHD y COMPLETED** (Repeated for each MHD on SBUSx)  
**RMV MT z COMPLETED** (Repeated for each magnetic tape drive, if any)  
**RMV SBUS x COMPLETED**

**OOS** LED lights on all drives controlled by SBUSx

Where: n = task number  
x = number of the SBUS controlling the affected disk drive circuit pack from the following illustrations.  
y = MHD numbers associated with SBUSx.  
z = magnetic tape (MT) drive(s) associated with SBUSx, if any.

2. Spin down the affected MHD circuit pack controlled by SBUSx by toggling the **ST/ON/OFF** switch to **OFF**.

Response: **OFF** and **OOS** LEDs light

3. Remove the affected MHD circuit pack.
4. Install the replacement MHD circuit pack. Make sure the circuit pack latch is secured.

Response: **OFF** and **OOS** LEDs light

5. At the power switch of the replaced MHD circuit pack, make sure the ROS/RST switch is in the **RST** position.
6. Spin up the affected MHD circuit pack by operating the **ST/ON/OFF** switch to **ON** and momentarily actuating the switch to the **ST** (start) position.

Response: At the MHD power switch, the **OFF** LED flashes and goes off. The **OOS** LED remains lit.

7. At the MCC, type and enter: **RST:SBUS=x,CONT;**

Response: **RST SBUS x TASK n Message STARTED**  
**RMV SBUS x STOPPED H'5**  
**RST SBUS x IN PROGRESS**  
**RST SBUS x COMPLETED**

Where: x = number of the SBUS controlling the affected drive.  
n = task number

8. At the MCC, type and enter: **INIT:MHD=y:VFY;**

Where: y = number of the replaced MHD.

Response: **INIT MHD y STARTED**  
..  
..  
**INIT MHD y IN PROGRESS**  
..

..  
**INIT MHD y COMPLETED**

9. If the replaced MHD is a software backup disk (MHD 14 or MHD 15), type and enter:

**EXC:ENVIR:UPROC,FN="/etc/rcvtoc",ARGS=y;**

Where: y = 14 or 15

Response: **EXC ENVIR UPROC /etc/rcvtoc COMPLETED**  
**vcp: disk copy completed**  
**vcp: disk copy completed**  
**/etc/rcvtoc VTOC READ AND COMPARE SUCCESSFUL**

**NOTE:** In the following step, if the affected drive is a system disk (MHD 0 or MHD 1), restore it first.

10. At MCC, to restore all drives on SBUSx, type and enter:

**RST:MHD=y;** (Repeat for each MHD circuit pack.)

Response: **RST MHD y TASK n MESSAGE STARTED**  
**OOS LED goes off**  
**RMV MHD y STOPPED H'5**  
**DGN MHD y COMPLETED ATP MESSAGE IN PROGRESS**  
**RST MHD y IN PROGRESS**  
 ..  
 ..  
**RST MHD y COMPLETED**  
**DGN MHD y ATP MESSAGE COMPLETE**

Where: n = task number  
 x = number of the SBUS controlling the affected drive.  
 y = MHD numbers associated with SBUSx

11. At MCC, to restore magnetic tape drives (if any) on SBUSx, type and enter:

**RST:MT=z;** (Repeat for each MT.)

Response: **RST MT z TASK n MESSAGE STARTED**  
**OOS LED goes off**  
**RMV MT z STOPPED H'5**  
**DGN MT z COMPLETED ATP MESSAGE IN PROGRESS**  
**DGN MT z ATP MESSAGE COMPLETE**  
**RST MT z IN PROGRESS**  
**RST MT z COMPLETED**

Where: n = task number  
 x = number of the SBUS controlling the affected drive.  
 z = MT drives associated with SBUSx

12. To obtain the MHD defect table listing at the MCC, type and enter:



**DUMP:MHD=y,DEFECT;**

Where: y = MHD number

Response: **DUMP MHD y DEFECT TABLE STARTED  
COMBINED (GROWN) DEFECT TABLE  
0 DEFECTS  
CYL HEAD SECT**

**DUMP MHD y DEFECT TABLE COMPLETED  
SCSI DEFECT COUNT CHECK COMPLETED**

13. Are all MHDs that were removed from service now restored to service?

If **NO**, continue restoration on remaining drives until complete. If any drive fails to restore, replace the corresponding UN375 circuit pack using **Procedure 10.22.2**.

If **YES**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.23: PERFORM OFF-LINE DUMP

### OVERVIEW

If all other procedures fail to restore terminal access, the computer may have to be booted.

To assist your technical-assistance organization in finding and correcting causes of terminal suspends and other system anomalies, take an off-line dump when a terminal suspend occurs and a system boot is required.

The following procedure describes taking an off-line dump.

**NOTE:** Control units (CU) must have been duplex when the event that is being dumped occurred.

### PROCEDURE

1. Mount spare 2400-foot reel of tape on the tape drive.
2. Remove the standby CU. If there is craft control, at master control center (MCC) type and enter: **RMV:CU x**

Where:            **x** = control unit number.

If there is no craft control, at CU power switch, toggle the **RST/ROS** switch to **ROS**.

**NOTE:** The state of the memory at the time of the terminal suspend is now saved in the off-line CU.

3. Get out of *Craft Lockout* (EAI Poke 15).
4. At the MCC, type and enter: **EXC:ENVIR:UPROC,FN="/bin/sh",ARGS="-c"**  
**- "pio dd if=/dev/ofln of=/dev/mt00 bs=6144";**

Response:        **EXC ENVIR UPROC COMPLETED**

5. Return the CUs to duplex by removing the force on-line (command **13**) and restoring the CU (**RST:CU**).
6. Send the tape, a copy of the sheet covering the attempts made to clear the suspend, and any other applicable information or receive-only printer printouts to the 3B field support group.
7. The 3B field support group will then determine the cause of the suspend. If the cause is due to an operating system problem, the application engineer will forward all data to the operating system field support group.

**NOTE:** Tapes must have return address on them or they will not be returned.

**Results:** Off-line dump performed.

8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 10.24: REPLACE SCSI DISK MODULE

### OVERVIEW

This procedure contains information for replacing Small Computer System Interface (SCSI) Disk Unit Package (DUP) Subunits.

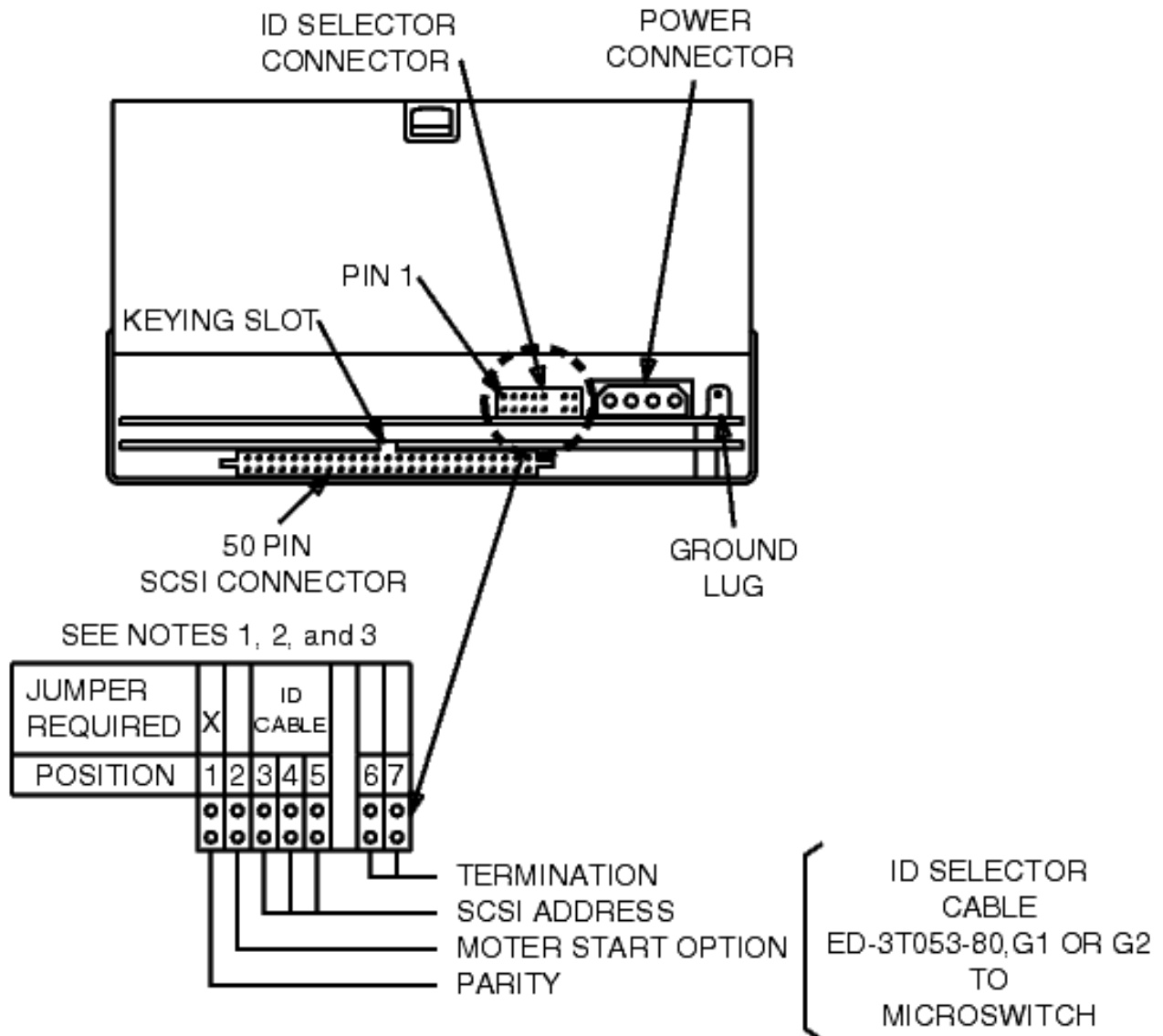
**CAUTION 1:** Wear a properly grounded wrist strap throughout this procedure as electrostatic discharge may damage the disk module.

**CAUTION 2:** Touching exposed circuit elements may damage circuits.

### PROCEDURE

1. Remove two screws from each side and one screw from the top (rear center) of DUP.
2. Slide cover assembly forward to clear switches and gently lift from DUP chassis. There is a cable tie restraining the ID cable to the CGG2 power supply board. This cable tie restrains the ID cable and power cable from being damaged when removing the cover and keeps them away from the fan. (See Figure 10.24-6 .) If the cover is to be completely removed from the DUP, the cable tie must be cut.
3. To replace:
  - (a) Disk Module, continue with Step 4.
  - (b) Power Supply (CGG2), go to Step 11.
  - (c) Power Switch (CGG1), go to Step 16.
  - (d) Fan, go to Step 27.
4. To replace the Disk Module, disconnect the cabling as follows from the rear of the Disk Module (refer to Figures 10.24-1 through 10.24-4 ):
  - SCSI bus cable ED-3T053-40, G6
  - Disk power cable from DC power
  - ID selector switch cable ED-3T053-80, G1 or G2.

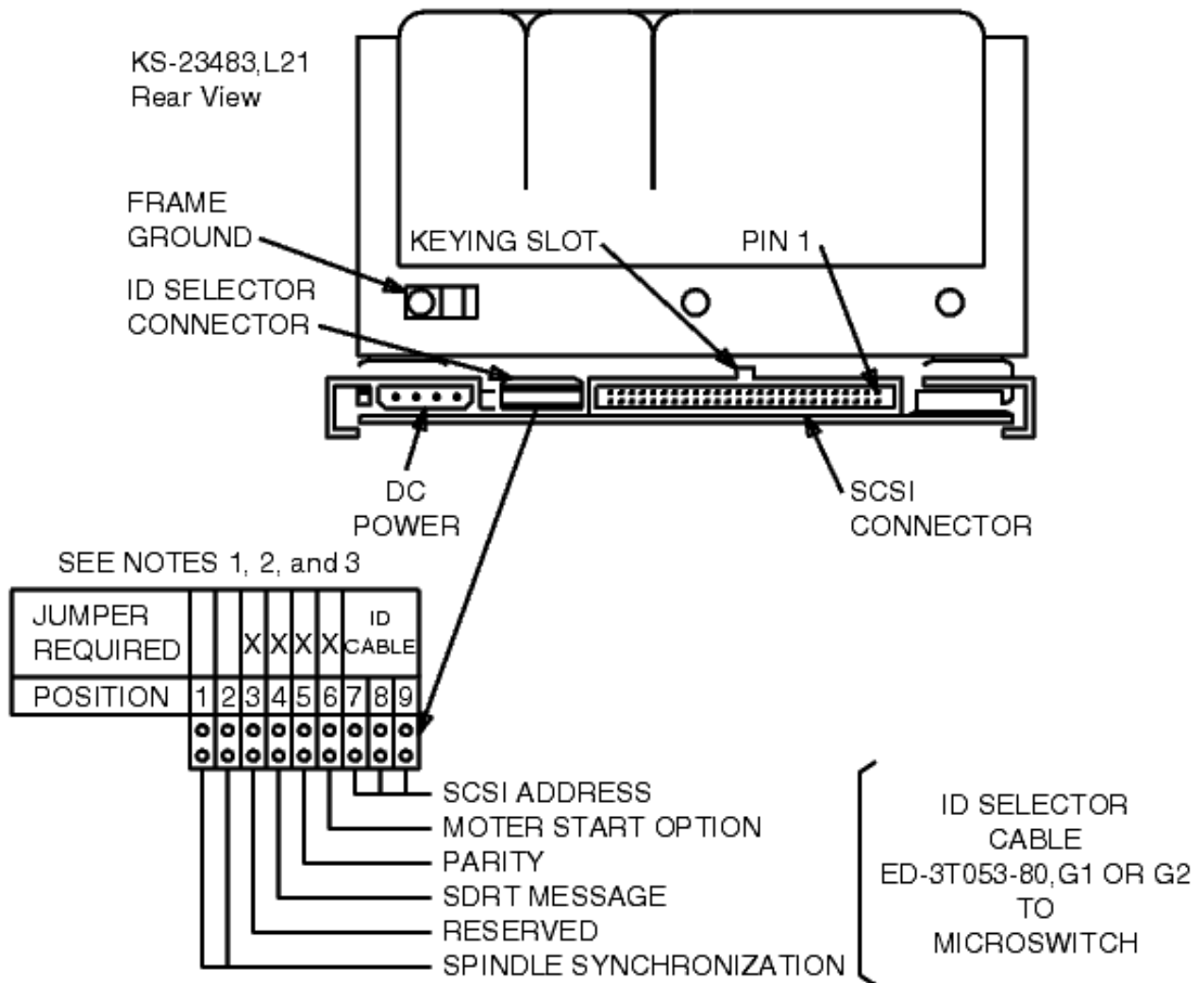
KS-23483,L13 Rear View



## NOTES

1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

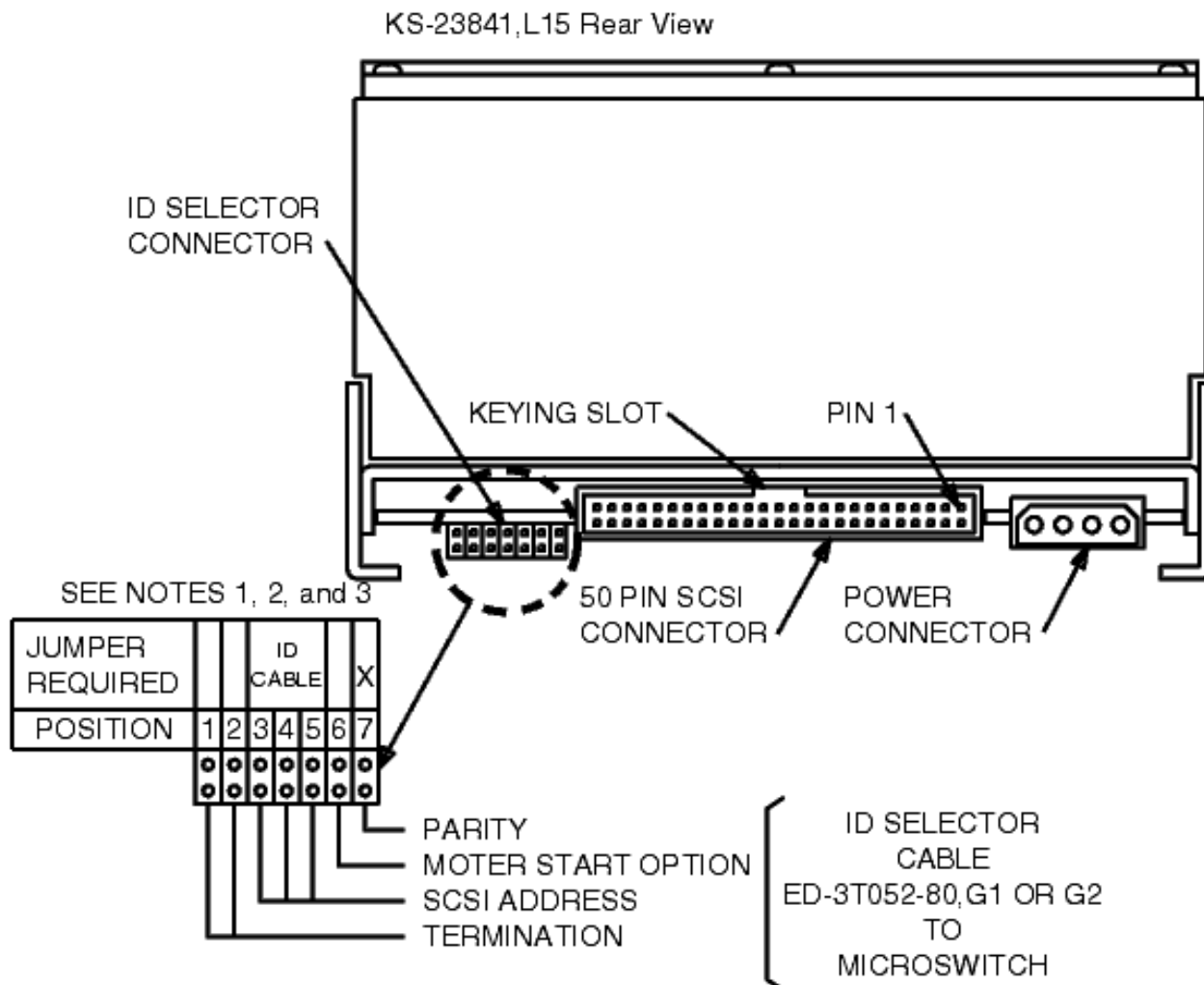
Figure 10.24-1 KS-23483,L13 Disk Drive Cable Connection - Rear View



### NOTES

1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

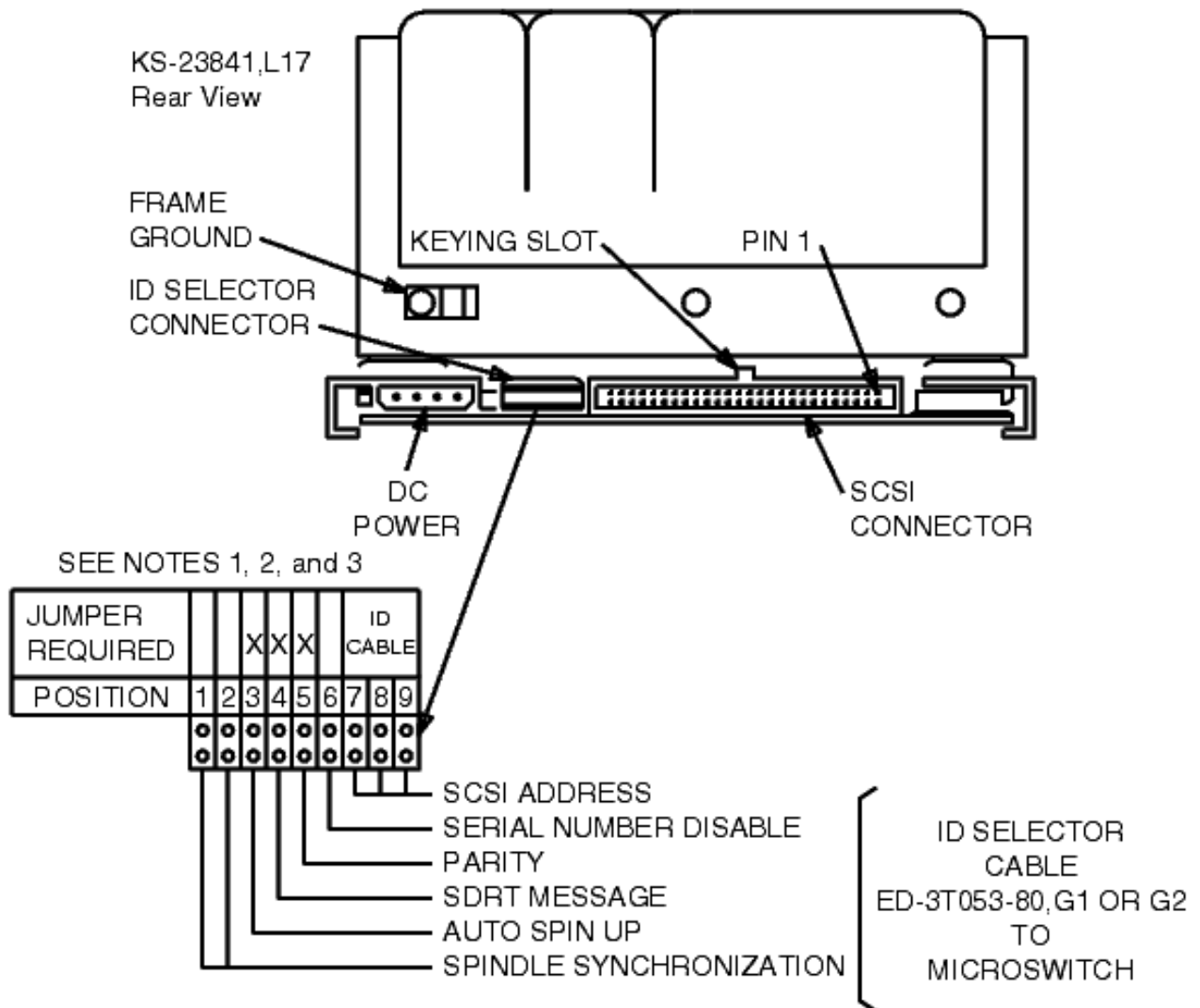
Figure 10.24-2 KS-23483,L21 Disk Drive Cable Connection - Rear View



### NOTES

1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

Figure 10.24-3 KS-23841,L15 Disk Drive Cable Connection - Rear View

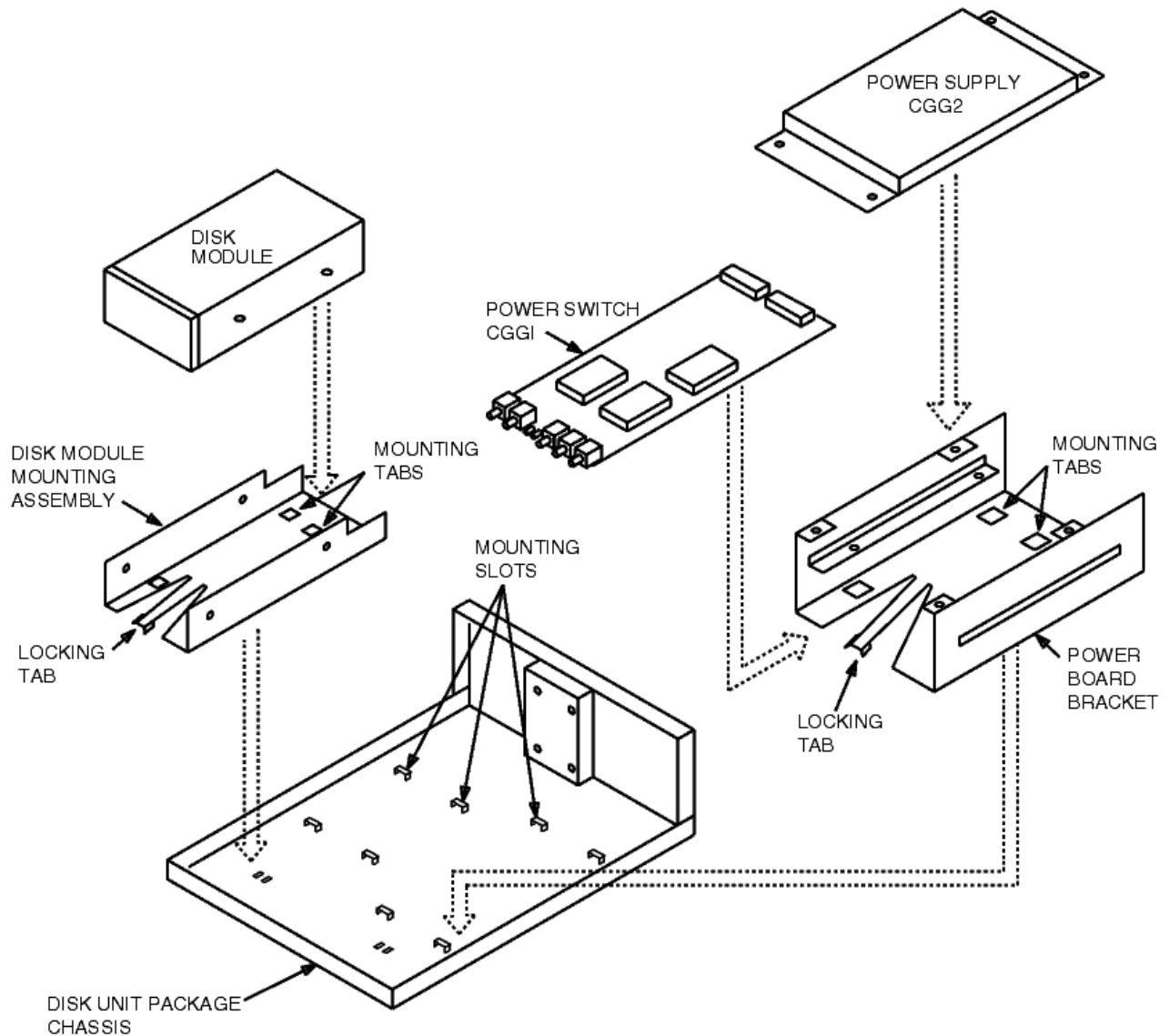


## NOTES

1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

**Figure 10.24-4 KS-23841,L17 Disk Drive Cable Connection - Rear View**

5. Referring to Figure 10.24-5 , from underneath the DUP chassis, release the locking tab and push the Disk Module mounting assembly back (to the rear of the DUP) to disengage the mounting tabs. Remove the Disk Module with the mounting assembly.
6. Making sure that the Disk Module does not drop, remove two screws from each side of the mounting assembly, then remove the Disk Module.



**Figure 10.24-5 Disk Unit Package - Exploded View**

7. Install the new Disk Module into the Disk Module mounting assembly and replace the two screws on each side.
8. Slide the Disk Module mounting assembly onto the DUP chassis so the tabs are engaged. Ensure that the locking tab is also engaged.
9. Referring to Figure 10.24-1 through 10.24-4, connect the cabling as follows at the rear of the Disk Module:
  - SCSI bus cable ED-3T053-40, G6
  - Disk power cable to DC power.
10. Go to Step 31 and install the DUP cover.
11. To replace the Power Supply (CGG2), remove the following cables from connectors on the Power Supply:



- Cable ED-3T053-40, G5 to Power Switch
  - Disk power cable to Disk Module
  - Fan power cable to fan
  - -48 V input power cable ED-3T053-15, G17.
12. Referring to Figure 10.24-5 , remove the four screws holding the Power Supply (CGG2) to the power board bracket.
  13. Place the new Power Supply on the power board bracket and replace the four screws.
  14. Install the following cables to the connectors on the Power Supply:
    - Cable ED-3T053-40, G5 to Power Switch
    - Disk power cable to Disk Module
    - Fan power cable to fan
    - -48 V input power cable ED-3T053-15, G17.
  15. Go to Step 31 and install DUP cover.
  16. To replace the Power Switch (CGG1), at the Power Supply, remove the following cables from connectors on the Power Supply:
    - Cable ED-3T053-40, G5 to Power Switch
    - Disk power cable to Disk Module
    - Fan power cable to fan
    - -48 V input power cable ED-3T053-15, G17.
  17. At the Power Switch, remove the scan/alarm cable ED-3T053-40, G5 and G6 from the Power Switch connector.
  18. Referring to Figure 10.24-5 , from underneath the DUP chassis, release the locking tab and push the power board bracket back (to the rear of the DUP) to disengage the mounting tabs. Remove the power board bracket from the DUP chassis.
  19. Remove the four screws holding the Power Supply (CGG2) to the power board bracket and remove the Power Supply.
  20. Remove the four screws holding the Power Switch (CGG1) to the power board bracket and slide the Power Switch out of the bracket.
  21. Slide the replacement Power Switch (CGG1) into the power board bracket and secure with four screws.
  22. Mount the Power Supply (CGG2) on the power board bracket and secure with four screws.
  23. Slide the power board bracket with both units mounted onto the chassis to engage the mounting tabs. Ensure that the locking tab is also engaged.

24. At the Power Switch, install the scan/alarm cable ED-3T053-40, G5 and G6 to the Power Switch connector.
25. At the Power Supply (CGG2), install the following cables to the connectors on the Power Supply:
  - Cable ED-3T053-40, G5 to Power Switch
  - Disk power cable to Disk Module
  - Fan power cable to fan
  - -48 V input power cable ED-3T053-15, G17.
26. Go to Step 31 and install the DUP cover.
27. To replace the fan, at the Power Supply (CGG2), remove the fan power cable at J2.
28. At the rear of the DUP chassis, remove the four screws and finger guard. Remove the fan from inside the chassis.
29. Install the new fan and replace the finger guard with four screws.
30. Install the fan power cable to J2 on the Power Supply (CGG2).
31. To install the DUP cover, hold the cover over the chassis and connect the ID SELECTOR cable to the Disk Module. (See Figure 10.24-1 through 10.24-4 .) The ID cable must be restrained to the CGG2 power supply board using a small cable tie, keeping the cable away from the fan. (See Figure 10.24-6 .) Route the fan cable away from the chassis screw tab and fan to avoid pinching. Place the cover over the DUP chassis.
32. Replace the two screws on each side and one screw from top (rear center) of the DUP.

**Results:** SCSI disk module replaced.
33. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

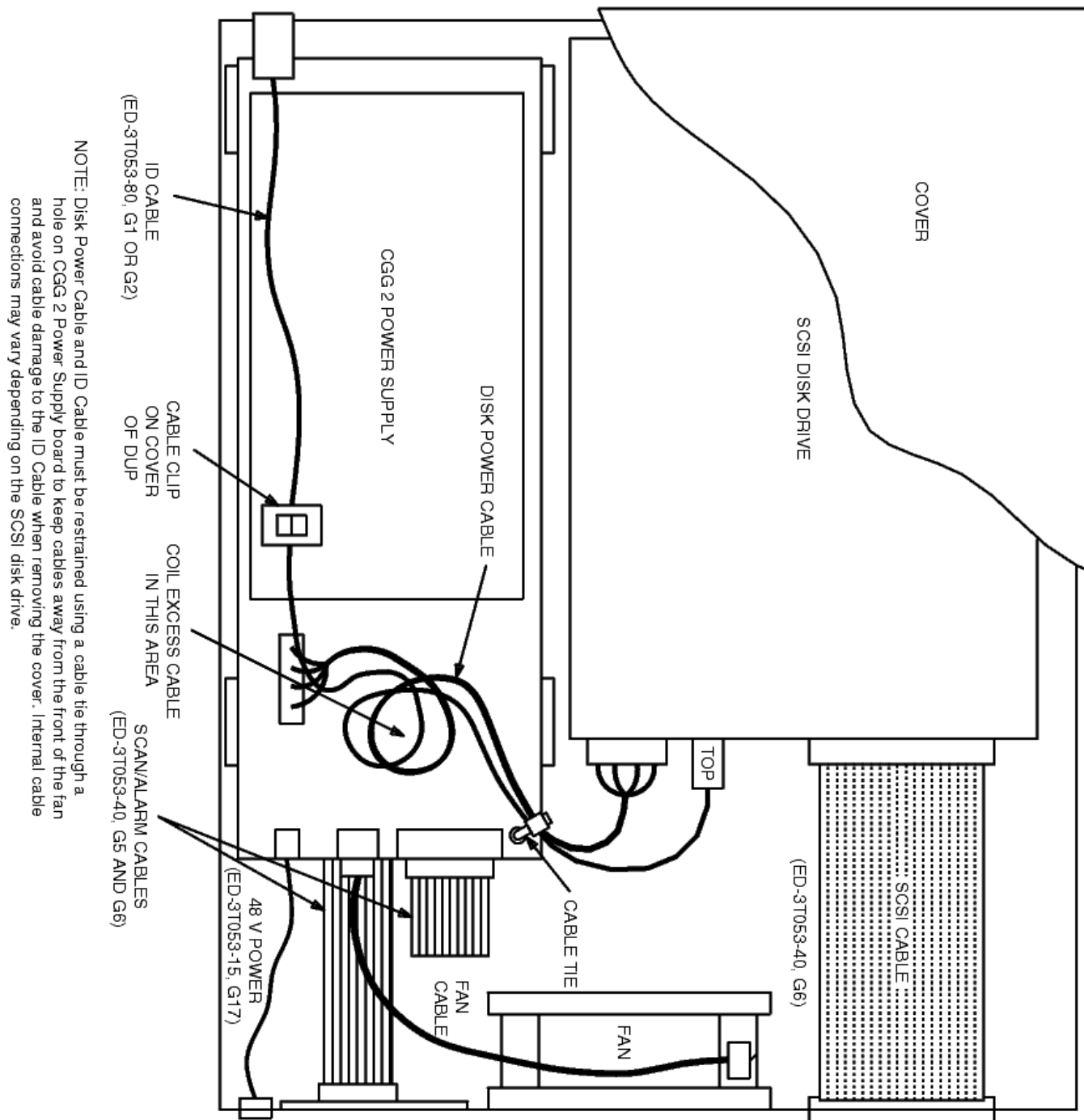


Figure 10.24-6 Top View of DUP (Showing Internal Cabling)

## **Procedure 10.25: VERIFY SM DISK FILES WITH OFF-LINE BOOT**

### **PROCEDURE**

1. Refer to Off-Line Boot Procedure in System Recovery — 235-105-250.

## **11. MISCELLANEOUS ROUTINE PROCEDURES**

### **General**

This section contains detailed procedures that apply throughout the 5ESS®-2000 switch and are not covered in other sections. All activation procedures are located in Section 14 and Section 15 .

**Procedure 11.1: SELECT AND PREPARE TERMINAL FOR RC/V ACTIVITIES****PROCEDURE**

1. Is master control center (MCC) or recent change and verify (RC/V) terminal to be used?

If **MCC**, continue with Step 2.

If **RC/V**, proceed to Step 9.

2. At MCC, place terminal into command mode.

3. Is RC/V view displayed?

If **YES**, go to Step 5.

If **NO**, continue with next Step.

4. Type and enter command **196**.

Response: RC/V view is displayed with cursor at **PRINT OPTION**.

5. Type and enter **n**

Response: Cursor at **DETAIL OPTION**.

6. Type and enter **n**

Response: Cursor at **VERBOSE OPTION**.

7. Type and enter **y**

Response: **RECENT CHANGE AND VERIFY CLASSES** page is displayed.

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

8. At RC/V terminal, type and enter:

**RCV:MENU:DATA,APPRC**

Response: **RECENT CHANGE AND VERIFY CLASSES** page is displayed.

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.2: RECORD ANNOUNCEMENTS USING HANDSET—13A RECORDED ANNOUNCEMENT SYSTEM

### PROCEDURE

1. At 13A recorded announcement unit (13A unit) front panel, connect handset (G3DR-61 or equivalent) to **HAND SET** jack on front panel. See Figure 11.2-1 .
2. At 13A unit, select message module to be recorded.
3. Is selected message module a variable message length (VML) type (UD4 or UD6)?  
If **YES**, continue with Step 4.  
If **NO**, do Step 5.
4. At selected message module, set **MESS. LENGTH ADJ.** switch to maximum length. See Figure 11.2-1 .
5. Notify test/repair service or customer that selected channel will be out of service.
6. At selected message module, set **CHANNEL ACCESS** switch to **ACCESS** position. See Figure 11.2-1 .  
Response: **CHANNEL ACCESS** LED lights.
7. At **UD3** or **UD3B** timing and control circuit pack, depress and release **RECORD** switch. See Figure 11.2-1 .  
Response: Red **REQUEST RECORD** LED lights.
8. Using handset, start recording immediately when green **RECORD** LED comes on.  
**NOTE:** Recording must be completed within the maximum time established per message module type (24 seconds for **UD4** and 12 seconds for **UD5** and **UD6**). Recording period is over when green **RECORD** LED goes out. Announcement recorded using a handset must be recorded again using prerecorded tape to restore the original announcement to the system, a prerecorded tape of the original announcement must be used to record over any announcement made with a handset.
9. Using handset, monitor recorded announcement when recording ends.
10. Is recorded announcement of satisfactory quality?  
If **YES**, do Step 15.  
If **NO**, continue with Step 11.
11. At **UD3** or **UD3B**, depress and release **RECORD** switch.  
Response: Red **REQUEST RECORD** LED lights.
12. Start repeat recording immediately when green **RECORD** LED comes on.
13. Using handset, monitor recorded announcement when recording ends.

14. Is recorded announcement of satisfactory quality?  
If **YES**, continue with Step 15.  
If **NO**, **seek technical assistance**.
15. Is selected message module **UD4** or **UD6** type?  
If **YES**, continue with Step 16.  
If **NO**, do Step 17.
16. At selected message module, adjust **MESS. LENGTH ADJ.** switch for minimum silence between end and beginning of recorded announcement. See Figure 11.2-1 .
17. Notify test/repair service or customer that selected channel is back in service.
18. At selected message module, set **CHANNEL ACCESS** switch to **NOR** position.  
Response: **CHANNEL ACCESS** LED goes off.
19. Have all message modules selected for recording in this 13A unit been recorded?  
If **YES**, continue with Step 20.  
If **NO**, do Step 2.
20. At 13A announcement front panel, remove handset from **HAND SET** jack.



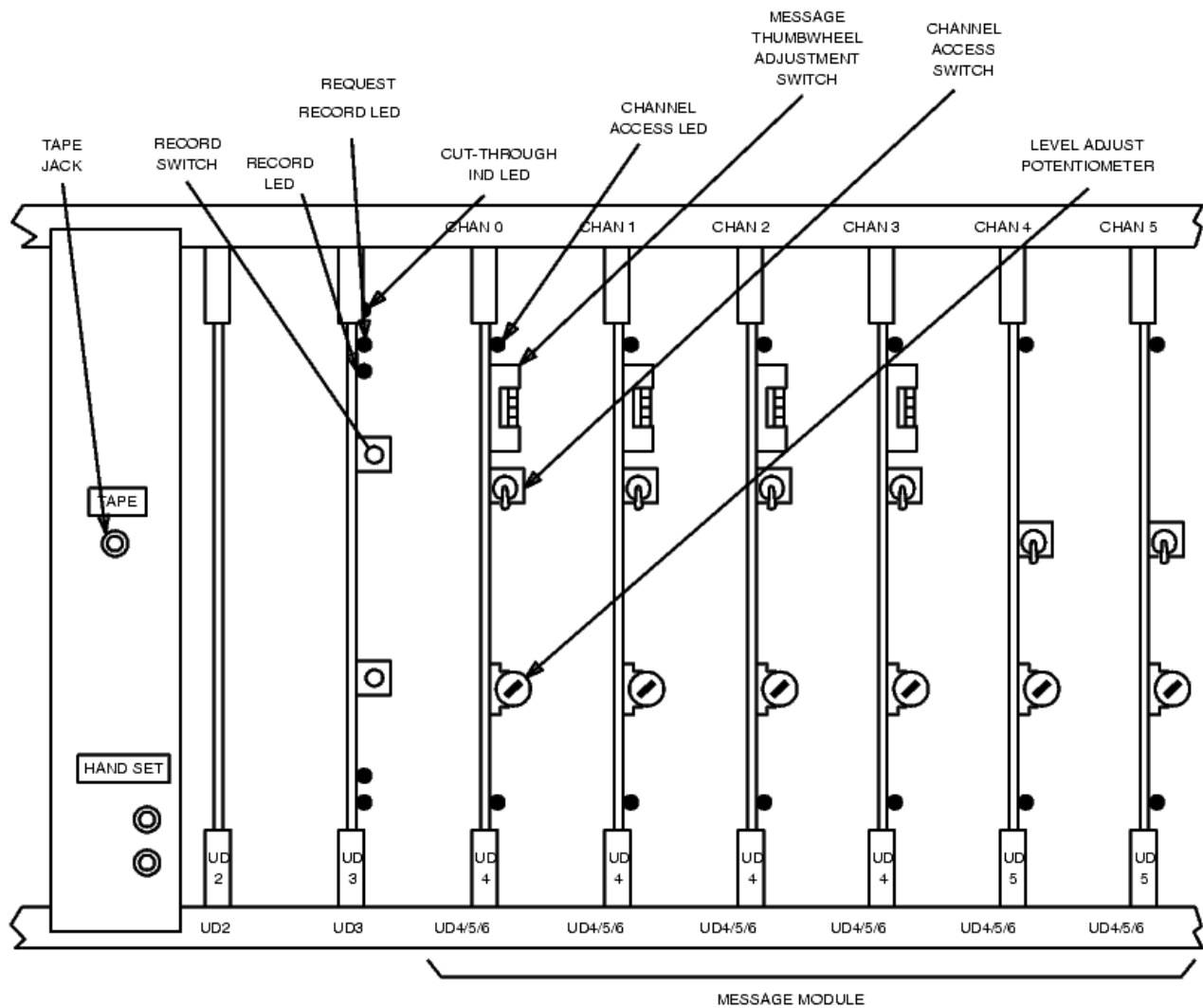


Figure 11.2-1 13A Recorded Announcement System - Message Modules

21. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

## Procedure 11.3: RECORD ANNOUNCEMENTS USING TAPE—13A RECORDED ANNOUNCEMENT SYSTEM

### PROCEDURE

1. At 13A recorded announcement unit (13A unit) front panel, connect tape recorder to **TAPE** jack with patch cord. See Figure 11.2-1 .
2. **Note:** Length of recorded announcement must be within the maximum time established per message module (24 seconds for **UD4** and 12 seconds for **UD5** and **UD6**).

Load tape recorder with appropriate prerecorded announcement tape, as required.

3. At 13A unit, select message module to be recorded.
4. At selected message module, set **CHANNEL ACCESS** switch to **ACCESS** position.

Response: **CHANNEL ACCESS** LED lights.

5. Is selected message module a variable message length (VML) type (UD4 or UD6)?

If **YES**, continue with Step 6.

If **NO**, go to Step 7.

6. At selected message module, verify that the **MESS LENGTH ADJ.** switch is set to maximum message length. See Figure 11.2-1 .
7. Notify test/repair service or customer that selected channel will be out of service.
8. **CAUTION:** Avoid using a handset with tape recorder since this can cause undesirable background noise to be recorded.

At **UD3** or **UD3B** timing and control circuit pack, depress and release **RECORD** switch. See Figure 11.2-1 .

Response: Red **REQUEST RECORD** LED lights.

9. Using tape recorder, start recording immediately when green **RECORD** LED lights.
10. **Note:** Recording period is over when green **RECORD** LED goes out.  
At 13A Recorded Announcement front panel, after recording ends, connect handset (G3DR-61 or equivalent) into **HAND SET** jack. See Figure 11.2-1 .

11. Using handset, monitor recorded announcement.
12. Is recorded announcement of satisfactory quality?

If **YES**, go to Step 20.

If **NO**, continue with Step 13.

13. At 13A unit front panel, remove handset from **HAND SET** jack.

14. Check tape recorder output.
15. At **UD3** or **UD3B** circuit pack, depress **RECORD** switch. See Figure 11.2-1 .  
Response: Red **REQUEST RECORD** LED lights.
16. Using tape recorder, start repeat recording immediately when green **RECORD** LED lights.
17. **Note:** Recording period is over when green **RECORD** LED goes out.  
At 13A unit, after recording ends, connect handset into **HAND SET** jack.  
See Figure 11.2-1 .
18. Using handset, monitor recorded announcement.
19. Is recorded announcement of satisfactory quality?  
If **YES**, continue with Step 20.  
If **NO**, **seek technical assistance**.
20. Is selected message module VML type?  
If **YES**, continue with Step 21.  
If **NO**, go to Step 22.
21. At selected message module, adjust **MESS. LENGTH ADJ.** switch for minimum silence between end and beginning of recorded announcement.
22. At selected message module, set **CHANNEL ACCESS** switch to **NORMAL** position.  
Response: **CHANNEL ACCESS** LED goes out.
23. Disconnect handset from **HAND SET** jack.
24. Notify test/repair service or customer that selected channel is back in service.
25. Have all message modules selected for testing in this 13A unit been recorded?  
If **YES**, continue with Step 26.  
If **NO**, go to Step 2.
26. Disconnect tape recorder from **TAPE** jack.
27. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.4: OSPS INTERFLOW MAINTENANCE B-CHANNEL LOOPBACK TEST

### OVERVIEW

This procedure provides for B-channel loopback testing between two integrated services digital network (ISDN) switching modules (SMs). This test is part of the Operator Services Position System (OSPS) interflow maintenance capability. B-channel loopback tests are the only craft-initiated test logic provided by this capability.

Performing B-channel path verification and performance tests shall be allowed under two configurable test approaches: interactive digital testing (IDT) and automatic digital testing (ADT). Each of these test approaches will implement a loopback test from switch to switch. The IDT and ADT will be allowed to originate from OSPS-a only. The operator trouble reports (OTRs) will provide the trunk group and member number of the extended digital subscriber line (EDSL) involved in a call in addition to the usual information.

**NOTE:** It is required that a B-channel path verification test leave the status of the B-channels under test as they are encountered. In other words, if the trunk is in-service when the test begins, it will be restored to in-service when the test is complete. If the trunk is out-of-service (OOS) when the test begins, it will be left OOS at the end of the test.

### PROCEDURE

1. There are two B-channel test procedures which may be performed:
  - IDT may be performed by doing Steps 2 through 6.
  - ADT may be performed by doing Steps 7 through 10.
2. At the trunk and line work station (TLWS) video terminal, if (assigned) test position is not currently accessed, access it by entering the TLWS poke command (CMD) **16x**. A message will be generated on the receive-only printer (ROP) indicating that a position has been seized.
3. From screen 4000,2 enter either poke CMD **4102** or **4104** to seize control of an OSPS-EDSL B-channel. A message will be printed on the screen indicating that the trunk has been seized.
4. From screen 5000,2 enter poke CMD **5033** to request an interactive loopback test on the selected B-channel(s). Results will be displayed on the TLWS screen as per normal interactive loopback testing.
5. When the test is completed, either terminate the test by entering the input message **STP:TST** or entering the poke CMD **5999**.
6. If no further testing is needed on the trunk, release the trunk by entering the poke CMD **4999**.

#### **STOP. YOU HAVE COMPLETED THE IDT PORTION OF THIS PROCEDURE.**

7. At the TLWS video terminal, if (assigned) test position is not currently accessed, access it by entering the TLWS poke CMD **16x**. A message will be generated on the ROP indicating that a position has been seized.
8. From screen 4000,2 enter either poke CMD **4102** or **4104** to seize control of an OSPS-EDSL B-channel. A message will be printed on the screen indicating that the trunk has been seized.
9. From screen 5400,1 request an automatic loopback test on a B-channel which is traffic busy using poke CMD **5405**, **5406**, or **5407**. This test will run for a specified duration and print results on the ROP.

10. Verify that when the current traffic busy condition on the specified B-channel is removed, the B-channel is seized and the test results are reported on the ROP, and the B-channel is returned to its previous state once the automatic test has completed.
11. **STOP. YOU HAVE COMPLETED THE ADT PORTION OF THIS PROCEDURE.**

## Procedure 11.5: CONVERSION PROCEDURE TO ANS<sup>®</sup> STANDARD U LINE CARDS

### OVERVIEW

**CAUTION:** While conversion is in progress the subscriber's line will be out of service.

Steps 1 through 38 are procedures for converting an AMI U or T line card to an ANS<sup>®</sup> standard U line card. Steps 39 through 45 are for converting an integrated services line unit (ISLU) Z line card to an ANS<sup>®</sup> standard U digital subscriber line (DSL) line card.

These steps specify how to change one AMI or T line card. If more than one AMI or T card is to be replaced, repeat Steps 2 through 9 for each card after the initial conditions are met for Steps 10 through 28. Once all the cards have been replaced, continue with the appropriate starting step (Steps 10, 14, or 22). Steps 29 through 38 cannot use Steps 1 through 9.

### PROCEDURE

1. Find an unassigned line card, of the same type, in the same switching module (SM) as the line card to be replaced. If there are no unassigned line cards of the same type, go to Step 10.
2. Remove the line card to be replaced from service by using the **RMV:ISLULC** input message.
3. Move the line or DSL assigned to the line card to be replaced, to the unassigned line card. For an AMI U or T line card use the Digital Subscriber Line view (View 23.2), specifying the TN of the line and set association (ASSOC) field to **A**, as the keys. Then update the following fields:
  - (1) Change the DSL OE (5E6-field 10) to the OE of the unassigned line card.
  - (2) Null (tick) out the DPIDB (5E6-field 24).
  - (3) Null (tick) out the TS (5E6-field 25).
  - (4) Null (tick) out the QTR TS (5E6-field 26).
4. Use the degrowth procedure (View 22.7) to delete the line card to be replaced.  
 Reference:     **T Line Card Degrowth — 235-105-331**  
                   **U Line Card Degrowth — 235-105-331**
5. Replace the line card with the ANS<sup>®</sup> line card.
6. Use the growth procedure (View 22.7) to insert the ANS<sup>®</sup> U line card in the slot where the old line card had just been removed.  
 Reference:     **235-105-231**
7. Move the line or DSL assignment, moved to the unassigned line card, back to the ANS<sup>®</sup> U line card. Use the Digital Subscriber Line view (View 23.2) and specify the TN and ASSOC keys, then update the following fields:
  - (1) Change the DSL OE (5E6-field 10) to the OE of the unassigned AMI line card.

- (2) Change the BRI TYPE (5E6-field 17) to *ANSI*<sup>®</sup>.
- (3) Null (tick) out the DPIDB (5E6-field 24).
- (4) Null (tick) out the TS (5E6-field 25).
- (5) Null (tick) out the QTR TS (5E6-field 26).
- (6) (optional) Change the PM GRP (5E6-field 18) to the appropriate group for an *ANSI*<sup>®</sup> U line card.

- 8. Restore the *ANSI*<sup>®</sup> line card to service using the **RST:ISLULC** input message.
- 9. At this point, the line card should be in-service, but the logical line may not. To determine this, use the **OP:STATUS,DN=...**; input message. The line may be out of service because the network termination (NT1) is missing or is the wrong type for the *ANSI*<sup>®</sup> U line card just installed.

Steps 10 through 13 are for any unequipped line card.

- 10. Find an unequipped line card (empty slot) in the same SM. If one cannot be found, go to Step 14.
- 11. Grow in a line card of the same type as the one to be replaced and then make the line card state operational (refer to 235-105-231, *Hardware Change Procedures — Growth*). The physical line card is not required to be installed.
- 12. Do Steps 2 through 9 and return to Step 13.
- 13. (optional) Degrow the line card previously grown (refer to 235-105-331, *Hardware Change Procedures — Degrowth*).

Steps 14 through 21 are for an equipped and unassigned line card of any type.

- 14. Find an equipped and unassigned line card of any type. If one cannot be found, go to Step 22.
- 15. Degrow the unassigned line card.
- 16. Replace or remove the line card equipped.
- 17. Grow in the line card of the type needed, and make the line card state operational. A line card of the type grown in need not be physically installed.
- 18. Do Steps 2 through 9, and return to Step 19.
- 19. (optional) Degrow the line card previously grown in and grow in the line card type that was originally specified for this line card position (refer to 235-105-331, *Hardware Change Procedures — Degrowth*).
- 20. (optional) If the original line card had been removed or replaced, replace it.
- 21. Leave the line card unassigned.

Steps 22 through 28 are for a designated ``spare."`

- 22. Find a line card, in positions 15 or 31 of an LGC, that is designated as a ``spare" and is in stand-by (STBY). If there are no stand-by ``spare" cards, go to Step 29.
- 23. First remove the ``spare" line card from service.

24. Record the line assignment and then delete the line assignment on the ``spare" card.
25. If the ``spare" line card type matches the line card type needed, go to Step 27. If not, degrow the ``spare" line card.
26. Grow in the line card type needed in the same slot using View 22.7 and make the line card state operational (refer to 235-105-231, *Hardware Change Procedures — Growth*).
27. Do Steps 2 through 9, and return to Step 28.
28. If the ``spare" line card's type was changed, replace it by degrowing the line card previously grown in and growing in the old ``spare" line card type.

Steps 29 through 38 are for *no* ``unassigned," ``unequipped," ``equipped and unassigned," or designated ``spare."

29. If there is no ``unassigned," ``unequipped," ``equipped and unassigned," or designated ``spare" in the stand-by state, do the following.
30. Record the line assignment on the line card to be replaced.
31. Remove the line card from service via the **RMV:ISLULC** input message.
32. Delete the line assignment on this card.
33. Degrow the line card (refer to 235-105-331, *Hardware Change Procedures — Degrowth*).
34. Replace line card with *ANSI*® line card.
35. Grow in the *ANSI*® line card and make it operational (refer to 235-105-231, *Hardware Change Procedures — Growth*).
36. Assign the line previously deleted.
37. Restore the *ANSI*® line card to service using the **RST:ISLULC** input message.
38. At this point, the line card should be in service, but the logical line may not be in service. To determine this, use the **OP:STATUS,DN=...**; input message. The line may be out of service because the network termination (NT1) is missing or is the wrong type for the *ANSI*® U line card just installed.

Steps 39 through 45 are for converting an ISLU Z line card to an *ANSI*® standard U (DSL) line card.

39. To convert an assigned ISLU Z line card to an *ANSI*® U line card, use the following steps.
40. Using View 1.1 or 1.2, print off the line data so it can be used later, and then delete the line assignment.
41. Remove the Z line card from service via the **RMV:ISLULC** input message then, using View 22.7, degrow the Z line card (refer to 235-105-331, *Hardware Change Procedures — Degrowth*).
42. Replace the Z line card with the *ANSI*® U line card.
43. Again using View 22.7, grow in the *ANSI*® U line card in the same position as that held by the Z line card.
44. Restore the line card to service.



45. Through View 23.2, assign the TN and appropriate features to the *ANSI*® U line card. The office equipment number will be the same as that used by the Z line card.
46. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.6: PERFORM CONVERSION FROM ACD/OSPS RISLU TO ERISLU

### OVERVIEW

These procedures provide the steps necessary to convert an automatic call distribution (ACD) Operator Service Position System (OSPS) based remote integrated services line unit (RISLU) (or ACD/OSPS RISLU), to an enhanced RISLU (ERISLU). To save time and limit customer service interruption, the ACD/OSPS RISLU will not have to be degrown. **The conversion, however, will cause customer service interruption.** It is recommended that the conversion take place during a low-traffic period (that is, late evening or a weekend) and only one ACD/OSPS RISLU should be converted during the period. Routine Exercises (REX) should be inhibited to prevent interference during conversion. In addition, automatic data base reorganization and automatic ODD backup should also be inhibited during the conversion to prevent any incompatible data base activity. Current office dependent data (ODD) should be saved (via backup) before the start of the conversion procedure.

The *downtime* is defined as the time from removal of the last DFI-RH until the completion of the SM full initialization. The average time estimates of the ACD/OSPS RISLU to ERISLU conversion procedure are as follows:

- RC/V update for view 22.9 = 3 minutes.
- RC/V review for view 22.9 = 1 minute.
- SM full initialization without pump = 10 minutes.

The average downtime estimates are as follows:

- The average downtime for services being provided by the converting ACD/OSPS RISLU is 14 minutes.
- The average downtime for services being provided by the SM, but not by the converting ACD/OSPS RISLU, is 10 minutes.

### PROCEDURE

#### 11.6.1 Identify the ACD/OSPS RISLU for Conversion

1. Identify the switching module (SM) number associated with the conversion ACD/OSPS RISLU.

The ACD/OSPS RISLU is an OSPS-based RISLU that is equipped with a 7516 terminal and does not have ports with OA\_TAOPER (OSPS directory assistance) service class.

**NOTE:** Only ACD/OSPS RISLU to ERISLU conversion is supported in these procedures.

#### 11.6.2 Advance Preparations

1. Prior to converting an ACD/OSPS RISLU to ERISLU, special attention must be paid to the current configuration and equipage of the ACD/OSPS RISLU.

If the ACD/OSPS RISLU's CD configuration is ROSPS (CONFIG field of RC/V view 22.9), then Section 11.6.2.1 (ROSPS CD Configuration) must be consulted.

If the ACD/OSPS RISLU's CD configuration is SPROSPS, then Sections 11.6.2.2, 11.6.2.3, and 11.6.2.4 must be consulted so that the additional 24 time slots required (as the spare facility is made active) do not result in the over-engineering of TSIU time slots for the SM. Note that with SPROSPS CD configuration, existing DFI-RH pairs (including the spare) will be sufficient to handle the worst case scenario [when the

maximum number (144) of ACD/OSPS positions is assigned to the ACD/OSPS RISLU] from the DFI facilities perspective.

If the ACD/OSPS RISLU's DFI mode is FE (DFI MODE field of RC/V view 22.9), then Section 11.6.2.6 (PSU PIDB considerations) must be consulted prior to the conversion.

To be certain that no problems exist on ACD/OSPS RISLU prior to the conversion, diagnose all the equipped DFIHs and the RISLU (both CCs and CDs) circuit packs. ``All Tests Passed'' (ATP) results must be achieved before continuing.

Routine Exercises (REX) should be inhibited on the SM under conversion to prevent diagnostic interference with the conversion.

Back up the ODD on the SM under conversion to keep a copy of the most up-to-date ODD.

**CAUTION:** Recent Change procedures in this conversion cannot be backed out. Ensure that all aspects of the conversion have been completed prior to performing Recent Changes. All Transmission Equipment changes must be performed prior to changing RISLU DFI modes.

### 11.6.2.1 DFI-RH Facility Considerations - ROSPS CD Configuration

1. The North America DS-1 digital transmission facility (DFI-RH pair) with OSPS DFI mode (FE8Z or FE) at maximum occupancy can support 18 ACD/OSPS positions. With the ERISLU, however, each facility can support a maximum of only 17 or 16 ACD/OSPS positions when the DFI mode is B8ZS (clear channel) or ZCS (non-clear channel), respectively.
2. Since each DFI-RH pair with ROSPS (no spare facility) or SPROSPS (with spare facility) configuration has more capacity (can support more ACD/OSPS positions) than a DFIRH pair with RACTSTBY configuration, any ACD/OSPS RISLU to be converted that has the CONFIG attribute of ROSPS (RC/V 22.9) may need to add one additional DFI H2/R2 pair prior to the conversion to prevent traffic blocking after the conversion is completed.
3. For example, if the ACD/OSPS RISLU (CONFIG=ROSPS) has 72 ACD/OSPS positions with 4 DFI-RH pairs (18×4) and the DFI mode is FE (that is, the new DFI mode is ZCS), then another DFIRH pair must be added or 8 ACD/OSPS [72-(16×4)] positions must be reassigned (to another RISLU or unassigned from the converting RISLU) prior to the conversion.
4. Similarly, if the ACD/OSPS RISLU (CONFIG=ROSPS) has 72 ACD/OSPS positions with 4 DFI-RH pairs (18×4) and the DFI mode is FE8Z (that is, the new DFI mode is B8ZS), then another DFIRH pair must be added or 4 ACD/OSPS [72-(17×4)] positions must be reassigned (to another RISLU or unassigned from the converting RISLU) prior to the conversion.
5. Table 11.6-1 summarizes the maximum number of ACD/OSPS positions versus the number of active DFI facilities for each type of RISLU involved in the conversion.

**Table 11.6-1 Maximum Number of ACD/OSPS Positions**

NUMBER OF ACTIVE FACILITIES	MAX POSITIONS FOR ACD/OSPS RISLU	MAX POSITIONS FOR ERISLU WITH B8ZS DFI MODE	MAX POSITIONS FOR ERISLU WITH ZCS DFI MODE
2	36	34	32
3	54	51	48
4	72	68	64
5	90	85	80
6	108	102	96
7	126	119	112
8	144 (max)	136	128
9	-	153	144

10	-	170	160
11	-	187	176
12	-	200 (max) <sup>a</sup>	192 (max)
<b>Notes:</b>			
a. The maximum number of ACD/OSPS positions per SM is 200.			

### 11.6.2.2 SPROSPS CD Configuration

1. The host SM does not allocate time slots (24 per facility) to the spare facility of an ACD/OSPS RISLU. After the conversion, however, the spare facility will require time slots, as it will be made active. For example, if the ACD/OSPS RISLU currently has 5 facilities (including one spare), in the TSIU of the host SM, 96 time slots are assigned to the RISLU. After the conversion, 120 time slots are required to support the 5 active facilities in the ERISLU. The 24 time slots allocated will be counted against the TSIU time slot total. If the TSIU time slot total is exhausted for any other reason, reengineering of the PSU TSIU time slot and/or the RISLU is required or call blocking will result.

### 11.6.2.3 DFI-Hs Stuffing Patterns

1. The DFI-Hs stuffing patterns are assigned by the system during the conversion update of CD configuration and DFI mode (RC/V 22.9). The assignment will be based on existing distribution of patterns of DFIs connected to the converting RISLU's DI. The spare DFI-H of the SPROSPS RISLU, however, does not require reserved pattern prior to the conversion, and when made active, could result in RC/V 22.9 update failure due to lack of available time slots for any valid pattern. In this case, the spare DFI-H must be unassigned, or the TSIU time slot distribution must be reengineered.

### 11.6.2.4 TSIU Peripheral Side Considerations

1. ACD/OSPS positions D-channel (one per position) traffic is routed to the Packet Switch Unit (PSU) across the 32-time-slot Peripheral Interface Data Bus (PIDB). Each D-channel is a 16-kb/s channel. Four D-channels can be multiplexed by the RISLU onto a single time slot (TS); however, RISLUs which have been remoted via non-clear channel (ZCS) facilities do not have the full use of the 64-kb/s DS0 channel. For non-clear channel facility, the RISLU multiplexes 3 D-channels per time slot.

If the current (preconversion) transmission mode for the DFI facilities is FE, thus requiring ZCS as the new DFI mode, additional reserved DI PSU TSIU TSs, or reassignment of existing ACD/OSPS positions, may be necessary prior to the ACD/OSPS RISLU to ERISLU conversion.

The RISLU's LCs and their relations to the PSU PIDB can be found under RC/V view 22.19 (STATUS OF PSU PIDBs FOR RISLU ASSIGNMENT).

### 11.6.2.5 Assignment of Additional DI PSU TSIU Time Slots

1. Moving a port(s) from one full time slot to an empty time slot would also require that the number of reserved time slots (nail up) to the connecting DI is sufficient to handle the additional nail up.

The assignment of additional reserved DI PSU TSIU time slots is the customer's responsibility and can be performed using RC/V 22.2 for field DI0 PSU TSIU TIMESLOTS or DI1 PSU TSIU TIMESLOTS, respectively. DI number [0-1] must be the same for all ACD/OSPS RISLU DFIs and is populated under the DI field of RC/V view 22.9.

### 11.6.2.6 PSU PIDB Considerations

1. This section is applicable only when the current DFI MODE is FE [indicating that current facility has 56 Kbps (non-clear) hardware mode]. The predictability of OSPS traffic combined with special OSPS position set hardware allowed the use of four quarter time slot with minimum retransmission due to bad frames. However,

after the conversion, with the diverse ISDN traffic, the use of four quarter time slots on a 56 Kbps facility cannot be supported since study has shown that retransmission would happen on almost every transmitted frame. This change impacts the usage and allocation of PSIUPIDB time slots and results in the reduction of the number of ACD/OSPS positions supported per PSU shelf after the conversion.

For example, each PSIUPIDB can supported up to 128 (32 X 4) D-channels in OSPS configuration with DFI MODE of FE. However, after the RISLU conversion, the maximum number of D-channels per PSIUPIDB is 96 (32 X 3).

If the current DFI MODE is FE, where only three quarters of a time slot is used after the conversion, some ports may have to be degrown in order for the conversion to be successful. Ports that were degrown prior to the conversion may be reinserted after the conversion providing there are available TSIU peripheral side and/or PSU time slots to handle the ports.

#### 11.6.2.7 PSU Time Slots Data Collection

1. **NOTE:** Not all data collected in this section will be used, but it is needed for debugging in case of a conversion failure.
2. The following are directions on how to collect pertinent PSU time slots data.
  - Get the total number of ACD/OSPS positions served by the RISLU to be converted.
  - Dump and collect the ODBE version of rITSCOUNT of the SM using the SM number as key. Note that this is an AM relation.
  - Using batch review (br) and collect the ODBE version of rPSIUPIDB for each equipped PSU shelf for the SM.
  - Do a batch review (br) and collect the output of rIDGRP\_RI for all equipped PSU shelf.
  - Dump and collect the ODBE version of rIDSLGDATA using the PH DSL group number as key.
  - From RC/V 22.9, write down the following fields for the ACD/OSPS RISLU to be converted:
    - CONFIG
    - DFI MODE
    - DI (ROW 1)
  - At MCC page 145x,SM# where x is the DLTURH number: Write down the total number of DFIs for the converting RISLU including the spare DFI (if one exists).

#### 11.6.2.8 Pre-Conversion

1. The following steps can be done prior to the conversion as part of the advance preparation:
  - Recent Changes cannot be backed out. Ensure that all elements of the conversion are complete prior to updating data through Recent Change. Ensure all Transmission Equipment has been properly updated to support the new DFI mode.
  - Verify that there are available PSU time slots to support the total number of ACD/OSPS positions after the conversion by checking the rIDGRP\_RI's content for each equipped PSU shelf that ports from the converting RISLU are assigned to.

For RISLU using DFI with FE mode, the maximum number of ports per PSU shelf is 96. This number includes all packet switch ports beside ACD/OSPS positions.

- Identify time slots which are currently assigned to the RISLU by reviewing RC/V 22.19 where LU field indicates the RISLU unit number to be converted.

The total number of fully assigned time slots for the RISLU (RC/V 22.19 ST field indicates F) must be less than or equal to the number of empty (or unused) time slots (RC/V 22.19 ST field indicates N) on the same PSU shelf. If the total number of fully assigned time slots is greater than the number of empty time slots, then ONE port from each of the FULL time slots must be degrown or deleted until the number of FULL time slots is equal to the number of empty time slots (by checking with RC/V 22.19 after each port is deleted) prior to the conversion.

The previous action would greatly reduce the chance of failure when updating RC/V view 22.9 during the RISLU conversion.

Table 11.6-2 summarizes the previous discussion.

**Table 11.6-2 Summary of Reassignment of ACD/OSPS Positions**

CURRENT DFI MODE	REQUIRED NEW DFI MODE	NUMBER OF FULL TS	NUMBER OF EMPTY TS	ACTION REQUIRED	NUMBER OF PORTS AFFECTED
FE8Z	B8ZS	-	-	No	-
FE	ZCS	0	-	No	-
FE	ZCS	5	6	No	-
FE	ZCS	6	6	No	-
FE	ZCS	X	≥X	No	-
FE	ZCS	6	5	Yes	1
FE	ZCS	12	5	Yes	7
FE	ZCS	32 (Max)	0	Yes	32

**NOTE:** At most, only ONE port belonging to each fully assigned time slot (time slot with ST field equals to F for the PSU shelf in RC/V view 22.19) of the ACD/OSPS RISLU to be converted, will need to be degrown per PSIUPIDB time slot.

The removed ports can be reinserted to the same RISLU after the conversion providing that there are available empty or partially full time slots on the PSIUPIDB (by reading relation rIDGRP\_RI again).

### 11.6.2.9 Post-Conversion

- If some ports were degrown prior to the conversion, the following steps may be used to reinsert the ports after a successful conversion providing that the PSU time slot pool is not exhausted.

**NOTE:** The reinsert work may include physical hardware movement of RISLU LCs to other positions.

#### (A) Time Slot Available Verifications

Collect the "post-conversion" PSU time slots data using Section 11.65.2.2.3. The following restrictions must be met before degrown ports can be re-inserted. If the data indicates otherwise, hardware addition (PSU shelf or PH) may be needed to add more RISLU port.

For 5E9(1) and 5E9(2) software releases:

- Verify that (PSIUPIDB.sh\_ts\_nailup - PSIUPIDB.rpa\_ts) is less than 32.

- Verify that RLtscount.rislu\_Xp (where X is the shelf number) is less than 32.

For 5E10 and later releases:

- Verify that (PSIUPIDB.shts\_diX - PSIUPIDB.rpa\_ts) is less than 32 (where X is the DI (0 or 1) number from RC/V 22.9).

**NOTE:** For software releases prior to 5E10, only 1 PSIUPIDB tuple per PSU shelf. For 5E10 and later, however, up to four tuples per shelf exist, care must be taken to determine the correct PSU PIDB that the new port is to be reinserted.

#### (B) ISLU LCs and Port Reinsertion Requirements

For each identified time slots with a status of empty (RC/V 22.19 ST field indicates N) or partially full with one or two empty quarter time slots (RC/V 22.19 ST field indicates P1 or P2), (one or more ports (maximum of three) can be added with the following conditions:

- The LC that the new port is assigned to must belong to the same LU (RISLU unit number) as existing port(s) of the same time slot (RC/V 23.2 OE field).
- The LC that the new port is assigned to must belong to the same RISLU LGC as existing port(s) of the same time slot (RC/V 23.2 OE field).
- The new port must belong to the same PH channel group (DSL GRP) as existing port(s) of the same time slot (RC/V 23.2 ISCN field).

If all time slot status (field ST of RC/V 22.19 for the PSU shelf) are marked as F or XT, new hardware (PSU shelf or PH) is required in order for adding any new port.

Additional PSU shelf (pre 5E10 software release) or PH (5E10 and later if the PSU shelf is equipped with DF-MP pack) hardware may be needed to handle existing number of ACD/OSPS positions. For 5E9(1) and 5E9(2) software releases, where the DF pack is the only choice for PSU shelf, only one PSIUPIDB can be used to handle RISLU D-channels. For 5E10 and later software releases, if the PSU shelf is equipped with DF-MP (Data Fanout - Multiple PIDB) pack, up to four PSIUPIDBs (versus one PSIUPIDB if equipped with the DF pack) can be used for RISLU per PSU shelf which increase the capability to handle more RISLU D-channel per PSU shelf.

For information regarding RISLU traffic engineering and time-slot calculation, consult 235-099-187NP, *5ESS®-2000 Switch RISLU Network Planning Document*, and 235-060-120, *5ESS®-2000 Switch Engineering Procedures*.

**NOTE:** The TELCO is responsible for ensuring that the RISLU to be converted is actually an ACD/OSPS RISLU.

### 11.6.3 Verify and Set Initial Conditions

1. At Master Control Center (MCC), observe the Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, enter the following message:

CMD: **OP:SYSSTAT;**

3. At MCC, enter the following message:

CMD: **OP:OFFNORM,SM=x;**

Where: x = SM number.

**NOTE:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this ACD/OSPS RISLU conversion procedure. Correct all deficiencies as required.

4. At MCC, enter the following message:

CMD: **INH:REX,SM=x;**

Where: x = SM number

Response: **OK**

5. At MCC, enter the following message:

CMD: **OP:REXINH;**

Response: The inhibit status for REX will be printed. Verify this printout.

6. At MCC, enter the following message:

CMD: **BKUP:ODD,AM,NRODD=x;**

Where: x = SM number

Response: **BKUP ODD FULL AM COMPLETED**

#### 11.6.4 Allow Peripheral Fault Recovery Messages to be Printed

1. **NOTE:** The following command allows the message for the units to be printed on the ROP. They are also sent to the logfile unless the LOG=OFF option is used.

2. At MCC, enter the following message:

CMD: **CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

3. At MCC, enter the following message:

CMD: **SET:PERPH,SM=x,VERBOSE;**

Where: x = SM number

4. At MCC, enter the following message:

CMD: **INH:BREVC,SM=x;**

Where: x = SM number



### 11.6.5 Remove all Equipped DFI-H1s and DFI-H2s from Service

1. At MCC, enter the following message:

CMD: **RMV:DFIH=x-y-z,ucl;**

Where: x = SM number  
y = DLTU number  
z = DFIH number.

**CAUTION:** With all DFI-H1s and DFI-H2s removed from service, the ACD/OSPS RISLU is duplex failed. This will result in loss of call processing on the ACD/OSPS RISLU under conversion.

### 11.6.6 Change RISLU Configuration and DFI Mode

**CAUTION:** Recent Changes cannot be backed out.

1. At the RC/V terminal in RECENT CHANGE mode, go to the RISLU Common Equipment view (22.9), selecting the UPDATE operation.
2. Enter the RISLU key attributes (\* = key attribute; # = required attribute).
3. Change CONFIG attribute from ROSPS or SPROSPS to RACTSTBY.
4. Change DFI MODE attribute. If current DFI MODE attribute is ``FE'', then the new DFI MODE attribute must be ``ZCS''. If current DFI MODE attribute is ``FE8Z'', then the new DFI MODE attribute must be ``B8ZS''.
5. Update the view into the data base.
6. Exit the RISLU Common Equipment view.

### 11.6.7 Recovery

1. The most likely time for failure during the conversion is the recent change view 22.9 transaction. If view 22.9 fails, appropriate action should be taken to investigate and correct errors given by the RC/V failure message(s). If error correction required reassignment or unassignment of ports, the conversion activities should cease, and all OOS DFIRHs must be unconditionally restored back to service. Once all affected ports are reassigned, the conversion can be restarted.

The following list gives some possible failures and suggested recovery actions when converting using RC/V view 22.9 (the error will be shown in *italics* and followed by the recovery action).

- *Invalid update of DFI mode attribute* - Appropriate DFI MODE must be entered. If the current mode is FE then the new DFI mode must be ZCS. Likewise, if the current mode is FE8Z, then the new DFI mode must be B8ZS.
- *Invalid update of CONFIG attribute* - The CONFIG field is allowed to change from ROSPS or SPROSPS to RACTSTBY only.
- *All DFIs must be OOS prior to updating DFI mode* - Go to the DLTU page (145X) and remove all equipped DFIs for this ACD/OSPS RISLU.
- *Cannot reassign dport X due to lack of reserved DI Y PSU TSIU timeslots* - Assign more reserved DI Y PSU TSIU TSs using RC/V 22.2u or reassign dport X to other PSU shelf or another RISLU.

- *Cannot assign pattern to DFI Y due to lack of available timeslots* - Unassign one DFI-H2 using RC/V, then continue with the conversion. The unassigned DFI-H2s can be added after reengineering the DI TS usage. The previously mentioned DFI-H2s can also be connected to the other DI (if possible).

If the recent change failed due to system resources error, repeat the recent change input again and, if that fails again, exit the recent change completely to allow AUDIT to clean up and enter recent change to repeat the transaction again. If for some reason, a recent change view 22.9 update repeatedly fails, unconditionally restore all OOS DFI-Hs back to service (to bring the RISLU back to the preconversion status) then contact the appropriate Lucent Technologies Customer Support organization.

If after the SM full initialization and all RISLU circuits (DFI-RH, CC CD) are OOS and cannot be restored individually, or calls cannot be completed, seek technical assistance.

### 11.6.8 Verify RISLU Configuration and DFI Mode

1. At the RC/V Terminal in RECENT CHANGE mode, go to the RISLU Common Equipment view (22.9), selecting the REVIEW operation.
2. Verify the CONFIG attribute is set to RACTSTBY.
3. Verify DFI MODE attribute as ZCS or B8ZS.
4. Correct any errors using RC/V terminal in the update mode.
5. Exit the RISLU Common Equipment view.

### 11.6.9 Initialize the SM

1. Various software relations and attributes plus dynamic data required to initialize the ERISLU must be updated prior to restoring the ERISLU. This is done by executing a full initialization without pump on the SM in question.

**CAUTION:** A full initialization without pump will cause a service interruption to all customers being served by the SM.

At the MCC, execute a full initialization without pump by entering the following message:

CMD:            **INIT:SM=x,FI;**

Where:        x = SM number

The converted ERISLU will automatically be restored to service at the completion of the SM full initialization.

### 11.6.10 Diagnose the DFI-Hs and ERISLU

#### 11.6.10.1 Diagnose the DFI-Hs

1. At the completion of the SM full initialization, diagnose all equipped DFI-Hs and the ERISLU's CCs and CDs (one at a time).

**NOTE:** The restore command will automatically remove, diagnose, and restore the specified unit.

2. At MCC, to unconditionally remove the DFI-H, type and enter the following messages:

CMD: **RMV:DFIH=x-y-z,ucl;**

Where: x = SM number  
y = DLTU number  
z = DFIH number

At the MCC, enter the following message:

CMD: **RST:DFIH=x-y-z;**

Where: x = SM number  
y = DLTU number  
z = DFIH number

**NOTE:** Repeat command to diagnose all the equipped DFI-Hs on the newly converted ERISLU.

#### 11.6.10.2 Diagnose the ERISLU CCs

1. At MCC, enter the following message:

CMD: **RST:ISLUCC=x-y-0;**

Where: x = SM number  
y = RISLU number

At MCC, enter the following message:

CMD: **RST:ISLUCC=x-y-1;**

Where: x = SM number  
y = RISLU number

#### 11.6.10.3 Diagnose the ERISLU CDs

1. At MCC, enter the following message:

CMD: **RST:ISLUCD=x-y-0;**

Where: x = SM number  
y = RISLU number

At MCC, enter the following message:

CMD: **RST:ISLUCD=x-y-1;**

Where: x = SM number  
y = RISLU number

#### 11.6.11 Verify Call Processing and Alarm Operation

1. Verify call processing and alarm operations

### 11.6.11.1 Verify Call Processing

1. Verify call-processing operation of the converted ERISLU by routing a call through one of the ERISLU ACD/OSPS positions to ensure that the call can be set up and taken down.

### 11.6.11.2 Verify the Remote Alarm Section (RAS) In-Service Status (if Equipped)

1. At MCC, enter the following poke:

Poke: **1420,sZ**

Where: Z = RISLU site number.

### 11.6.12 Completion of the Conversion Procedure

1. All DFI-Hs and ERISLU units are in service.

#### 11.6.12.1 Back Up the ODD

1. At this time, the ODD may be backed up in this SM and in the AM, which will make the Recent Changes permanent.

At MCC, enter the following message:

CMD: **BKUP:ODD,AM,NRODD=x;**

Where: x = SM number.

#### 11.6.12.2 Allow Brevity Control

1. At MCC, entering the following message:

CMD: **ALW:BREVC,SM=x;**

Where: x = SM number

#### 11.6.12.3 Clear PFR Verbose Mode

1. AT MCC, enter the following message:

CMD: **CLR:PERPH,SM=x,VERBOSE;**

Where: x = SM number

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.7: IMPLEMENT 108-TYPE TEST LINE CAPABILITIES OF ISTF/GDSF

### OVERVIEW

The 5ESS<sup>®</sup>-2000 switch can provide a digital-circuit loopback and transmit capability to test digital trunks, and this procedure describes its implementation.

#### ***The ISTF/GDSF Loop-back Function***

The digital service unit-2 (DSU2) integrated services test function (ISTF) and global digital services function (GDSF) provides a 5ESS-2000 switch integrated services digital network (ISDN) peripheral unit support for transmission testing of interoffice digital trunks and basic-rate interfaces through the use of a pseudo-random number (PRN) bit pattern. The ISTF is physically located on the DSU2 shelf in "loaded" switching modules. The GDSF is physically located on the DSU3 in switching module (SM)/switching module-2000(SM-2000) and CSU.

**NOTE:** Effective with the 5E8 software release, the ISTF is also available in a "basic" and "standard" SM as well as a "loaded" SM.

Each DSU2 shelf can have up to four ISTF units. An SM-2000 can have 32 GDSFs while an SM can have only one GDSF. Two types of services are provided by the ISTF/GDSF:

- Transmit pseudo-random number bit pattern
- Digital loopback of the bits received.

The transmit service consists of a *send* side and a *receive* side. The send side generates an 11-bit shift register PRN which has been recommended by the CCITT for digital testing. It expects a far-end device to loop back the bits so the receive side can tell if any bits were altered during transmission. The ISTF can perform up to three simultaneous transmit services. A GDSF is able to change configurations to provide circuits for the support of transmit services. The number of GDSF digital transmit circuits determine the number of transmit services simultaneously performed.

The loopback service also consists of a receive side and a send side. It takes the bits from the input channel and places them on the output channel. The service provides two options: *inverting* and *noninverting*. The *noninverting* option copies the bits from the input channel directly to the output channel. The *inverting* option changes the polarity of each bit. For example, an input bit that is a "1" is placed on the output channel as a "0". Each ISTF unit can perform up to 31 simultaneous loopback services. A GDSF is able to change configurations to provide circuits to support loopback services. The number of GDSF digital loopback circuits determine the number of loopback services simultaneously performed.

The noninverting domestic 5ESS-2000 switch loopback test line for ISDN trunking meets the functional requirements announced in the ANS<sup>®</sup> standard T1.206-1988 (Digital Exchanges and PBXs - Digital Circuit Loop-back Test Line). The ANS/ standard designates the test line as a 108-type test line.

The 5ESS-2000 switch 108-type test line deviates in one minor detail from the ANS<sup>®</sup> standard in that timeout is currently fixed at 1 hour (in the event the caller fails to disconnect), whereas the ANS<sup>®</sup> specification calls for a time-out period that can be set by the operating company.

#### ***108-Type Test Line Access***

Currently, only 7-digit access is provided. The North American Numbering Plan recommends "959" as the NXX for end-office testing. Bellcore TR-476 recommends 959-1080 as the directory number.

## PROCEDURE

1. For ISTF/GDSF loopback function feature implementation, go to Step 2.  
For ISTF/GDSF transmit function feature implementation, go to Step 9.  
For verifying feature implementation, go to Step 14.
2. ISTF/GDSF Loopback Feature Implementation  
  
The recent changes required to implement the *inverting* and *noninverting* loopback function of this feature are described as follows.
3. Use recent change view 5.1 (TRUNK GROUP) to define the trunk-group characteristics. The significant attributes and their respective values are as follows:
  - TGN = (The loopback trunk group)
  - TRK DIR = LTP
  - HUNT TYPE = FIFO
  - TRK CLASS = LTPISTFL
  - RMK = ISTF LOOP
  - INPLS = NOSIGNAL
  - OUTPLS = NOSIGNAL
  - VPA TYPE = NOVPA
  - CCS7 TYPE = RBOC.
4. Use recent change view 5.5 (TRUNK MEMBER) to define the trunk-member characteristics. The significant attributes and their respective values are as follows:
  - TGN = (The loopback trunk group)
  - MEMB NBR = 0
  - QTY = 1
  - EN = P XXXXXXXX (where X is the logical port).
5. Define the fixed route on recent change view 10.1 (FIXED ROUTE). The significant attributes and their respective values are as follows:
  - TRMT = ISTFLB
  - RTI = (Route Index of the loopback function).
6. Use recent change view 10.2 (ROUTE INDEX) to define the route index that points to the trunk group with the ISTFLB function. The significant attributes and their respective values are as follows:
  - RTI = (RTI value from RC/V 10.1)

- TGN = (The Loopback Trunk Group)
  - SIG PRO = TRAD.
7. Use recent change view 1.5 (PBX-DID LINE) to insert the telephone number that will be associated with the *noninverting* option. The significant attributes and their respective values are as follows:
- LCC = TST
  - RTI = (RTI value from RC/V 10.1)
  - TSTCODE = NINV.
8. Use recent change view 1.5 (PBX-DID LINE) to insert the telephone number that will be associated with the *inverting* option. The significant attributes and their respective values are as follows:
- LCC = TST
  - RTI = (RTI value from RC/V 10.1)
  - TSTCODE = INV.

This concludes the *ISTF/GDSF LOOPBACK FUNCTION FEATURE IMPLEMENTATION* portion of this procedure.

9. ISTF/GDSF Transmit Function Feature Implementation

The recent changes required to implement the transmit function of this feature are described as follows.

10. Use recent change view 5.1 (TRUNK GROUP) to define the trunk group characteristics. The significant attributes and their respective values are as follows:
- TGN = (The transmit trunk group)
  - TRK DIR = LTP
  - HUNT TYPE = FIFO
  - TRK CLASS = LTPISTFX
  - RMK = ISTF XMTR
  - INPLS = NOSIGNAL
  - OUTPLS = NOSIGNAL
  - VPA TYPE = NOVPA
  - CCS7 TYPE = RBOC.
11. Use recent change view 5.5 (TRUNK MEMBER) to define the trunk member characteristics. The significant attributes and their respective values are as follows:

- TGN = (The transmit trunk group)
  - MEMB NBR = 0
  - QTY = 1
  - EN = P XXXXXXXX (where X is the logical port).
12. Define the fixed route on recent change view 10.1 (FIXED ROUTE). The significant attributes and their respective values are as follows:
- TRMT = ISTFXMIT
  - RTI = (Route Index of the transmit function).
13. Use recent change view 10.2 (ROUTE INDEX) to define the route index that points to the trunk group with the transmit function. The significant attributes and their respective values are as follows:
- RTI = (The RTI value from RC/V 10.1)
  - TGN = (The transmit Trunk Group)
  - SIG PRO = TRAD.

This concludes the *ISTF/GDSF TRANSMIT FUNCTION FEATURE IMPLEMENTATION* portion of this procedure.

14. Verifying Feature Implementation

If verifying *loopback* operation, go to Step 15.

If verifying *transmit* operation, go to Step 24.

15. Verifying Loopback Operation

There are two ways to verify the operation of the ISTF/GDSF loopback feature. One way is to place an interoffice call to the 108-type test line which has the inverting option; the squelch of the data stream should be clearly audible. A second method is through the use of a trunk and line work station (TLWS) test position at a far-end office.

16. At TLWS, Access Page 160 (5E8) or 161,x (5E9 and later) and seize a TLWS test position (x = test position).
17. At TLWS, access Page 4000,2 (SEIZE TRUNK/INCOMING CALL).
18. To seize a trunk, at TLWS, enter the following poke:

CMD: **4102,X,Y**

Where: X = GRP (Outgoing trunk group to office with 108-type test-line)  
Y = MEM (Trunk group member).

19. At TLWS, access Page 5000,1 (TRANSMISSION).
20. To specify the digits to output, enter the following poke:



CMD:           **4401,X**

Where:         X = (directory number of inverting test line).

21. At TLWS, access Page 5000,2 (TRANSMISSION).
22. To specify digital trunk loopback testing, enter the following poke:

CMD:           **5033,X,Y**

Where:         X = LBKINV (Termination type)  
                Y = BLKSZ (Data block size, 1-64000).

23. The system displays the status of the test session in the lower right-hand corner of the page. The display should resemble the following:

ELAPSED =       Elapsed Time

BLKSZ =          Data block size (1 through 64000)

BER =            0.0 E - 0 (see Note)

ERBLK =          0.0 E 0 (see Note).

**NOTE:** **OOR NO SYNCH** implies a failure to connect with the 108-type test line, or a connection to the wrong port of the 108-type test line (that is, you outputted the *noninverting* test number, but then requested the *inverting* test).

24. Verifying Transmit Operation

To verify the operation of the transmit function, repeat Steps 16 through 23 at a TLWS in the central office where the 108-type test line is being installed.

**NOTE:** MCC Page 1110,x, ISTF displays a dynamic count of the number of ISTF services and channels currently available and in use.

25. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.8: DUMP AMA BLOCK TO RECEIVE-ONLY PRINTER

### OVERVIEW

This procedure explains how to dump the three disk blocks, corresponding to a given AMA block, to the receive-only printer (ROP). (At the point where the sequence number is found, the **OP:AMA:SEQ,BLK=x;** can be used to output the contents of the AMA sequence number block. This command applies to all generics for 5E8 and later. Immediately after the point where the sequence number and associated partitions are known, this command will output all blocks on each stream that is equipped associated with the associated partitions more than one block may have the same sequence number - possible since the sequence number is reset once 999999 is reached. If more than one sequence number block is listed, the associated partition will also be listed). Although there is a simple equation that can be used in certain situations, the simple equation does not cover all cases. Therefore, this procedure uses general equations which can be applied to all situations.

Since primary data does not necessarily start at the beginning of a partition and data *wraparound* can occur (that is, primary data at both the beginning and end of a partition, with secondary data in between), this procedure is rather complicated. Two examples of the most common usage are provided after the procedure (the simple equation is used where possible).

The problem is to find the disk blocks associated with a given sequence number (SN) on a given stream.

### PROCEDURE

1. At the master control center (MCC), type and enter the following command:

**OP:AMA:MAPS,a;**

Where:        **a** = ST1 if AMA data goes to the ST1 data stream.  
                  **a** = ST2 if AMA data goes to the ST2 data stream.

Response:    **REPT AMA DISK MAPS FOR STREAM a**  
                  **WRITE PARTITION b READ PARTITION c**  
                  **PARTITION d DISK MAP:**  
                  **FPO: e LPO: f FPS: g LPS: h**  
                  **FSO: i LSO: j FSS: k LSS: l**  
                  **FBO: m        LBO: n        FBS: o LBS: p**

Where:        **a** = Data stream ST1 or ST2.  
                  **b** = Partition number in which the disk writer will write AMA data.  
                  **c** = Partition number from which AMA data will be taken during a teleprocessing or tape session.  
                  **d** = Partition number from which the disk map is read.

**NOTE 1:** In the following information, *offsets* are measured in disk blocks from the beginning of the partition. Each disk block is 512 bytes in size.

**NOTE 2:** In the following information, *sequence numbers* are at the corresponding AMA block taken from the disk map. Each AMA block is 1536 bytes in size.

**Where:**

**e** = First primary offset (FPO).  
**f** = Last primary offset (LPO).

**g** = First primary sequence (FPS) number.  
**h** = Last primary sequence (LPS) number.  
**i** = First secondary offset (FSO).  
**j** = Last secondary offset (LSO).  
**k** = First secondary sequence (FSS) number.  
**l** = Last secondary sequence (LSS) number.  
**m** = First block offset (FBO).  
**n** = Last block offset (LBO).  
**o** = First block sequence (FBS) number.  
**p** = Last block sequence (LBS) number.

2. For a given data stream, it is sometimes possible to determine which partition the SN is in by simply looking at the partitions. If the partition containing the SN is known, proceed to Steps 3, 4, and 5 for just that partition. If not, execute Steps 3, 4, and 5 for all partitions listed in the OP:AMA-MAPS output for a data stream until either (1) the correct partition and block numbers are found or (2) the partitions are exhausted.
3. If the FSS is not equal to -1 and if the SN is greater than or equal to the FSS, proceed with this step. Otherwise, go to Step 4. If the SN is less than or equal to both the LSS and LBS, the *primary wraparound* condition exists (LSO greater than or equal to the FSO). If the SN is less than or equal to both the LSS and LBS, the *secondary wraparound* condition exists (LPO greater than or equal to the FPO).

Perform the following calculations:

$$\begin{aligned}
 BN &= 3 \times [((FSO - 3)/3) + (SN - FSS)] + 3 \\
 BN1 &= BN + 1 \\
 BN2 &= BN + 2
 \end{aligned}$$

**NOTE:** Write down the partition for which this is true; call it *PART*.

4. If the FPS is not equal to -1 and if the SN is greater than or equal to the FPS, proceed with this step. Otherwise, go to Step 5. If the SN is less than or equal to either the LPS or LBS, the *secondary wraparound* condition exists (LPO greater than or equal to the FPO). If the SN is less than or equal to both the LPS and LBS, the *primary wraparound* condition exists (LSO greater than or equal to the FSO).

Perform the following calculations:

$$\begin{aligned}
 BN &= 3 \times [((FPO - 3)/3) + (SN - FPS)] + 3 \\
 BN1 &= BN + 1 \\
 BN2 &= BN + 2
 \end{aligned}$$

**NOTE:** Write down the partition for which this is true; call it *PART*.

5. If the FBS is not equal to -1 if the SN is greater than or equal to the FBS, and if the SN is less than or equal to the *larger* of the LPS or LSS, then the associated disk block numbers are determined by performing the following calculations:

$$\begin{aligned}
 BN &= 3 \times [((FBO - 3)/3) + (SN - FBS)] + 3 \\
 BN1 &= BN + 1 \\
 BN2 &= BN + 2
 \end{aligned}$$

**NOTE 1:** Write down the partition for which this is true; call it *PART*.

**NOTE 2:** This partition has no wraparound of primary data, and the FPO=6; therefore, the simplified calculations mentioned in Step 5, Note 2, do apply:

The following equation will apply to *primary* data on a partition which has *primary* data with no wraparound of *primary* data, and an FPO value of 6. (There could be wraparound of *secondary* data in the partition, and it is being assumed that the partition on which the SN appears has already been determined.)

$$\begin{aligned} \text{BN} &= 3 \times [\text{SN} - \text{FPS}] + 6 \\ \text{BN1} &= \text{BN} + 1 \\ \text{BN2} &= \text{BN} + 2 \end{aligned}$$

The following equation will apply to *secondary* data on a partition which has *secondary* data with no wraparound of *secondary* data, and an FSO value of 6. (There could be wraparound of *primary* data in the partition, and it is being assumed that the partition on which the SN appears has already been determined.)

$$\begin{aligned} \text{BN} &= 3 \times [\text{SN} - \text{FSS}] + 6 \\ \text{BN1} &= \text{BN} + 1 \\ \text{BN2} &= \text{BN} + 2 \end{aligned}$$

There is no wraparound of *primary data* if the LPO is greater than or equal to the FPO. There is no wraparound of *secondary data* if the LSO is greater than or equal to the FSO.

The following steps explain how to dump the disk blocks.

6. Was there a partition number (recorded as *PART*) found from Steps 3, 4, or 5?

If **YES**, then enter **OP:AMA:SEQ,BLK=SN**; or continue with Step 7. (**OP:AMA:SEQ,BLK=SN** will output all AMA Block Sequence Numbers that have the specified sequence number SN, on all applicable partitions and all streams).

If **NO**, then the SN was not found and there are **no corresponding disk blocks**.

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

7. Is this a *SIMPLEX* or *DUPLEX* office environment?

If **SIMPLEX**, go to Step 8.

If **DUPLEX**, go to Step 9.

8. At MCC, type and enter the following command:

**DUMP:MHD=a:VTOC;**

Where: **a** = Member number (0 through 255) (same as *PART* determined in Steps 3, 4, or 5).

Response: **DUMP MHD a VTOC STARTED**  
**[DUMP MHD a VTOC IN PROGRESS]**  
**DUMP MHD a VTOC SEGMENT d OF e**  
**PTN START END SIZE DESCRIPTION**  
**f g h i j [+k]**  
**DUMP MHD a VTOC COMPLETED**

Where: **a** = MHD number (0 through 255) (same as *PART* determined in Step 3, 4, or 5).

**d** = Segment number (32 partitions per segment).  
**e** = Total number of segments.  
**f** = Disk logical partition number.  
**g** = Starting disk block number of the indicated partition.  
**h** = Ending (inclusive) disk block number of the indicated partition.  
**i** = Size, in 512-byte blocks, of the indicated partition.  
**j** = Describes the partition. [Unresolved values are printed in hexadecimal and indicate whether the partition is a *UNIX*<sup>®</sup> system real-time reliable (RTR)-defined system real-time reliable (RTR)-defined value or an application-defined value.]  
**k** = Indicates the modifier(s) applied to the specific partition definition.

If the number *PART* is an *even* number, record the starting disk block number (**START**) for partition (PTN)

**41**. If the number *PART* is an *odd* number, record the starting disk block number (**START**) for PTN **42**.

9. Is the number *PART* an *odd* number or an *even* number?

If **ODD**, continue with Step 10.

If **EVEN**, go to Step 11.

10. If the number *PART* is *odd*, perform the following calculations:

MHDX = PART - 1  
 MHDY = PART

At MCC, type and enter the following two commands, using MHDX in one and MHDY in the other:

**DUMP:MHD=x,VTOC;**  
**DUMP:MHD=y,VTOC;**

Where:        **x** = MHDX (from previous calculation).  
                  **y** = MHDY (from previous calculation).

Only one of the two command lines will produce an output. Whichever command line that produces output indicates the correct MHD value to use in Step 13.

Response:     **DUMP MHD a VTOC STARTED**  
                  **[DUMP MHD a VTOC IN PROGRESS]**  
                  **DUMP MHD a VTOC SEGMENT d OF e**  
                  **PTN START END SIZE DESCRIPTION**  
                  **f        g        h        i        j [+k]**  
                  **DUMP MHD a VTOC COMPLETED**

Where:        **a** = MHD number (0 through 255) (same as *PART* determined in Step 3, 4, or 5).  
                  **d** = Segment number (32 partitions per segment).  
                  **e** = Total number of segments.  
                  **f** = Disk logical partition number.  
                  **g** = Starting disk block number of the indicated partition.  
                  **h** = Ending (inclusive) disk block number of the indicated partition.  
                  **i** = Size, in 512-byte blocks, of the indicated partition.  
                  **j** = Describes the partition. (Unresolved values are printed in hexadecimal and indicate whether the partition is a *UNIX*<sup>®</sup> system RTR-defined value or an application-defined value.)

**k** = Indicates the modifier(s) applied to the specific partition definition.

Record the starting disk block number (**START**) for PTN **41**. This is the *even* partition.

Go to Step 12.

11. If the number *PART* is *even*, perform the following calculations:

$$\begin{aligned} \text{MHDX} &= \text{PART} + 1 \\ \text{MHDY} &= \text{PART} \end{aligned}$$

At MCC, type and enter the following two commands, using MHDX in one and MHDY in the other:

**DUMP:MHD=x,VTOC;**  
**DUMP:MHD=y,VTOC;**

Where:        **x** = MHDX (from previous calculation).  
               **y** = MHDY (from previous calculation).

Only one of the two command lines will produce an output. Whichever command line that produces output indicates the correct MHD value to use in Step 13.

Response:     **DUMP MHD a VTOC STARTED**  
                   **[DUMP MHD a VTOC IN PROGRESS]**  
                   **DUMP MHD a VTOC SEGMENT d OF e**  
                   **PTN START END SIZE DESCRIPTION**  
                   **f        g     h     i     j [+k]**  
                   **DUMP MHD a VTOC COMPLETED**

Where:        **a** = MHD number (0 through 255) (same as *PART* determined in Step 3, 4, or 5).  
                   **d** = Segment number (32 partitions per segment).  
                   **e** = Total number of segments.  
                   **f** = Disk logical partition number.  
                   **g** = Starting disk block number of the indicated partition.  
                   **h** = Ending (inclusive) disk block number of the indicated partition.  
                   **i** = Size, in 512-byte blocks, of the indicated partition.  
                   **j** = Describes the partition. (Unresolved values are printed in hexadecimal and indicate whether the partition is a *UNIX*® system RTR-defined value or an application-defined value.)

**k** = Indicates the modifier(s) applied to the specific partition definition.

Record the starting disk block number (**START**) for PTN **42**. This is the *odd* partition.

12. Using the values for *BN*, *BN1*, and *BN2* calculated in Step 3, 4, or 5, and the value for *START* determined in Step 10 or 11, calculate and record the value of *TOTOFFSET1* and *TOTOFFSET2* as follows:

$$\begin{aligned} \text{TOTOFFSET1} &= \text{START} + \text{BN} \\ \text{TOTOFFSET2} &= \text{START} + \text{BN2} \end{aligned}$$

13. The disk blocks associated with the original SN can now be printed out. At the MCC, type and enter the following command:

**DUMP:MHD=a:BLOCK=b&&c,DEST=ROP;**

Where:        **a** = MHDX or MHDY from Step 10 or 11.  
               **b** = TOTOFFSET1 from Step 12.  
               **c** = TOTOFFSET2 from Step 12.

Response:     **DUMP MHD a BLOCK STARTED**  
                   **DATA FOR DISK BLOCK d**  
                   **e**  
                   **DUMP MHD a BLOCK COMPLETED**

Where:        **a** = MHD Member number (0 through 255).  
               **d** = Identifies the disk block which is being dumped.  
               **e** = Data contained in the specified disk block (printed in row major order, hexadecimal notation).

#### 14. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

Given: SN = 6000, duplex end office.

(Step 1) Typical output from OP:AMA-MAPS input message.

```

REPT AMA DISK MAPS FOR STREAM a
WRITE PARTITION b READ PARTITION c
PARTITION 0 DISK MAP:
FPO:      6 LPO:  33234 FPS:      1 LPS:  11077
FSO:     -1 LSO:   -1 FSS:     -1 LSS:   -1
FBO:      6 LBO:  33234 FBS:      1 LBS:  11077

```

(Step 3) FSS is equal to -1, therefore the SN does not meet the criteria of Step 3.

(Step 4) The FPS is not equal to -1. The SN is 6000 which is greater than or equal to the FPS (FPS equals 1). The SN is less than or equal to the LPS [LPS equals 11077 (must be less than or equal to one of LPS or LBS)]. Therefore, the SN meets the criteria of Step 4.

$$BN = 3 \times [((FPO - 3)/3) + (SN - FPS)] + 3$$

$$BN = 3 \times [((6 - 3)/3) + (6000 - 1)] + 3$$

$$BN = 3 \times [1 + 5999] + 3$$

$$BN = 3 \times [6000] + 3$$

$$BN = 18003$$

So,

$$BN = 18003,$$

$$BN1 = BN + 1 = 18004, \text{ and}$$

$$BN2 = BN + 2 = 18005$$

(Step 5, Note 2) This partition has no wraparound of primary data, and the FPO = 6; therefore, the simplified calculations mentioned in Step 5, Note 2, do apply.

$$BN = 3 \times [SN - FPS] + 6$$

$$BN = 3 \times [6000 - 1] + 6$$

$$BN = 3 \times [5999] + 6$$

$$BN = 18003$$

So,

$$BN = 18003,$$

$$BN1 = BN + 1 = 18004, \text{ and}$$

$BN2 = BN + 2 = 18005]$ .

(Steps 9, 10, and 11) Following is the information about the volume table of contents (VTOC). (Since this is partition 0, the corresponding MHDs are MHD 0 and MHD 1). Using the even MHD=0, look at the output for partition 41 in the response of the following input message:

**DUMP:MHD=0:VTOC;**

```
S0D7-1507420 91-04-20 22:06:18 002895 DSKUTL H1 J6.2-CM1
M dump:mhd=0:vtoc; PF
PTN      START      END      SIZE
  41      500139    520788    20650
```

(Step 12) Thus **START** = 500139, so the values of *TOTOFFSET1* and *TOTOFFSET2* are as follows:

$TOTOFFSET1 = START + BN = 500139 + 18003 = 518142$ .

$TOTOFFSET2 = START + BN2 = 500139 + 18005 = 518144$ .

Therefore, the command to enter to get the information about the three disk blocks corresponding to the SN 6000 is as follows:

**DUMP:MHD=0:BLOCK=518142&&518144,DEST=ROP;**

#### Exhibit 11.8-1 Example 1

Given: SN = 12000, duplex end office.

(Step 1) Typical output from OP:AMA-MAPS input message.

```
REPT AMA DISK MAPS FOR STREAM a
WRITE PARTITION b READ PARTITION c
PARTITION 0 DISK MAP:
FPO:      36 LPO:  18003      FPS:  11088 LPS:  17077
FSO:  18006 LSO:    33      FSS:   1001 LSS:  11087
FBO:      6 LBO:  33234      FBS:  11078 LBS:   6077
```

(Step 3) The FSS is not equal to -1 and the SN is 12000, which is greater than or equal to the FSS (which equals 1001). But, the SN is greater than the LSS which equals 11087 (recall that the SN must be less than or equal to both the LSS and LBS for this case). Therefore, the SN does not meet the criteria for Step 3.

(Step 4) The FPS is not equal to -1 and the SN is 12000, which is greater than or equal to the FPS (which equals 11088). The SN is less than or equal to the LPS, which is 17077 (must be less than or equal to either LPS or LBS). Therefore, the SN does meet the criteria for Step 4.

$BN = 3 \times [((FPO - 3)/3) + (SN - FPS)] + 3$

$BN = 3 \times [((36 - 3)/3) + (12000 - 11088)] + 3$

$BN = 3 \times [11 + 912] + 3$

$BN = 3 \times [923] + 3$

$BN = 2772$

So,

$BN = 2772,$

$BN1 = BN + 1 = 2773,$  and

$BN2 = BN + 2 = 2774$



(Step 5, Note 2) This partition has no wraparound of primary data, but the FPO = 36, which is not equal to 6; therefore, the simplified calculations mentioned in Step 5, Note 2, do not apply.

(Steps 9, 10, and 11) Following is the information about the volume table of contents (VTOC). (Since this is partition 0, the corresponding MHDs are MHD 0 and MHD 1). Using the even MHD=0, look at the output for partition 41 in the response of the following input message:

**DUMP:MHD=0:VTOC;**

```
S0D7-1507420 91-04-20 22:06:18 002895 DSKUTL H1 J6.2-CM1
M dump:mhd=0:vtoc; PF
PTN      START      END      SIZE
  41      500139    520788    20650
```

(Step 12) Thus **START** = 500139, so the values of *TOTOFFSET1* and *TOTOFFSET2* are as follows:

$TOTOFFSET1 = START + BN = 500139 + 2772 = 502911.$   
 $TOTOFFSET2 = START + BN2 = 500139 + 2774 = 502913.$

Therefore, the command to enter to get the information about the three disk blocks corresponding to the SN 12000 is as follows:

**DUMP:MHD=0:BLOCK=502911&&502913,DEST=ROP;Exhibit 11.8-2 Example 2**

## Procedure 11.9: DEGROW IDCU FACILITY —5E10 AND LATER

### PROCEDURE

1. Degrow IDCU Facility Degrowth —5E10 and Later

#### 11.9.1 Prepare Integrated Digital Carrier Unit (IDCU) Facilities for Degrowth

1. This procedure assumes that all of the ports associated with a PUB43801 integrated digital carrier unit (IDCU) facility are unassigned or that the remote terminal (RT) connected to the facility has been degrown. If they have not, then either remove the line assignments to the PUB43801 facilities or perform the appropriate degrowth procedures in this manual to effect these equipment degrowths.

#### 11.9.2 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a **SYS NORM** indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

Where: a = Switching module (SM) number.

Comment: Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during the IDCU facility (IFAC) degrowth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of the degrowth procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

Where: a = SM number of degrowth IFACs.

Response: **OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

Response: The inhibit status will be printed.  
Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

Responses: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.9.3 Allow Peripheral Fault-Recovery (PFR) Messages to Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TO BKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.9.4 Remove IFACs from Service

1. At MCC, for each IFAC being degrown, type and enter the following command:

**RMV:IFAC=a-b-c;**

Where: a = Switching Module (SM) number  
b = IDCU number  
c = IFAC number.

Response: **RMV IFAC a b c COMPLETED**

2. Repeat Step 1 for each IFAC being deleted.

### 11.9.5 Verify IFACS to be Degrown are OOS

1. At MCC, type and enter the following command:

**1870,y,x**

**Where:**

y = IDCU number  
x = SM number

### 11.9.6 Delete IFAC Data from Data Base

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. Type and enter **20.23**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. If all IFACs on a loop-side interface (LSI) are to be deleted, then continue with Step 4. Otherwise, go to Step 9.
4. Type and enter **D**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at **SM** attribute.

5. Using the completed work order Form 20.23 indicating which LSI is having all of its IFACs deleted, type and enter the indicated values for the following KEY attributes:

---

KEY ATTRIBUTES:

1. SM \_\_\_\_\_
2. IDCU \_\_\_\_\_
3. LSI \_\_\_\_\_

Response: System completes remainder of view.  
**Enter Delete, Change, Validate, Screen #, or Print:**

6. Verify data.

7. Type and enter **D**

Response: **deleting ....FORM DELETED  
FACILITY EQUIPMENT (IFAC)** page displayed with KEY attributes blank.

8. Continue this procedure at Step 23.

9. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

10. Using the completed work order Form 20.23 indicating what facilities are to be deleted, type and enter the indicated values for the following KEY attributes:

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

11. Type and enter **C**

Response: **Change Field:**

12. Type and enter **IFAC** or field number.

Response: **IFAC:            Row:**

13. Type and enter the row number of an IFAC being degrown.

Response: Cursor at EQSTAT attribute of an IFAC.

14. Type and enter **'**

Response: Cursor at PM GRP attribute of an IFAC.

15. Type and enter **'**

Response: Cursor at FACILITY ID attribute of an IFAC.

16. Type and enter **'**

Response: Cursor at SUP MTHD attribute of an IFAC.

17. Type and enter '

Response: Cursor at PUB43801 attribute of an IFAC.

18. Type and enter '

Response: **IFAC: Row:**

19. For each remaining IFAC to be degrown on this LSI, execute Steps 13 through 18. When no IFACs remain to be grown, continue with Step 20.

20. Hit CARRIAGE RETURN.

Response: **Change Field:**

21. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

22. Type and enter **U**

Response: **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

23. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.9.7 Verify IFAC Data

1. At the RC/V terminal, type and enter **23**

Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed.

3. Using the selected work order form as a guide, type and enter the indicated values for the following KEY attributes:

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

1. SM \_\_\_\_

Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. If all facilities on an LSI were deleted, **FORM NOT FOUND** will be returned. Otherwise, verify that data is consistent with work order Form 20.23.

Comment: Correct any errors using terminal in the update mode.

5. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter q

Response: **RCV-196 COMPLETED**

### 11.9.8 Delete IFACs On Other LSI

1. If required, repeat Sections **11.9.6** and **11.9.7** to delete the IFACs on the other LSI.

### 11.9.9 Remove DS1 Cross Connects

1. **TELCO or craft function.** Remove IFAC cross connects at DSX.

### 11.9.10 Verify Deleted IFACs at MCC

1. At MCC, type and enter the following command:

**1870,y,x**

**Where:**

y = IDCU number  
x = SM number.

**Response:** IFAC page is displayed.

2. Verify that degrown IFACs are no longer displayed.

### 11.9.11 Back Up Office-Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.9.12 Return Peripheral Fault Recovery (PFR) Message Printing from Backup

#### OVERVIEW

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

a = SM number.

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

### 11.9.13 Return Routine Exercises to Normal

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

Response: **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 11.10: GROW IDCU FACILITY —5E10 AND LATER

### OVERVIEW

The integrated digital carrier unit (IDCU) common hardware and the associated loop-side interface (LSI) must be operational before the IDCU Facilities (IFAC) may be grown in.

### PROCEDURE

1. Grow IDCU Facility Growth —5E10 and Later

#### 11.10.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this IFAC growth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this IFAC growth procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = Number of the SM growing IFACs.

**Response: OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.10.2 Allow Peripheral Fault Recovery (PFR) Messages to Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.10.3 Add IFACs Into Data Base

1. Select and prepare terminal for recent change and verify activities.

**Reference: Procedure 11.1**

2. Type and enter **20.23**

**Response: Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **I**

**Response:** **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4. Using the selected work order Form 20.23 as a guide, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- 1. SM \_\_\_\_\_
- 2. IDCU \_\_\_\_\_
- 3. LSI \_\_\_\_\_

5. What is cursor response?

If positioned at the first IFAC EQSTAT attribute, then go to Step 9.

If ``DUPLICATE FORM'', then continue with next Step.

6. Type and enter ^

**Response:** **ENTER DATA BASE OPERATION**  
**I=Insert, R=Review, U=Update, D=Delete:**

7. Type and enter U

**Response:** **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

8. Go to Step 12.

9. Using the selected work order form as a guide, type and enter the indicated values for each remaining attribute.

Type and enter a **G** for the EQSTAT attribute for each IFAC being grown.

**Response:** **Enter Insert, Change, Validate, Screen#, or Print:**

10. Type and enter I

**Response:** **inserting ....FORM INSERTED**  
**FACILITY EQUIPMENT (IFAC)** page displayed.

11. Go to Step 25.

12. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

13. Type and enter C

**Response:** **Change Field:**

14. Type and enter **IFAC** or field number.

Response:     **IFAC:   Row:**

15. Type and enter the row number of an IFAC being grown.

Response:     Cursor at EQSTAT attribute of an IFAC.

16. Type and enter **G**

Response:     Cursor at PM GRP attribute of an IFAC.

17. Type and enter data from the service order.

Response:     Cursor at FACILITY ID attribute of an IFAC.

18. Type and enter data from the service order.

Response:     Cursor at SUP MTHD attribute of an IFAC.

19. Type and enter data from service order.

Response:     Cursor at PUB43801 attribute of an IFAC.

20. Type and enter data from the service order.

Response:     **IFAC:   Row:**

21. For each remaining IFAC to be grown on this LSI, do Steps 15 through 20. When no IFACs remain to be grown, then continue with next Step.

22. Hit CARRIAGE RETURN.

Response:     **Change Field:**

23. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

24. Type and enter **U**

Response:     **updating ....FORM UPDATED**  
                 **FACILITY EQUIPMENT (IFAC)** page displayed.

25. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.10.4 Verify IFAC Data

1. At the RC/V terminal, type and enter **23**

Response:     **Enter Data Base Operation**  
                  **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for the following KEY attributes:

---

KEY ATTRIBUTES:

1. SM                \_\_\_\_\_  
2. IDCU             —  
3. LSI               —

Response:     System completes remainder of view.  
                  **Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the service order.

Comment:     Correct any errors using terminal in the update mode.

5. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter **q**

Response:     **RCV-196 COMPLETED**

#### 11.10.5 Grow IFACs On Other LSI

1. If required, repeat Sections **11.10.3** and **11.10.4** to grow the IFACs on the other LSI.

#### 11.10.6 Safe Stop Point

1.                **NOTE:** If the IFACs being grown are to be used to terminate a remote terminal (RT), then go to Section **11.10.13** . Making the IFACs operational and testing is part of the RT growth procedures.

Continue with Section **11.10.7** for IFACs which are being grown for use with PUB43801 terminations.

#### 11.10.7 Change IFACs to Operational

1. At the RC/V terminal, type and enter **20.23**

Response:     **Enter Data Base Operation**  
                  **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response:     **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Using the selected work order Form 20.23 as a guide, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | —     |
| 3. LSI  | —     |

Response:     System completes remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **C**

Response:     **Change Field:**

5. Type and enter **IFAC** or field number.

Response:     **IFAC:     Row:**

6. Type and enter row number of an IFAC being grown.

Response:     Cursor at EQSTAT attribute of an IFAC.

7. Type and enter **O**

Response:     Cursor at PM GRP attribute of an IFAC.

8. Hit CARRIAGE RETURN.

Response:     Cursor at FACILITY ID attribute of an IFAC.

9. Hit CARRIAGE RETURN.

Response:     Cursor at SUP MTHD attribute of an IFAC.

10. Hit CARRIAGE RETURN.

Response: Cursor at PUB43801 attribute of an IFAC.

11. Hit CARRIAGE RETURN.

Response: **IFAC: Row:**

12. For each remaining IFAC to be grown on this LSI, execute Steps 6 through 11. When no IFACs remain to be grown, then continue with next Step.

13. Hit CARRIAGE RETURN.

Response: **Change Field:**

14. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

15. Type and enter **U**

Response: **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

16. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.10.8 Verify Facility Data

1. At the RC/V terminal, type and enter **23**

Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Using the selected work order Form 20.23 as a guide, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the work order form.

Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed.

6. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### **11.10.9 Grow IFACs On Other LSI**

1. If required, repeat Sections **11.10.7** and **11.10.8** to grow the IFACs on the other LSI.

#### **11.10.10 Perform DS1 Cross Connects**

1. If the PUB43801 termination is not ready, loop it at the digital cross-connect frame (DSX). Otherwise, perform DS1 cross connects. This is a telephone company or craft function.

#### **11.10.11 Restore IFACs to Service**

1. At MCC, type and enter the following command:

**RST:IFAC=a-b-c;**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RST IFAC a b c COMPLETED**

#### **11.10.12 Verify IFAC Growth on MCC Page**

1. At MCC, type and enter the following command:



1870,y,x

Where:

y = IDCU number  
x = SM number.

2. Verify that the added IFACs are active with no carrier group alarms present.

### 11.10.13 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

Where:

a = SM number.

**Response: OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

Where:

a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

**Response: OK**

### 11.10.14 Back Up Office-Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.10.15 Return Routine Exercise to Normal

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.11: DELETE IDCU FACILITY ASSIGNED TO TR303 RT—5E10 AND LATER

### OVERVIEW

All terminal assignments (lines and trunks) which are assigned to a Integrated Digital Carrier Unit (IDCU) facility must be removed from the facility before deleting facility from the TR303 remote terminal (RT).

The facilities which carry the embedded operations channel (EOC) and time-slot management channel (TMC) data links to the TR303 RT may not be deleted.

### PROCEDURE

1. Delete IDCU Facility Assigned to TR303 RT—5E10 and Later

#### 11.11.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this IDCU facility (IFAC) deletion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this IFAC deletion procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = Number of the SM degrowing IFACs.

**Response: OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.11.2 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.11.3 Remove from Service, IFACs Which Are To Be Deleted from TR303 RT

**NOTE:** If the RT is equipped with protection line switching (PLS), remove the IFACs associated with the protection (PROT) first.

1. At MCC, type and enter the following command for each of the IFACs being deleted from the associated RT:

**RMV:IFAC=a-b-c,UCL;**

**Where:**

a = SM number  
 b = IDCU number  
 c = IFAC number.

**Response: RMV IFAC a b c COMPLETED**

2. Repeat Step 1 for each IFAC assignment to be deleted.

#### 11.11.4 Verify IFACs To Be Degrown from the TR303 RT Are OOS

1. At MCC, type and enter

**1880,x,y,z**

**Where:**

x = IDCU number  
 y = RT number  
 z = SM number.

#### 11.11.5 Delete IFACs from TR303 RT

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. Type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

4. Using the selected work order Form 18.15 as a guide for the facilities that are to be deleted from the TR303 RT, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

1. SM \_\_\_\_\_  
     UNIT TYPE IDCU  
 3. UNIT NUMBER \_\_\_\_\_  
 4. RT EX \_\_\_\_\_

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

Response:     **Change Field:**

6. Type and enter

For 5E11 or earlier: **RTIFACTRM** or field number.

For 5E12 or later: **RTFACTRM** or field number.

Response:     **RTFACTRM: Row:**

7. Type and enter

For 5E11 or earlier: **RTIFACTRM** or field number.

For 5E12 or later: **RTFACTRM** or field number.

Response:     Field RTFACTRM: Row:

8. Type and enter **'**

Response:     **RTFACTRM: Row:**

9. For each remaining IFAC to be deleted from this TR303 RT, repeat Steps 7 and 8. When no more IFACs remain to be deleted, continue with next Step.

10. Hit CARRIAGE RETURN.

Response:     **Change Field:**

11. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

12. Type and enter **U**

Response:     **updating ....FORM UPDATED**  
                 **REMOTE TERMINAL** page displayed.

13. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.11.6 Verify TR303 RT Data

1. Type and enter **15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

```

KEY ATTRIBUTES:
1. SM          _____
   UNIT TYPE    IDCU
3. UNIT NUMBER  _
4. RT EX       _
  
```

Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### 11.11.7 Delete Unused IFACs from the Data Base

1. At the RC/V terminal, type and enter **20.23**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Are all IFACs on a loop-side interface (LSI) to be deleted?

If **YES**, continue with next Step.

If **NO**, go to Step 8.

3. Type and enter **D**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4. Using the selected work order Form 20.23 as a guide for the facilities that are to be deleted from the TR303 RT, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

Response: System completes remainder of view.  
**Enter Delete, Change, Validate, Screen #, or Print:**

5. Verify data.

6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**INTEGRATED DIGITAL CARRIER UNIT** page displayed with KEY attributes blank.

7. Go to Step 22.

8. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

9. Using the selected work order Form 20.23 as a guide for the facilities that are to be deleted from the TR303 RT, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

10. Type and enter **C**

Response: **Change Field:**



11. Type and enter **IFAC** or field number.  
Response:     **IFAC: Row:**
12. Type and enter the row number of an IFAC being degrown.  
Response:     Cursor at EQSTAT attribute of an IFAC.
13. Type and enter '  
Response:     Cursor at PM GRP attribute of an IFAC.
14. Type and enter '  
Response:     Cursor at FACILITY ID attribute of an IFAC.
15. Type and enter '  
Response:     Cursor at SUP MTHD attribute of an IFAC.
16. Type and enter '  
Response:     Cursor at PUB43801 attribute of an IFAC.
17. Type and enter '  
Response:     **IFAC: Row:**
18. For each remaining IFAC to be degrown on this LSI, repeat Steps 12 through 17.  
When no more IFACs remain to be degrown, continue with next Step.
19. Hit CARRIAGE RETURN.  
Response:     **Change Field:**
20. Hit CARRIAGE RETURN.  
Response:     **Enter Update, Change, Validate, Screen#, or Print:**
21. Type and enter **U**  
Response:     **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.
22. Type and enter **<**  
Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.11.8 Verify IFAC Data

1. At the RC/V terminal, type and enter **20.23**

Response:     **Enter Data Base Operation**  
                  **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **FACILITY EQUIPMENT (IFAC)** page displayed.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

1. SM                   \_\_\_\_\_
2. IDCU                \_
3. LSI                 \_

Response:     System completes remainder of view.  
                  **Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

Comment:     Correct any errors using terminal in the update mode.

5. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter **q**

Response:     **RCV-196 COMPLETED**

### 11.11.9 Delete and Verify IFACs Unassigned From RT On Other LSI

1. If required, delete and verify IFACs unassigned from the TR303 RT that are on the other LSI.

### 11.11.10 Remove DS1 Cross Connects

1. **Telephone Company Function** - Remove cross connects for unused IFACs.

### 11.11.11 Verify IFAC Changes on MCC Page

1. At MCC, type and enter

**1880,x,y,z**

**Where:**

x =	IDCU number
y =	RT number
z =	SM number.

2. Verify that the deleted IFACs are not displayed.

#### 11.11.12 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

Where: a = SM number.

Response: **OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

Where: a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

Response: **OK**

#### 11.11.13 Back Up Office-Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### **11.11.14 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

Where: a = SM inhibited.

Response: **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.12: ASSIGN IDCU FACILITY TO TR303 RT—5E10 AND LATER

### OVERVIEW

The integrated digital carrier unit (IDCU) common hardware and the associated loop-side interface (LSI) must be operational before the IDCU facilities (IFAC) may be grown in. The TR303 remote terminal (RT) must be operational, and the IFACs to be assigned to the TR303 RT must be in the **GROW** state before performing this procedure.

### PROCEDURE

1. Assign IDCU Facility to TR303 RT—5E10 and Later

#### 11.12.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

Where: a = Switching module (SM) number.

Comment: Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this facility assignment procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this facility assignment procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

Where: a = Number of the SM growing IFACs.

Response: **OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

Response: The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communications module processor (CMP), if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.12.2 Allow Peripheral Fault Recovery (PFR) Messages to Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

Response: **OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

Response: **OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

Where:

a = SM number.

Response: **OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

Where:

a = SM number.

Response: **OK**

### 11.12.3 Change to *Operational* IFACs Which Are To Be Assigned to TR303 RT

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. Type and enter **20.23**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4. Using the selected work order Form 20.23 as a guide for the facilities that are to be assigned to the TR303 RT, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

Response: **Change Field:**

6. Type and enter **IFAC** of field number.

Response: **IFAC: Row:**

7. Type and enter row number of an IFAC being grown.

Response: Cursor at EQSTAT attribute of an IFAC.

8. Type and enter **O**

Response: Cursor at PM GRP attribute of an IFAC.

9. Hit CARRIAGE RETURN.

Response: Cursor at FACILITY ID attribute of an IFAC.

10. Hit CARRIAGE RETURN.

Response: Cursor at SUP MTHD attribute of an IFAC.

11. Hit CARRIAGE RETURN.

Response: Cursor at PUB43801 attribute of an IFAC.

12. Hit CARRIAGE RETURN.

Response:     **IFAC:   Row:**

13. For each remaining IFAC to be grown on this LSI, repeat Steps 7 through 12. When no more IFACs remain to be grown, continue with next Step.

14. Hit CARRIAGE RETURN.

Response:     **Change Field:**

15. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

16. Type and enter **U**

Response:     **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

17. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.12.4 Verify IFAC Data

1. At the RC/V terminal, type and enter **23**

Response:     **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

1. SM                   \_\_\_\_\_
2. IDCU                \_
3. LSI                 \_

Response:     System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.



Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed.

6. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

### 11.12.5 Update IFACs To *Operational* On Other LSI

1. If required, repeat Sections **11.12.3** and **11.12.4** to update and verify the IFACs to *operational* that are assigned to TR303 RT on the other LSI.

### 11.12.6 Perform DS1 Cross Connects

1. **Telephone Company function.**

### 11.12.7 Assign IFACs to TR303 RT

1. At the RC/V terminal, type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order Form 18.15 as a guide for the facilities that are to be assigned to the TR303 RT, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

1. SM \_\_\_\_\_  
UNIT TYPE IDCUC
3. UNIT NUMBER \_\_\_\_\_
4. RT EX \_\_\_\_\_

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **C**

Response: **Change Field:**

5. Type and enter

For 5E11 or earlier: **RTIFACTRM** or field number.

For 5E12 or later: **RTFACTRM** or field number.

Response: **RTFACTRM: Row:**

6. Type and enter the row number (RT Termination Number) of a facility being added to the RT.

Response: Cursor at IFAC attribute of an RT IFAC TERMINATION.

7. Type and enter data from the selected work order form.

Response: **RTFACTRM: Row:**

8. Verify RT vendor documentation for correct facility assignment and EOC/TMC backup designation. For Lucent Technologies **SLC<sup>®</sup>** Series 5 FP303G, the EOC/TMC backup designation must be on RT TERM 3.

9. For each remaining IFAC to be added to this RT, repeat Steps 6 and 7. When no more IFACs remain to be added, continue with next Step.

10. Hit CARRIAGE RETURN.

Response: **Change Field:**

11. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

12. Type and enter **U**

Response: **updating ....FORM UPDATED**  
**REMOTE TERMINAL** page displayed.

13. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.12.8 Verify TR303 RT Data

1. At the RC/V terminal, type and enter **15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

```

KEY ATTRIBUTES:
1. SM      _____
   UNIT TYPE  IDCU
3. UNIT NUMBER  _
4. RT EX      _____

```

Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

### 11.12.9 Assign IFACs That On Are Other LSI

1. If required, repeat Sections **11.12.7** and **11.12.8** to assign and verify IFACs to TR303 RT on the other LSI.

### 11.12.10 Restore Newly Assigned IFACs to Service

1. At MCC, type and enter the following command:

**RST:IFAC=a-b-c;**

**Where:**

a =	SM number
b =	IDCU number
c =	IFAC number.

**Response: RST IFAC a b c COMPLETED**

2. Repeat Step 1 for each IFAC assigned to the TR303 RT.

#### **11.12.11 Verify IFAC Growth on MCC Page**

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

y =	IDCU number
z =	RT number
x =	SM number.

2. Verify that the added IFACs are active with no carrier-group alarms present.

#### **11.12.12 Return Peripheral Fault Recovery Message Printing from Backup**

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

a =	SM number.
-----	------------

**Response: OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a =	SM number.
-----	------------

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

**Response: OK**

### **11.12.13 Back Up Office-Dependent Data**

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### **11.12.14 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.13: DEGROW IDCU TR303 RT —5E10 AND LATER

### PROCEDURE

1. Degrow IDCU TR303 RT —5E10 and Later

#### 11.13.1 Prepare Integrated Digital Carrier Unit (IDCU) TR303 RT for Degrowth by Updating Relation RC\_HOLE Prior to Removing All Terminal Assignments

### OVERVIEW

**NOTE:** The values of some fields will vary, depending on whether the RC\_HOLE relation has tuples populated or not. Make sure that the following fields are correct: *acc\_rid*, *rel\_hsze*, *rel\_dsize*, and *rel\_tmax*.

1. Select and prepare recent change and verify (RC/V) terminal for ACCess EDitor (ACCED) activity.
2. At the RC/V, type and enter **RCV:MENU:ACCED**

Response:      **Processor Number?**

3. Type and enter **194**

Response:      **1 : REVIEW**  
                  **2 : SCAN**  
                  **3 : REORG**  
                  **4 : DESTROY**  
                  **5 : OVERWRITE**  
                  **6 : HASHSUM**  
                  **7 : QUIT**

**Operation?**

4. Type and enter **3**

Response:      **Relation Name?**

5. Type and enter **RC\_HOLE**

Response:      **ACCDICT**  
                  **acc\_rid = 1820**  
                  **acc\_head = 0**  
                  **acc\_rcnt = 0**  
                  **acc\_wflg = 0**  
                  **acc\_grbg = 0 (5E12 and later)**  
                  **acc\_state = ACCURRENT**  
                  **acc\_nidix = 0**  
                  **acc\_bidx = 0**  
                  **rel\_hsze = 256**  
                  **Hit <CR> to see access method specific dictionary**

6. Hit CARRIAGE RETURN.

Response:     **ACC\_HASH**  
                  **acc\_rid = 1820**  
                  **acc\_oflg = 0**  
                  **acc\_foldtype = DBDEFAULT**  
                  **acc\_probdepth = 3**  
                  **acc\_tpag = 0**  
                  **rel\_dsize = 256**  
                  **acc\_npag = 0 0 0 0 0**  
                  **acc\_totp = 0**  
                  **rel\_tmax = 200**

**There are 0 pages of overflow**

**Relation 'RC\_HOLE' is empty, but you may still modify its access dictionary.**

**Do you want to run hashing simulation before REORG?**

7. Type and enter **NO**

Response:     **Enter desired access dictionary value for REORG.**

**acc\_probdepth = 3**

**Maximum search depth per stage (acc\_probdepth) (<CR> keeps default)?**

8. Hit CARRIAGE RETURN.

Response:     **acc\_foldtyp = DBDEFAULT**

**1 : DBDEFAULT**

**2 : DBG31**

**Folding algorithm (acc\_foldtype) (<CR> keeps default)?**

9. Hit CARRIAGE RETURN.

Response:     **rel\_hsize = 256**

**Head table size (rel\_hsize) (<CR> keeps default)?**

10. Type and enter **1024**

Response: **rel\_dsize = 256**

**Data page size (rel\_dsize) (<CR> keeps default)?**

11. Type and enter **1024**

Response: **rel\_tmax = 200**

**Maximum number of tuples (rel\_tmax) (<CR> keeps default)?**

12. Type and enter **5000**

Response: **After REORG, the new access dictionary will be the following.**

**ACCDICT**

**acc\_rid = 1820  
acc\_head = 0  
acc\_rcnt = 0  
acc\_wflg = 0  
acc\_grbg = 0 (5E12 and later)  
acc\_state = ACCURRENT  
acc\_nidix = 0  
acc\_bidx = 0  
rel\_hsze = 1024**

**Hit <CR> to see access method specific dictionary**

13. Hit CARRIAGE RETURN.

Response: **ACC\_HASH**

**acc\_rid = 1820  
acc\_oflg = 0  
acc\_foldtype = DBDEFAULT  
acc\_probdepth = 3  
acc\_tpag = 126  
rel\_hsze = 1024  
acc\_npag = 37 11 5 1 1  
acc\_totp = 55  
acc\_tmax = 5000**

**There are 0 pages of overflow**

**Please confirm: are these the access dictionary values you want?**

14. Type and enter **Y**

Response: **REORG in progress ... please wait**

**REORG COMPLETED**

**Access dictionaries used for REORG on pcr=194, rel=RC\_HOLE,  
acctype=DBACC\_HASH**



**ACCDICT**

acc\_rid = 1820  
 acc\_head = 0  
 acc\_rcnt = 0  
 acc\_wflg = 0  
 acc\_grbg = 0 (5E12 and later)  
 acc\_state = ACCURRENT  
 acc\_nidix = 0  
 acc\_bidx = 0  
 rel\_hsize = 1024

Hit <CR> to see access method specific dictionary

15. Hit CARRIAGE RETURN.

Response: **ACC\_HASH**

acc\_rid = 1820  
 acc\_oflg = 0  
 acc\_foldtype = DBDEFAULT  
 acc\_probdepth = 3  
 acc\_tpag = 126  
 acc\_dsize = 1024  
 acc\_npag = 37 11 5 1 1  
 acc\_totp = 55  
 rel\_tmax = 5000

There are 0 pages of overflow

Relation 'RC\_HOLE' is empty, but you may still modify its access dictionary.

Do you want to run hashing simulation before REORG?

16. Type and enter !

Response: **Current relation is 'RC\_HOLE'**

Relation Name (<CR> leaves it unchanged)

17. Type and enter !

Response:

1 : REVIEW  
 2 : SCAN  
 3 : REORG  
 4 : DESTROY  
 5 : OVERWRITE  
 6 : HASHSUM  
 7 : QUIT

Operation?

18. Type and enter 7

Response: **RCV MENU ACCED COMPLETED**

### 11.13.2 Remove Terminal Assignments from Remote Terminal

1. Remove all terminal assignments (lines and/or trunks) from the remote terminal being degrown.

### 11.13.3 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during the remote terminal (RT) degrowth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this remote terminal (RT) degrowth procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

Where: a = SM number of degrowth integrated digital carrier unit (IDCU) RT.

Response: **OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE 1:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE 2:** Data base backup will take several minutes to complete.

#### 11.13.4 Allow Peripheral Fault Recovery (PFR) Messages to be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

Response: OK with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

**Response:** OK

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

Where: a = SM number.

Response: OK

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

Where: a = SM number.

Response: OK

#### 11.13.5 Remove IDCU Facilities (IFACs) from Service

**NOTE:** If the RT is equipped with protection line switching (PLS), remove the IFACs associated with the protection (PROT) first.

1. At MCC, type and enter the following command for each of the IFACs that connect the RT to the IDCU.

**RMV:IFAC=a-b-c,UCL;**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RMV IFAC=a-b-c COMPLETED**

#### 11.13.6 Verify CGAs are Cleared for IFAC

**NOTE:** With the IFAC having been removed from service, the CGAs (carrier group alarms) should also be cleared for the IFAC.

1. At MCC, type and enter the following command:

**1870,y,x**

Where: y = IDC number  
x = SM number.

Response: IFAC page is displayed.

### 11.13.7 Verify IFACs That Are Associated with the TR303 RT Being Degrown are OOS

1. At MCC, type and enter the following command:

**1880,y,z,x**

Where:

- y = IDC number
- z = RT number
- x = SM number.

### 11.13.8 Delete TR303 RT from Data Base

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. Type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **D**

Response: **REMOTE TERMINAL VIEW** page displayed. Cursor at SM attribute.

4. Using the selected work order Form 18.15 as a guide for the facilities that are to be deleted from the TR303 RT, type and enter the indicated values for each KEY attribute.

KEY ATTRIBUTES:

- ```

1. SM
UNIT TYPE IDCU
3. UNIT NUMBER
4. RT EX

```

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Verify data.

6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**REMOTE TERMINAL VIEW** page displayed with attributes blank.

7. Type and enter **<**

Response: **18.0 SM AND REMOTE TERMINALS VIEWS** page displayed.

### 11.13.9 Delete Unused IFACs from Data Base

1. At the RC/V terminal, type and enter **20.23**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Are all the IFACs on a loop-side interface (LSI) to be deleted?

If **YES**, continue with next step.

If **NO**, go to Step 8.

3. Type and enter **D**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4. Using the selected work order Form 20.23 as a guide for the LSI on which the IFACs are being deleted, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- |         |       |
|---------|-------|
| 1. SM   | _____ |
| 2. IDCU | _____ |
| 3. LSI  | _____ |

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Verify data.

6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**FACILITY EQUIPMENT (IFAC)** page displayed with KEY attributes blank.

7. Go to Step 22.

8. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

9. Using the selected work order form 20.23 as a guide for the facilities that are to be deleted, type and enter the indicated values for each KEY attribute.

---

KEY ATTRIBUTES:

- 1. SM \_\_\_\_\_
- 2. IDCU \_
- 3. LSI \_

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

10. Type and enter **C**

Response: **Change Field:**

11. Type and enter **IFAC** or field number.

Response: **IFAC: Row:**

12. Type and enter the row number of an IFAC being degrown.

Response: Cursor at EQSTAT attribute of an IFAC.

13. Type and enter '

Response: Cursor at PM GRP attribute of an IFAC.

14. Type and enter '

Response: Cursor at FACILITY ID attribute of an IFAC.

15. Type and enter '

Response: Cursor at SUP MTHD attribute of an IFAC.

16. Type and enter '

Response: Cursor at PUB43801 attribute of an IFAC.

17. Type and enter '

Response:      **IFAC:    Row:**

18. For each remaining IFAC to be degrown on this LSI, repeat Steps 12 through 17. When no more IFACs remain to be degrown, continue with next Step.

19. Hit CARRIAGE RETURN.

Response:      **Change Field:**

20. Hit CARRIAGE RETURN.

Response:      **Enter Update, Change, Validate, Screen#, or Print:**

21. Type and enter **U**

Response:      **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

22. Type and enter **<**

Response:      **20.0 SM PACK & SUBPACK VIEWS** page displayed.

23. Type and enter **q**

Response:      **RCV-196 COMPLETED**

#### **11.13.10 Delete Unused IFACs On Other LSI**

1. If required, repeat Section **11.13.9** to delete the unused IFACs on the other LSI.

#### **11.13.11 Verify Degrowth at MCC**

1. At MCC, type and enter the following command:

**1880,y,z,x**

Where:          y = IDCU number  
                    z = RT number  
                    x = SM number.

2. Verify that MCC page does not come up.
3. At MCC, type and enter the following command:

**1870,y,x**

Where:        y = IDCU number  
              x = SM number.

4. Verify that deleted IFACs are not displayed.

#### 11.13.12 Back Up Office Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE 1:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if required.

Response:    **BKUP ODD COMPLETED**

**NOTE 2:** Data base backup will take several minutes to complete.

#### 11.13.13 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

Where:        a = SM number.

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE**

Where:        a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

#### 11.13.14 Return Routine Exercises to Normal

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

Where:        a = SM inhibited.

Response:    **OK**



2. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

## Procedure 11.14: GROW IDCU TR303 RT —5E10 AND LATER

### OVERVIEW

**CAUTION:** This procedure is not to be performed unless the Remote Terminal (RT) is physically turned up.

#### Prerequisite Conditions

- (1) The integrated digital carrier unit (IDCU) common hardware, associated loop-side interface (LSI), and electrical line interface (ELI) must be operational.
- (2) The IDCU facilities (IFACs), which are to be associated with the growth TR303 remote terminal (RT), must be in the **GROW** state. [Per **Procedure 11.10** ]
- (3) The DPIDB(s) to be used for the RT being grown, must be assigned prior to the start of this procedure.
- (4) The channel groups to be used for the RT being grown, must be assigned to the PHs before the start of this procedure. Refer to RCV 22.16 to confirm this assignment.

### PROCEDURE

1. Grow IDCU TR303 RT —5E10 AND LATER

#### 11.14.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this RT growth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this growth procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = Number of the SM growing the RT.

**Response: OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### 11.14.2 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=PFR\_MON,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

#### 11.14.3 Verify the IFACs Associated with the Growth TR303 RT

1. At MCC, type and enter the following command:

**1870,y,x**

**Where:**

y = IDCU number  
x = SM number.

2. Verify that the IFACs associated with the growth TR303 RT are in the Growth State.

#### 11.14.4 Update IFACs from Grow to Operational

1. Select and prepare terminal for recent change and verify activities.

**Reference: Procedure 11.1**

2. Type and enter **20.23**

**Response: Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

**Response: FACILITY EQUIPMENT (IFAC) page displayed. Cursor at SM attribute.**

4. Using the selected work order Form 20.23 as a guide for the facilities that are to be assigned to the TR303 RT, type and enter the indicated values for each KEY attribute.

---

ATTRIBUTES:

1. SM \_\_\_\_\_  
2. IDCU \_\_\_\_\_  
3. LSI \_\_\_\_\_

**Response: System completes remainder of view.**  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

**Response: Change Field:**

6. Type and enter **IFAC** or field number.

**Response: IFAC: Row:**

7. Type and enter row number of an IFAC being grown.

**Response: Cursor at EQSTAT attribute of an IFAC.**

8. Type and enter **O**

**Response: Cursor at PM GRP attribute of an IFAC.**

9. Hit CARRIAGE RETURN.

**Response:** Cursor at FACILITY ID attribute of an IFAC.

10. Hit CARRIAGE RETURN.

**Response:** Cursor at SUP MTHD attribute of an IFAC.

11. Hit CARRIAGE RETURN.

**Response:** Cursor at PUB43801 attribute of an IFAC.

12. Hit CARRIAGE RETURN.

**Response: IFAC: Row:**

13. For each remaining IFAC to be grown on this LSI, execute Steps 6 through 12. When no IFACs remain to be grown, continue with next Step.

14. Hit CARRIAGE RETURN.

**Response: Change Field:**

15. Hit CARRIAGE RETURN.

**Response: Enter Update, Change, Validate, Screen#, or Print:**

16. Type and enter **U**

**Response: updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC) page displayed.**

17. Type and enter **<**

**Response: 20.0 SM PACK & SUBPACK VIEWS page displayed.**

#### 11.14.5 Verify IFACs Data

1. At the RC/V terminal, type and enter **23**

**Response: Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

**Response: FACILITY EQUIPMENT (IFAC) page displayed. Cursor at SM attribute.**

3. Using the selected work order Form 20.23 as a guide, type and enter the indicated values for each KEY attribute.

---

ATTRIBUTES:

- 1. SM \_\_\_\_\_
- 2. IDCU \_\_\_\_\_
- 3. LSI \_\_\_\_\_

**Response:** System completes remainder of view.

**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

**Comment:** Correct errors using terminal in the update mode.

5. Type and enter **q**

**Response:** **FACILITY EQUIPMENT (IFAC)** page displayed.

6. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

7. Type and enter **q**

**Response:** **RCV-196 COMPLETED**

**11.14.6 Update IFACs On Other LSI**

1. If required, repeat Sections **11.14.4** and **11.14.5** for the IFACs being updated to operational on the other LSI.

**11.14.7 Perform DS1 Cross Connects**

1. Telephone Company function.

**11.14.8 Insert TR303 RT Information Into Data Base**

1. At the RC/V terminal, type enter **18.15**

**Response:** **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **I**

**Response:** **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. **NOTE 1:** Verify RT vendor documentation for correct facility assignment and EOC/TMC backup designation.  
For example, the Lucent Technologies *SLC*® Series 5 FP303G EOC/TMC backup designation must be on RT TERM 3.

The *SLC*® Series 2000 FP303G EOC/TMC the backup designation must be on RT TERM 2.

**NOTE 2:** To improve reliability, it is recommended, but not required, that the TMC/EOC PRI and NPRI be assigned over different protocol handlers (PH).

**NOTE 3:** If different protocol handlers are assigned in Note 2 above then the ACKTIMER should be set to the default value of 150; otherwise, ACKTIMER should be set to 350 where the protocol handlers are the same.

Using the selected work order Form 18.15 as a guide for the facilities that are to be assigned to the TR303

RT, type and enter the indicated values for each KEY attribute.

---

```

ATTRIBUTES:
1. SM
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _
  
```

**Response:** Enter Insert, Change, Validate, Screen#, or Print:

4. Using the selected work order form as a guide, type and enter the indicated values for remaining attributes.

**NOTE 1:** The RT\_LINE\_SIZE field should specify the remote terminal vendor's maximum line size supported. For example, the Lucent Technologies SLC® Series 2000 FP303G RT supports a maximum line size of 768, therefore RT\_LINE\_SIZE is 768.

**NOTE 2:** The following attributes are not entered at this time:  
SUP METHOD, TMC PRI, TMC NPRI, EOC PRI, EOC NPRI

5. For the RT **EQSTAT** attribute marked ``per HCP'', type and enter a **G**.

**Response:** Enter Insert, Change, Validate, Screen#, or Print:

6. Type and enter **I**

**Response:** inserting ....**FORM INSERTED**  
**REMOTE TERMINAL** page displayed.

7. Type and enter **<**

**Response:** **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.14.9 Update TR303 RT from Grow to Operational

1. At the RC/V terminal, type and enter **18.15**

**Response:** Enter Data Base Operation  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

**Response:** **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute listed in the following display.

---

```

ATTRIBUTES:
1. SM
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _
  
```

**Response:** System completes remainder of view.

**Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **C**

**Response:**    **Change Field:**

5. Type and enter **15**

**Response:**    Cursor at TR303 RT EQSTAT attribute.

6. Type and enter **O**

**Response:**    **Change Field:**

7. Type and enter **TMC PRI** or field number.

**Response:**    Cursor at TMC PRI (ISCN)

8. Type and enter TMC PRI attributes ISCN, DPIDB, and TIME SLOT

**Response:**    **Change Field:**

**NOTE:** Each DPIDB and TIME SLOT attribute will be chosen automatically by the switch, if not specified.

9. Type and enter **TMC NPRI** or field number.

**Response:**    Cursor at TMC NPRI (ISCN)

10.            **NOTE:** Verify RT vendor documentation for correct TMC backup designation. For *SLC*<sup>®</sup> Series 5 FP303G, the TMC backup designation must be on RT TERM 3.

Type and enter TMC PRI attributes ISCN, DPIDB, and TIME SLOT

**Response:**    **Change Field:**

11. Type and enter **EOC PRI** or field number.

**Response:**    Cursor at EOC PRI (ISCN)

12. Type and enter EOC PRI attributes ISCN, DPIDB, and TIME SLOT

**Response:**    **Change Field:**

13. Type and enter **EOC NPRI** or field number.

**Response:**    Cursor at EOC NPRI (ISCN)

14.            **NOTE:** Verify RT vendor documentation for correct EOC backup designation.

For example, the Lucent Technologies *SLC*<sup>®</sup> Series 5 FP303G EOC backup designation must be on RT TERM 3.

The *SLC*<sup>®</sup> Series 2000 FP303G EOC the backup designation must be on RT TERM 2.



Type and enter EOC NPRI attributes ISCN, DPIDB, and TIME SLOT

Response:     **Change Field:**

15. Are the same protocol handler assignments used for the previous entries in Steps 8,10,12 and 14?

**NOTE 1:** To improve reliability, it is recommended, but not required, that the TMC/EOC PRI and NPRI be assigned over different protocol handlers (PH).

**NOTE 2:** If different protocol handlers are assigned in Note 1 above then the ACKTIMER should be set to the default value of 150; otherwise, ACKTIMER should be set to 350 where the protocol handlers are the same.

If **YES**, continue with next step.

If **NO**, go to Step 18.

16. Type and enter **ACKTIMER** or field number.

Response:     Cursor at **ACKTIMER**

17. Type and enter **350**

Response:     **Change Field:**

18. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

19. Type and enter **U**

Response:     **updating ....FORM UPDATED**  
                 **REMOTE TERMINAL** page displayed.

20. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.14.10 Verify TR303 RT Data

1. At the RC/V terminal, type and enter **15**

Response:     **Enter Data Base Operation**  
                 **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

- Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute listed in the following display.

---

```

ATTRIBUTES:
1. SM
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _

```

**Response:** System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

- Verify data is consistent with the selected work order form.

**Comment:** Correct errors using terminal in the update mode.

- Type and enter **q**

**Response:** **REMOTE TERMINAL** page displayed.

- Type and enter **<**

**Response:** **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

- Type and enter **q**

**Response:** **RCV-196 COMPLETED**

#### 11.14.11 Verify That TR303 RT Is No Longer in the Growth State

- At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

```

y =          IDCU number
z =          RT number
x =          SM number.

```

- Verify that the TR303 RT and the RT's EOCs and TMCs are not in the GROW state.

#### 11.14.12 Restore IFACs Associated with the Growth TR303 RT to Service

- At MCC, type and enter the following command:

**RST:IFAC=a-b-c**

**Where:**

```

a =          SM number

```

b = IDCU number  
c = IFAC number.

**Response: RST IFAC a b c COMPLETED**

2. Repeat Step 1 for each IFAC associated with the grown TR303 RT.

#### 11.14.13 Verify That TR303 RT Has No Alarms Present

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

y = IDCU number  
z = RT number  
x = SM number.

2. Verify that the IFACs, RT, and the RT's EOCs and TMCs are active with **NO** alarms present.

#### 11.14.14 Perform a Switch of the Active EOCs and TMCs

1. At MCC, type and enter the following command:

For 5E11(1) and earlier: **SW:EOC=a-b-c** For 5E12(1) and later: **SW:IDCUEOC=a-b-c**

**Where:**

a = SM number  
b = IDCU number  
c = RT number.

2. Verify that the EOC switches successfully.
3. At MCC, type and enter the following command:

For 5E11(1) and earlier: **SW:TMC=a-b-c** For 5E12(1) and later: **SW:IDCUTMC=a-b-c**

**Where:**

a = SM number  
b = IDCU number  
c = RT number.

4. Verify that the TMC switches successfully.

#### 11.14.15 Return PFR Message Printing to Pregrowth State

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen,

continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### **11.14.16 Back Up Office-Dependent Data**

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

#### **11.14.17 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 11.15: DEGROW IDCU TR008 RT — 5E10 AND LATER****PROCEDURE**

1. Degrow IDCU TR008 RT — 5E10 and later

**11.15.1 Prepare Integrated Digital Carrier Unit (IDCU) TR008 RT for Degrowth**

1. This procedure assumes that all terminal assignments (line and/or trunks) have been removed from the remote terminal before degrowth occurs.

**11.15.2 Verify and Set Initial Conditions**

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during the remote terminal (RT) degrowth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this RT degrowth procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = SM number of degrowth integrated digital carrier unit (IDCU) RT.

**Comment: OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.15.3 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.15.4 Remove IFACs from Service

**NOTE:** If the RT is equipped with protection line switching (PLS), remove the IFAC associated with the protection (PROT) first.

1. At MCC, type and enter the following command for each of the IDCU facilities (IFACs) that connect the RT to the IDCU.

**RMV:IFAC=a-b-c,UCL;**

**Where:**

a = SM number  
b = IDCU number  
c = IFAC number.

**Response: RMV IFACILITY a b c COMPLETED**

### 11.15.5 Verify IFACs Associated with the TR008 RT Being Degrown Are OOS

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

y = IDCU number  
z = RT number  
x = SM number.

### 11.15.6 Inhibit Protection Line Switching

**NOTE 1:** Protection line switching, if provided, should be inhibited on all IFACs associated with the RT that is being degrown.

**NOTE 2:** Inhibit protection line switching for the **P** RT DS1 FAC first.

1. At MCC, type and enter the following command:

**INH:RT,FAC=a-b,PROT;**

**Where:**

a = Site identification number (SID)  
b = RT DS1 FAC number (A-D,P for TR008 RT and 1-28 for TR303 RT).

**Response: INH RT FAC = a-b PROT COMPLETED**

### 11.15.7 Delete RTs Data from Data Base

1. At the RC/V terminal, type and enter **18.15**

**Response: Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **D**

**Response: REMOTE TERMINAL VIEW** page displayed. Cursor at SM attribute.

3. Select the completed work order Form 18.15 for the identified TR008 RT. This form should have the KEY attributes listed in the following display:

---

1. SM                   \_\_\_ INPUT APPROPRIATE DATA  
   UNIT TYPE     IDCU  
3. UNIT NUMBER    \_\_\_  
4. RT EX           \_\_\_

4. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.

**Enter Delete, Change, Validate, Screen #, or Print:**

5. Verify data.

6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**REMOTE TERMINAL VIEW** page displayed with attributes blank.

7. Type and enter **<**

Response: **18.0 SM AND REMOTE TERMINALS VIEWS** page displayed.

#### 11.15.8 Delete Unused IFACs from Data Base

1. At the RC/V terminal, type and enter **20.23**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. If all IFACs on a loop-side interface (LSI) are to be deleted, then continue this procedure at Step 4. Otherwise, continue this procedure at Step 9.

3. Type and enter **D**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4. Select the completed work order Form 20.23 indicating what LSI is having all of its IFACs deleted. This form should have the KEY attributes listed in the following display:

---

|         |       |                        |
|---------|-------|------------------------|
| 1. SM   | _____ | INPUT APPROPRIATE DATA |
| 2. IDCU | _____ |                        |
| 3. LSI  | _____ |                        |

5. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Delete, Change, Validate, Screen #, or Print:**

6. Verify data.

7. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**FACILITY EQUIPMENT (IFAC)** page displayed with KEY attributes blank.



8. Continue this procedure at Step 24.

9. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

10. Select the completed work order Form 20.23 indicating what facilities are to be deleted. This form should have the KEY attributes listed in the following display:

---

|         |       |                        |
|---------|-------|------------------------|
| 1. SM   | _____ | INPUT APPROPRIATE DATA |
| 2. IDCU | _____ |                        |
| 3. LSI  | _____ |                        |

11. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

12. Type and enter **C**

Response: **Change Field:**

13. Type and enter **4**

Response: **Field 4: Row:**

14. Type and enter the row number of an IFAC being degrown.

Response: Cursor at EQSTAT attribute of an IFAC.

15. Type and enter **'**

Response: Cursor at PM GRP attribute of an IFAC.

16. Type and enter **'**

Response: Cursor at FACILITY ID attribute of an IFAC.

17. Type and enter **'**

Response: Cursor at SUP MTHD attribute of an IFAC.

18. Type and enter **'**

Response: Cursor at PUB43801 attribute of an IFAC.

19. Type and enter **'**

Response:     **Field 4: Row:**

20. For each remaining IFAC to be degrown on this LSI, execute Steps 14 through 20. When no IFACs remain to be degrown, continue this procedure with Step 21.

21. Hit CARRIAGE RETURN.

Response:     **Change Field:**

22. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

23. Type and enter **U**

Response:     **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

24. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

25. Type and enter **q**

Response:     **RCV-196 COMPLETED**

#### **11.15.9 Delete Unused IFACs on Other LSI**

1. If Required, Repeat Section 11.15.8 to Delete Unused IFACs on the Other LSI

#### **11.15.10 Verify Degrowth at MCC**

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

|     |             |
|-----|-------------|
| y = | IDCU number |
| z = | RT number   |
| x = | SM number.  |

2. Verify that MCC page does not come up.
3. At MCC, type and enter the following command:

**1870,y,x**

**Where:**

y = IDCU number  
x = SM number.

Verify that deleted IFACs are not displayed.

### 11.15.11 Back Up Office-Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.15.12 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

a = SM number.

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

### 11.15.13 Return Routine Exercises to Normal

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.16: GROW IDCU TR008 RT —5E10 AND LATER

### OVERVIEW

The integrated digital carrier unit (IDCU) common hardware and the associated loop-side interface (LSI) and electrical line interface (ELI) must be operational, and the IDCU facilities (IFAC), which are to be associated with the growth TR008 remote terminal (RT), must be in the **GROW** state (per Procedure 11.10 ).

### PROCEDURE

1. GROW IDCU TR008 RT —5E10 AND LATER

#### 11.16.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this RT growth procedure. Correct any deficiency as required.

**Caution:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this growth procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = Number of the SM growing the RT.

**Response:** OK

5. At MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.16.2 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK with exceptions**

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.16.3 Update IFACs from Grow to Operational

1. Select and prepare terminal for recent change and verify activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **20.23**

**Response: Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4. Select the completed work order Form 20.23 for the identified SM. This form should have the KEY attributes listed in the following display:

---

1. SM        \_\_\_\_\_ INPUT APPROPRIATE DATA  
2. IDCU     \_  
3. LSI      \_

5. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **C**

Response: **Change Field:**

7. Type and enter **4**

Response: **Field 4: Row:**

8. Type and enter row number of an IFAC being grown.

Response: Cursor at EQSTAT attribute of an IFAC.

9. Type and enter **O**

Response: Cursor at PM GRP attribute of an IFAC.

10. Hit CARRIAGE RETURN.

Response: Cursor at FACILITY ID attribute of an IFAC.

11. Hit CARRIAGE RETURN.

Response: Cursor at SUP MTHD attribute of an IFAC.

12. Hit CARRIAGE RETURN.

Response: Cursor at PUB43801 attribute of an IFAC.

13. Hit CARRIAGE RETURN.

Response: **Field 4: Row:**

14. For each remaining IFAC to be grown on this LSI, execute Steps 7 through 13. When no IFACs remain to be grown, continue this procedure at Step 15.

15. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

16. Type and enter **U**

Response: **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

17. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.16.4 Verify IFACs Data

1. At the RC/V terminal, type and enter **23**

Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Using the selected work order Form 20.23 as a guide, again type and enter the indicated values for each KEY attribute.

---

1. SM    \_\_\_    INPUT APPROPRIATE DATA  
2. IDCU    \_\_\_  
3. LSI    \_\_\_

Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed.

6. Type and enter **<**



Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

### 11.16.5 Update IFACs On Other LSI

1. If required, repeat Sections **11.16.3** and **11.16.4** for the IFACs being updated to operational on the other LSI.

### 11.16.6 Perform DS1 Cross Connects

1. **Telephone Company function.**

**CAUTION:** Lines that are assigned to RTs that are not operational will not provide service to the end customer. To prevent the assignment of lines to RTs in GROW, do not populate the Channel Unit information. When the RT is ready to be made operational (Section 11.90.7), the Channel Unit information should be populated.

### 11.16.7 Insert TR008 RT Information into Data Base

1. At the RC/V terminal, type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **I**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Select the completed work order Form 18.15 for the identified TR008 RT. This form should have the KEY attributes listed in the following display:

---

```

1. SM          _____ INPUT APPROPRIATE DATA
   UNIT TYPE   IDCUC
3. UNIT NUMBER _____
4. RT EX      _____

```

4. Using the selected work order form as a guide, type and enter the indicated values for each attribute. For the **DIGROUP EQSTAT** attributes marked ``per HCP'', type and enter a **G**.

Response: **Enter Insert, Change, Validate, Screen#, or Print:**

5. Type and enter **I**

Response: **inserting ....FORM INSERTED**

**REMOTE TERMINAL** page displayed.

6. Type and enter <

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.16.8 Update TR008 RT from Grow to Operational

1. At the RC/V terminal, type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order Form 18.15 as a guide, again type and enter the indicated values for each KEY attribute listed in the following display:

---

```

1. SM          INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _
  
```

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **C**

Response: **Change Field:**

5. Type and enter

5e9(2) and earlier 22

5e10 and later 23

Response: Cursor at TR008 RT DIGRP A MODE attribute.

6. Update EQSTAT from **G** to **O** for all DIGROUPs being grown.

Response: **Change Field:**

7. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

8. Type and enter **U**

Response:     **updating ....FORM UPDATED**  
**REMOTE TERMINAL** page displayed.

9. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.16.9 Verify TR008 RT Data

1. At the RC/V terminal, type and enter **15**

Response:     **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order Form 18.15 as a guide, again type and enter the indicated values for each KEY attribute listed in the following display:

---

```

1. SM          _____ INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER  _
4. RT EX       _____

```

Response:     System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

Comment:     Correct errors using terminal in the update mode.

5. Type and enter **q**

Response:     **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response:     **RCV-196 COMPLETED**

### 11.16.10 Restore IFACs to Service

1. At MCC, type and enter the following command:

**RST:IFAC=a-b-c;**

**Where:**

|     |              |
|-----|--------------|
| a = | SM number    |
| b = | IDCU number  |
| c = | IFAC number. |

**Response: RST IFAC a b c COMPLETED**

2. Repeat Step 1 for each IFAC associated with the grown TR008 RT.

### 11.16.11 Verify RT Growth on MCC Pages

1. At MCC or trunk and line work station, type and enter the following command,

**1880,y,z,x**

**Where:**

|     |             |
|-----|-------------|
| y = | IDCU number |
| z = | RT number   |
| x = | SM number.  |

2. Verify that the added IFACs are active with no carrier group alarms present.

### 11.16.12 Return PFR Message Printing to Pregrowth State

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

|     |            |
|-----|------------|
| a = | SM number. |
|-----|------------|

**Response: OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

|     |            |
|-----|------------|
| a = | SM number. |
|-----|------------|

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### **11.16.13 Back Up Office-Dependent Data**

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### **11.16.14 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.17: CONVERT IDCU TR008 RT FEATURE PACKAGE B MODE 1 OR 2 TO TR303 RT —5E10 AND LATER

### PROCEDURE

1. Convert IDCU TR008 RT Feature Package B Mode 1 OR 2 to TR303 RT —5E10 and Later

#### 11.17.1 Prepare IDCU TR008 RT for Conversion

1.
  - Verify that KBN6B board is installed in applicable Integrated Digital Carrier Unit (IDCU). If the KBN6 board is installed then it must be replaced with the new KBN6B board before continuing with this conversion procedure. Use applicable procedure to replace the KBN6 board.
  - Verify that the TR008 remote terminal (RT) is operational prior to the execution of this procedure.
  - Obtain a copy of RCV 18.15 for the TR008 RT undergoing conversion.
  - Assign the DPIDB(s) to be used for the RT being converted to a TR303 RT interface prior to the start of this procedure. See 235-105-231.
  - This conversion does not totally support conversion of special ports. After the conversion to a TR303 RT, the RT will have to be manually reprovisioned using the SLC<sup>®</sup> Series 5 Craft Interface Unit (J99404TA-1).
  - Verify that the present suppression method of the TR008 RT is supported by the TR303 RT. **If not**, change the suppression method of the TR008 RT to a type supported by the TR303 RT prior to conversion.

#### 11.17.2 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a **SYS NORM** indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this integrated digital carrier unit (IDCU) RT conversion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If

routine exercise (REX) is inhibited, it must be allowed at the conclusion of this conversion procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a**

**Where:**

a =                      Number of the SM converting the IDCU RT.

**Response:     OK**

5. At MCC, type and enter the following command:

**OP:REXINH**

**Response:**     The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response:     BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.17.3 Allow Peripheral Fault Recovery (PFR) Messages to Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response:     OK with exceptions**

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF**

**Response:     Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE**

**Where:**

a =                      SM number.

**Response:     OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a**

**Where:**

a = SM number.

**Response: OK**

#### **11.17.4 Identify IFACs Associated with the TR008 RT Conversion**

1. At MCC or trunk and line work station (TLWS), type and enter the following command:

**1870,y,x**

**Where:**

y = IDCU number.

x = SM number.

2. Identify IFACs associated with the TR008 RT conversion on the MCC page.

#### **11.17.5 Remove IFACs Associated with the TR008 RT Being Converted from Service**

**NOTE:** If the RT is equipped with protection line switching (PLS), remove the IFACs associated with the protection (PROT) first.

1. At MCC, type and enter the following command for each of the IDCU facilities (IFACs) associated with the RT being converted:

**RMV:IFAC=a-b-c,UCL**

**Where:**

a = SM number

b = IDCU number

c = IFAC number.

**Response: RMV IFAC a b c COMPLETED**

#### **11.17.6 Verify That IFACs Associated with the TR008 RT Conversion Have Been Removed from Service**

**NOTE:** Remain on this page to verify the IFACs after conversion.

1. At MCC or TLWS, type and enter the following command:

**1870,y,x**

**Where:**

y = IDCU number.

x = SM number.



2. Verify that the IFACs associated with the TR008 RT being converted have been removed from service.

#### 11.17.7 Update TR008 RT to TR303 RT

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

4. Select the completed work order Form 18.15 for the identified TR008 RT. This form should have the KEY attributes listed in the following display.

---

```
1. SM      _____ INPUT APPROPRIATE DATA
   UNIT TYPE  IDCU
3. UNIT NUMBER  _
4. RT EX      _____
```

5. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **C**

Response: **Change Field:**

7. Type and enter **5**

Response: Cursor at RT INTERFACE attribute.

8. Type and enter **TR303**

Response: **Change Field:**

9. Type and enter **13**

Response: Cursor at SUP METHOD attribute.

10. Type and enter data from work order form.

Response:     **Change Field:**

11. Type and enter **15**

Response:     Cursor at TR303 RT EQSTAT attribute.

12. Type and enter **O**

Response:     **Change Field:**

13. Type and enter **151**

Response:     **Field 151: Row:**

14. Type and enter the row number of an IFAC termination from the work order form.

Response:     Cursor at an IFAC attribute of an RT IFAC TERMINATION.

15. Type and enter the IFAC number from work order form.

Response:     **Field 151: Row:**

16. Repeat Steps **14** and **15** for each IFAC associated with converted TR008 RT. When information for all IFACs has been entered, continue with Step 17.

17. Hit CARRIAGE RETURN.

Response:     **Change Field:**

18. Type and enter

**164**

Response:     Cursor at an EOC/TMC BKUP RT TERM attribute.

19. Type and enter data from work order form.

Response:     **Change Field:**

20.           **NOTE:** Verify RT vendor documentation for correct facility assignment and EOC/TMC backup designation. For Lucent Technologies SLC Series 5 FP303G, the EOC/TMC backup designation must be on RT TERM 3.

Continue entering the remaining TMC and EOC attributes from the work order form. When all the fields have been entered, continue with Step 21.

21. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

22. Type and enter **U**

Response:     **updating ....FORM UPDATED**  
                   **REMOTE TERMINAL** page displayed.  
                   Cursor at the SM attribute.

23. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.17.8 Verify TR303 RT Data

1. At the RC/V terminal, type and enter **15**

Response:     **Enter Data Base Operation**  
                   **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

```

1. SM      _____ INPUT APPROPRIATE DATA
   UNIT TYPE  IDCU
3. UNIT NUMBER  _
4. RT EX      _____
```

Response:     System completes remainder of view.  
                   **Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the work order form.

### 11.17.9 Verify Status of TR303 RT Data

1. Are corrections to the TR303 RT data required?

If **NO**, go to **11.17.10** .

If **YES**, continue with Step 1.

**CAUTION:** Data cannot be corrected by updating. Data must be backed out and reentered using the following steps.

2. At the RC/V terminal, type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

3. Type and enter **15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

4. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

5. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

```
1. SM          INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _
```

Response: System completes remainder of view.  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

6. Type and enter **C**

Response: **Change Field**

7. Type and enter **21**

Response: Cursor at **TR303 BK OUT** attribute.

8. Type and enter **B**

Response: **Change Field**

9. Hit CARRIAGE RETURN

Response: **Enter Update, Change, Validate, Screen#, or Print.**

10. Type and enter **U**

Response: **updating . . . FORM UPDATED**  
**REMOTE TERMINAL** page displayed.  
Cursor at the SM attribute.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Go back to **11.17.7** , Step 3 and reenter TR303 RT attributes.

### **11.17.10 Exit Recent Change Terminal**

1. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

2. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

3. Type and enter **q**

Response: **RCV-196 COMPLETED**

### **11.17.11 Verify RT Conversion on MCC Pages**

1. At MCC or TLWS, type and enter the following command:

**1870,y,x**

Where:        y = IDCU number  
              x = SM number.

2. Verify that the IFACs and RT are displayed properly.
3. At MCC or TLWS, type and enter the following command:

**1880,x,y,z**

Where:        x = IDCU number  
              y = RT number  
              z = SM number.

4. Verify that the RT is displayed properly.

### **11.17.12 Change RT Hardware**

1. If converting Lucent Technologies TR008 RT feature package B Mode 1 or 2 to TR303 RT, perform the *RT Hardware Change* portion of 363-205-401,NTP-010.
2. If converting a non Lucent Technologies RT, perform the vendor's procedure.

### **11.17.13 Inhibit Routine Port Conditioning**

1. At MCC, type and enter the following command:

**INH:RPC,SM=a**

Where: a = Number of the SM converting the IDCU RT

2. At MCC, type and enter the following command:

**OP:AUD,STATUS,SM=a**

Where: a = Number of the SM converting the IDCU RT.

3. Verify that routine port conditioning is inhibited at the ROP.

#### 11.17.14 Restore IFACs to Service

**NOTE:** Restore lowest-numbered IFAC first.

1. At MCC, type and enter the appropriate messages:

**RST:IFAC=a-b-c**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RST IFAC a b c COMPLETED**

2. Verify that the facility has restored on the MCC page.
3. Verify RT hardware integrity:
  - If converting Lucent Technologies TR008 RT feature package B Mode 1 or 2 to TR303 RT, as IFAC is restored, perform the portion of 363-205-401, NTP-010 to verify Hardware Integrity.
  - If converting a non Lucent Technologies RT, perform the vendor's procedure.
4. Repeat Steps 1 through 3, restoring the remaining IFACs in ascending order.

#### 11.17.15 Execute Provisioning of the TR303 RT

1. At MCC, type and enter the following command:

**EXC:RT,PROV,TYPE=ALL,LRT=d-e-f**

Where: d = SM number  
e = IDCU number  
f = Local RT number  
g = Site identification number.

Response: **EXC RT PROV TYPE=ALL SID=g LRT=d e f COMPLETED - NO TASKS PENDING**

### 11.17.16 Perform Verification Testing of the TR303 RT

1. If converting Lucent Technologies TR008 RT feature package B Mode 1 or 2 to TR303 RT, perform the portion of 363-205-401, NTP-010 that performs Verification Testing of the RT.
2. If converting a non Lucent Technologies RT, perform the vendor's procedure.

### 11.17.17 Verify Testing Status

1. Was verification testing successful?

If **YES**, go to Section **11.17.25**.

If **NO**, continue with Section **11.17.18**.

**NOTE:** Performance of the following steps assumes the TR008 RT is going to be reinstated to service and conversion to TR303 RT discontinued for now.

### 11.17.18 Remove IFACs Associated with RT from Service

**NOTE:** If the RT is equipped with PLS, remove the IFAC associated with the PROT first.

1. At the MCC, type and enter the following command for each of the IFACs associated with the RT being converted:

**RMV:IFAC=a-b-c,UCL**

Where:           a = SM number  
                   b = IDCU number  
                   c = IFAC number.

Response:       **RMV IFAC a b c COMPLETED**

### 11.17.19 Restore TR008 RT Data

1. At the RC/V terminal, type and enter **18.15**

Response:       **Enter Data Base Operation**  
                   **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response:       **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Select the completed work order Form 18.15 for the identified TR008 RT. This form should have the KEY attributes listed in the following display.

---

1. SM                   \_\_\_ INPUT APPROPRIATE DATA

UNIT TYPE    IDCU  
3. UNIT NUMBER    \_  
4. RT EX            \_

- Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute for the TR008 RT.

Response:    System completes remainder of view.  
              **Enter Update, Change, Validate, Screen#, or Print:**

- Type and enter **C**

Response:    **Change Field:**

- Type and enter **21**

Response:    Cursor at **TR303 BK OUT** attribute.

- Type and enter **B**

Response:    **Change Field:**

- Hit CARRIAGE RETURN.

Response:    **Enter Update, Change, Validate, Screen#, or Print:**

- Type and enter **U**

Response:    **updating . . . FORM UPDATED REMOTE TERMINAL** page displayed.  
              Cursor at SM attribute.

- Type and enter **<**

Response:    **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.17.20 Verify TR008 RT Data

- At the RC/V terminal, type and enter **15**

Response:    **Enter Data Base Operation**  
              **I=Insert, R=Review, U=Update, D=Delete:**

- Type and enter **R**

Response:    **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

- Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute for the TR008 RT.



- 
1. SM                    \_\_\_\_\_ INPUT APPROPRIATE DATA  
    UNIT TYPE        IDCUC
  3. UNIT NUMBER      \_
  4. RT EX             \_\_\_\_\_

Response:        System completes remainder of view.  
                    **Enter Review, Change-insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the work order form.
5. Type and enter **q**

Response:        **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response:        **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response:        **RCV-196 COMPLETED**

#### **11.17.21 Change RT Hardware**

1. If reinstating Lucent Technologies TR008 RT feature package B Mode 1 or 2, perform the *Change RT Hardware* section in NTP-011 of 363-205-401.
2. If reinstating a non Lucent Technologies RT, perform the vendor's procedure.

#### **11.17.22 Verify That the TR008 RT and IFACs Are Displayed Properly**

1. At MCC or TLWS, type and enter the following command:

**1880,x,y,z**

Where:            x = IDCUC number  
                    y = RT number  
                    z = SM number.

2. Verify that the RT is displayed properly.

#### **11.17.23 Restore TR008 RT Facilities**

**NOTE:** Restore lowest-numbered IFAC first.

1. At MCC, type and enter the following command for each of the IFACs associated with the RT being converted:

**RST:IFAC=a-b-c,UCL**

Where:           a = SM number  
                  b = IDCU number  
                  c = IFAC number.

Response:       **RST IFAC a b c COMPLETED**

2. Verify that the facility has restored on the MCC page.
3. Verify RT hardware integrity:
  - If reinstating Lucent Technologies TR008 RT feature package B Mode 1 or 2, as IFAC is restored, perform the portion of NTP-011 of 363-205-401 to Verify Hardware Integrity.
  - If reinstating a non Lucent Technologies RT, perform the vendor's procedure.
4. Repeat Steps 1 through 3, restoring the remaining IFACs in ascending order.

#### **11.17.24 Perform Verification Testing of the TR008 RT**

1. If reinstating Lucent Technologies TR008 RT feature package B Mode 1 or 2, perform the portion of NTP-011 of 363-205-401 that performs Verification Testing of the RT.
2. If reinstating a non Lucent Technologies RT, perform the vendor's procedure.
3. When verification is completed, go to **11.17.28**.

#### **11.17.25 Allow Routine Port Conditioning**

1. At MCC, type and enter the following command:

**ALW:RPC,SM=a**

Where:           a = SM number.

2. At MCC, type and enter the following command:

**OP:AUD,STATUS,SM=a**

Where:           a = SM number.

3. Verify that routine port conditioning is no longer inhibited at the ROP.

#### **11.17.26 Commit TR303 RT Data Update**

1. At the RC/V terminal, type and enter **18.15**

Response:       **Enter Data Base Operation**

**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Select the completed work order Form 18.15 for the identified TR008 RT. This form should have the KEY attributes listed in the following display.

---

```

1. SM          _____ INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _____

```

4. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

Response: **Change Field:**

6. Type and enter **21**

Response: Cursor at **TR303 BK OUT** attribute.

7. Type and enter **C**

Response: **Change Field:**

8. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **U**

Response: **updating . . . FORM UPDATED**  
**REMOTE TERMINAL** page displayed.  
 Cursor at the SM attribute.

10. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **q**

Response: **RCV-196 COMPLETED**

### 11.17.27 Back Up Office Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD**

**NOTE:** Prior to the given response, there will be completed responses for the SM, the AM, and the CMP, if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.17.28 Return Peripheral Fault Recovery (PFR) Message Printing to the Preconversion State

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a**

Where: a = SM number.

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE**

Where: a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP**

### 11.17.29 Return Routine Exercise to Normal

1. At MCC, type and enter the following command:

**ALW:REX,SM=a**

Where: a = SM inhibited.

Response: **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.18: ADD IFAC TO TR008 RT DIGROUPS —5E10 AND LATER

### OVERVIEW

The integrated digital carrier unit (IDCU) common hardware, the associated loop-side interfaces (LSI), and the associated electrical-line interface (ELI) must be operational. The IDCU facilities (IFAC), which are to be associated with the additional TR008 remote terminal (RT) digroups, must be in the growth state (per Procedure 11.10 ). This procedure assumes that each equipped digroup or dual-digroup has an IFAC associated with it.

The additional RT hardware must have been installed and tested prior to the execution of this procedure.

### PROCEDURE

1. Add IFAC to TR008 RT Digroups —5E10 and Later

#### 11.18.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

Where: a = Switching module (SM) number.

Comment: Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this RT addition of digroups procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this addition of digroups procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a**

Where: a = Number of the SM adding digroups.

Response: **OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

Response: The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses from the SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.18.2 Allow Peripheral Fault Recovery (PFR) Messages to Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

Where: a = SM number.

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

Where: a = SM number.

### 11.18.3 Verify the IFACs Associated with the Added Digroups are in the GROW State

1. At MCC, type and enter the following command:

**1870,y,x**

Where: y = IDCU number  
x = SM number.

### 11.18.4 Update from Grow to Operational the IFACs Associated with the Added Digroups

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **20.23**

Response:     **Enter Data Base Operation**  
                  **I=Insert, R=Review, U=Update, D=Delete:**

3.   Type and enter **U**

Response:     **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

4.   Select the completed work order Form 20.23 indicating what facilities are to be assigned to the added digroup. This form should have the KEY attributes listed in the following display.

---

1. SM    \_\_\_    INPUT APPROPRIATE DATA  
2. IDCU  \_\_\_  
3. LSI   \_\_\_

5.   Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response:     System completes remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

6.   Type and enter **C**

Response:     **Change Field:**

7.   Type and enter **4**

Response:     **Field 4:   Row:**

8.   Type and enter row number of an IFAC being grown.

Response:     Cursor at EQSTAT attribute of an IFAC.

9.   Type and enter **O**

Response:     Cursor at PM GRP attribute of an IFAC.

10.   Hit CARRIAGE RETURN.

Response:     Cursor at FACILITY ID attribute of an IFAC.

11.   Hit CARRIAGE RETURN.

Response:     Cursor at SUP MTHD attribute of an IFAC.

12.   Hit CARRIAGE RETURN.

Response:     Cursor at PUB43801 attribute of an IFAC.



13. Hit CARRIAGE RETURN.

Response:      **Field 4:    Row:**

14. For each remaining IFAC to be updated on this LSI, execute Steps 8 through 13. When no IFACs remain to be updated, continue this procedure with Step 15.

15. Hit CARRIAGE RETURN.

Response:      **Enter Update, Change, Validate, Screen#, or Print:**

16. Type and enter **U**

Response:      **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.

17. Type and enter **<**

Response:      **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.18.5 Verify IFAC Data

1. At the RC/V terminal, type and enter **23**

Response:      **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:      **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

```

1. SM   _____ INPUT APPROPRIATE DATA
2. IDCU  _
3. LSI   _

```

Response:      System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the work order form.

Comment:      Correct errors using terminal in the update mode.

5. Type and enter **q**

Response:      **FACILITY EQUIPMENT (IFAC)** page displayed.

6. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

7. Type and enter q

Response: **RCV-196 COMPLETED**

### 11.18.6 Update IFACs on Other LSI

1. If required, repeat Sections 11.18.4 and 11.18.5 for IFACs assigned to the added digroups on the other LSI  
]]>

### 11.18.7 Perform Cross Connects at DSX panel

1. Telephone Company function

### 11.18.8 Update Added Digroup to the GROW state in the Data Base

1. At the RC/V terminal, type and enter **18.15**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Select the completed work order Form 18.15 indicating what digroups are to be added. This form should have the KEY attributes listed in the following display.

---

```
1. SM          _____ INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX      _____
```

4. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

Response: **Change Field:**

6. **If Digroup B** is being added as Mode 1, continue this procedure at Step 7. Otherwise, continue this procedure at Step 15.
7. Type and enter **27**  
Response:      Cursor at DIGROUP B MODE attribute.
8. Type and enter **UNCONC**  
Response:      **Change Field:**
9. Type and enter **28**  
Response:      Cursor at DIGROUP B EQSTAT attribute.
10. Type and enter **G**  
Response:      **Change Field:**
11. Type and enter **29**  
Response:      Cursor at DIGROUP B CLI attribute.
12. Type and enter information from work order form.  
Response:      **Change Field:**
13. Type and enter **30**  
Response:      Cursor at DIGROUP B IFAC attribute.
14. Type and enter information from work order form.  
Response:      **Change Field:**
15. **If Digroup C** is being added as Mode 1, continue this procedure at Step 16. Otherwise, continue this procedure at Step 24.
16. Type and enter **31**  
Response:      Cursor at DIGROUP C MODE attribute.
17. Type and enter **UNCONC**  
Response:      **Change Field:**
18. Type and enter **32**

Response: Cursor at DIGROUP C EQSTAT attribute.

19. Type and enter **G**

Response: **Change Field:**

20. Type and enter **33**

Response: Cursor at DIGROUP C CLI attribute.

21. Type and enter information from work order form.

Response: **Change Field:**

22. Type and enter **34**

Response: Cursor at DIGROUP C IFAC attribute.

23. Type and enter information from work order form.

Response: **Change Field:**

24. **If Digroup D** is being added as Mode 1, continue this procedure at Step 25. Otherwise, continue this procedure at Step 33.

25. Type and enter **35**

Response: Cursor at DIGROUP D MODE attribute.

26. Type and enter **UNCONC**

Response: **Change Field:**

27. Type and enter **36**

Response: Cursor at DIGROUP D EQSTAT attribute.

28. Type and enter **G**

Response: **Change Field:**

29. Type and enter **37**

Response: Cursor at DIGROUP D CLI attribute.

30. Type and enter information from work order form.

Response:     **Change Field:**

31. Type and enter **38**

Response:     Cursor at DIGROUP D IFAC attribute.

32. Type and enter information from work order form.

Response:     **Change Field:**

33. **If Dual Digroup CD** is being added as Mode 2, continue this procedure at Step 34. Otherwise, continue this procedure at Step 48.

34. Type and enter **31**

Response:     Cursor at DIGROUP C MODE attribute.

35. Type and enter **CONC**

Response:     **Change Field:**

36. Type and enter **32**

Response:     Cursor at DIGROUP C EQSTAT attribute.

37. Type and enter **G**

Response:     **Change Field:**

38. Type and enter **33**

Response:     Cursor at DIGROUP C CLI attribute.

39. Type and enter information from work order form.

Response:     **Change Field:**

40. Type and enter **34**

Response:     Cursor at DIGROUP C IFAC attribute.

41. Type and enter information from work order form.

Response:     **Change Field:**

42. Type and enter **35**

Response:     Cursor at DIGROUP D MODE attribute.

43. Type and enter **CONC**  
Response: **Change Field:**
44. Type and enter **36**  
Response: Cursor at DIGROUP D EQSTAT attribute.
45. Type and enter **G**  
Response: **Change Field:**
46. Type and enter **37**  
Response: Cursor at DIGROUP D CLI attribute.
47. Type and enter information from work order form.  
Response: **Change Field:**
48. Hit CARRIAGE RETURN.  
Response: **Enter Update, Change, Validate, Screen#, or Print:**
49. Type and enter **U**  
Response: **updating ....FORM UPDATED  
REMOTE TERMINAL** page displayed.
50. Type and enter **<**  
Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.18.9 Inhibit Protection Line Switching

**NOTE:** If provided, inhibit protection line switching for those RT facilities associated with the added digroups.

1. At MCC, type and enter the following message:

**INH:RT,FAC=a-b,PROT;**

Where: a = Site identification number (SID)  
b = RT DS1 FAC (B, C, and/or D)

Response: **INH RT FAC = a-b PROT COMPLETED**

2. Repeat Step 1 for each RT DS1 FAC associated with an added digroup.

### 11.18.10 At the MCC, Verify that Added Digroups Are in the GROW State

1. At MCC, type and enter the following command:

**1880,y,z,x**

Where:           y = IDCU number  
                   z = RT number  
                   x = SM number.

### 11.18.11 Update Added Digroups from Grow to Operational

1. At the RC/V terminal, type and enter **15**

Response:       **Enter Data Base Operation**  
                   **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response:       **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

1. SM                    \_\_\_ INPUT APPROPRIATE DATA  
    UNIT TYPE       IDCU  
 3. UNIT NUMBER     \_\_\_  
 4. RT EX            \_\_\_

Response:       System completes remainder of view.  
                   **Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **C**

Response:       **Change Field:**

5. Type and enter **28**

Response:       Cursor at **TR008 DIGROUP B EQSTAT** attribute.

6. **If Digroup B** is being added, update EQSTAT from **G** to **O** and hit RETURN, else just hit RETURN.

Response:       **Change Field:**

7. Type and enter **32**

Response: Cursor at **TR008 DIGROUP C EQSTAT** attribute.

8. If **Digroup C** is being added, update EQSTAT from **G** to **O** and hit RETURN, else just hit RETURN.

Response: **Change Field:**

9. Type and enter **36**

Response: Cursor at **TR008 DIGROUP D EQSTAT** attribute.

10. If **Digroup D** is being added, update EQSTAT from **G** to **O** and hit RETURN, else just hit RETURN.

Response: **Change Field:**

11. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

12. Type and enter **U**

Response: **updating ....FORM UPDATED  
REMOTE TERMINAL** page displayed.

13. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.18.12 Verify Added Digroup Information in the Data Base

1. At the RC/V terminal, type and enter **15**

Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

1. SM                    \_\_\_\_\_ INPUT APPROPRIATE DATA  
   UNIT TYPE        IDCU  
3. UNIT NUMBER     \_  
4. RT EX            \_\_\_\_\_



Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the work order form.

Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### **11.18.13 Restore IFACs to Service**

1. At MCC, type and enter the following command for each IFAC terminating an added digroup or dual digroup:

**RST:IFAC=a-b-c;**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RST IFAC a b c COMPLETED**

#### **11.18.14 At the MCC, Verify Added Digroups Are Active**

1. At MCC, type and enter the following command:

**1880,y,z,x**

Where: y = IDCU number  
z = RT number  
x = SM number.

#### **11.18.15 Verify the IFACs Associated with Added Digroups Are ACTIVE with No Carrier Group Alarms (CGA) Present**

1. At MCC, type and enter the following command:

**1870,y,x**

Where:           y = IDCU number  
                  x = SM number.

### 11.18.16 Uninhibit Protection Line Switching

**NOTE:** If inhibited, allow protection line switching for those RT facilities associated with the added digroups.

1. At MCC, type and enter the following command for each RT FAC terminating an added digroup or dual digroup:

**ALW:RT,FAC=a-b,PROT;**

Where:           a = Site identification number  
                  b = RT DS1 FAC (B, C, and/or D).

### 11.18.17 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

Where:           a = SM number.

Response:       **OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

Where:           a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

Response:       **OK**

### 11.18.18 Back Up Office-Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### **11.18.19 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

Where: a = SM inhibited.

Response: **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 11.19: DELETE IFAC FROM TR008 RT DIGROUPS —5E10 AND LATER****PROCEDURE**

1. Delete IFAC From TR008 RT Digroups —5E10 and Later

**11.19.1 Prepare Integrated Digital Carrier Unit (IDCU) TR008 RT for Deletion of Digroups**

1. This procedure assumes that all line and trunk assignments have been removed from the digroups to be deleted before the deletion occurs.

After the completion of this procedure, perform the IDCU facility (IFAC) degrowth, Procedure 11.9 for those IFACs which were associated with the deleted digroups.

**11.19.2 Verify and Set Initial Conditions**

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this RT deletion of digroups procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this deletion of digroups procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = Number of the SM growing the RT.

**Response: OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses from the SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.19.3 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.19.4 Inhibit Protection Line Switch

1. At MCC, if the RT has a protection line, type and enter the following command for those facilities associated with the deleted digroups:

**INH:RT,FAC=a-b,PROT;**

**Where:**

a = Site Identification (SID) number

b = RT DS1 FAC (B, C, and/or D).

### 11.19.5 Unconditionally Remove IFACs from Service

1. At MCC, type and enter the following command for each of the IFACs which connect the digroups to be degrown to the IDCU:

**RMV:IFAC=a-b-c,UCL;**

**Where:**

a = SM number  
b = IDCU number  
c = IFAC number.

**Response: RMV IFACILITY a b c COMPLETED**

### 11.19.6 Update TR008 RT Digroup Information in the Data Base

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15**

**Response: Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

**Response: REMOTE TERMINAL** page displayed. Cursor at SM attribute.

4. Select the completed work order Form 18.15 indicating what digroups are to be deleted. This form should have the KEY attributes listed in the following display:

---

```

1. SM      _____ INPUT APPROPRIATE DATA
   UNIT TYPE  IDCU
3. UNIT NUMBER  _
4. RT EX      _____
```

5. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

**Response: System completes remainder of view.**  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **C**

**Response: Change Field:**

7. **If Digroup B** is being deleted, continue with next Step. Otherwise, go to Step 16.

8. Type and enter **27**

**Response:** Cursor at DIGROUP B MODE attribute.

9. Type and enter '

**Response:** **Change Field:**

10. Type and enter **28**

**Response:** Cursor at DIGROUP B EQSTAT attribute.

11. Type and enter '

**Response:** **Change Field:**

12. Type and enter **29**

**Response:** Cursor at DIGROUP B CLI attribute.

13. Type and enter '

**Response:** **Change Field:**

14. Type and enter **30**

**Response:** Cursor at DIGROUP B IFAC attribute.

15. Type and enter '

**Response:** **Change Field:**

16. **If Digroup C** is being deleted, continue with next Step. Otherwise, go to Step 25.

17. Type and enter **31**

**Response:** Cursor at DIGROUP C MODE attribute.

18. Type and enter '

**Response:** **Change Field:**

19. Type and enter **32**

**Response:** Cursor at DIGROUP C EQSTAT attribute.

20. Type and enter '

**Response:** **Change Field:**

21. Type and enter **33**

**Response:** Cursor at DIGROUP C CLI attribute.

22. Type and enter '

**Response:** **Change Field:**

23. Type and enter **34**

**Response:** Cursor at DIGROUP C IFAC attribute.

24. Type and enter '

**Response:** **Change Field:**

25. **If Digroup D** is being deleted, continue with next Step. Otherwise, go to Step 34.

26. Type and enter **35**

**Response:** Cursor at DIGROUP D MODE attribute.

27. Type and enter '

**Response:** **Change Field:**

28. Type and enter **36**

**Response:** Cursor at DIGROUP D EQSTAT attribute.

29. Type and enter '

**Response:** **Change Field:**

30. Type and enter **37**

**Response:** Cursor at DIGROUP D CLI attribute.

31. Type and enter '

**Response:** **Change Field:**

32. Type and enter **38**

**Response:** Cursor at DIGROUP D IFAC attribute.

33. Type and enter '

**Response:** **Change Field:**

34. **If Dual Digroup CD** is being deleted, continue with next Step. Otherwise, go to Step 49.

35. Type and enter **31**

**Response:** Cursor at DIGROUP C MODE attribute.

36. Type and enter '

**Response:** **Change Field:**

37. Type and enter **32**

**Response:** Cursor at DIGROUP C EQSTAT attribute.

38. Type and enter '



**Response:**    **Change Field:**

39. Type and enter **33**

**Response:**    Cursor at DIGROUP C CLI attribute.

40. Type and enter **'**

**Response:**    **Change Field:**

41. Type and enter **34**

**Response:**    Cursor at DIGROUP C IFAC attribute.

42. Type and enter **'**

**Response:**    **Change Field:**

43. Type and enter **35**

**Response:**    Cursor at DIGROUP D MODE attribute.

44. Type and enter **'**

**Response:**    **Change Field:**

45. Type and enter **36**

**Response:**    Cursor at DIGROUP D EQSTAT attribute.

46. Type and enter **'**

**Response:**    **Change Field:**

47. Type and enter **37**

**Response:**    Cursor at DIGROUP D CLI attribute.

48. Type and enter **'**

**Response:**    **Change Field:**

49. Hit CARRIAGE RETURN.

**Response:**    **Enter Update, Change, Validate, Screen#, or Print:**

50. Type and enter **U**

**Response:**    **updating ....FORM UPDATED**  
**REMOTE TERMINAL** page displayed.

51. Type and enter **<**

**Response:**    **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.19.7 Verify TR008 RT Data

1. Type and enter **15**

**Response:** Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:

2. Type and enter **R**

**Response:** REMOTE TERMINAL page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

```

1. SM      _____ INPUT APPROPRIATE DATA
   UNIT TYPE  IDCU
3. UNIT NUMBER  _
4. RT EX      _____

```

**Response:** System completes remainder of view.  
Enter Review, Change-Insert, Validate, Screen#, or Print:

4. Verify data is consistent with the work order form.

**Comment:** Correct errors using terminal in the update mode.

5. Type and enter **q**

**Response:** REMOTE TERMINAL page displayed.

6. Type and enter **<**

**Response:** 18.0 SM & REMOTE TERMINALS VIEWS page displayed.

7. Type and enter **q**

**Response:** RCV-196 COMPLETED

### 11.19.8 Verify RT Digroup Degrowth on MCC Pages

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

|     |             |
|-----|-------------|
| y = | IDCU number |
| z = | RT number   |
| x = | SM number.  |

2. Verify that the removed digroups are not displayed.

### 11.19.9 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP output for ANALYSIS ONLY,

REPT TRBL, and PFR messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS:MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### **11.19.10 Back Up Office-Dependent Data**

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### **11.19.11 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 11.20: CONVERT IDCU TR008 RT FROM MODE I TO MODE II —5E10 AND LATER

### PROCEDURE

1. Convert IDCU TR008 RT From Mode I to Mode II — 5E10 and Later

#### 11.20.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

Where: a = Switching module (SM) number.

Comment: Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this integrated digital carrier unit (IDCU) remote terminal (RT) conversion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this RT conversion procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

Where: a = Number of the SM converting the IDCU RT.

Response: **OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

Response: The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication processor (CMP), if applicable.

Responses: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.20.2 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

Response: **OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

Response: **OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

Where: a = SM number.

Response: **OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

Where: a = SM number.

Response: **OK**

### 11.20.3 Remove from Service IFACs Associated with RT Being Modified

**NOTE:** If the RT is equipped with protection line switching (PLS), remove the IFAC associated with the protection (PROT) first.

1. At MCC, type and enter the following command for each of the IDCU facilities (IFACs) associated with the RT being converted:

**RMV:IFAC=a-b-c,UCL;**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RMV IFAC a b c COMPLETED**

#### 11.20.4 Verify that IFACs Which Are Associated with the TR008 RT Being Modified Are OOS

1. At MCC, type and enter the following command:

**1880,y,z,x**

Where:            y = IDCU number  
                    z = RT number  
                    x = SM number.

#### 11.20.5 Inhibit Protection Line Switching, If Provided, on all IFACs Associated with the RT Being Modified

**NOTE:** Inhibit protection line switching for the **P** RT DS1 FAC first.

1. At MCC, type and enter the following command:

**INH:RT,FAC=a-b,PROT;**

Where:            a = Site identification (SID) number  
                    b = RT DS1 FAC number (A-D,P for TR008 RT, and 1-28 for TR303 RT).

Response:        **INH RT FAC = a-b PROT COMPLETED**

#### 11.20.6 Change RT Hardware

**CAUTION:** This step may be service affecting.

1. RT vendor procedure - do this step concurrently with the following step.
2. Refer to the appropriate vendor procedure for configuring the RT hardware for Mode II operation.

#### 11.20.7 Update TR008 RT from Mode I to Mode II

1. Select and prepare terminal for recent change and verify activities.

Reference:        **Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15**

Response:        **Enter Data Base Operation**  
                    **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

Response:        **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

4. Select the completed work order Form 18.15 for the identified RT. This form should have the KEY attributes

listed in the following display:

---

```
1. SM          INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX       _
```

5. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **C**

Response: **Change Field:**

7. **If Digroups A and B** are being converted to Dual Digroup AB, continue with next Step. Otherwise, go to Step 14.

8. Type and enter **23**

Response: Cursor at DIGROUP A MODE attribute.

9. Type and enter **CONC**

Response: **Change Field:**

10. Type and enter **27**

Response: Cursor at DIGROUP B MODE attribute.

11. Type and enter **CONC**

Response: **Change Field:**

12. Type and enter **30**

Response: Cursor at DIGROUP B IFAC attribute.

13. Type and enter **'**

Response: **Change Field:**

14. **If Digroups C and D** are being converted to Dual Digroup CD, continue with next Step. Otherwise, go to Step 21.

15. Type and enter **31**

Response: Cursor at DIGROUP C MODE attribute.



16. Type and enter **CONC**  
Response: **Change Field:**
17. Type and enter **35**  
Response: Cursor at DIGROUP D MODE attribute.
18. Type and enter **CONC**  
Response: **Change Field:**
19. Type and enter **38**  
Response: Cursor at DIGROUP D IFAC attribute.
20. Type and enter **'**  
Response: **Change Field:**
21. Hit CARRIAGE RETURN.  
Response: **Enter Update, Change, Validate, Screen#, or Print:**
22. Type and enter **U**  
Response: **updating ....FORM UPDATED  
REMOTE TERMINAL** page displayed.
23. Type and enter **<**  
Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.20.8 Verify TR008 RT Data

1. At the RC/V terminal, type and enter **15**  
Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**
2. Type and enter **R**  
Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.
3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

- 
1. SM                    INPUT APPROPRIATE DATA  
   UNIT TYPE        IDCU
  3. UNIT NUMBER    \_
  4. RT EX            \_

Response:        System completes remainder of view.  
                  **Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with selected work order form.

Comment:        Correct errors using terminal in the update mode.

5. Type and enter **q**

Response:        **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response:        **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response:        **RCV-196 COMPLETED**

### 11.20.9 Restore to Service IFACs Still Assigned to the Mode II RT

**NOTE:** If the RT is equipped with PLS, restore the IFAC associated with the protection (PROT) last.

1. At MCC, type and enter the following command:

**RST:IFAC=a-b-c;**

Where:            a = SM number  
                      b = IDCU number  
                      c = IFAC number.

Response:        **RST IFAC a b c COMPLETED**

### 11.20.10 Allow Protection Line Switching, If Provided, on All IFACs Associated with the RT Being Modified

**NOTE:** Allow protection line switching for the **P** RT DS1 FAC last.

1. At MCC, type and enter the following command:

**ALW:RT,FAC=a-b,PROT;**

Where: a = SID number  
b = RT DS1 FAC number (A-D,P for TR008 RT, and 1-28 for TR303 RT).

Response: **ALW RT FAC = a-b PROT COMPLETED**

### 11.20.11 Remove Unused IFACs from the Data Base

1. At the RC/V terminal, type and enter **20.23**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.

3. Select the completed work order form 20.23 for the identified unused IFACs. This form should have the KEY attributes listed in the following display.

---

```

1. SM      _____ INPUT APPROPRIATE DATA
2. IDCU    _
3. LSI     _

```

4. Using the completed work order form as a guide, type and enter the indicated values for each KEY attribute.

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

Response: **Change Field:**

6. Type and enter **4**

Response: **Field 4: Row:**

7. Type and enter the row number of an IFAC being degrown.

Response: Cursor at EQSTAT attribute of an IFAC.

8. Type and enter **'**

Response: Cursor at PM GRP attribute of an IFAC.

9. Type and enter **'**

Response: Cursor at FACILITY ID attribute of an IFAC.

10. Type and enter '  
Response: Cursor at SUP MTHD attribute of an IFAC.
11. Type and enter '  
Response: Cursor at PUB43801 attribute of an IFAC.
12. Type and enter '  
Response: **Field 4: Row:**
13. For each remaining IFAC to be degrown on this loop-side interface (LSI), do Steps 7 through 12. When no more IFACs remain to be removed, continue with next Step.
14. Hit CARRIAGE RETURN.  
Response: **Change Field:**
15. Hit CARRIAGE RETURN.  
Response: **Enter Update, Change, Validate, Screen#, or Print:**
16. Type and enter **U**  
Response: **updating ....FORM UPDATED  
FACILITY EQUIPMENT (IFAC)** page displayed.
17. If unused IFACs need to be deleted on the other IDCU LSI, then repeat Steps 3 through 16 for those IFACs. Otherwise, continue with next Step.
18. Type and enter **<**  
Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.20.12 Verify Removal of Unused IFACs from the Data Base

1. At the RC/V terminal, type and enter **23**  
Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**
2. Type and enter **R**  
Response: **FACILITY EQUIPMENT (IFAC)** page displayed. Cursor at SM attribute.
3. Using the selected work order form 20.23 as a guide, again type and enter the indicated values for each KEY

attribute.

---

1. SM        \_\_\_\_\_ INPUT APPROPRIATE DATA
2. IDCU     \_
3. LSI      \_

Response:        System completes remainder of view.  
                     **Enter Review, Change-Insert, Validate, Screen#, or Print:**

4.    Verify data is consistent with selected work order form.

Comment:        Correct errors using terminal in the update mode.

5.    If unused IFACs were removed on the other IDCU LSI, then repeat Steps 3 and 4 for those IFACs. Otherwise, continue with next Step.

6.    Type and enter **q**

Response:        **FACILITY EQUIPMENT (IFAC)** page displayed.

7.    Type and enter **<**

Response:        **20.0 SM PACK & SUBPACK VIEWS** page displayed.

8.    Type and enter **q**

Response:        **RCV-196 COMPLETED**

### 11.20.13 Perform DS1 Cross Connects

1.    **Installation function** - Remove cross connects for unused IFACs.

### 11.20.14 Verify RT Conversion on MCC Pages

1.    At MCC or trunk and line work station, type and enter the following command:

**1880,y,z,x**

Where:            y = IDCU number  
                       z = RT number  
                       x = SM number.

2.    Verify that the RT is displayed properly at the MCC.

### 11.20.15 Back Up Office Dependent Data

1.    At MCC, type and enter the following command:

**BKUP:ODD,**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

Response:      **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### **11.20.16 Return Peripheral Fault Recovery Message Printing from Backup**

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

Where:            a = SM number.

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

Where:            a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

#### **11.20.17 Return Routine Exercise to Normal**

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

Where:            a = SM inhibited.

Response:      **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.21: CONVERT IDCU TR008 RT FROM MODE II TO MODE I —5E10 AND LATER

### PROCEDURE

1. Convert IDCU TR008 RT from MODE II to MODE I —5E10 and later

#### 11.21.1 Prepare IDCU TR008 RT for Conversion

1. The additional integrated digital carrier unit (IDCU) facilities (IFACs) that are to be associated with the TR008 remote terminal (RT) must be in the growth state.

Reference: **Procedure 11.10**

#### 11.21.2 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this IDCU RT conversion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this conversion procedure.

4. At MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = Number of the SM converting the IDCU RT.

**Response: OK**

5. At MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.21.3 Allow Peripheral Fault Recovery (PFR) Messages To Be Printed

1. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

**Response: OK** with exceptions

2. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF;**

**Response: OK**

3. At MCC, type and enter the following command:

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

**Response: OK**

4. At MCC, type and enter the following command:

**INH:BREVC,SM=a;**

**Where:**

a = SM number.

**Response: OK**

### 11.21.4 Update IFACs from Grow to Operational

1. Select and prepare terminal for recent change and verify activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **20.23**



**Response:** Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:

3. Type and enter **U**

**Response:** FACILITY EQUIPMENT (IFAC) page displayed. Cursor at SM attribute.

4. Select the completed work order form 20.23 for the identified RT. This form should have the KEY attributes listed in the following display.

---

1. SM    \_\_\_    INPUT APPROPRIATE DATA  
2. IDCU    \_\_\_  
3. LSI    \_\_\_

5. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **C**

**Response:** Change Field:

7. Type and enter **4**

**Response:** Field 4: Row:

8. Type and enter row number of an IFAC being grown.

**Response:** Cursor at EQSTAT attribute of an IFAC.

9. Type and enter **O**

**Response:** Cursor at PM GRP attribute of an IFAC.

10. Hit CARRIAGE RETURN.

**Response:** Cursor at FACILITY ID attribute of an IFAC.

11. Hit CARRIAGE RETURN.

**Response:** Cursor at SUP MTHD attribute of an IFAC.

12. Hit CARRIAGE RETURN.

**Response:** Cursor at PUB43801 attribute of an IFAC.

13. Hit CARRIAGE RETURN.

**Response:** Field 4: Row:

14. For each remaining IFAC to be grown on this loop-side interface (LSI), do Steps 8 through 13. When no IFACs remain to be grown, continue with next Step.

15. Hit CARRIAGE RETURN.

Response:     **Change Field:**

16. Hit CARRIAGE RETURN.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

17. Type and enter **U**

Response:     **updating ....FORM UPDATED**  
                 **FACILITY EQUIPMENT (IFAC)** page displayed.

18. If IFACs need to be added on the other IDCU LSI, then repeat Steps 4 through 17 for those IFACs. Otherwise, continue with next Step.

19. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.21.5 Verify Facility Data

1. At the RC/V terminal, type and enter **23**

Response:     **Enter Data Base Operation**  
                 **I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response:     **FACILITY** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

1. SM     \_\_\_\_  INPUT APPROPRIATE DATA  
2. IDCU    —  
3. LSI     —

Response:     System completes remainder of view.  
                 **Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

**Comment:**     Correct errors using terminal in the update mode.

5. If IFACs were added on the other IDCU LSI, then repeat Steps 3 and 4 for those IFACs. Otherwise, continue with next Step.

6. Type and enter **q**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed.

7. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

8. Type and enter q

Response: **RCV-196 COMPLETED**

### 11.21.6 Perform DS1 Cross Connects

1. Telephone Company function.

### 11.21.7 Remove from Service IFACs Associated with RT Being Modified

**NOTE:** If the RT is equipped with protection line switching, remove the IFAC associated with the protection (PROT) first.

1. At MCC, type and enter the following command for each of the IFACs associated with the RT being converted:

**RMV:IFAC=a-b-c,UCL;**

**Where:**

|     |              |
|-----|--------------|
| a = | SM number    |
| b = | IDCU number  |
| c = | IFAC number. |

Response: **RMV IFAC a b c COMPLETED**

### 11.21.8 Verify IFACs Associated with the TR008 RT Being Modified Are OOS

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

|     |             |
|-----|-------------|
| y = | IDCU number |
| z = | RT number   |
| x = | SM number.  |

### 11.21.9 Inhibit Protection Line Switching, If Provided, on All IFACs Associated with the RT Being Modified

**NOTE:** Inhibit protection line switching for the **P** RT DS1 FAC first.

1. At MCC, type and enter the following command:

**INH:RT,FAC=a-b,PROT;**

**Where:**

- a = SID number
- b = RT DS1 FAC number (A-D,P for TR008 RT, and 1-28 for TR303 RT).

**Response: INH RT FAC = a-b PROT COMPLETED**

### 11.21.10 Change RT Hardware

**CAUTION:** This step may be service affecting.

1. RT vendor procedure - execute this step concurrently with the following step.
2. Refer to the appropriate vendor procedure for configuring the RT hardware for Mode I operation.

### 11.21.11 Update TR008 RT from Mode II to Mode I

1. At the RC/V terminal, type and enter **18.15**

**Response: Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **U**

**Response: REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Select the completed work order Form 18.15 for the identified RT. This form should have the KEY attributes listed in the following display:

---

```

1. SM          _____ INPUT APPROPRIATE DATA
   UNIT TYPE   IDCU
3. UNIT NUMBER _
4. RT EX       _____

```

4. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

**Response: System completes remainder of view.  
Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **C**

**Response: Change Field:**

6. **If Dual Digroup AB** are being converted to Digroups A and B, continue with next Step. Otherwise, go to Step 13.

7. Type and enter: **23**  
Response: Cursor at DIGROUP A MODE attribute.
8. Type and enter **UNCONC**  
Response: **Change Field:**
9. Type and enter: **27**  
Response: Cursor at DIGROUP B MODE attribute.
10. Type and enter **UNCONC**  
Response: **Change Field:**
11. Type and enter: **30**  
Response: Cursor at DIGROUP B IFAC attribute.
12. Type and enter information from work order form.  
Response: **Change Field:**
13. **If Dual Digroup CD** are being converted to Digroups C and D, continue with next Step. Otherwise, go to Step 20.
14. Type and enter: **31**  
Response: Cursor at DIGROUP C MODE attribute.
15. Type and enter **UNCONC**  
Response: **Change Field:**
16. Type and enter: **35**  
Response: Cursor at DIGROUP D MODE attribute.
17. Type and enter **UNCONC**  
Response: **Change Field:**
18. Type and enter: **38**  
Response: Cursor at DIGROUP D IFAC attribute.
19. Type and enter information from work order form.

Response: **Change Field:**

20. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

21. Type and enter **U**

Response: **updating ....FORM UPDATED  
REMOTE TERMINAL** page displayed.

22. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.21.12 Verify TR008 RT Data

1. At the RC/V terminal, type and enter **15**

Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

2. Type and enter **R**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, again type and enter the indicated values for each KEY attribute.

---

```

1. SM      _____ INPUT APPROPRIATE DATA
   UNIT TYPE  IDCU
3. UNIT NUMBER  _
4. RT EX      _____
```

Response: System completes remainder of view.  
**Enter Review, Change-Insert, Validate, Screen#, or Print:**

4. Verify data is consistent with the selected work order form.

Comment: Correct errors using terminal in the update mode.

5. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

6. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

### 11.21.13 Restore IFACs to Service

1. At MCC, type and enter the following command:

**RST:IFAC=a-b-c;**

**Where:**

a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RST IFAC a b c COMPLETED**

### 11.21.14 Allow Protection Line Switching, If Provided, on All IFACs Associated with the RT Being Modified

**NOTE:** Allow protection line switching for the **P** RT DS1 FAC last.

1. At MCC, type and enter the following command:

**ALW:RT,FAC=a-b,PROT;**

**Where:**

a = SID number  
b = RT DS1 FAC number (A-D,P for TR008 RT, and 1-28 for TR303 RT).

### 11.21.15 Verify RT Conversion on MCC Pages

1. At MCC, type and enter the following command:

**1880,y,z,x**

**Where:**

y = IDCU number  
z = RT number  
x = SM number.

2. Verify that the RT is displayed properly at the MCC.

### 11.21.16 Back Up Office Dependent Data

1. At MCC, type and enter the following command:

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### 11.21.17 Return Peripheral Fault Recovery Message Printing from Backup

**NOTE:** Wait 30 minutes before performing the following steps, and monitor the ROP for ANALYSIS ONLY, REPT TRBL, and PFR messages that may implicate this hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with the following steps.

1. At MCC, type and enter the following command:

**ALW:BREVC,SM=a;**

**Where:**

a = SM number.

2. At MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM number.

3. At MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

#### 11.21.18 Return Routine Exercise to Normal

1. At MCC, type and enter the following command:

**ALW:REX,SM=a;**

**Where:**

a = SM inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 11.22: VERIFY OPERATION OF ALD1 CIRCUIT PACK(S)—14A ANNOUNCEMENT SYSTEM

### OVERVIEW

This procedure verifies the channel output transmission level, if the **recommended** Bellcore Technical Advisory standard is being used, and/or the audio quality of the announcement(s) of the 14A announcement system ALD1 circuit pack(s). (See 201-521-101 for additional information on the 14A announcement system.)

### PROCEDURE

1. Notify office supervision that selected ALD1 circuit pack will be removed from service.
2. **NOTE:** The following test (Steps 3 through 8) uses the Bellcore Technical Advisory standard transmission level to the network of -24 dBm for special information tones (SITs) and -22 VU for the announcement message. This test is **invalid** if using nonstandard SIT and announcement values.

Is the Bellcore Technical Advisory standard for SITs and announcement messages being used for this ALD1 pack?

If **YES**, continue with next Step.

If **NO**, go to Step 13.

3. At rear panel of selected ALD1 circuit pack, connect the transmission measuring set (TMS) to pins **20(T)** and **50(R)** on the **940A** connector.
4. Verify the TMS is set for the proper trunk circuit impedance, 600-ohm position for 600-ohm trunks or 900-ohm position for 900-ohm trunks.
5. On the front panel of the ALD1 pack (Figure 11.22-1), depress the **SET LEVEL/NORMAL** LED pushbutton switch.

Response: **SET LEVEL/NORMAL** LED lights.  
 Selected channel is removed from service.  
 A steady 1000-Hz reference tone is generated by the ALD1 for detection by the TMS.  
 The TMS indicates the output transmission level of the selected ALD1 pack.

6. Read the output transmission level on the TMS and compare with the applicable value in Table 11.22-1.
7. Disconnect TMS when measurement is completed.
8. **NOTE:** The values in Table 11.22-1 will result in meeting the Bellcore Technical Advisory standard transmission level to the network of -24 dBm for special information tones (SITs) and -22 VU for the announcements. These values assume a 6 dB loss between the **T** and **R** outputs of the 14A and the input of the trunk circuit. If the loss is less, the values must be decreased accordingly. If the 14A is connected to a 2-wire telephone line instead of a trunk circuit, as in a remote switching module (RSM) application, the **T** and **R** outputs are connected to the 2-wire line via the AWH1 circuit pack. For this type of connection, the preferred output transmission level shown in Table 11.22-1 should always be used.

Is the TMS measurement the same as the applicable value in Table 11.22-1 ?

If **YES**, go to Step 12.

If **NO**, continue with next Step.

9. Notify office supervision and installation group that selected ALD1 circuit pack output transmission level does NOT meet the Bellcore Technical Advisory standard.
10. **Postpone further testing of this ALD1 pack until the error condition is corrected.**
11. Go to Step 19.
12. On the front panel of the ALD1 circuit pack, depress the **SET LEVEL/NORMAL** pushbutton switch to **NORMAL**.

Response: The **SET LEVEL/NORMAL** LED goes off.  
Selected ALD1 circuit pack is restored to service.

13. **NOTE:** For installations that have the **START** input permanently grounded, the announcement cycles continuously. If the **START** input is not permanently grounded, insertion of the handset will start the announcement cycle at the beginning. The announcement should be of good audio quality.

At front panel of selected ALD1 circuit pack (Figure 11.22-1 ), connect handset (G3CR-type or equivalent) in the **AUDIO MONITOR** jack on the circuit pack.

Response: Announcement can be heard in the handset.

14. Use the handset to monitor at least one full cycle of the recorded announcement.
15. Is recorded announcement of satisfactory quality?

If **YES**, go to Step 17.

If **NO**, continue with next Step.

16. Report error condition to installation group and office supervision.
17. Disconnect handset.

Response: Selected ALD1 circuit pack is returned to service.

18. Notify office supervision that selected ALD1 pack is in service.
19. Does another ALD1 circuit pack remain to be tested?

If **YES**, go to Step 1.

If **NO**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

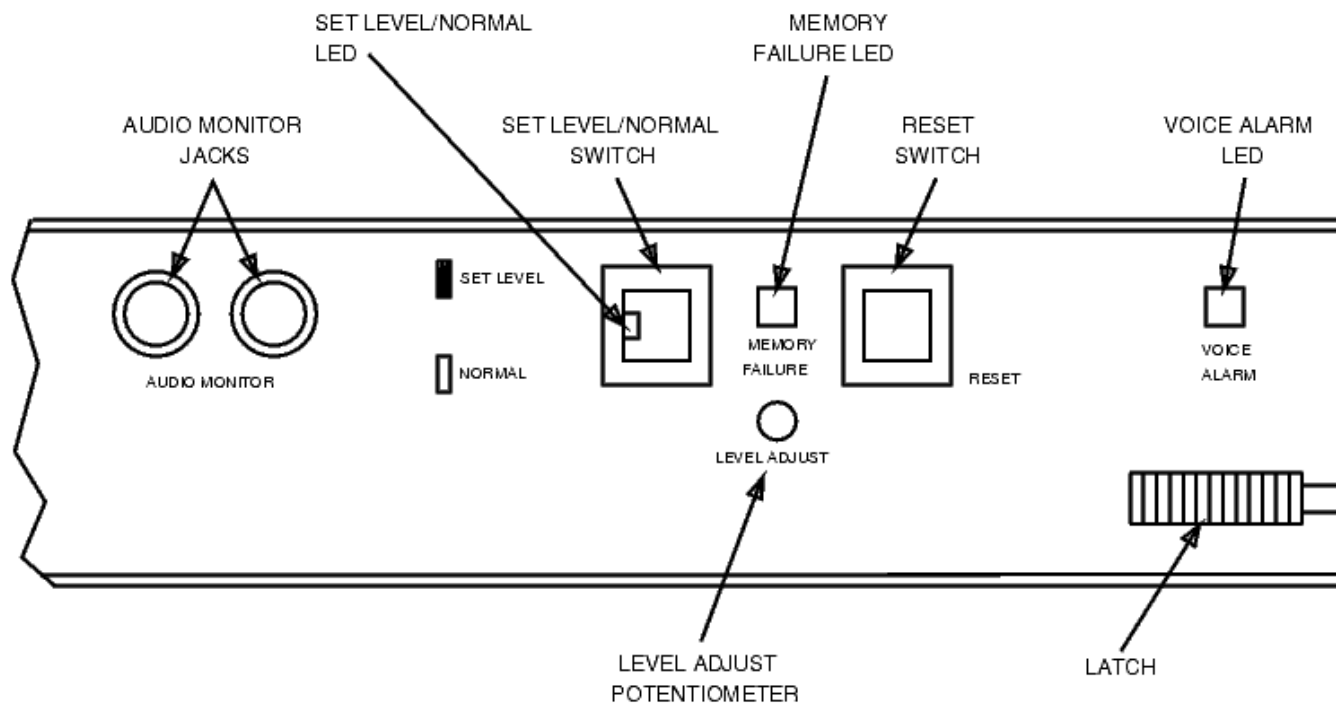


Figure 11.22-1 ALD1 Circuit Pack - 14A Announcement System

Table 11.22-1 ALD1 Circuit Pack - Preferred Output Transmission Levels - 14A Announcement System

| TYPE OF CONNECTION                                                                                                     | TMS READING<br>a |
|------------------------------------------------------------------------------------------------------------------------|------------------|
| 600-Ohm Trunk                                                                                                          | -2 dBm           |
| 900-Ohm Trunk                                                                                                          | -2 dBm           |
| 2-Wire Telephone<br>Line Via AWH1                                                                                      | 0 dBm            |
| <b>Notes:</b><br>a. The TMS is connected directly to pins 20T and 50R of the 940A connector on the 14A mounting plate. |                  |

## Procedure 11.23: VERIFY OPERATION OF ALD2 CIRCUIT PACK(S)—14A ANNOUNCEMENT SYSTEM

### OVERVIEW

This procedure verifies the operation of 14A announcement system ALD2 circuit pack(s) by first performing diagnostics followed by a channel output transmission level test, if the **recommended** Bellcore Technical Advisory standard transmission level is in use, and/or verification of the audio quality of the announcement. (See 201-521-101 for additional information on the 14A announcement system.)

### PROCEDURE

1. Notify office supervision that selected ALD2 circuit pack will be out of service.
2. **NOTE:** The ALD2 pack has a front panel mounted LED display (See Figure 11.23-1 ) which shows the operational modes available. These various modes of operation and their meanings are listed in Table 11.23-1 .

At front panel of ALD2 pack, press **MENU** pushbutton repeatedly until **CHK SYS** appears on display; then press the **SELECT** pushbutton.

Comment: If the display does not change when the **MENU** pushbutton is pressed, press the **SELECT** pushbutton and then the **MENU** pushbutton as above.

Response: Selected ALD2 pack is removed from service.  
A complete diagnostic test of the ALD2 pack is started.  
The first test is a visual check of the display. All the display LEDs are illuminated in a pattern which first illuminates the even- numbered LEDs for 2 seconds and then illuminates the odd-numbered LEDs for 2 seconds.  
Display goes off for 2 seconds and then will read **STAND BY**.  
When the diagnostic test is completed, the display will read **LOC MODE** if the diagnostic test passed.

3. Did the ALD2 circuit pack pass diagnostics?  
If **YES**, go to Step 7.  
If **NO**, continue with next Step.
4. Notify office supervision that diagnostics failed for the selected ALD2 pack.
5. Postpone further testing of this ALD2 pack until the error condition is corrected.
6. Go to Step 33.
7. **NOTE:** The following test (Steps 8 through 14) uses the Bellcore Technical Advisory standard transmission level to the network of -24 dbm for special information tones (SITs) and -22 VU for announcement messages. This test is **invalid** if using nonstandard SIT and announcement values.

Is the Bellcore Technical Advisory standard for SITs and announcement messages being used for this ALD2 pack?

If **YES**, continue with next Step.

If **NO**, go to Step 20.

8. At ALD2 circuit pack rear panel, connect the TMS directly to pins **20(T)** and **50 (R)** on the **940A** connector.
9. Verify the TMS is set for the proper trunk circuit impedance, 600-ohm position for 600-ohm trunks or 900-ohm position for 900-ohm trunks.
10. On the front panel of the ALD2 pack, press the **MENU** pushbutton repeatedly until **SET LEV** is displayed and then press the **SELECT** pushbutton.

Response: The display will read **ADJ LEV**.  
A steady 1000-Hz reference tone is generated by the ALD2 for detection by the TMS.  
The TMS indicated the output transmission level of the selected ALD2 pack.

11. Read the output transmission level on the TMS and compare with the applicable value in Table 11.23-2 .
12. Disconnect the TMS.
13. Press the **SELECT** pushbutton to escape the **ADJ LEV** function.

Response: **LOC MODE** displayed on LED display.

14. **NOTE:** The values in Table 11.23-2 will result in meeting the Bellcore Technical Advisory standard transmission level to the network of -24 dBm for SITs and -22 VU for announcements. These values assume a 6 dB loss between the **T** and **R** outputs of the 14A and the input of the trunk circuit. If the loss is less, then the values must be decreased accordingly. If the 14A is connected to a 2-wire telephone line instead of a trunk circuit, as in a remote switching module (RSM) application, the **T** and **R** outputs are connected to the 2-wire line via the AWH1 circuit pack. For this type of connection, the preferred output transmission level shown in Table 11.23-2 should always be used.

Was the TMS measurement the same as the applicable value in Table 11.23-2 ?

If **YES**, go to Step 18.

If **NO**, continue with next Step.

15. Notify office supervision and installation group that the output transmission level of the selected ALD2 pack does NOT meet the Bellcore Technical Advisory standard.
16. Postpone further testing of this ALD2 pack until the error condition is corrected.
17. Go to Step 33.
18. At front panel of selected ALD2 circuit pack, connect handset, with a modular plug, into the **HANDSET** jack.
19. **NOTE:** For installations that have the **START** input permanently grounded, the announcement plays continuously; therefore, the announcement can be monitored by simply inserting the handset into the **HANDSET** jack. The announcement cycle will be in process and should be of good quality.

Can the announcement be heard in the handset?

If **YES**, continue with next Step.

If **NO**, go to Step 23.

20. Use handset to monitor at least one cycle of the announcement.

21. Disconnect handset when monitoring is completed.

22. Was recorded announcement of satisfactory quality?

If **YES**, go to Step 31.

If **NO**, go to Step 28.

23. At ALD2 front panel, press the **MENU** pushbutton repeatedly until **LOC MON** is displayed, and then press the **SELECT** pushbutton.

Response: Announcement cycle starts at the beginning and repeats until stopped, and should be of good audio quality.  
The display shows the length of the announcement and counts down while the announcement is being played.

24. Use the handset to monitor at least one full announcement cycle.

25. When monitoring is completed, press the **SELECT** pushbutton.

Response: Announcement stops.  
**LOC MODE** displayed on LED display.

26. Disconnect handset.

27. Was recorded announcement of satisfactory quality?

If **YES**, go to Step 31.

If **NO**, continue with next Step.

28. Notify office supervision and installation group that the announcement is not of satisfactory audio quality.

29. Notify office supervision that selected ALD2 pack will be out of service until error condition(s) is corrected.

30. Now go to Step 33.

31. Press **MENU** pushbutton repeatedly until **IN SERV** is displayed on LED display, then press **SELECT** pushbutton.

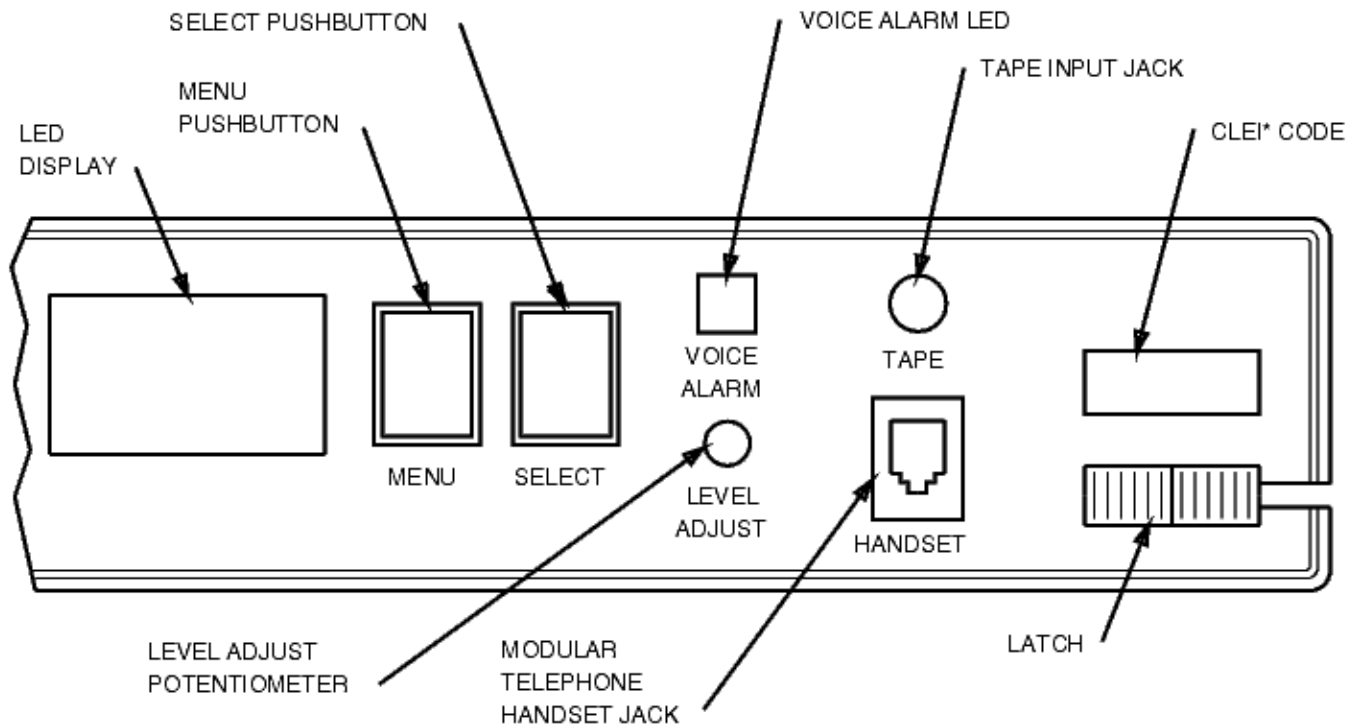
Response: Selected ALD2 pack is restored to service.

32. Notify office supervision that selected ALD2 pack is in service.

33. Does another ALD2 pack remain to be tested?

If **YES**, go to Step 1.

If **NO**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



\* COMMON LANGUAGE is a registered trademark and CLEI, CLLI, and CLFI are trademarks of Bell Communications Research, Inc.

**Figure 11.23-1 ALD2 Circuit Pack - 14A Announcement System**

**Table 11.23-1 ALD2 Menu Display Messages - 14A Announcement System**

| MESSAGE  | COMMENT                                                                                                                                                                                   |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADJ LEV  | Allows adjustment of the output transmission level using a 1 kHz reference tone.                                                                                                          |
| CHK SYS  | When selected, a complete diagnostic test of ALD2 is made.                                                                                                                                |
| IN-SERV  | Indicates that the circuit pack is in service. When the unit receives a ground start, it starts sending the announcement.                                                                 |
| LOC MODE | Indicates that the unit has been removed from service and is in the local mode.                                                                                                           |
| LOC MON  | Indicates that the unit has been removed from service and is in the monitor mode.                                                                                                         |
| PEG CNT  | Allows the processor to display from memory the actual number of times the announcement was broadcasted while the channel was in the IN-SERV mode, when the SELECT pushbutton is pressed. |
| RECORD   | Indicates the RECORD function may be selected by pressing the SELECT pushbutton.                                                                                                          |
| REM MODE | Indicates that the ALD2 is being accessed by the remote record circuit.                                                                                                                   |
| SET LEV  | Indicates that the circuit pack's transmission level may be adjusted after the SELECT pushbutton is pressed.                                                                              |
| SIT SEL  | Indicates that the SIT (special information tone) preceding an announcement can be generated internally if desired by the technician.                                                     |
| STAND BY | Indicates that the processor is performing a diagnostic test on the circuit.                                                                                                              |
| 30S REC  | Indicates that the RECORD mode has been selected and the internal timer is ready to be started to time the announcement                                                                   |

|         |                                                                                                               |
|---------|---------------------------------------------------------------------------------------------------------------|
|         | being recorded. (Announcement length is 30 seconds maximum.)                                                  |
| 30S MON | Indicates that the LOCAL MONITOR mode has been selected and the announcement may be monitored from a handset. |

**Table 11.23-2 ALD2 Circuit Pack - Preferred Output Transmission Levels - 14A Announcement System**

| TYPE OF CONNECTION                                                                                    | TMS READING<br>a |
|-------------------------------------------------------------------------------------------------------|------------------|
| 600-Ohm Trunk                                                                                         | -8 dBm           |
| 900-Ohm Trunk                                                                                         | -8 dBm           |
| 2-Wire Telephone<br>Line Via AWH1                                                                     | -6 dBm           |
| <b>Notes:</b>                                                                                         |                  |
| a. The TMS is connected directly to pins 20T and 50R of the 940A connector on the 14A mounting plate. |                  |



## Procedure 11.24: VERIFY AMA OPERATION WITH ON-LINE FUNCTIONAL TEST —5E8 AND LATER

### OVERVIEW

This procedure explains how to verify the automatic message accounting (AMA) operation locally from the central office by using an on-line functional test.

The functional test is performed by obtaining a report showing the percentage of mass disk storage occupied by primary AMA data at a given time. This is followed by placing a test-line call from within the central office served by the AMA operation. When the test call is terminated, the AMA data block containing the test call can be determined by requesting the mass-storage occupancy report again. AMA data is accessed and printed from any maintenance terminal for manual verification of call details by using block sequence numbers from the two reports.

This test verifies the ability of the AMA operation to receive data from the switch and to process it to and from mass storage.

This procedure should be performed during a non-busy period (call load less than 20,000 calls per hour) so that data is not written to disk during the test call in Step 7. During a busy period (for example, 200,000 calls per hour in a large office), one SDS subsegment fills and writes to disk in less than 30 seconds. Performing this procedure during a low-traffic period reduces the chances that the pointers on the AMA maps will change during the test call. If the pointers do not change, the AMA record for the test call lies between known pointer values.

### PROCEDURE

1. At the master control center (MCC), type and enter the following command:

**OP:AMA:STATUS;**

Response: **REPT AMA STATUS FOR STREAM a**

| SEGMENT                           | STATUS              |
|-----------------------------------|---------------------|
| b                                 | c% FULL (d RECORDS) |
| .                                 | .                   |
| .                                 | .                   |
| DISK WRITER WROTE TO DISK e:f g/h |                     |

#### Where:

- a = ST1 if the information is for the ST1 data stream
- a = ST2 if the information is for the ST2 data stream
- b = The subsegment number in the AM buffer
- c = The percentage full of the AM buffer
- d = The number of records in the AM buffer
- e = The last time the disk writer wrote to disk (HOUR)
- f = The last time the disk writer wrote to disk (MINUTES)
- g = The last date the disk writer wrote to disk (MONTH)
- h = The last date the disk writer wrote to disk (DAY).

2. In the response, determine the percentage of data in the shared data segment (SDS) subsegments.

**NOTE:** The quantity should be less than 10%.

3. At the MCC, type and enter the following command:

**OP:AMA:MAPS,a;**

Where: a = ST1 if AMA data goes to the ST1 data stream  
a = ST2 if AMA data goes to the ST2 data stream.

Response: **REPT AMA DISK MAPS FOR STREAM a**  
**WRITE PARTITION b READ PARTITION c**  
**PARTITION d DISK MAP:**  
**FPO: e LPO: f FPS: g LPS: h**  
**FSO: i LSO: j FSS: k LSS: l**  
**FBO: m LBO: n FBS: o LBS: p**

**Where:**

a = data stream ST1 or ST2  
b = partition number in which the disk writer will write AMA data  
c = Partition number from which AMA data will be taken during a teleprocessing or tape session  
d = Partition number from which the disk map is read.

**NOTE 1:** In the following information, *offsets* are measured in disk blocks from the beginning of the partition. Each disk block is 512 bytes in size.

**NOTE 2:** In the following information, *sequence numbers (SN)* are at the corresponding AMA block taken from the disk map. Each AMA block is 1536 bytes in size.

e = First primary offset (FPO)  
f = Last primary offset (LPO)  
g = First primary sequence (FPS) number  
h = Last primary sequence (LPS) number  
i = First secondary offset (FSO)  
j = Last secondary offset (LSO)  
k = First secondary sequence (FSS) number  
l = Last secondary sequence (LSS) number  
m = First block offset (FBO)  
n = Last block offset (LBO)  
o = First block sequence (FBS) number  
p = Last block sequence (LBS) number.

4. In the response, look for the value of the write partition. Do this for both streams if on dual stream.
5. In the write partition found in Step 4, look at and record that partition's value of the LBS. This step should be performed for both streams if the office is on dual stream.
6. Make a note of the time on the ROP. The time is used to determine where the AMA extended Bellcore AMA format (EBAF) record for the test call resides on disk at Step 13.
7. Make the test call.
8. At the MCC, again enter command **OP:AMA:STATUS;** and monitor the SDS subsegments. When one of the SDS subsegments fills and writes to disk, proceed to Step 9. The SDS subsegment will first indicate that it is FULL and subsequently will be listed as EMPTY when the write to disk happens. This step should be performed for both streams if the office is on dual stream.
9. At the MCC, again enter command **OP:AMA:MAPS;**

10. In the response, look for the value of the write partition. In dual stream, this operation should be performed on both streams.
11. In the write partition found in Step 10, look at and record that partition's value of the LBS. This operation should be performed for both streams if in dual stream.
12. The AMA EBAF record for the test call must lie on blocks between the LBS recorded in Step 5 and the LBS recorded in Step 11 (the latter number is inclusive). For example, if the value of the LBS at Step 5 is 100 and the value of the LBS at Step 11 is 128, then the block for the test call must be between 100 and 128 (128 is inclusive). This operation should be performed for both streams if in dual stream. (The working range of LBS numbers may be different on each stream.)
13. At the MCC, type and enter the following command to output the blocks mentioned in Step 12.

**OP:AMA:SEQ,BLK=a,b;**

Where:        a = Block sequence number (1 - 999999)  
                  b = ST1 if AMA data goes to the ST1 data stream  
                  b = ST2 if AMA data goes to the ST2 data stream.

Response:    **REPT AMA SEQ FOR STREAM a**  
                  **THE AMA PARTITION IS b**  
                  **THE BLOCK SEQUENCE NUMBER IS c**  
                  **THE CORRESPONDING DISK BLOCKS ARE d e f**

**DATA FOR DISK BLOCK d**  
**g**

**DATA FOR DISK BLOCK e**  
**h**

**DATA FOR DISK BLOCK f**  
**i**

**Where:**

- a = Data stream ST1 or ST2
- b = The partition number on which the AMA data is found
- c = The block sequence number for which disk blocks are to be found
- d = The first disk block corresponding to the given block sequence number
- e = The second disk block corresponding to the given block sequence number
- f = The third disk block corresponding to the given block sequence number
- g = The first disk block corresponding to the given block sequence number listed in binary coded decimal
- h = The second disk block corresponding to the given block sequence number listed in binary coded decimal
- i = The third disk block corresponding to the given block sequence number listed in binary coded decimal.

In dual stream, this operation should be performed for streams ST1 and ST2. Look for a block that has a time stamp of approximately the same time as found in Step 6. Look for a record that has the same originating and terminating number as the test call in that block. If more than one test call was made with this originating and terminating number, other identifying characteristics of the call may need to be used to ensure the

correct AMA EBAF record is identified. It may be necessary to look at more than one block if the time stamps for a set of blocks are close together. Seek technical assistance if difficulty is encountered in block identification.

14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.25: CONVERT RCU SYNCHRONIZATION REFERENCE TO BITS EXTERNAL — 5E9(1) and Later

### OVERVIEW

This section describes the procedure to convert a Remote Clock Unit (RCU) synchronization reference from T1 source to a Building Integrated Timing Supply (BITS) source. This procedure applies to 5ESS®-2000 switch offices operating on software releases 5E9(1) and later.

This procedure uses the Office Data Base Editor (ODBE) to modify relations in the office data base. The personnel using this procedure must be familiar with the usage and operation of the ODBE; if unfamiliar with the operation of ODBE, contact the next level of support. For additional information on the ODBE, see Section — Office Data Base Editor. The following paragraphs summarize the changes performed by this procedure using the ODBE.

Two relations are modified via ODBE:

- RCB\_HCB — Which defines the relationship between host and remote DFIs.
- SRCREF — Which defines RCU references.

In preparation for this procedure, use ODBE to batch review relation RCB\_HCB to the file `"/unixa/users/rcbhcb"` and batch review relation SRCREF to the file `"/unixa/users/srcref"`. Exit ODBE and perform a DUMP:FILE,ALL on these files. The printout of RCB\_HCB is used for reference when relation RCB\_HCB is updated. The printout of relation SRCREF is for precautionary measures, in order to recover the relation to the original values if errors occur during this procedure. These batch file reviews are only done once.

The relation RCB\_HCB uses one key attribute (*rpicb*). For each tuple (*rcrefuni*) is changed from SM5REF (1 & 2 ) to SMNOTREF. Also, for each tuple changed the *rpicb* will be 0. The relation RCB\_HCB is not RCU side dependent.

The relation SRCREF uses two key attributes (*rcrefuni* and *side*). The three attributes *fmt\_ref*, *dfl\_name*, and *ext\_ref*, are changed to the following parameter values on both Side 0 and Side 1: *fmt\_ref* = D4WZC, D4WOZ, or D4B8 (value must match the BITS clock output), *dfl\_name* = 0, and *ext\_ref* = DBYES.

### Safe Stop Point

Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

### Prerequisite Conversion Conditions

Verify that the BITS reference for the RCU are configured to provide D4 (D4WZC, D4WOZ, or D4B8) signaling at a stratum 3 level stability or better.

Verify that the new reference cables are properly installed (that is, Tip vs. Ring pairs) but are not connected to the RCU. Refer to ED5D500-15, Group 80C (for 750A type cable with length of less than 460 feet) or Group 80D (for 606B type cable with length of more than 460 feet).

**CAUTION:** Service Effecting — A clock slip may occur after the RCU is first converted to the external reference and restored to service. Therefore, it is recommended that this procedure be performed during low traffic periods.

### PROCEDURE

1. CONVERT RCU SYNCHRONIZATION REFERENCE TO BITS EXTERNAL — 5E9(1) and Later

### 11.25.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching module (SM) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this conversion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this conversion procedure.

4. At MCC, type and enter

**INH:REX,SM=a**

**Where:**

a = SM number.

**Response: OK**

5. At MCC, type and enter

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. At MCC, type and enter

**BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses from the SM, the administrative module (AM), and the communication module processor (CMP), if applicable.

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.25.2 Obtain Data Base References for Later Use

**NOTE:** A batch review of SRCREF is used as a precautionary measure to recover the relation to its original values should errors occur during the procedure.

A batch review of RCB\_HCB is used for reference when updating the RC\_HCB relation.

These batch reviews are required only once.

1. At the remote site TLWS or STLWS, to enter ODBE, type and enter

**RCV:MENU;ODBE;**

**Response: OFFICE DATA BASE EDITOR**

2. To do Batch Review of SRCREF, type and enter the following data as prompted:

Enter Processor Number (1-217): a

**Where:** a = the SM where the RCU is located.

Enter Relation Name: SRCREF  
 Enter Tuple Operation (I,R,U,D,W,BI,BR,BW): BR  
 Enter UNIX file name /unixa/users/srcref for directed output.

**Response:** All tuples of relation SRCREF are dumped to file.

3. To do Batch Review of RCB\_HCB, type and enter the following data as prompted:

Enter Processor Number (1-217): a

**Where:** a = the SM where the RCU is located.

Enter Relation Name: RCB\_HCB  
 Enter Tuple Operation (I,R,U,D,W,BI,BR,BW): BR

Enter UNIX file name /unixa/users/rcbhcb for directed output.

**Response:** All tuples of relation RCB\_HCB are dumped to file.

Batch review of RCB\_HCB and SRCREF is completed.

4. To obtain print out of the two relations, at the MCC type and enter

**DUMP:FILE,ALL,FN="/unixa/users/rcbhcb";**  
**DUMP:FILE,ALL,FN="/unixa/users/srcref";**

**Response:** Print out of the two batch reviews are available for later use.

### 11.25.3 Conditon RCU Side 0 for Update

1. To remove RCU Side 0 from service, at MCC (using page 1170,x) type and enter

**RMV:RCLK=a-0**

**Response: RMV RCLK=a-0 COMPLETED**

**Where:**

a = SM number

2. To Power Down RCU Side 0, at RCU Side 0, press the OFF button.

**Response: REPT PWR OFF SM=a RCLK0**

**Where:**

a = the SM where the RCU is located.

3. To connect BITS Reference Cables to RCU Side 0, at wiring side of RCU Side 0, disconnect the T1 reference cables at the following EQLs and replace them with BITS reference cables:

| REF#  | EQL#    |
|-------|---------|
| Ref 1 | 048-354 |
| Ref 2 | 048-307 |

4. To Power Up RCU Side 0, at the RCU Side 0, press the ON button.

**Response: REPT PWR ON SM=a RCLK0**

**Where:**

a = the SM where the RCU is located.

### 11.25.4 Update RCU Side 0 Data Base

**CAUTION:** The personnel using this procedure must be familiar with the usage and operation of the ODBE; if unfamiliar with the operation of ODBE, contact the next level of support.

1. At the remote site TLWS or STLWS, to enter ODBE, type and enter: **RCV:MENU:ODBE;**

**Response: OFFICE DATA BASE EDITOR version 5.0**

2. To change the RCU Side 0, enter the following data as prompted:

Enter Processor Number (1-217): a

**Where:** a = the SM where the RCU is located.

Enter Relation Name: RCB\_HCB  
 Enter Tuple Operation (I,R,U,D,W,BI,BR,BW): U  
 Enter Primary Key



```
key item 1: rpichb      =          xxxx
```

**Where:**

xxxx = value of rpichb recorded in batch review of RCB\_HCB ( 11.25.2 , Step 4)

```
Enter Attribute Name or '>'          rcrefuni
item 3: rcrefuni  = SM5REF1  enter new value = SMNOTREF
item 4: rpichb1   = old-value enter new value = 0
```

Note: old-value is a "don't care" value

```
item 5: rpichb2          >
Tuple Rewritten
Enter Primary Key
key item 1: rpichb      =          xxxxx
```

**Where:**

xxxx = value of rpichb recorded in batch review of RCB\_HCB ( 11.25.2 ,Step 4)

```
Enter Attribute Name or '>':          rcrefuni
item 3: rcrefuni  = SM5REF2  enter new value = SMNOTREF
item 4: rpichb1   = old-value enter new value = 0
```

Note: old-value is a "don't care" value

```
item 5: rpichb2          >
Tuple Rewritten
Enter Primary Key
key item 1: rpichb      =          !
Enter Tuple Operation (I,R,U,D,W,BI,BR,BW):          !
```

**Response:** Completed changes for RCB\_HCB

3. To update relation SRCREF, enter the following data as prompted:

```
Enter Relation Name:          SRCREF
Enter Tuple Operation (I,R,U,D,W,BI,BR,BW):          U
Enter Primary Key
key item 1: rcrefuni  =          SM5REF1
key item 2: side      =          SM5SIDE0
Enter Attribute Name or '>':          fmt_ref
```

```
item 5: fmt_ref      = FEWZC      enter new value =      xxxx
```

**Where:**

xxxx = The format which should match the BITS clock output format (that is, D4WZC, D4WOZ, or D4B8) external reference.

```
item 6: dfi_name = old-value enter new value = 0
```

Note: old-value is a "don't care" value

```
item 7: ext_ref = DBNO enter new value = DBYES
Tuple Rewritten
Enter Primary Key
key item 1: rcrefuni = SM5REF2
key item 2: side = SM5SIDE0
Enter Attribute Name or '>': fmt_ref
item 5: fmt_ref = FEWZC enter new value = xxxx
```

**Where:**

xxxx = The format which should match the BITS clock output format (that is, D4WZC, D4WOZ, or D4B8) external reference.

```
item 6: dfi_name = old-value enter new value = 0
```

Note: old-value is a "don't care" value

```
item 7: ext_ref = DBNO enter new value = DBYES
Tuple Rewritten
Enter Tuple Operation (I,R,U,D,W,BI,BR,BW): !
Enter Relation Name: !
Enter Processor Number (1-217): <Cntrl-D>
```

**Response:** Completed changes for SRCREF

### 11.25.5 Verify Data Base Changes for RCU Side 0

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, to verify data base changes, type and enter **20.11v**

**Response:** **MMRSM REMOTE CLOCK (RC\_RCLK)** page displayed.  
Cursor at RCLKSIDE attribute.

3. At the RC/V terminal, type and enter values for the following fields:

---

```
MMRSM REMOTE CLOCK (20.11)
*1. RCLKSIDE 0
*2. SM _____ (SM number)
#13. EXT REF Y
18. REF FMT REF 1 _____ (D4WZC, D4WOZ, or D4B8)
24. REF FMT REF 2 _____ (D4WZC, D4WOZ, or D4B8)
```

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Verify data is correct.

5. Return to RC/V main menu.

### 11.25.6 Restore RCU Side 0 to Service

1. To restore RCU Side 0 to service, at the MCC (page 1170,x) type and enter

**RST:RCLK=a-0**

**Where:**

a = the SM where the RCU is located.

**Response:** DGN RCLK=a-0 COMPLETED ATP PH 1  
 DGN RCLK=a-0 COMPLETED ATP PH 2  
 DGN RCLK=a-0 COMPLETED ATP PH 3  
 DGN RCLK=a-0 COMPLETED ATP PH 4  
 DGN RCLK=a-0 COMPLETED ATP PH 5  
 REPT RCLK=a-0 PHASE LOCKED EVENT yy  
 REPT RCLK=a-0 SYNCHRONIZED WITH RCREF 1 EVENT yy  
 REPT RCLK=a-0 CONFIG SET TO RCXC EVENT yy  
 RST RCLK=a-0 COMPLETED  
 REPT RCLK=a-0 NORMAL MODE ENTERED EVENT yy

### 11.25.7 Safe Stop Point

1. This is a Safe Stop Point.

**NOTE:** RCU Side 0 has been converted to BITS external synchronization. Although this is a safe stop point, it is recommended that the rest of the procedure be completed as soon as possible.

### 11.25.8 Condition RCU Side 1 for Update

1. To remove RCU Side 1 from service, at MCC (page 1170,x), type and enter

**RMV:RCLK=a-1**

**Response:** RMV RCLK=a-1 COMPLETED

**Where:**

a = SM number

2. To Power Down RCU Side 1, at the RCU Side 1, press the OFF button.

**Response:** REPT PWR OFF SM=a RCLK1

**Where:**

a = the SM where the RCU is located.

3. Connect BITS Reference Cables to RCU Side 1, at wiring side 1, disconnect the T1 reference cables at the following EQLs and replace them with BITS reference cables:

| REF#  | EQL#    |
|-------|---------|
| Ref 1 | 138-354 |
| Ref 2 | 138-307 |

4. Power Up RCU Side 1, at the RCU Side 1, press the ON button.

**Response:** REPT PWR ON SM=a RCLK1

**Where:**

a = the SM where the RCU is located.

5. **CAUTION:** The personnel using this procedure must be familiar with the usage and operation of the ODBE; if unfamiliar with the operation of ODBE, contact the next level of support.

At the remote site TLWS or STLWS, to enter ODBE, type and enter:

**RCV:MENU:ODBE;**

**Response:** OFFICE DATA BASE EDITOR version 5.0

6. To change the RCU Side 1, enter the following data as prompted:

```
Enter Processor Number (1-127):          a
      Where: a = the SM where the RCU is located.
Enter Relation Name:                     SRCREF
Enter Tuple Operation (I,R,U,D,W,BI,BR,BW):      U
Enter Primary Key
      key item 1: rcrefuni =                SM5REF1
      key item 2: side =                    SM5SIDE1
Enter Attribute Name or '>':              fmt_ref
```

```
      item 5: fmt_ref = FEWZC      enter new value =      xxxx
```

Where: xxxx = The format which should match the BITS clock output format (that is, D4WZC, D4WOZ, or D4B8) external reference.

```
      item 6: dfi_name = old-value  enter new value =      0
```

**Note:** old-value is a "don't care" value

```
      item 7: ext_ref = DBNO      enter new value =      DBYES
      Tuple Rewritten
Enter Primary Key
      key item 1: rcrefuni =                SM5REF2
      key item 2: side =                    SM5SIDE1
Enter Attribute Name or '>':              fmt_ref
```

```
      item 5: fmt_ref = FEWZC      enter new value =      xxxx
```

Where: xxxx = The format which should match the BITS clock output format (that is, D4WZC, D4WOZ, or D4B8) external reference.

```
      item 6: dfi_name = old-value  enter new value =      0
```

Note: old-value is a "don't care" value

```

item 7: ext_ref    = DBNO    enter new value =    DBYES
Tuple Rewritten
key item 1: rcrefuni                                     !
Enter Tuple Operation (I,R,U,D,W,BI,BR,BW):             !
Enter Relation Name:                                     !
Enter Processor Number (1-217):                          <Ctrl-D>

```

### 11.25.9 Verify Data Base Changes for RCU Side 1

1. To verify data base changes, at the RC/V terminal type and enter **20.11v**.

**Response:**    **MMRSM REMOTE CLOCK (RC\_RCLK)** page displayed.  
                   Cursor at RCLKSIDE attribute.

2. At the RC/V terminal, type and enter values for the following fields:

---

```

                MMRSM REMOTE CLOCK (20.11)
*1. RCLKSIDE          1
*2. SM                _____ (SM number)
#13. EXT REF          Y
18. REF FMT REF 1     _____ (D4WZC, D4WOZ, or D4B8)
24. REF FMT REF 2     _____ (D4WZC, D4WOZ, or D4B8)

```

**Response:**    System completes remainder of view.  
                   **Enter Update, Change, Validate, or Print:**

3. Verify data is correct.
4. Return to RC/V main menu.

### 11.25.10 Restore RCU Side 1 to Service

1. To restore RCU Side 1 to service, at MCC (page 1170,x) type and enter:

**RST:RCLK=a-1**

**Where:**

a =                    the SM where the RCU is located.

**Response:**    **DGN RCLK=a-1 COMPLETED ATP PH 1**  
**DGN RCLK=a-1 COMPLETED ATP PH 2**  
**DGN RCLK=a-1 COMPLETED ATP PH 3**  
**DGN RCLK=a-1 COMPLETED ATP PH 4**  
**DGN RCLK=a-1 COMPLETED ATP PH 5**  
**REPT RCLK=a-1 PHASE LOCKED EVENT yy**  
**REPT RCLK=a-1 SYNCHRONIZED WITH RCREF 1 EVENT yy**  
**REPT RCLK=a-1 CONFIG SET TO RCXC EVENT yy**  
**RST RCLK=a-1 COMPLETED**  
**REPT RCLK=a-1 NORMAL MODE ENTERED EVENT yy**

### 11.25.11 Remove and Restore External References

1. To verify that the reference timing (&) is absent, refer to MCC page 1120,x
2. To remove external reference 1, at the MCC type and enter

**RMV:RCREF=a-1**

**Response: RMV RCREF=a-1 COMPLETED**

**Where:**

a = SM number

3. To restore external reference 1, at the MCC type and enter

**RST:RCREF=a-1**

**RST RCREF=a-1 COMPLETED**

**Where:**

a = SM number

To remove external reference 2, at the MCC type and enter

**RMV:RCREF=a-2**

**Response: RMV RCREF=a-2 COMPLETED**

**Where:**

a = SM number

4. To restore external reference 2, at the MCC type and enter

**RST:RCREF=a-2**

**Response: RST RCREF=a-2 COMPLETED**

**Where:**

a = SM number

5. At the MCC, to verify the configuration status of the SM where the RCU is located type and enter

**OP:CFGSTAT,SM=a,OOS;**  
**OP:CFGSTAT,SM=a,ACT;**  
**OP:CFGSTAT,SM=a,STBY;**

**Where:**

a = SM number

### 11.25.12 Return Routine Exercises to Normal

1. At the MCC, type and enter

**ALW:REX,SM=a**

**Where:**

a = SM inhibited.

**Response: OK**

### **11.25.13 Back Up Nonredundant Office Dependent Data**

1. **NOTE:** This is OPTIONAL, but recommended. If done, the SM will not have to recover Recent Change if it is to be pumped.

To back up the nonredundant office dependent data (NRODD) type and enter

**BKUP:ODD,NRODD=a;**

**Response: BKUP ODD NRODD=a COMPLETED  
BKUP ODD COMPLETED**

**Where:**

a = SM number

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.26: REMOVE/REPLACE EXM-2000 EVEN NLI PADDLEBOARD — 5E9(2) & LATER

### OVERVIEW

This procedure is used for removing/replacing an Extended Switching Module-2000 (EXM-2000) even Network Link Interface (NLI) paddleboard which interfaces with the Optical Line Interface (OLI) 16E2 or 16F2 Transmission Rate Converter Unit 2 (TRCU2) pack. Likewise, if the even NLI paddleboard is simply reseated, this procedure should be followed. Any physical removal of an even NLI paddleboard would degrade timing to the odd NLI. However, this is not the case when the odd NLI paddleboard is physically removed.

The NLI paddleboard is removed/replaced **hot** from/onto the backplane of the Time Slot Interchanger Unit 4 (TSIU4). This means the Module Controller/Time Slot Interchange (MCTSI) will not need to be removed from service.

The EXM-2000 may be referred to as an Optical Remote Switching Module (ORM), a Switching Module (SM), or an SM-2000 at the Master Control Center (MCC) or the Read-Only-Printer (ROP). References to these modules within this document are synonymous to the EXM-2000.

### PROCEDURE

1. Remove/Replace EXM-2000 Even NLI Paddleboard — 5E9(2) & Later

#### 11.26.1 Prerequisite Conditions

1. Execution of this procedure is recommended during low periods of traffic.
2. Electrostatic Discharge (ESD) protection requirements must be followed.

#### 11.26.2 Verify and Set Initial Conditions

1. Verify normal conditions in the Switching Module-2000 (SM-2000) to determine if system status is acceptable to start removal/replacement procedure. To determine any abnormalities, type and enter the following command:

**OP:SYSSTAT;**

2. Correct any deficiencies as required.

**NOTE:** Deficiencies due to the NLI being replaced by this procedure may be ignored.

#### 11.26.3 Switch Office Network and Timing Complex (ONTC) Unit Sides, if necessary

1. At the MCC, type and enter **1200,a**

Where:           a = SM-2000 number

Response:       **DLI/NLI SUMMARY** page is displayed.



2. Note the NLI set referenced page for the NLI to be removed/replaced.
3. Type and enter page noted in Step 2.

Response: **DLI/NLI/TMSLNK SET xx** page is displayed.

Where: xx = NLI set number.

**NOTE:** If even NLI to be replaced/removed is already in out-of-service (OOS) state, continue with Section 11.26.4

4. **CAUTION:** If for any reason the ONTC has a degraded condition, clear the problem(s) first. Do not continue until the degraded condition has been cleared. Never switch the ONTC unconditionally.
5. If the NLI to be pulled is on the ONTC side marked ACTIVE MAJOR, switch ONTC sides by typing and entering the following command:

**SW:ONTC**

Response: **SW ONTC COMPLETED**

6. Note the ACTIVE MINOR ONTC side.

#### 11.26.4 Remove NLI Set from Service

1. Remove the odd NLI, of the DEGRADED MINOR side noted in a previous step, from service by typing and entering the following command:

**RMV:NLI=a-b-c**

Where:

- a = SM-2000 number
- b = NLI number
- c = degraded (DGR)/ACTIVE MINOR ONTC side.

Response: **RMV NLI=a-b-c COMPLETED**

2. Repeat Step 1 for the even NLI of the set on the DGR ONTC side, if necessary.

#### 11.26.5 Remove Even NLI Paddleboard

1. Remove the designated even NLI paddleboard from the backplane. Refer to Engineering Notes note 64 of J drawing J5D003NB-1 for the proper locations. For additional information, refer to the TSIU4 Wiring Side Designation Label (comcode 847004413).

#### 11.26.6 Replace/Reseat Even NLI Paddleboard

1. Replace/reseat the even NLI paddleboard into the backplane. Refer to Engineering Note 64 of J drawing J5D003NB-1 for the proper locations. For additional information, refer to the TSIU4 Wiring Side Designation

Label (comcode 847004413).

**NOTE:** If replacing the NLI paddleboard, remove the electrical Network Control Timing (NCT) link from the NLI removed in Section **11.26.5** and connect the electrical NCT link to the replacement paddleboard. Replacement paddleboard code number must be equal to or greater than the minimum code and series specified on the paddleboard being replaced.

### **11.26.7 Conditionally Restore NLI Set to Service**

1. Conditionally restore the even NLI, of the ACTIVE MINOR side noted in a previous step, to service by typing and entering the following command:

**RST:NLI=a-b-c**

**Where:**

a = SM-2000 number  
b = NLI number  
c = ACTIVE MINOR ONTC side.

**Response: RST NLI=a-b-c COMPLETED ATP or CATP**

2. Repeat Step 1 for the odd NLI of the set on the ACTIVE MINOR ONTC side.
3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.27: PERFORM EXM-2000 ETS CONNECTION — 5E9(2) AND LATER

### OVERVIEW

This procedure provides the necessary steps to connect an External Timing Source (ETS) via a T1 interface to the Time Slot Interchange Unit 4 (TSIU4) of an Extended Switching Module-2000 (EXM-2000). One such appropriate ETS would be the Building Integrated Timing Supply (BITS) Clock. Note, however, that the existence of an ETS is not mandatory but suggested if the EXM-2000 has a stand-alone option.

The EXM-2000 may be referred to as an Optical Remote Switching Module (ORM), a Switching Module (SM), or an SM-2000 at the Master Control Center (MCC) or the Read-Only-Printer (ROP). References to these modules within this document are synonymous to the EXM-2000.

### PROCEDURE

1. Perform EXM-2000 ETS Connection — 5E9(2) and Later

#### 11.27.1 Prerequisite Conditions

1. The accuracy of the ETS clock should be of Stratum 3 level or higher.
2. This procedure should be followed during low periods of traffic.
3. Verify all required hardware listed in the J-drawing J5D003NB-1 List 2A table is available. The TSIU4 must have a pack code of UM74B or greater.
4. Electrostatic Discharge (ESD) protection requirements must be followed.
5. If the EXM-2000 is connected to a BITS Clock, each Module Controller/Time Slot Interchange (MCTSI) side must **NOT** share the same Timing Output DS1 Automatic card (TOTA) of the BITS Clock. Per MCTSI side, it is mandatory that the two interface ports are connected to a dedicated TOTA.

#### 11.27.2 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), verify off-normal conditions in the Switching Module-2000 (SM-2000) to determine if system status is acceptable to start removal/replacement procedure. Correct any deficiencies as required.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

#### 11.27.3 Remove Module Controller/Time Slot Interchange (MCTSI) Side 0 from Service

1. At the MCC, type and enter the following command:

**1190,a**

**Where:**

a = SM-2000 number.

**Response:**     **MCTSI** page displayed.

- At the MCC, type and enter the following command:

**RMV:MCTSI=a-0**

**Where:**

a =     SM-2000 number.

**Response:**     **RMV MCTSI=a-0 COMPLETED**

#### 11.27.4 Inhibit Interrupts

- At the MCC, inhibit hardware checks by typing and entering the following command:

**INH:HDWCHK,MCTSI=a-0,ALL**

Where:             a = SM-2000 number.

**Response:**     **INH HDWCHK MCTSI=a-0 COMPLETED**

#### 11.27.5 Power Down MCTSI Side 0

- At MCTSI side 0 (SN516), simultaneously depress the Manual OverRide (MOR) and OFF button.

**Response:**     **REPT PWR OFF MCTSI=a-0**

Where:             a = SM-2000 number.

#### 11.27.6 Install the 127C Apparatus Mounting Retainers for Side 0, if Necessary

- If not already present, install the 127C retainer to the following EQL:

| EQL    | TERM |
|--------|------|
| 62-020 | 332  |

#### 11.27.7 Connect Side 0 ETS Connectors to TSIU4

- Obtain the side 0 cable ED and group numbers from J-Drawing J5D003NB-1.
- Connect the ETS cable to the following EQL:

| EQL    | TERM |
|--------|------|
| 62-020 | 353  |

- Verify that the other end of the reference cable is properly connected to the ETS (that is Tip vs. Ring pairs).

#### 11.27.8 Power Up MCTSI Side 0

1. At MCTSI side 0 (SN516), depress the ON button.

Response: **REPT PWR ON MCTSI=a-0**

Where: a = SM-2000 number.

### **11.27.9 Update the Time Slot Interchange Common (TSICOM) Board Change Level Indicator (CLI) Value for MCTSI Side 0**

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation  
I=Insert R=Review U=Update D=Delete:**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form, 18.1, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

\*1 . SM                      \_\_\_\_\_

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change, Validate, screen#, or Print:**

6. Type and enter **2**

Response: **SWITCHING MODULE SCREEN 2 of 5** page is displayed.

7. Type and enter **C**

Response: **Change field:**

8. Type and enter **25**

Response: Cursor at TSICOM 0 CLI attribute.

9. Type and enter **3**

Response: **Change field:**

10. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

11. Type and enter **U**

Response: **updating...FORM UPDATED  
SWITCHING MODULE SCREEN 1 of 5** page displayed.

12. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

13. Type and enter **Q**

Response: **RCV-196 COMPLETED**

#### 11.27.10 Diagnose the Side 0 External Reference

1. At the MCC, type and enter:

**DGN:MCTSI=a-0,ph=33&&36**

Where: a = SM-2000 number

Response: **DGN MCTSI=a-0 COMPLETED ATP**

#### 11.27.11 Unconditionally Restore MCTSI Side 0 to Service

1. At the MCC, type and enter the following command:

**RST:MCTSI=a-0,ucl**

Where: a = SM-2000 number.

Response: **RST MCTSI=a-0 COMPLETED**

#### 11.27.12 Soak Period

1. **CAUTION:** Although not mandatory, a minimal soak period of 1 hour is strongly suggested prior to proceeding with the next section.

#### 11.27.13 Allow Interrupts

1. At the MCC, allow hardware checks by typing and entering the following command:

**ALW:HDWCHK,MCTSI=a-0,ALL**

Where: a = SM-2000 number

Response: **ALW HDWCHK MCTSI=a-0 COMPLETED**

#### 11.27.14 Remove MCTSI Side 1 from Service

1. At the MCC, type and enter the following command:

**RMV:MCTSI=a-1**

Where: a = SM-2000 number.

Response: **RMV MCTSI=a-1 COMPLETED**

#### 11.27.15 Power Down MCTSI Side 1

1. At MCTSI side 1 (SN516), simultaneously depress the Manual OverRide (MOR) and OFF button.

Response: **REPT PWR OFF MCTSI=a-1**

Where: a = SM-2000 number.

#### 11.27.16 Install the 127C Apparatus Mounting Retainers for Side 1, if Necessary

1. If not already present, install the 127C retainer to the following EQL:

| EQL    | TERM |
|--------|------|
| 62-116 | 332  |

#### 11.27.17 Connect Side 1 ETS Connectors to TSIU4

1. Obtain the side 1 cable ED and group numbers from J-Drawing J5D003NB-1.
2. Connect the ETS cable to the following EQL:

| EQL    | TERM |
|--------|------|
| 62-116 | 353  |

3. Verify that the other end of the reference cable is properly connected to the ETS (that is Tip vs. Ring pairs).

#### 11.27.18 Power Up MCTSI Side 1

1. At MCTSI side 1 (SN516), depress the ON button.

Response: **REPT PWR ON MCTSI=a-1**

Where: a = SM-2000 number.

### 11.27.19 Update the Time Slot Interchange Common (TSICOM) Board Change Level Indicator (CLI) Value for MCTSI Side 1

1. At the RC/V terminal, type and enter **18.1**

Response: **Enter Database Operation  
I=Insert R=Review U=Update D=Delete:**

2. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

3. Select the completed Growth RCV (GRCV) form, 18.1, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

\*1 . SM                    \_\_\_\_\_

4. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change, Validate, screen#, or Print:**

5. Type and enter **2**

Response: **SWITCHING MODULE SCREEN 2 of 5** page is displayed.

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **26**

Response: Cursor at TSICOM 1 CLI attribute.

8. Type and enter **3**

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**



10. Type and enter **U**

Response:     **updating...FORM UPDATED**  
                  **SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response:     **RCV-196 COMPLETED**

#### **11.27.20 Diagnose Side 1 External Reference**

1. At the MCC, type and enter:

**DGN:MCTSI=a-1,ph=33&&36**

Where:         a = SM-2000 number

Response:     **DGN MCTSI=a-1 COMPLETED ATP**

#### **11.27.21 Conditionally Restore MCTSI Side 1 to Service**

1. At the MCC, type and enter the following command:

**RST:MCTSI=a-1**

Where:         a = SM-2000 number.

Response:     **RST MCTSI=a-1 COMPLETED**

#### **11.27.22 Soak Period**

1.               **CAUTION:** Although not mandatory, a minimal soak period of 1 hour is strongly suggested.
2.     **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.28: PERFORM EXM-2000 ETS DISCONNECTION — 5E9(2) AND LATER

### OVERVIEW

This procedure provides the necessary steps to disconnect an External Timing Source (ETS) via a T1 interface to the Time Slot Interchange Unit 4 (TSIU4) of an Extended Switching Module-2000 (EXM-2000). One such appropriate ETS would be the Building Integrated Timing Supply (BITS) Clock. Note, however, that the existence of an ETS is not mandatory but suggested if the EXM-2000 has a stand-alone option.

The EXM-2000 may be referred to as an Optical Remote Switching Module (ORM), a Switching Module (SM), or an SM-2000 at the Master Control Center (MCC) or the Read-Only-Printer (ROP). References to these modules within this document are synonymous to the EXM-2000.

### PROCEDURE

1. Perform EXM-2000 ETS Disassociation Procedure — 5E9(2) and Later

#### 11.28.1 Prerequisite Conditions

1. The accuracy of the ETS clock should be of Stratum 3 level or higher.
2. This procedure should be followed during low periods of traffic.
3. Electrostatic Discharge (ESD) protection requirements must be followed.

#### 11.28.2 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), verify off-normal conditions in the Switching Module-2000 (SM-2000) to determine if system status is acceptable to start removal/replacement procedure. Correct any deficiencies as required.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

#### 11.28.3 Remove Module Controller/Time Slot Interchange (MCTSI) Side 0 from Service

1. At the MCC, type and enter the following command:

**1190,a**

Where: a = SM-2000 number.

Response: **MCTSI** page displayed.

2. At the MCC, type and enter the following command:

**RMV:MCTSI=a-0**

Where: a = SM-2000 number.

Response: **RMV MCTSI=a-0 COMPLETED**

#### 11.28.4 Inhibit Interrupts

1. At the MCC, inhibit hardware checks by typing and entering the following command:

**INH:HDWCHK,MCTSI=a-0,ALL**

Where: a = SM-2000 number.

Response: **INH HDWCHK MCTSI=a-0 COMPLETED**

#### 11.28.5 Power Down MCTSI Side 0

1. At MCTSI side 0 (SN516), simultaneously depress the Manual OverRide (MOR) and OFF button.

Response: **REPT PWR OFF MCTSI=a-0**

Where: a = SM-2000 number.

#### 11.28.6 Disconnect Side 0 ETS Connectors from TSIU4

1. Obtain the side 0 cable ED and group numbers from J-Drawing J5D003NB-1.
2. Disconnect the ETS cable from the following EQL:

| EQL    | TERM |
|--------|------|
| 62-020 | 353  |

#### 11.28.7 Power Up MCTSI Side 0

1. At MCTSI side 0 (SN516), depress the ON button.

Response: **REPT PWR ON MCTSI=a-0**

Where: a = SM-2000 number.

#### 11.28.8 Update the Time Slot Interchange Common (TSICOM) Board Change Level Indicator (CLI) Value for MCTSI Side 0

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete:**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form 18.1, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

\*1. SM

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change, Validate, screen#, or Print:**

6. Type and enter **2**

Response: **SWITCHING MODLUE SCREEN 2 of 5** page is displayed.

7. Type and enter **C**

Response: **Change field:**

8. Type and enter **25**

Response: Cursor at TSICOM 0 CLI attribute.

9. Type and enter **1**

Response: **Change field:**

10. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

11. Type and enter **U**

Response: **updating...FORM UPDATED**  
**SWITCHING MODULE SCREEN 1 of 5** page displayed.

12. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

13. Type and enter **Q**

Response: **RCV-196 COMPLETED**

### 11.28.9 Diagnose the Side 0 External Reference

1. At the MCC, type and enter:

**DGN:MCTSI=a-0,ph=33&&36**

Where: a = SM-2000 number

Response: **DGN MCTSI=a-0 COMPLETED ATP**

### 11.28.10 Unconditionally Restore MCTSI Side 0 to Service

1. At the MCC, type and enter the following command:

**RST:MCTSI=a-0,ucl**

Where: a = SM-2000 number.

Response: **RST MCTSI=a-0 COMPLETED**

### 11.28.11 Soak Period

1. **CAUTION:** Although not mandatory, a minimal soak period of 1 hour is strongly suggested prior to proceeding with the next section.

### 11.28.12 Allow Interrupts

1. At the MCC, allow hardware checks by typing and entering the following command:

**ALW:HDWCHK,MCTSI=a-0,ALL**

Where: a = SM-2000 number

Response: **ALW HDWCHK MCTSI=a-0 COMPLETED**

### 11.28.13 Remove MCTSI Side 1 from Service

1. At the MCC, type and enter the following command:

**RMV:MCTSI=a-1**

Where: a = SM-2000 number.

Response: **RMV MCTSI=a-1 COMPLETED**

#### 11.28.14 Power Down MCTSI Side 1

1. At MCTSI side 1 (SN516), simultaneously depress the Manual OverRide (MOR) and OFF button.

Response: **REPT PWR OFF MCTSI=a-1**

Where: a = SM-2000 number.

#### 11.28.15 Disconnect Side 1 ETS Connectors from TSIU4

1. Obtain the side 1 cable ED and group numbers from J-Drawing J5D003NB-1.
2. Disconnect the ETS cable from the following EQL:

| EQL    | TERM |
|--------|------|
| 62-116 | 353  |

#### 11.28.16 Power Up MCTSI Side 1

1. At MCTSI side 1 (SN516), depress the ON button.

Response: **REPT PWR ON MCTSI=a-1**

Where: a = SM-2000 number.

#### 11.28.17 Update the Time Slot Interchange Common (TSICOM) Board Change Level Indicator (CLI) Value for MCTSI Side 1

1. At the RC/V terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete:**

2. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

3. Select the completed Growth RCV (GRCV) form 18.1, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

\*1. SM

4. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change, Validate, screen#, or Print:**

5. Type and enter **2**

Response: **SWITCHING MODLUE SCREEN 2 of 5** page is displayed.

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **26**

Response: Cursor at TSICOM 1 CLI attribute.

8. Type and enter **1**

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED**  
**SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response: **RCV-196 COMPLETED**

#### 11.28.18 Diagnose Side 1 External Reference

1. At the MCC, type and enter:

**DGN:MCTSI=a-1,ph=33&&36**

Where: a = SM-2000 number

Response: **DGN MCTSI=a-1 COMPLETED ATP**

**11.28.19 Conditionally Restore MCTSI Side 1 to Service**

1. At the MCC, type and enter the following command:

**RST:MCTSI=a-1**

Where: a = SM-2000 number.

Response: **RST MCTSI=a-1 COMPLETED**

**11.28.20 Soak Period**

1. **CAUTION:** Although not mandatory, a minimal soak period of 1 hour is strongly suggested.
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 11.29: GROW DNU-S VT1.5/DS1 FACILITY — 5E12 AND EARLIER

### OVERVIEW

This procedure grows digital networking unit - SONET (DNU-S) virtual tributary 1.5/digital signal 1 (VT1.5/DS1) facilities. Separate growth procedures exist for growing the DNU-S SONET termination equipment (DNU-S STE) facilities and synchronous transport signal (STS-1) facilities. This procedure requires that the parent STS-1 facility be in-service and not spared. Also, the peripheral control & timing (PCT) link that corresponds to the selected DS1 must be operational.

When using this procedure to grow VT1.5/DS1 facilities for non-trunk applications, it may only be done for 5E12 and later software releases.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD) should be made to prevent losing recent change activity. Refer to Section 11.29.27 .

### PROCEDURE

1. Grow DNU-S VT1.5/DS1 Facility — 5E12 and Earlier

#### 11.29.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching Module-2000 (SM-2000) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this VT1.5/DS1 facility growth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 and 5 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this growth procedure.

4. At the MCC, type and enter the following command:

**602** (1800 CMD)

or

**INH:REX,SM =a;**

**Where:**

a = number of the SM-2000 growing the VT1.5/DS1 facilities.

5. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

6. If Steps 4 and 5 were performed, verify the inhibit status printout.

### **11.29.2 Allow Peripheral Fault Recovery Messages to be Printed**

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response:** OK, with exceptions

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response:** OK

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM =a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response:** OK

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM =a;**

**Where:**

a = SM-2000 number.

**Response: OK**

### 11.29.3 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.29.4 Verify Parent STE facility

1. At the MCC, type and enter the following command:

**1510,a,b**

**Where:**

- a = DNU-S number of growth VT1.5/DS1
- b = SM-2000 number.

2. At the MCC, verify that the service TMUX for the parent STE facility is NOT spared.

### 11.29.5 Verify Parent STS-1 Facility

1. At the MCC, type and enter the following command:

**1511,b,cd,a**

**Where:**

- a = SM-2000 number.
- b = DNU-S number of growth VT1.5/DS1
- c = Data group number
- d = STS-1 facility number of growth VT1.5/DS1

2. At the MCC, verify that the Parent STS-1 Facility is in service.

### 11.29.6 Safe Stop Point

1. This is a safe stop point.

### 11.29.7 Verify Operational PCT Link

1. Select and prepare terminal for recent change and verify activities.

**Reference:**           **Procedure 11.1**

2. At the RC/V terminal, type and enter **19.14R**

**Response:**   **DIGITAL NETWORKING UNIT SONET (SM-2000)** page displayed.

3. Type and enter appropriate data for each attribute listed in the following display.

---

|         |  |
|---------|--|
| 1. SM   |  |
| 2. DNUS |  |

**Response:**   System completes remainder of view.  
**Enter Review, Change-insert, Validate, or Print:**

4. Verify that the PCT link corresponding to the selected DS1(s) is operational for both common data (CD)s. The PCT link number and the STS-1 number are the same. For example, if the STS-1 number is 2 in data group 1, the PCT link number will be 2 for both CDs.

**Comment:**   If not operational, refer to the DNU-S PCT LINK GROWTH PROCEDURE in 235-105-231, *5ESS®-2000 Switch Hardware Change Procedures — Growth* and correct using terminal in the update mode.

5. Type and enter <

**Response:**   **19.0 SM UNIT VIEWS** page displayed.

### **11.29.8 Verify Sufficient UODD Space in the SM Data Base**

1. A full 28 VT1.5 and 28 DS1 facilities grown in on a single STS-1 facility will require at least 1350 Kbytes of UODD space. Verify that sufficient space is available.

**Reference:**           **Procedure 6.25 - SM ODD Memory Growth**

### **11.29.9 Allow Automatic Data Base Relation Reorganization**

1. At MCC, type and enter **ALW:REORG;**

**Response:**   **OK**

### **11.29.10 Insert VT1.5/DS1 Facility Data Into Data Base**

1. Type and enter **20.24i**

**Response:**   **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
 Cursor at SM attribute.

2. Usin the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

|         |  |
|---------|--|
| 1. SM   |  |
| 2. DNUS |  |

```

3. DATA GROUP  _
4. STS          _
5. VT           _

```

3. Using the selected work order form as a guide, type and enter the indicated values for each of the remaining attributes. The VT and DS1S EQSTAT attributes for the VT1.5 and DS1 Facilities being grown default to **G**.

**Response:** Enter Insert, Change, Validate, or Print:

4. Type and enter **i**

**Response:** inserting ....**FORM INSERTED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY**  
**(SM-2000)** page displayed. Cursor at SM attribute.

5. Repeat Steps 2 through 4 for each VT1.5/DS1 Facility being grown. Then continue with next Step.
6. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.29.11 Reorganize Hashed Relations

1. At MCC, type and enter **EXC:REORG;**

**Response:** **REPT REORG COMPLETED RELATION = a**  
 Wait 5 minutes after each completed message for additional responses before continuing.

**Where:**

a = ALL

### 11.29.12 Update Status of VT1.5 & DS1 Facilities

1. Are the VT1.5/DS1 facilities being used for trunk application?

If **YES**, continue with next Step.

If **NO**, go to Section 11.29.17

2. Are the VT1.5/DS1 facilities being updated to operational in one operation?

**NOTE:** The decision as to whether the VT1.5 & DS1 facilities are updated together or separately is to be made by the telephone company.

If **YES**, continue with next Section.

If **NO**, go to Section 11.29.17

### 11.29.13 Verify VT1.5/DS1 Facility Data and Update to Operational

1. At the RC/V terminal, type and enter **24U**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.

Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

|               |       |
|---------------|-------|
| 1. SM         | _____ |
| 2. DNUS       | —     |
| 3. DATA GROUP | —     |
| 4. STS        | —     |
| 5. VT         | —     |

**Response:** System completes remainder of view.

**Enter Update, Change, Validate, or Print:**

3. Verify the data previously entered for the VT1.5/DS1 Facility is consistent with the work order form.

**Comment:** Correct any errors using terminal in the update mode.

4. Type and enter **C**

**Response:** **Change Field:**

5. Type and enter **VTEQSTAT** or field number.

**Response:** Cursor at VT EQSTAT attribute.

6. Type and enter **O**

**Response:** **Change Field:**

7. Type and enter **DS1SEQSTAT** or field number.

**Response:** Cursor at DS1S EQSTAT attribute.

8. Type and enter **O**

**Response:** **Change Field:**

9. Hit CARRIAGE RETURN.

**Response:** **Enter Update, Change, Validate, or Print:**

10. Type and enter **U**

**Response:** updating ....**FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
 Cursor at SM attribute.

11. Repeat Steps 2 through 10 for each VT1.5/DS1 facility being grown. Then continue with next Step.

12. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.29.14 Verify VT1.5/DS1 Facility Data

1. At the RC/V terminal, type and enter **24R**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
Cursor at SM attribute.

2. Type and enter appropriate data for each attribute listed in the following display.

---

```

1. SM          _____
2. DNUS        _
3. DATA GROUP _
4. STS         _
5. VT          _

```

**Response:** System completes remainder of view.  
**Enter Review, Change-insert, Validate, or Print:**

3. Verify data is consistent with the corresponding work order form.

**Comment:** Correct any errors using terminal in the update mode.

4. Repeat Steps 2 and 3 for each VT1.5/DS1 facility being grown. Then continue with next Step.

5. Type and enter <

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter **q**

**Response:** **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.29.15 Restore VT1.5 Facility to Service

1. At the MCC, type and enter the following command:

**31ee (1511,b,cd,a CMD)**  
or  
**RST:VT1FAC=a-b-c-d-e;**

**Where:**

a = SM-2000 number  
b = DNU-S number  
c = Data group number  
d = STS-1 facility number  
e = VT1.5 facility number.

**Response:** **RST VT1FAC=a-b-c-d-e COMPLETED**

**NOTE:** No **REPT FAC ALERT** or **REPT CGA** output messages should be seen for this facility.

2. Repeat Step 1 for each VT1.5 facility being grown. Then continue with next Section.

### 11.29.16 Verify VT1.5 Facility

1. At the MCC, type and enter the following command:

**1511,b,cd,a**

**Where:**

- a = SM-2000 number.
- b = DNU-S number
- c = Data group number
- d = STS-1 facility number

**NOTE:** Verify that the DNU-S VT1.5 facility has no associated CGA and remains in service.

2. Repeat Step 1 for the parent STS-1 of each VT1.5 facility being grown. Then continue with next Step.
3. To perform final growth, go to Section 11.29.25

### 11.29.17 Verify and Update VT1.5 Facility Data to Operational

1. At the RC/V terminal, type and enter **24U**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

|               |       |
|---------------|-------|
| 1. SM         | _____ |
| 2. DNUS       | _____ |
| 3. DATA GROUP | _____ |
| 4. STS        | _____ |
| 5. VT         | _____ |

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Verify the data previously entered for the VT1.5/DS1 facility is consistent with the work order form.

**Comment:** Correct any errors using terminal in the update mode.

4. Type and enter **C**

**Response:** **Change Field:**

5. Type and enter **VTEQSTAT** or field number.

**Response:** Cursor at VT EQSTAT attribute.

6. Type and enter **O**

**Response:** **Change Field:**

7. Hit CARRIAGE RETURN.



**Response:** Enter Update, Change, Validate, or Print:

8. Type and enter **U**

**Response:** updating ....FORM UPDATED  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
 Cursor at SM attribute.

9. Repeat Steps 2 through 8 for each VT1.5 Facility being grown. Then continue with next Step.

10. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.29.18 Verify VT1.5 Facility Data

1. At the RC/V terminal, type and enter **24R**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
 Cursor at SM attribute.

2. Type and enter appropriate data for each attribute listed in the following display.

---

|               |       |
|---------------|-------|
| 1. SM         | _____ |
| 2. DNUS       | _____ |
| 3. DATA GROUP | _____ |
| 4. STS        | _____ |
| 5. VT         | _____ |

**Response:** System completes remainder of view.  
**Enter Review, Change-insert, Validate, or Print:**

3. Verify data is consistent with the corresponding work order form.

**Comment:** Correct any errors using terminal in the update mode.

4. Repeat Steps 2 and 3 for each VT1.5 facility being grown. Then continue with next Step.

5. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter **q**

**Response:** **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.29.19 Restore VT1.5 Facility to Services

1. At the MCC, type and enter the following command:

**31ee (1511,b,cd,a CMD)**  
 or

**RST:VT1FAC=a-b-c-d-e;**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data group number
- d = STS-1 facility number
- e = VT1.5 facility number.

**Response: RST VT1FAC=a-b-c-d-e COMPLETED**

**NOTE:** No **REPT FAC ALERT** or **REPT CGA** output messages should be seen for this facility.

2. Repeat Step 1 for each VT1.5 facility being grown. Then continue with next Section.

### 11.29.20 Verify VT1.5 Facility

1. At the MCC, type and enter the following command:

**1511,b,cd,a**

**Where:**

- a = SM-2000 number.
- b = DNU-S number
- c = Data group number
- d = STS-1 facility number

**NOTE:** Verify that the DNU-S VT1.5 facility has no associated CGA and remains in service.

2. Repeat Step 1 for the parent STS-1 of each VT1.5 facility being grown. Then continue with next Section.

### 11.29.21 Safe Stop Point

1. This is a safe stop point.

### 11.29.22 VT1.5/DS1 Facilities Trunk Status

1. Are the VT1.5/DS1 facilities being used for trunk applications?

If **YES**, continue with next Section.

If **NO**, go to Section 11.29.27

### 11.29.23 Update DS1 Facility to Operational

1. At the RC/V terminal, type and enter **20.24U**

**Response: DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000) page displayed.**

Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

|               |       |
|---------------|-------|
| 1. SM         | _____ |
| 2. DNUS       | —     |
| 3. DATA GROUP | —     |
| 4. STS        | —     |
| 5. VT         | —     |

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **DS1SEQSTAT** or field number.

**Response:** Cursor at DS1S EQSTAT attribute.

5. Type and enter **O**

**Response:** **Change Field:**

6. Hit CARRIAGE RETURN.

**Response:** **Enter Update, Change, Validate, or Print:**

7. Type and enter **U**

**Response:** updating ....FORM UPDATED  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
 Cursor at SM attribute.

8. Repeat Steps 2 through 7 for each DS1 Facility being grown. Then continue with next Step.

9. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.29.24 Verify DS1 Facility Data

1. At the RC/V terminal, type and enter **24R**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
 Cursor at SM attribute.

2. Type and enter appropriate data for each attribute listed in the following display.

---

|               |       |
|---------------|-------|
| 1. SM         | _____ |
| 2. DNUS       | —     |
| 3. DATA GROUP | —     |
| 4. STS        | —     |

5. VT

**Response:** System completes remainder of view.  
**Enter Review, Change-insert, Validate, or Print:**

3. Verify data is consistent with the corresponding work order form.

**Comment:** Correct any errors using terminal in the update mode.

4. Repeat Steps 2 and 3 for each DS1 Facility being grown. Then continue with next Step.
5. Type and enter <

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter q

**Response:** **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.29.25 Restore DS1 Facility to Service

1. At the MCC, type and enter the following command:

**32ee (1511,b,cd,a CMD)**  
 or

**RST:DS1SFAC=a-b-c-d-e;**

**Where:**

a = SM-2000 number  
 b = DNU-S number  
 c = Data group number  
 d = STS-1 facility number  
 e = VT1.5 facility number.

**Response:** **RST DS1SFAC=a-b-c-d-e COMPLETED**

**NOTE:** No **REPT DS1SFAC** or **REPT CGA** output messages should be seen for this facility.

2. Repeat Step 1 for each DS1 Facility being grown. Then continue with next Section.

### 11.29.26 Verify VT1.5/DS1 Facility

1. At the MCC, type and enter the following command:

**1511,b,cd,a**

**Where:**

a = SM-2000 number.  
 b = DNU-S number  
 c = Data group number  
 d = STS-1 facility number

**NOTE:** Verify that the DNU-S VT1.5/DS1 facility has no associated CGA and remains in service.

2. Repeat Step 1 for the parent STS-1 of each VT1.5/DS1 facility being grown. Then continue with next Section.

### 11.29.27 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.29.28 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before starting this procedure and monitor the ROP for "ANALYSIS ONLY," "REPT TRBL," and "PFR" messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)  
or

**ALW:BREVC, SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)  
or

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

### **11.29.29 Return Routine Exercises to Normal**

1. At the MCC, type and enter the following command:

**702 (1800,a CMD)**

or

**ALW:REX,SM=a;**

**Where:**

a = SM-2000 inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.30: DEGROW DNU-S VT1.5/DS1 FACILITY — 5E12 AND EARLIER

### OVERVIEW

This procedure degrows Digital Networking Unit - SONET (DNU-S) Virtual Tributary 1.5/Digital Signal 1 (VT1.5/DS1) facilities. Separate degrowth procedures exist for degrowing the DNU-S SONET Termination Equipment (STE) facilities and Synchronous Transport Signal (STS-1) facilities. This procedure requires that all digital trunks on the selected DS1 be previously unassigned.

### PROCEDURE

1. Degrow DNU-S VT1.5/DS1 Facility - 5E12 and Earlier

#### 11.30.1 Verify and Set Initial Conditions

1. At Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a**

Where: a = Switching Module-2000 (SM-2000) number.

Comment: Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this VT1.5/DS1 Facility degrowth procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 and 5 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this degrowth procedure.

4. At the MCC, type and enter the following command:

**INH:REX,SM =a**

Where: a = number of the SM-2000 degrowing the VT1.5/DS1 Facilities.

5. At the MCC, type and enter the following command:

**OP:REXINH**

Response: The inhibit status will be printed.

6. If Steps 4 and 5 were performed, verify the inhibit status printout.

#### 11.30.2 Allow Peripheral Fault Recovery Messages to be Printed

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF**

Response: **OK**

2. At the MCC, type and enter the following command:

**SET:PERPH,SM =a,VERBOSE**

Where: a = SM-2000 number.

Response: **OK**

3. At the MCC, type and enter the following command:

**INH:BREVC,SM =a**

Where: a = SM-2000 number.

Response: **OK**

### 11.30.3 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD**

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.30.4 Verify Parent STE Facility

1. At the MCC, type and enter the following command:

**1510,a,b**

**Where:**

a = DNU-S number of degrowth VT1.5/DS1  
b = SM-2000 number.

2. At the MCC, verify that the Parent STE Facility is NOT spared.

### 11.30.5 Verify Parent STS-1 Facility



1. At the MCC, type and enter the following command:

**1511,a,b,c**

Where:           a = DNU-S number of degrowth VT1.5/DS1  
                  b = STS-1 Facility number  
                  c = SM-2000 number.

2. At the MCC, verify that the Parent STS-1 Facility is in service.

### **11.30.6 Safe Stop Point**

1. Safe Stop Point.

### **11.30.7 Remove VT1.5 Facility from Service**

**NOTE:** Use the **OP:LIST,VT1FAC** input message to list the status of all trunks on a given VT1.5/DS1 facility. If trunks are listed, unassign these trunks before continuing with this procedure.

1. At the MCC, type and enter the following command:

**RMV:VT1FAC=a-b-c-d-e**

**Where:**

a = SM-2000 number  
b = DNU-S number  
c = Data Group number  
d = STS-1 Facility number  
e = VT1.5 Facility number.

**Response:   RMV VT1FAC a b c d e COMPLETED**

2. Repeat Step 1 for each VT1.5/DS1 Facility being degrown.

### **11.30.8 Allow Automatic Data Base Relation Reorganization**

1. At MCC, type and enter **ALW:REORG**

Response:   **OK**

### **11.30.9 Delete VT1.5/DS1 Facility Data from Data Base**

1. Select and prepare terminal for recent change and verify activities.

Reference:   **Procedure 11.1**

2. At the RC/V terminal, type and enter **20.24D**

Response: **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
Cursor at SM-2000 attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

```

1. SM          _____ INPUT APPROPRIATE DATA
2. DNUS        _____
3. DATA GROUP _____
4. STS          _____
5. VT          _____

```

Response: System completes remainder of view.  
**Enter Delete, Validate, or Print:**

4. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
Cursor at SM-2000 attribute.

5. Repeat Steps 3 and 4 for each VT1.5/DS1 Facility being degrown.

6. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.30.10 Verify Deletion of VT1.5 Facility Data

1. At the RC/V terminal, type and enter **24R**

Response: **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM-2000)** page displayed.  
Cursor at SM-2000 attribute.

2. Type and enter appropriate data for each key attribute listed in the following display.

---

```

1. SM          _____ INPUT APPROPRIATE DATA
2. DNUS        _____
3. DATA GROUP _____
4. STS          _____
5. VT          _____

```

Response: **FORM NOT FOUND**  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

3. Repeat Step 2 for each VT1.5/DS1 Facility being degrown.

4. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

5. Type and enter **q**

Response: **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.30.11 Reorganize Hashed Relations

1. At MCC, type and enter **EXC:REORG**

Response: **REPT REORG COMPLETED RELATION a**  
Wait 5 minutes after each completed message for additional responses before continuing.

Where: a = ALL

### 11.30.12 Verify VT1.5/DS1 Facility Has Been Degrown at MCC

1. At the MCC, type and enter the following command:

**1511,a,b,c**

Where: a = DNU-S number  
b = STS-1 Facility number  
c = SM-2000 number.

2. At the MCC, verify that the degrown DNU-S VT1.5/DS1 Facility is NOT displayed.
3. Repeat Steps 1 and 2 for each facility being degrown.

### 11.30.13 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD**

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.30.14 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before starting this procedure and monitor the ROP for "ANALYSIS ONLY," "REPT TRBL," and "PFR" messages that may implicate this degrowth SM-2000. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this

procedure.

1. At the MCC, type and enter the following command:

**ALW:BREVC, SM=a**

Where: a = SM-2000 number.

Response: **OK**

2. At the MCC, type and enter the following command:

**CLR:PERPH,SM=a,VERBOSE**

Where: a = SM-2000 number.

Response: **OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP**

Response: **OK**

#### **11.30.15 Return Routine Exercises to Normal**

1. At the MCC, type and enter the following command:

**ALW:REX,SM=a**

Where: a = SM-2000 inhibited.

Response: **OK**

**Results: DNU-S VT1.5/DS1 FACILITY(IES) DEGROWN**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.31: GROW DNU-S STE/STS-1 FACILITY — 5E10(1) AND LATER

### OVERVIEW

This procedure grows Digital Networking Unit - SONET (DNU-S) SONET Termination Equipment (STE) and Synchronous Transport Signal (STS) facilities.

Two separate growth procedures exist for growing the DNU-S Virtual Tributary 1.5/Digital Signal 1 (VT1.5/DS1) facilities.

- For the 5E12(1) and earlier **Procedure 11.29**
- For 5E13(1) and later **Procedure 11.53**

This procedure requires equipage of the service Transmission Multiplexer (TMUX) that corresponds to the STE facility being grown.

### PROCEDURE

1. Grow DNU-S STE/STS-1 Facility - 5E10(1) and Later

#### 11.31.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this STE/STS-1 Facility growth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this growth procedure.

5. At the MCC, type and enter the following command:

**602 (1800,a CMD)**

or

**INH:REX,SM =a;**

**Where:**

a = number of the SM-2000 growing the STE/STS-1 Facilities.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

Response:      The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

### **11.31.2 Allow Peripheral Fault Recovery Messages to be Printed**

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

Response:      **OK**

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

Response:      **OK**

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM =a,VERBOSE;**

Where:

a =                      SM-2000 number.

Response:      **OK**

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM =a;**

Where:

a =                      SM-2000 number.

Response:      **OK**

### **11.31.3 Back Up Office Dependent Data**

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**Note:** Data base backup will take several minutes to complete.

#### 11.31.4 Verify TMUX Equipage at MCC

1. At the MCC, type and enter the following command:

**1510,b,a**

**Where:**

a = SM-2000 number  
b = DNU-S number.

2. Verify that the service TMUX that corresponds to the STE facility being grown is displayed.

#### 11.31.5 Safe Stop Point

1. This is a safe stop point

#### 11.31.6 Insert STE and STS-1 Facility Data Into Data Base

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **20.12i**

**Response: DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.  
Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

```

          RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____

```

4. Using the selected work order form as a guide, type and enter the indicated values for each of the remaining attributes. The STE and STS-1 EQSTAT attributes for the STE and STS-1 facilities being grown default to **G**.

Response: **Enter Insert, Change, Validate, Screen#, or Print:**

5. Type and enter **i**

Response: **inserting.....FORM INSERTED**

**DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

6. Repeat Steps 3 through 5 for each STE and STS-1 facility being grown.
7. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.31.7 Verify STE and STS-1 Facility Data

1. At the RC/V terminal, type and enter **20.12R**

Response: **DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

2. Type and enter appropriate data for each attribute listed in the following display.

---

```
          RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _
3. DATA GROUP _
4. STE         _
```

Response: System completes remainder of view.  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

3. Verify data is consistent with the corresponding work order form.  
Comment: Correct any errors using terminal in the update mode.
4. Repeat Steps 2 and 3 for each STE and STS-1 facility being grown.
5. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter **q**

Response: **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.31.8 Safe Stop Point

1. This is a safe stop point.

### 11.31.9 Install the Selected STE Facility Cable and Loop at STSX-1 Link Interface (SLI)

**NOTE:** This is an installation function.



1. Carefully plug the SLI paddle board into the backplane of SFI 0. Then loop the facility at the SLI.

#### 11.31.10 Diagnose Standby SFI

**NOTE:** An ATP must be achieved for this diagnostic before continuing.

1. At the MCC, type and enter the following command:

**52cd,GROW,PH=1&&9** (1510,b, a CMD)

or

**DGN:SFI=a-b-c-d,GROW,RAW,TLP,PH=1&&9;**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data Group number
- d = STBY SFI number.

**Response: DGN SFI a b c d COMPLETED ATP**

#### 11.31.11 Diagnose and Restore OOS SFI to Standby

**NOTE:** An ATP must be achieved for this diagnostic before continuing.

1. At the MCC, type and enter the following command:

**32cd,STBY** (1510,b,a CMD)

or

**RST:SFI=a-b-c-d,STBY;**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data Group number
- d = OOS SFI number.

**Response: RST SFI a b c d COMPLETED**

#### 11.31.12 Switch SFIs

**CAUTION:** This SFI switch will generate transient errors on the facilities.

1. At the MCC, type and enter the following command:

**42c, UCL** (1510,b,a CMD)

or

**SW:SFI=a-b-c,UCL;**

**Where:**

- a = SM-2000 number

b = DNU-S number  
c = Data Group number.

**Response: SW SFI a b c COMPLETED**

### 11.31.13 Diagnose Standby SFI

**NOTE:** An ATP must be achieved for this diagnostic before continuing.

1. At the MCC, type and enter the following command:

**52cd,GROW,PH=1&&9** (1510,b,a CMD)

or

**DGN:SFI=a-b-c-d,GROW,RAW,TLP,PH=1&&9;**

Where: a = SM-2000 number  
b = DNU-S number  
c = Data Group number  
d = Standby SFI number.

**Response: DGN SFI a b c d COMPLETED ATP**

### 11.31.14 Diagnose and Restore OOS SFI to Standby

**NOTE:** An ATP must be achieved for this diagnostic before continuing.

1. At the MCC, type and enter the following command:

**32cd,STBY** (1510,b,a CMD)

or

**RST:SFI=a-b-c-d,STBY;**

Where: a = SM-2000 number  
b = DNU-S number  
c = Data Group number  
d = OOS SFI number.

**Response: RST SFI a b c d COMPLETED**

### 11.31.15 Safe Stop Point

1. This is a safe stop point.

### 11.31.16 Change STE Facility to Operational

1. At the RC/V terminal, type and enter **20.12U**

**Response: DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.  
Cursor at SM attribute.

2. Type and enter appropriate data for each attribute listed in the following display.

---

```

      RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _
3. DATA GROUP _
4. STE         _

```

Response: System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **C**

Response: **Change Field:**

4. Type and enter **STEEQSTAT** or field number

Response: Cursor at STE EQSTAT attribute.

5. Type and enter **O**

Response: **Change Field:**

6. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

7. Type and enter **U**

Response: **updating ....FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

8. Repeat Steps 2 through 7 for each STE facility being grown.

9. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.31.17 Verify STE Facility Data

1. At the RC/V terminal, type and enter **20.12R**

Response **DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

2. Type and enter appropriate data for each attribute listed in the following display.
-

```

      RECENT CHANGE 20.12
1. SM      _____
2. DNUS    _
3. DATA GROUP _
4. STE     _

```

Response: System completes remainder of view.  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

3. Verify data is consistent with the corresponding work order form.

Comment: Correct any errors using terminal in the update mode.

4. Repeat Steps 2 and 3 for each STE facility being grown.

5. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter q

Response: **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.31.18 Safe Stop Point

1. This is a safe stop point

### 11.31.19 Remove STE Loop and Connect STSX-1 Interface to SONET Equipment

**NOTE:** This is an installation function

1. Remove the loop at the STE and connect the STSX-1 interface to the SONET transmission equipment supporting the STSX-1 interface (for example, DACS IV-2000).
2. Repeat Step 1 for each STE facility being grown.

### 11.31.20 Restore STE Facility to Service

1. At the MCC, type and enter the following command:

*For 5E12(1) and Earlier:*

**34cd** (1510,b,a CMD)

or

**RST:STEFAC=a-b-c-d;**

*For 5E13(1) and Later:*

**34cd** (1510,b,a CMD)

or

**RST:EC1STE=a-b-c-d;**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data Group number
- d = STE Facility number.

**Response:** RST STEFAC (or EC1STE) a b c d COMPLETED

**NOTE:** No REPT FAC ALERT, REPT STEFAC (or EC1STE), or REPT CGA output messages should be seen for this facility.

2. Repeat Step 1 for each STE facility being grown.

### 11.31.21 Verify STE Facility at the MCC

1. At the MCC, type and enter the following command:

**1510,b,a**

**Where:**

- a = SM-2000 number
- b = DNU-S number.

**NOTE:** Verify that the DNU-S STE facility has no CGA and remains in service.

### 11.31.22 Safe Stop Point

1. This is a safe stop point

### 11.31.23 Update the STS-1 Facility to Operational

1. At the RC/V type and enter **20.12U**

**Response:** DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000) page displayed.  
Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

```

      RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____

```

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **C**

Response: **Change Field:**

4. Type and enter **STSEQSTAT** or field number

Response: Cursor at STS EQSTAT attribute.

5. Type and enter **O**

Response: **Change Field:**

6. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

7. Type and enter **U**

Response: **updating ....FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

8. Repeat Steps 2 through 7 for each STS-1 facility being grown.

9. Type and enter **<**

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.31.24 Verify STS-1 Facility Data

1. At the RC/V terminal, type and enter **20.12R**

Response **DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

2. Type and enter appropriate data for each attribute listed in the following display.

---

```

      RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____

```

Response: System completes remainder of view.  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

3. Verify data is consistent with the corresponding work order form.

Comment: Correct any errors using terminal in the update mode.

4. Repeat Steps 2 and 3 for each STS-1 facility being grown.
5. Type and enter <

Response: **20.0 SM PACK & SUBPACK VIEWS** page displayed.

6. Type and enter q

Response: **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.31.25 Restore STS-1 Facility to Service

1. At the MCC, type and enter the following command:

*For 5E12(1) and Earlier:*

**3000** (1511,b,ce,a CMD)

or

**RST:STSFAC=a-b-c-e;**

*For 5E13(1) and Later:*

**3000** (1511,b,cde,a CMD)

or

**RST:STSFAC=a-b-c-d-e;**

**Where:**

|     |                        |
|-----|------------------------|
| a = | SM-2000 number         |
| b = | DNU-S number           |
| c = | Data Group number      |
| d = | STE Facility number    |
| e = | STS-1 Facility number. |

**Response:** **RST STSFAC a b c e (or a b c d e) COMPLETED**

**NOTE:** No **REPT FAC ALERT** or **REPT CGA** output messages should be seen for this facility.

2. Repeat Step 1 for each STS-1 facility being grown.

### 11.31.26 Verify STS-1 Facility at MCC

1. At the MCC, type and enter the following command:

*For 5E12(1) and Earlier:*

**1511,b,ce,a**

*For 5E13(1) and Later:*

**1511,b,cde,a**

**Where:**

|     |                   |
|-----|-------------------|
| a = | SM-2000 number    |
| b = | DNU-S number      |
| c = | Data Group number |

d = STE Facility number  
e = STS-1 Facility number.

2. Verify that the DNU-S STS-1 facility has no CGA and remains in service.
3. Repeat Steps 1 and 2 for each STS-1 facility being grown.

### 11.31.27 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.31.28 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before starting this procedure and monitor the ROP for "ANALYSIS ONLY," "REPT TRBL," and "PFR" messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)

or

**ALW:BREVC, SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

Where: a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**



Response:     **OK**

### **11.31.29 Return Routine Exercises to Normal**

1. At the MCC, type and enter the following command:

**702** (1800,a CMD)

or

**ALW:REX,SM=a;**

Where:           a = SM-2000 inhibited.

Response:     **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.32: DEGROW DNU-S STE/STS-1 FACILITY - 5E10(1) AND LATER

### OVERVIEW

This procedure degrows Digital Networking Unit - SONET (DNU-S) SONET Termination Equipment (STE) and Synchronous Transport Signal (STS-1) facilities.

Two separate degrowth procedures exist for degrowing the DNU-S Virtual Tributary 1.5/Digital Signal 1 (VT1.5/DS1) facilities.

- For 5E12(1) and earlier **Procedure 11.30**
- For 5E13(1) and later **Procedure 11.54**

This procedure requires that the associated VT1.5/DS1 facilities be previously degrown.

Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

### PROCEDURE

1. Degrow DNU-S STE/STS-1 Facility - 5E10(1) and Later

#### 11.32.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a**

Where: a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this STE/STS-1 Facility degrowth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this growth procedure.

5. At the MCC, type and enter the following command:

**602 (1800,a CMD)**

or

**INH:REX,SM =a**

Where: a = number of the SM-2000 degrowing the STE/STS-1 Facilities.

6. At the MCC, type and enter the following command:

**INH:REX,SM=a;**

**Where:**

a = number of the SM-2000 degrowing the STE/STS-1 Facilities.

7. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

8. If Steps 5 and 6 were performed, verify the inhibit status printout.

### 11.32.2 Allow Peripheral Fault Recovery Messages to be Printed

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response: OK**

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON**

**Response: OK**

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM =a;**

Where: a = SM-2000 number.

Response: **OK**

### 11.32.3 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD**

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.32.4 Safe Stop Point

1. This is a safe stop point

### 11.32.5 Verify STE/STS-1 Facility Has No VT1.5/DS1 Facilities at MCC

1. At the MCC, type and enter the following command:

*5E12(1) and Earlier:*

**1511,b,ce,a**

*5E13(1) and Later:*

**1511,b,cde,a**

**Where:**

|     |                       |
|-----|-----------------------|
| a = | SM-2000 number.       |
| b = | DNU-S number          |
| c = | Data Group number     |
| d = | STE Facility number   |
| e = | STS-1 Facility number |

2. Verify that all VT1.5/DS1 Facilities have been degrown from this STE/STS-1 facility as displayed at the MCC.

### 11.32.6 Remove the STS-1 Facility from Service

1. At the MCC, type and enter the following command:

**NOTE:** ,UCL must be appended to the following command when removing more than the **OOS THRESHOLD** allows.

*For 5E12(1) and Earlier:*

**2000** (1511,b,ce,a CMD)

or

**RMV:STSFACT=a-b-c-e;**

*For 5E13(1) and Later:*

**2000** (1511,b,cde,a CMD)

or

**RMV:STSFAC=a-b-c-d-e;**

**Where:**

|     |                       |
|-----|-----------------------|
| a = | SM-2000 number.       |
| b = | DNU-S number          |
| c = | Data Group number     |
| d = | STE Facility number   |
| e = | STS-1 Facility number |

**Response: RMV STSFAC a b c e (or a b c d e) COMPLETED**

2. Repeat Step 1 for each STS-1 facility being degrown.

### 11.32.7 Remove STE Facility from Service

1. At the MCC, type and enter the following command:

**NOTE:** ,UCL must be appended to the following command when removing more than the **OOS THRESHOLD** allows.

*For 5E12(1) and Earlier:*

**24cd** (1510,b,a CMD)

or

**RMV:STEFAC=a-b-c-d;**

*For 5E13(1) and Later:*

**24cd** (1510,b,a CMD)

or

**RMV:EC1STE=a-b-c-d;**

**Where:**

|     |                     |
|-----|---------------------|
| a = | SM-2000 number.     |
| b = | DNU-S number        |
| c = | Data Group number   |
| d = | STE Facility number |

**Response: RMV STEFAC (or EC1STE) a b c d COMPLETED**

2. Repeat Step 1 for each STE facility being degrown.

### 11.32.8 Delete STE/STS-1 Facility Data from Data Base

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **20.12D**

**Response: DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.  
Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

---

```

      RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _
3. DATA GROUP _
4. STE         _

```

Response:     **Enter Delete, Validate, or Print:**

4. Type and enter **D**

Response:     **deleting.....FORM DELETED**  
**DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

5. Repeat Steps 3 and 4 for each STE/STS-1 facility being degrown.

6. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.32.9 Verify STE/STS-1 Facility Data

1. At the RC/V terminal, type and enter **20.12R**

Response:     **DIGITAL NETWORKING UNIT SONET FOR STE AND STS (SM-2000)** page displayed.

2. Type and enter appropriate data for each attribute listed in the following display.

---

```

      RECENT CHANGE 20.12
1. SM          _____
2. DNUS        _
3. DATA GROUP _
4. STE         _

```

Response:     **FORM NOT FOUND**  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

3. Repeat Step 2 for each STE/STS-1 facility being degrown.

4. Type and enter **<**

Response:     **20.0 SM PACK & SUBPACK VIEWS** page displayed.

5. Type and enter **q**

Response:     **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.32.10 Verify STS-1 Facility Has Been Degrown

1. At the MCC, type and enter the following command:

*For 5E12(1) and Earlier:*

**1511,b,ce,a**

*For 5E13(1) and Later:*

**1511,b,cde,a**

**Where:**

|     |                        |
|-----|------------------------|
| a = | SM-2000 number         |
| b = | DNU-S number           |
| c = | Data Group number      |
| d = | STE Facility number    |
| e = | STS-1 Facility number. |

**Response: NG displayed.**

### 11.32.11 Verify STE Facility Has Been Degrown

1. At the MCC, type and enter the following command:

**1510,b,a**

**Where:**

|     |                |
|-----|----------------|
| a = | SM-2000 number |
| b = | DNU-S number.  |

2. At the MCC, verify that the STE Facility is no longer displayed.

### 11.32.12 Safe Stop Point

1. This is a safe stop point.

### 11.32.13 Remove the Degrown STE Facility Hardware

**NOTE:** This is an installation function.

1. Remove the selected STSX-1 Link Interface (SLI) paddle board from backplane of SFI 0.

### 11.32.14 Diagnose and Restore Standby SFI

**NOTE:** An ATP must be achieved for this diagnostic before continuing.

1. At the MCC, type and enter the following command:

**32cd,STBY** (1510,b,a CMD)

or

**RST:SFI=a-b-c-d,STBY;**

**Where:**

|     |                     |
|-----|---------------------|
| a = | SM-2000 number      |
| b = | DNU-S number        |
| c = | Data Group number   |
| d = | Standby SFI number. |

**Response: RST SFI a b c d COMPLETED**

### 11.32.15 Switch SFIs

**CAUTION:** This SFI switch will generate transient errors on the facilities.

1. At the MCC, type and enter the following command:

**42c, UCL**(1510,b,a)

or

**SW:SFI=a-b-c,UCL;**

**Where:**

|     |                    |
|-----|--------------------|
| a = | SM-2000 number     |
| b = | DNU-S number       |
| c = | Data Group number. |

**Response: SW SFI a b c COMPLETED**

### 11.32.16 Diagnose and Restore Standby SFI

**NOTE:** An ATP must be achieved for this diagnostic before continuing.

1. At the MCC, type and enter the following command:

**32cd,STBY;** (1510,b,a CMD)

or

**RST:SFI=a-b-c-d,STBY;**

**Where:**

|     |                     |
|-----|---------------------|
| a = | SM-2000 number      |
| b = | DNU-S number        |
| c = | Data Group number   |
| d = | Standby SFI number. |

**Response: RST SFI a b c d COMPLETED**

### 11.32.17 Safe Stop Point

1. This is a safe stop point.

### 11.32.18 Back Up Office Dependent Data



**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.32.19 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before starting this procedure and monitor the ROP for "ANALYSIS ONLY," "REPT TRBL," and "PFR" messages that may implicate this SM-2000. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)

or

**ALW:BREVC, SM=a;**

Where: a = SM-2000 number.

Response: **OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

Where: a = SM-2000 number.

Response: **OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

Response: **OK**

### 11.32.20 Return Routine Exercises to Normal

1. At the MCC, type and enter the following command:

**702** (1800,a CMD)

or

**ALW:REX,SM=a;**

Where:           a = SM-2000 inhibited.

Response:       **OK**

2.   **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.33: GROW MESSAGE HANDLER PIPE - 5E9(2) AND LATER

### OVERVIEW

This procedure grows and activates a message handler (MH) pipe in an SM-2000. Each pipe is grown by inserting the data on the **MH** pipe assignment view at the recent change/verify (RC/V) terminal.

**NOTE:** Before growing an MH pipe, QLPS 0-0, 0-1, 1-0, and 1-1 must be operational and in service, and the SM-2000 must be operational.

### PROCEDURE

1. Grow message handler pipe - 5E9(2) and later

#### 11.33.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a**

**Where:**

a = Switching Module-2000 (SM-2000) number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this MH Pipe growth procedure. Correct any deficiency as required.

#### 11.33.2 Insert MH Pipe Data into Data Base

1. Select and prepare terminal for recent change and verify activities.

**Reference:** Procedure 11.1

2. At the RC/V terminal, type and enter **17.20i**

**Response:** **MH Pipe assignment** page displayed. Cursor at **QLPS Network** attribute.

3. Type and enter the values for the following key fields:

\*QLPS NETWORK \_\_\_\_ (0 or 1)

\*SM-2000 SM \_\_\_\_ (SM number)

**Response:** Enter Insert, Change, Validate, or Print:

4. Type and enter **I**

Response:     **inserting ....FORM INSERTED**  
                  **MH PIPE HANDLER** page displayed. Cursor at QLPS NETWORK attribute.

5. Is data for both QLPS networks inserted?

If **NO**, repeat Step 2 for "mate" QLPS network on this SM-2000.

If **YES**, continue with next Step.

6. Type and enter <

Response:     **17.0 CM MODULE VIEWS** page displayed.

7. Type and enter q

### 11.33.3 Verify Status of MH Pipes

1. Wait 5 minutes to ensure stable operation.
2. At the MCC, type and enter the following command:

**OP:qnetstat,srcsm=SM-2000 number**

Response:     **PF follows**

3. Verify that both of the MHQPIPEs for the SM-2000 are ACTIVE and that any QLINKs (if QGPs are equipped and active) and ISMQLINKs (if other SM-2000s equipped with both pipes) are ACTIVE or STBY.

### 11.33.4 Back Up Office Dependent Data

1. **Note:** Prior to the response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP).
2. At MCC, type and enter **BKUP:ODD;**

Response:     **BKUP ODD COMPLETED**

**Note:** Data base backup will take several minutes to complete.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.34: DEGROW MESSAGE HANDLER PIPE - 5E9(2) AND LATER

### OVERVIEW

This procedure degrows a message handler (MH) pipe. Each pipe is degrown by deleting the data on the **MH** pipe assignment view at the recent change/verify (RC/V) terminal.

Before degrowing an MH pipe, the SM-2000 where the MH resides should be manually quad-link packet switch (QLPS) isolated.

### PROCEDURE

1. Degrow Message Handler Pipe - 5E9(2) and Later

#### 11.34.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a**

Where: a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this MH Pipe degrowth procedure. Correct any deficiency as required.
5. To backup office dependent data (ODD), at the MCC type and enter

**BKUP:ODD;**

**Note 1:** Prior to the response, there will be completed responses for each SM, the administrative module (AM), and the communication module processor (CMP).

Response: **BKUP ODD COMPLETED**

**Note 2:** Data base backup will take several minutes to complete.

6. Is the office equipped with RTCD (real time call detail)?

If **YES**, continue with next Step.

If **NO**, go to **11.34.2**

7. Verify RTBM (real time billing memory) is empty, at MCC type and enter

**VFY:RTBM;**

**NOTE:**

If the RTBM is not empty RTCD billing records may be lost unless these can be transferred to the global billing SM. To transfer RTCD billing records, refer to 235-200-110, *Long Distance Platform*.

### 11.34.2 Isolate SM-2000 from QLPS

1. At the MCC, type and enter **SET-ISOL:SM=x,QLPS**

Where: x = SM-2000 number

Response: **QMAN ISOL** MCC page indicator is backlit on the SM-2000s status page.  
**SET ISOL SM=x COMPLETED** prints on the MCC terminal and receive-only printer (ROP).

**NOTE:** The SM-2000 will report a QLPS overload condition.

### 11.34.3 Delete MH Pipe Data from Data Base

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **17.20**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete**

3. Type and enter **D**

Response: **MH Pipe assignment** page displayed. Cursor at **QLPS Network** attribute.

4. Select the completed GRCV form **17.20** for the identified MH Pipe. This form should have the key attributes listed in the following display.

**ATTRIBUTE**  
**QLPS NETWORK** \_\_\_\_  
**SM-2000 SM** \_\_\_\_

5. Using the selected work GRCV form as a guide, type and enter the indicated values for each attribute.

6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
**MH PIPE HANDLER** page displayed. Cursor at QLPS NETWORK attribute.

7. Is data for both QLPS networks deleted?

If **NO**, repeat Steps 5 and 6 for "mate" QLPS network on this SM-2000.

If **YES**, continue with next Step.

8. Type and enter <

Response: **17.0 CM MODULE VIEWS** page displayed.

9. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### **11.34.4 Verify Status of Deleted MH Pipes**

1. Wait 5 minutes to ensure stable operation.
2. At the MCC, type and enter the following command:

**OP:qnetstat,srcsm=SM-2000 number**

Response: **PF follows**

3. Verify that there are no equipped MHQPIEs, QLNs, or ISMQLINKs displayed for the SM-2000.

#### **11.34.5 Back Up Office Dependent Data**

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.35: DEGROW AMA PARTITION FOR SMD-MHD PAIR ON 3B20D MODEL 3 - 5E9 AND LATER

### OVERVIEW

This procedure degrows the AMA partitions on a pair of Duplex Disk Drives (SMD or SCSI). The degrowth pair of Duplex Disk Drives must contain only AMA data. This Section is to be used in those 5ESS<sup>®</sup>-2000 switch offices operating on the 5E9 and later software releases.

Any primary AMA data residing on the degrowth disk pair be completely transferred to secondary data.

### Hardware Description

The 340-Mb disks are high speed, random access memory devices that are used for mass data storage in the computer. The disks are connected to the computer via a disk file controller, duplex dual serial bus selector, and a dual serial channel. The disk file controller can communicate with as many as six disk drives.

The 340-Mb disks are located in the disk frame (J1C186A-1). Also, power supplies (KS-22997, L2) and power switches (ED-4C481) are located in the disk frame.

The drives are installed in enclosures that are acoustically insulated to reduce noise level near the unit and to provide electromagnetic compatibility shielding.

### References

The following documents should be available when performing this degrowth:

- Office Equipment List Drawing.

### Prerequisite Conditions

The degrowth pair of Duplex Disk Drives must be the highest-numbered pair in the office line-up.

If the degrowth disks contain SM~ODD, the disks will have to be reconfigured. The subsequent degrowth procedure will fail until the disk reconfiguration is performed (See Section 10.21 of this document).

Assure that the system has been running sanely without any problems within the past 24 hours and that the following conditions are met:

- Assure that within the past 24 hours the processor has not experienced any terminal suspends, initializations, diagnostic failures, or overloads.
- Assure that disks drives are in the duplex mode. Keep all IOPs and both MTTYCs ACTIVE in order to do port switch during the procedure. The MTTYC Port Switch must be in AUTO position. Assure Control Units (CUs) have been in active-standby mode (with the exception of routine maintenance and diagnostic requests).
- SYS NORM indicator should be on and verify that the system is running on the primary ROOT file system.

The office must be running on Software Release 5E9 or later.

**NOTE:** Throughout this procedure, a single data stream office does not have to be specified as an ST1 or an ST2. However, a dual stream office *must* be specified as either an ST1 or an ST2.



There are two AMA partitions on each degrowth disk pair which are in normal (available to be written to) use. If the system AMA write pointers are within these two partitions, the degrowth procedure must be delayed until the pointers have advanced beyond the AMA partitions on the degrowth disk pair.

AMA billing Records are accumulated on disk AMA partitions as primary AMA data. Primary data cannot be overwritten until it is either sent to Local AMA tape (LAMA) or to the Revenue Accounting Office (RAO) via data link. AMA data on the disks that has been written to tape or teleprocessed is called secondary data.

AMA partitions are allocated as follows:

| AMA partition | MHD pair |
|---------------|----------|
| ama,ama1      | MHD0/1   |
| ama2,ama3     | MHD2/3   |
| ama4,ama5     | MHD4/5   |
| ..            | ..       |
| ama12,ama13   | MHD12/13 |

Dual stream billing allows each AMA partition on a disk pair to be assigned to one of two billing streams; dual and single stream billing cannot be intermixed in the same office. In each of the two streams, data (primary or secondary) is stored in wrap-around fashion. Offices are generally engineered to store 5 days of AMA records on disk.

## PROCEDURE

1. Since this procedure is degrowing a pair of disks that store AMA data, the maximum amount of time to unequip the AMA partitions in the degrowth disks may require several days to complete.

### 11.35.1 Determine Equipped AMA Partitions

1. Telephone Company Function

**NOTE:** This step prints a list of equipped AMA partitions and stream (ST1, ST2) assignments. The two highest-numbered partitions must be on the highest-numbered disk pair which are scheduled to be degrown.

At the Master Control Center (MCC), type and enter:

If for Single Stream Offices: **OP:AMA:CONFIG;**

If for Dual Stream Offices: **OP:AMA:CONFIG,ST1;**

or

**OP:AMA:CONFIG,ST2;**

FOR SINGLE STREAM OFFICES:

Response: REPT AMA CONFIG FILE FOR STREAM a

NUMBER OF EQUIPPED PARTITIONS IS d

TOTAL NUMBER OF AMA  
BLOCKS e

0 /dev/ama xx

1 /dev/ama1 xx

```

2 /dev/ama2 xx
3 /dev/ama3 xx
4 /dev/ama4 xx
5 /dev/ama5 xx
. . .
y /dev/amay xx
z /dev/amaz xx

```

Where:        a is ST1 or ST2.  
               xx is the number of blocks in each AMA disk partition.  
               y and z are the highest AMA partition numbers.

(Example of two stream office with AMA partitions 0, 2, 4, etc., assigned to ST1 and AMA partitions 1, 3, 5, etc., assigned to ST2.)

FOR DUAL STREAM OFFICES:

Response:     REPT AMA CONFIG FILE FOR STREAM ST1

NUMBER OF EQUIPPED PARTITIONS IS d

TOTAL NUMBER OF AMA  
 BLOCKS e

```

0 /dev/ama xx
2 /dev/ama2 xx
4 /dev/ama4 xx
. . .
y /dev/amay xx

```

REPT AMA CONFIG FILE FOR STREAM ST2

NUMBER OF EQUIPPED PARTITIONS IS d

TOTAL NUMBER OF AMA  
 BLOCKS e

```

1 /dev/ama1 xx
3 /dev/ama3 xx
5 /dev/ama5 xx
. . .
z /dev/amaz xx

```

Where:        xx is the number of blocks in each AMA disk partition.  
               y and z are the highest AMA partition numbers.

### 11.35.2 Determine AMA Disk WRITE/READ Pointer Location

#### 1. Telephone Company Function

This step determines if the AMA program is writing to the partitions on the degrowth disk pair by checking the partition pointer from the disk maps.

At the MCC, type and enter:

If for Single Stream Offices **OP:AMA:MAPS;**

If for Dual Stream Offices **OP:AMA:MAPS,ST1;**

or

**OP:AMA:MAPS,ST2;**

Response: REPT AMA DISK MAPS FOR STREAM a  
WRITE PARTITION b READ PARTITION c  
PARTITION d DISK MAP:

| FPO: xx | LPO: xx | FPS: xx | LPS: xx |
|---------|---------|---------|---------|
| ...     | ..      | ...     | ...     |
| ...     | ...     | ...     | ...     |

Where:  
a is ST1 or ST2.  
b is WRITE Partition pointer.  
c is READ Partition pointer.  
d is partition number from which the disk map is read.  
xx is AMA block number.

- Determine from the printout in Step 1 if the WRITE partition pointer is pointing to the selected degrowth disk AMA partition.

If **YES**, then this partition cannot be unequipped until the system is not writing primary data in the degrowth disk pair AMA partition. Go to Section 11.35.5 .

If **NO**, continue with next step.

- Determine from the printout in Step 1 if there is primary AMA data on the degrowth disk pair (FPO and LPO pointers that is not equal to -1).

If **YES**, go to Section 11.35.5 .

If **NO**, continue with next Section.

### 11.35.3 Process Primary AMA Data

- Telephone Company Function

As per local practices, teleprocess or write a tape until all primary AMA data is marked as secondary data. (Reference Section 4 of this document.)

Was the following output message seen at the ROP?

Response: REPT AMA DISK READER FOR STREAM a  
END OF SESSION UPDATING OF DISKS MAPS FAILED.

SEQUENCE NUMBERS x THROUGH y  
MUST BE RETRIEVED AGAIN AS SECONDARY DATA

If **NO**, continue with next Section.

If **YES**, then retransmit the secondary data as indicated in message (Repeat retransmission until all AMA data is transmitted successfully).

#### 11.35.4 Unequip AMA Partition

##### 1. Telephone Company Function

At the MCC, type and enter:

**SET:AMA:CONFIG:ST1,**

**PART=x,UNEQUIP;**  
or

**SET:AMA:CONFIG:ST2,**

**PART=x,UNEQUIP;**

Where: x is the AMA partition number.

Response: REPT AMA CONFIG FILE FOR STREAM a  
PARTITION b WAS SUCCESSFULLY UNEQUIPPED  
NUMBER OF EQUIPPED PARTITIONS IS c  
TOTAL NUMBER OF AMA  
BLOCKS d  
0 /dev/ama xx  
1 /dev/ama1 xx  
2 /dev/ama2 xx  
. . .  
y /dev/amaz xx  
z /dev/amaz xx

Where: a is ST1 or ST2.  
xx is number of blocks in each AMA disk partition.  
y and z are the highest AMA partition.

**NOTE:** If the partition cannot be unequipped, the partition may contain primary AMA data.

##### 2. Was the SET:AMA command successful?

If **YES**, go to Section 11.35.5 .

If **NO**, continue with next step.

3. At the MCC, type and enter:

If for Single Stream Offices **OP:AMA:MAPS;**

If for Dual Stream Offices **OP:AMA:MAPS,ST1;**

or

**OP:AMA:MAPS,ST2;**

Response for Single/Dual Stream Offices: REPT AMA DISK MAPS FOR STREAM a

WRITE PARTITION b READ PARTITION c

PARTITION d DISK MAP:

| FPO: xx | LPO: xx | FPS: xx | LPS: xx |
|---------|---------|---------|---------|
| ...     | ...     | ...     | ...     |
| ...     | ...     | ...     | ...     |

Where:

- a is ST1 or ST2.
- b is WRITE Partition pointer.
- c is READ Partition pointer.
- d is partition number from which the disk map is read.
- xx is AMA block number.

4. Is there any primary data on the unequipping AMA partition (FPO and LPO pointers that is not equal to -1)?

If **YES**, then the MHDs cannot be degrown until the system has written AMA data across the partition and this new primary data is processed.

Continue with next Section (to deal with the remaining partition).

If **NO**, SEEK TECHNICAL ASSISTANCE for this degrowth disk pair partition. Meanwhile, continue with next Section to deal with the remaining partition if it has not been unequipped.

### 11.35.5 Determine AMA Partitions Status

1. Telephone Company Function

Have attempts to unequip all of the equipped AMA partitions of the degrowth disk pair been tried?

If **YES**, continue with next step.

If **NO**, for the other partition go to Section 11.35.2 .

2. Were attempts to unequip all of the equipped AMA partitions of the degrowth disk pair successful?

If **YES**, continue with next step.

If **NO**, another attempt should be made to unequip this partition (which could not be unequipped) on another day before continuing this procedure. Return to Section 11.35.2 (on another day).

**NOTE:** It is acceptable to have one partition unequipped on a disk pair while waiting for the system to write across the partition on the other stream.

### 11.35.6 Determine AMA Data Processing Integrity

1. Telephone Company Function

The need for this step should be determined by the AMA data center (RAO/HOC), if there is a problem with the transmission of primary data to the center.

---AND/OR---

If primary AMA data has not been processed within the last 24 hours, it should be performed at this time to reduce the amount of primary AMA data stored on the nondegrowth disks.

2. Has primary AMA data been processed in the last 24 hours?

If **YES**, continue with next step.

If **NO**, then, per local practices, teleprocess or write a tape until all primary AMA data is marked as secondary data. (Reference Section 4 of this document.)

Continue with next step.

3. Is there a need to retransmit the secondary AMA data from the degrowth disk pair?

If **YES**, continue with next Section.

If **NO**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 11.35.7 Reequip AMA Partitions

1. Telephone Company Function

Reequip the AMA partitions on the degrowth disk pair.

**CAUTION:** Equip the AMA partitions only long enough to retransmit the Secondary AMA data. Longer times might allow the system to again write primary AMA data on the disk partitions requiring this procedure to be restarted from the beginning.

2. At the MCC, type and enter:

**SET:AMA:CONFIG:ST1,**

**PART=x,EQUIP,NOINIT;**

or

**SET:AMA:CONFIG:ST2,**

**PART=x,EQUIP,NOINIT;**

Where: x is the AMA partition number.

Response: REPT AMA CONFIG FILE FOR STREAM a

NUMBER OF EQUIPPED PARTITIONS IS c

TOTAL NUMBER OF AMA  
BLOCKS d

0 /dev/ama xx

1 /dev/ama1 xx

2 /dev/ama2 xx

...

y /dev/amaz xx  
z /dev/amaz xx

Where: a is ST1 or ST2.  
xx is number of blocks in each AMA disk partition.  
y and z are the highest AMA partition.

### 11.35.8 Process Secondary AMA Data

1. Telephone Company Function

Teleprocess or write to tape the secondary AMA data needed by AMA center. (Reference Section 4 of this document.)

### 11.35.9 Unequip AMA Partitions

1. Telephone Company Function

Unequip the AMA partitions on the degrowth disk pair again.

**CAUTION:** If this step fails to unequip either AMA partition, then this entire procedure must be reexecuted from the beginning.

2. At the MCC, type and enter:

**SET:AMA:CONFIG:ST1,  
PART=x,UNEQUIP;**

**SET:AMA:CONFIG:ST2,  
PART=x,UNEQUIP;**

Where: x is the AMA partition number.

Response: REPT AMA CONFIG FILE FOR STREAM a  
  
PARTITION b WAS SUCCESSFULLY UNEQUIPPED  
  
NUMBER OF EQUIPPED PARTITIONS IS c  
  
TOTAL NUMBER OF AMA  
BLOCKS d  
0 /dev/ama xx  
1 /dev/ama1 xx  
2 /dev/ama2 xx  
...  
y /dev/amaz xx  
z /dev/amaz xx

Where: a is ST1 or ST2.  
xx is number of blocks in each AMA disk partition.  
y and z are the highest AMA partition.

3. STOP. YOU HAVE COMPLETED THIS PROCEDURE.



## Procedure 11.36: CLEAN SMALL COMPUTER SYSTEM INTERFACE (SCSI) TAPE DRIVE

### OVERVIEW

Clean tape path, tape heads, and tapes reduce read/write errors, shorten read/write times, and lengthen tape life. Routine cleaning of the tape drive significantly increases its performance.

A tape sheds binder and oxide during normal tape operations. Usually, debris from a tape can be removed by periodic cleaning. However, some combinations of humidity, temperature, tape tension, tape speed, and chemical composition of the binder in certain brands of tape may cause a deposit to be formed on the head. These deposits cannot be removed by normal cleaning procedures. Sometimes these deposits cannot even be seen. If allowed to accumulate, the head of a 9-track drive or the Digital Audio Tape (DAT) drive itself will have to be replaced.

The recommended tape path cleaning interval is every 8 hours. However, if the error messages/status indications (such as dual density 1600/6250 display with or without UNKNOWN displayed on the KS-23909, L21 drive display panel) begin to occur regularly, the tape path should be cleaned more regularly. If frequent cleaning does not improve reliability, the tape media should be checked for wear, tear, and dirt. Old and worn tapes should be copied immediately and then discarded.

### PROCEDURE

1. Clean Small Computer System Interface (SCSI) Tape Drive

#### 11.36.1 Tape Drive Identification

### OVERVIEW

The 3B computers support the following two types of SCSI tape drives:

- A vertically mounted 9-track SCSI tape drive which uses an industry standard 1/2-inch, reel-to-reel magnetic tape.
- A circuit pack mounted Digital Audio Tape (DAT) which uses a 4-millimeter wide tape cassette that conforms to industry Digital Data Storage (DDS) standard. [NCR 006-3503341 (UN376,B), NCR 006-3300608 (UN376C)]

1. The 9-track and DAT tape drives can be identified by typing and entering [at the Master Control Center (MCC)] the following command:

**OP:MT=x:INFO;**

Where:            x = tape drive number

Response:        The screen output will display the KS-number and product revision number of the tape drive under the **PRODUCT IDENTIFICATION** field.

**NOTE:** The 9-track tape drives can also be identified by a label with the KS-number on the rear of the unit.

2. What unit is to be cleaned?

If **KS-23909, L10 9-Track Tape Drive**, then go to Procedure 11.36.2 .

If **KS-23909, L21 9-Track Tape Drive**, then go to Procedure 11.36.3 .

If **NCR 006-3503341 DAT**, then go to Procedure 11.36.4 .

If **NCR 006-3300608 DAT**, then go to Procedure 11.36.4 .

## 11.36.2 KS-23909, L10 9-Track Tape Drive

### OVERVIEW

Table 11.36.2-1 indicates a cleaning frequency and a suitable cleaner for various parts of the KS-23909, L10 9-track tape drive.

**Table 11.36.2-1 Cleaning Schedules and Equipment**

| ASSEMBLY                                                 | CLEANING FREQUENCY                 | SUITABLE CLEANER                                                                        |
|----------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------|
| Heads, Tape Cleaner, Fixed Guides, Rollers, Tacho Roller | Daily if in continuous tape motion | Texpads (IPA-moistened pads), or non-CFC equivalent with lint-free cloth, or foam swabs |
| Painted surfaces                                         | As required                        | Amberclens antistatic foaming cleaner, or non-CFC equivalent                            |
| Loading door window                                      | As required                        | Ambersil glass cleaner or non-CFC equivalent with antistatic cloth                      |

- At the MCC, to remove the tape drive to be cleaned from service, type and enter the following command:

**RMV:MT=x;**

Where:            x = tape drive number.

- To gain access to the tape path, pull the handle on the loading door to hinge it open.

**NOTE:** The tape path components are shown in Figure 11.36.2-1 .

- Using the recommended cleaning pad, carefully wipe the surfaces of the head to remove all traces of dirt and oxide. In extreme cases, it may be necessary to use a scrubbing action to remove hard oxide deposits.

**CAUTION:** The edges of the sapphire cleaner are extremely sharp. Observe great care when cleaning. Avoid inhaling an excess of fumes from the cleaning fluids.

- Using the recommended cleaning pad, wipe the tape cleaner, particularly the front edge where debris may have accumulated.
- Inspect the remaining tape path components and, if necessary, wipe clean the tape contact surfaces of the roller guides, tension arm roller, and the surface of the tachometer roller.

**CAUTION:** Do not use alcohol-based fluid products on plastic or painted parts. Do not allow cleaning fluid to enter pregreased roller bearings.

- Clean any dirt or oxide which may have gathered around the take-up and supply reel areas.
- Close the loading door.
- At the MCC, to restore the cleaned tape drive to service, type and enter the following command:

**RST:MT=x;**

Where:            x = tape drive number.

**NOTE:** Use an antistatic cleaner and a cloth for cleaning the tape path cover. Use a cloth moistened with soapy water to wipe the fascia and painted surfaces.

9. Are there other tape drives to be cleaned?

If **YES**, then return to Section **11.36.1** , Step 2.

If **NO** then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

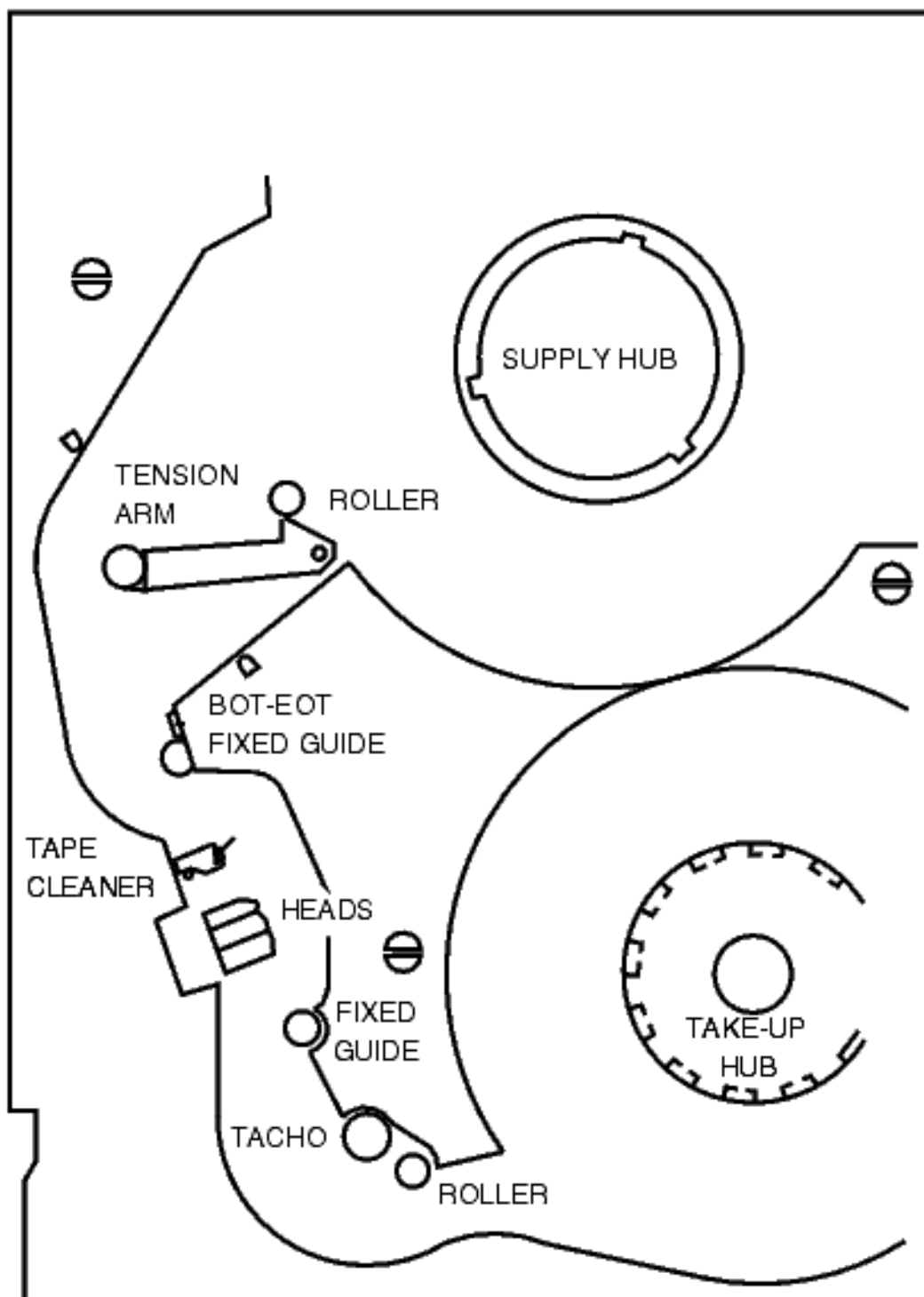


Figure 11.36.2-1 Tape Path Components

### 11.36.3 KS-23909, L21 9-Track Tape Drive

#### OVERVIEW

Use only high-quality electronic-grade isopropyl alcohol of at least 90 percent concentration as a cleaning solvent. The isopropyl mixture must consist of alcohol and distilled water only.

Use only nonabrasive, lint-free cloths, and/or swabs to clean the tape path.

Follow these precautions:

- Do not use cleaner solutions that contain lubricants. Lubricants leave a deposit on the tape head and impair performance.
- Do not use alcohol cleaning solutions on the rubber gripping fingers on the takeup reel.
- Do not use aerosol cleaners. The spray is difficult to control and often contains metallic particles that can damage the tape head.
- Do not use soap and water on the tape path. Soap leaves a thick film, and water may damage electronic parts.
- Discard used cloths and swabs after use. Even if they appear clean, they are contaminated.
- Do not use facial tissues. Although they may seem effective, they leave highly abrasive lint in the tape path.

Table 11.36.3-1 indicates the cleaning criteria for the KS-23909, L21 9-track tape drive.

**Table 11.36.3-1 Cleaning Schedule Guidelines**

| <b>CLEANING LEVEL</b> | <b>CLEANING CRITERIA</b>                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MINIMUM               | <p>Clean the tape path thoroughly EVERY 8 HOURS if:</p> <ul style="list-style-type: none"> <li>• Less than ten reels are used in 8 hours.</li> <li>• You see no particles on the tape head after each reel of tape.</li> <li>• You do not suspect abnormal dust (from increased traffic or vacuuming) in the room where the drive is located.</li> </ul>                                                   |
| NORMAL                | <p>Clean the tape path thoroughly EVERY 1 TO 2 HOURS of continuous running if:</p> <ul style="list-style-type: none"> <li>• More than ten reels are used in 8 hours.</li> <li>• You see no particles on the tape head after each reel of tape.</li> <li>• You do not suspect abnormal dust in the room where the drive is located.</li> </ul>                                                              |
| HEAVY                 | <p>Clean the tape thoroughly AFTER EACH REEL of tape if:</p> <ul style="list-style-type: none"> <li>• Particles appear on the tape head after each reel of tape.</li> <li>• You are reading interchange tapes from outside the clean room.</li> <li>• You are using new or seldom-used tapes (new tapes usually contain debris, generated during their manufacture, from the slitting process).</li> </ul> |
| SPECIAL               | <p>Clean the tape path ANYTIME you suspect abnormal dust in the room where the drive is located. This condition may be caused by custodial activity, equipment moves, or supply delivery. Also, clean the tape path if the drive has not been used for several days.</p>                                                                                                                                   |

1. At the MCC, to remove the tape drive to be cleaned from service, type and enter the following command:

**RMV:MT=x;**

Where:            x = tape drive number.

2. Pour a small amount of solvent into a clean container, such as a small UNWAXED paper cup or, if the cleaner comes in a squeeze bottle, squeeze a small amount on a lint-free cloth or swab.

**CAUTION:** Alcohol dissolves wax. If you use a waxed cup, the wax transfers to the tape path. DO NOT dip cloths or swabs into the cleaner container or touch the cloths or swabs to the lip of the open container during pouring. This will contaminate the solvent.

3. Use a lint-free swab or cloth and apply gentle pressure in one direction to clean the following surfaces (Refer to Figure 11.36.3-1 for location points.):
  - Read/Write/Erase Head **(1)** (if swab appears dirty, repeat with a new swab)
  - Tape Cleaner Block **(2)** (if swab appears dirty, repeat with a new swab)
  - Buffer Arm Movable Roller **(3,4)**
  - Buffer Arm Fixed Guide **(5)**
  - Speed Encoder **(7)**
  - Inner diameter (rubber) of the take-up reel **(6)** (this specially treated surface, if kept clean, greatly eases the manual threading action required to attach the tape to the take-up reel).
4. Use a lint-free wipe to brush out debris below the take-up reel and speed encoder. Brush off the tape-in path sensor to the right of the buffer arm.
5. Periodically check and wipe off rubber grip pads on the supply reel hub. Use a dry or damp swab or cloth. DO NOT USE ISOPROPYL ALCOHOL TO CLEAN THESE FINGERS.
6. At the MCC, to restore the cleaned tape drive to service, type and enter the following command:

**RST:MT=x;**

Where:            x = tape drive number.

7. Are there other tape drives to be cleaned?

If **YES**, then return to Section **11.36.1** , Step 2.

If **NO** then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

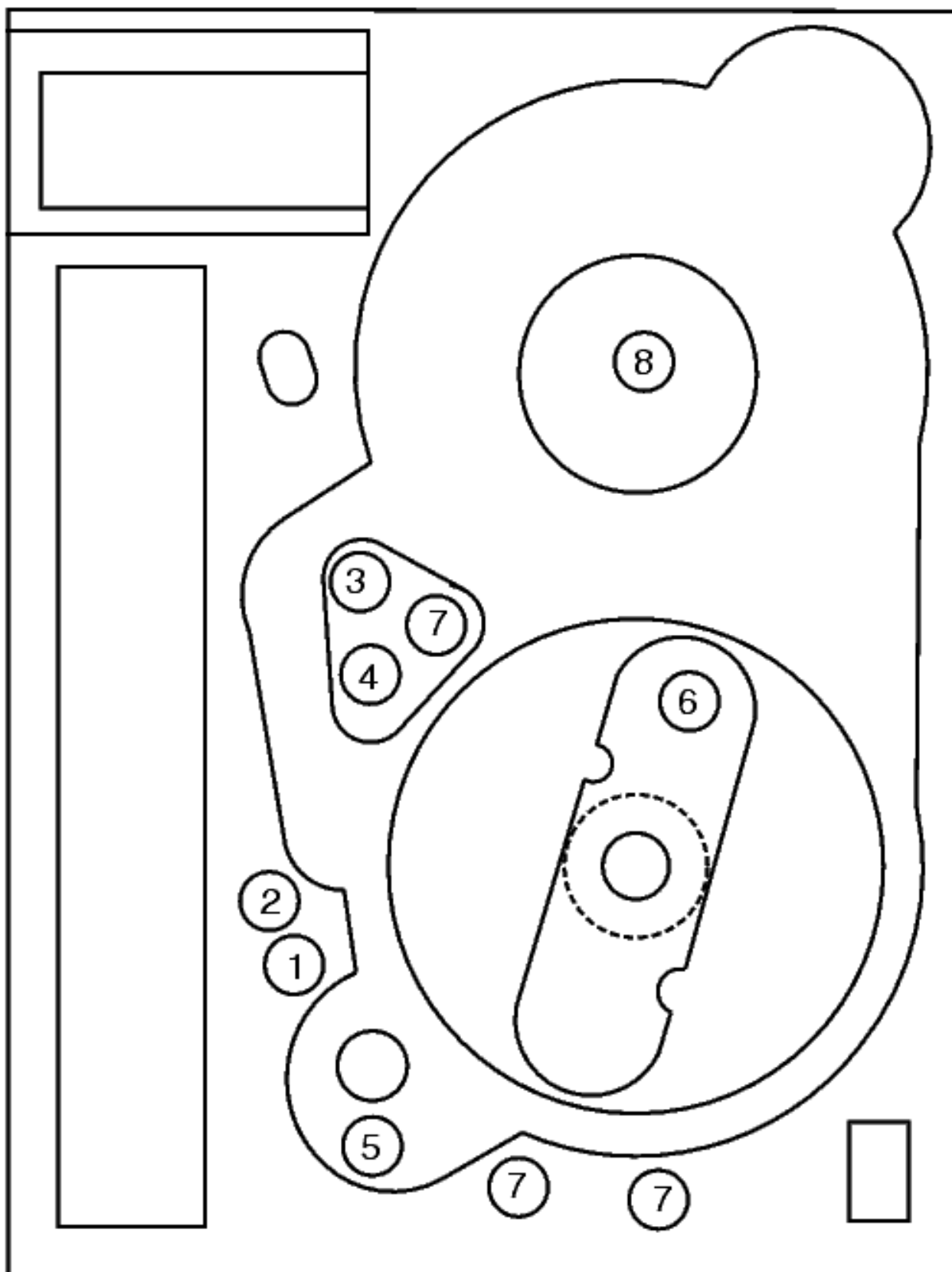


Figure 11.36.3-1 Cleaning Points

### 11.36.4 NCR 006-3503341 DAT and NCR 006-3300608 DAT

#### OVERVIEW

The UN376 and UN376B circuit packs use the NCR 006-3503341 DAT. The UN376C circuit pack uses the NCR 006-3300608 DAT. The tape heads should be cleaned after every 25 hours of operation. The tape heads should also be cleaned if "Caution" is signaled by the following indicators:

| Condition |         | Cassette Indicator | Drive Indicator                      |
|-----------|---------|--------------------|--------------------------------------|
| Caution   | UN376,B | Green              | Alternating Flashing Green and Amber |
|           | UN376C  | Any state          | Pulse Amber                          |

See Figure 11.36.4-1 .

A 4 mm cleaning cassette (*Hewlett-Packard*® P/N C5709A or equivalent) is required for cleaning the drive.

**NOTE:** The 4mm cleaning cassette can be purchased through the following locations:

- CDW, 800-598-4239
- Insight, 800-359-0633
- Micro Warehouse, 800-981-9207

1. At the MCC, to remove the tape drive to be cleaned from service, type and enter the following command:

**RMV:MT=x;**

Where: x = tape drive number.

2. To clean the drive, insert the cleaning cassette in the drive. The drive will automatically load the cassette, clean the heads, and eject the cassette when the operation is complete. The date should be recorded on the cleaning cassette label to maintain a history of use. After 25 uses, the cleaning cassette should be replaced.

**CAUTION:** Cleaning cassettes are considerably more abrasive to the drive's recording heads than standard data cassettes. Usage should be kept within recommended limits.

3. At the MCC, to restore the cleaned tape drive to service, type and enter the following command:

**RST:MT=x;**

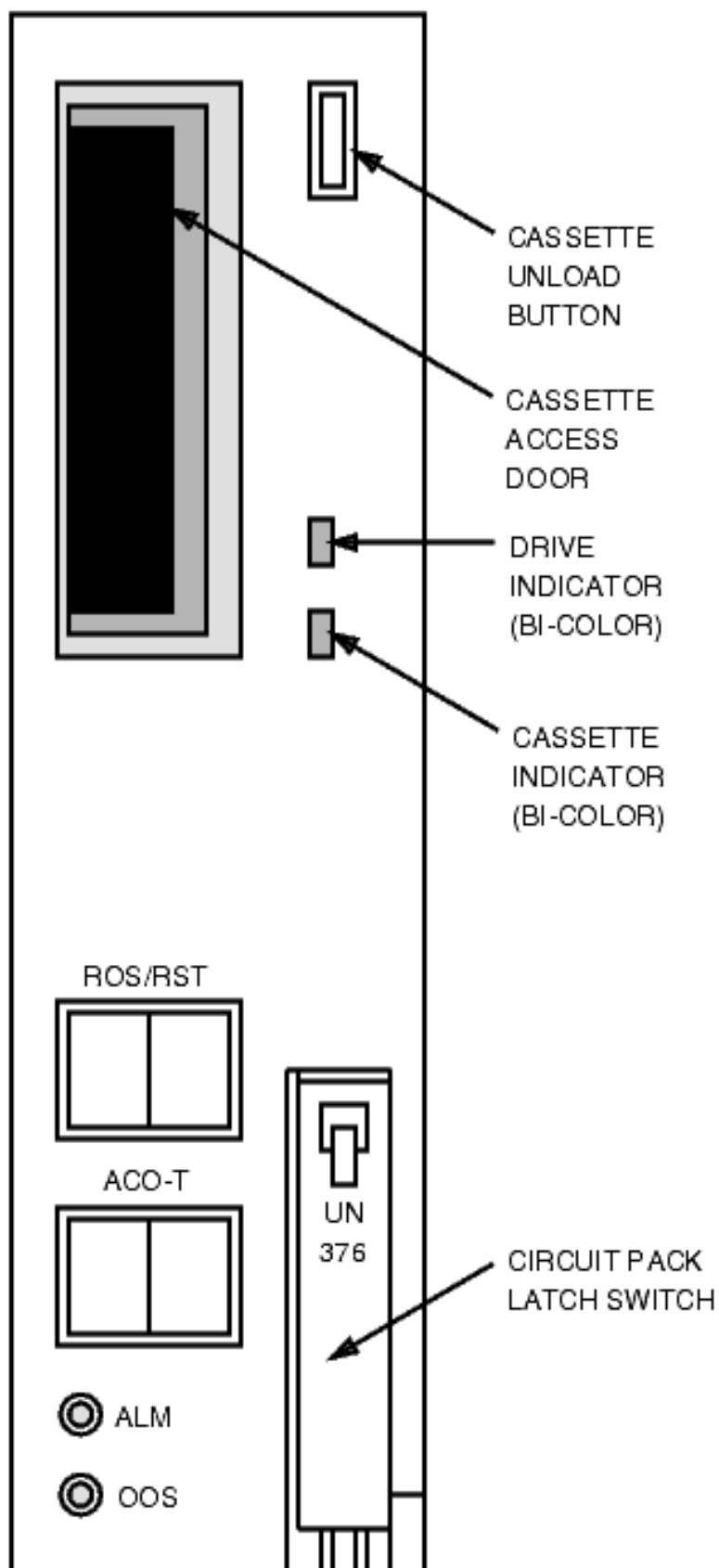
Where: x = tape drive number.

4. Are there other tape drives to be cleaned?

If **YES**, then return to Section 11.36.1 , Step 2.

If **NO** then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**





**Figure 11.36.4-1 SCSI DAT Drive Circuit Pack, Front View [UN376,B (NCR006-3503341) or UN376C (NCR006-3300608)]**

## Procedure 11.37: CLEAN KS-23113 TAPE DRIVE

### OVERVIEW

If further information is required regarding any of these instructions, refer to the manufactures manuals: LMSI P/N 49762900 and/or P/N 49763000 Hardware Maintenance Manuals.

### PROCEDURE

1. Open tape drive front door. At control panel, press **LOGIC OFF** switch.

Response: **LOGIC OFF** light-emitting diode (LED) lighted.

2. Remove 2-part tape head assembly dust cover from tape drive (Figure 11.37-1 ).

**NOTE:** When using water-based cleaning solvents such as LMSI P/N 77054840, DO NOT over saturate the cleaning cloth. Too much cleaner will result in wet tape path components and residues which may degrade performance. A very lightly dampened cloth or pad applied to the tape path component is all that is required. Depending on the amount of debris on the tape head, scrubbing may still be required.

3. Using a lint-free cloth moistened with tape transport cleaner, clean magnetic head recording surface by wiping in direction of tape motion (Figure 11.37-1 ).

**WARNING:** Cleaner blades are brittle and sharp.

4. Using foam swabs moistened with tape transport cleaner, remove dust and oxide from **EOT/BOT** sensor surfaces (Figure 11.37-1 ).

5. Using foam swabs moistened with tape transport cleaner, remove dust and oxide from tape cleaner blades (Figure 11.37-1 ).

6. Using a lint-free cloth moistened with tape transport cleaner, remove dust and oxide from upper and lower air bearing foil area and tape guides. Using small mechanic's mirror, inspect the upper and lower air bearing guide springs and remove any dust and oxide (Figure 11.37-1 ).

7. Using a lint-free cloth moistened with tape transport cleaner, wipe inside of 2-part head assembly dust covers; then install.

8. Press the periphery of the tape supply reel hub, as if mounting a reel of tape.

9. Using a lint-free cloth moistened with tape transport cleaner, clean the three supply reel hub pads (Figure 11.37-2 ).

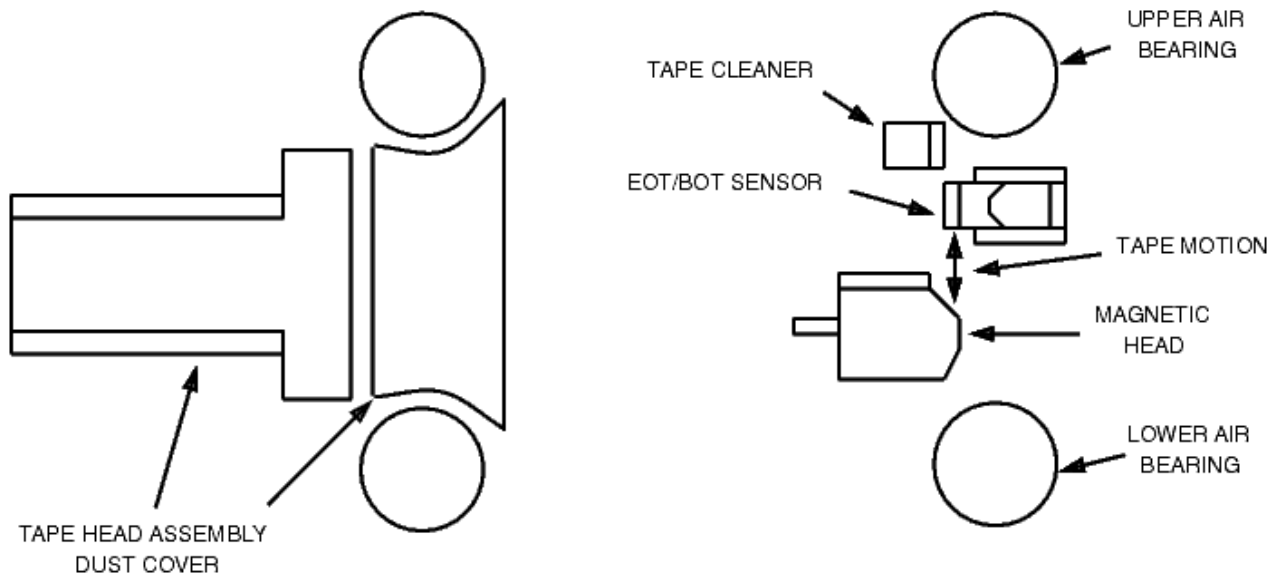
10. Press inner button on face of supply reel hub.

11. Using a lint-free cloth moistened with tape transport cleaner, wipe dust and dirt from interior and exterior surfaces of tape drive and front door.

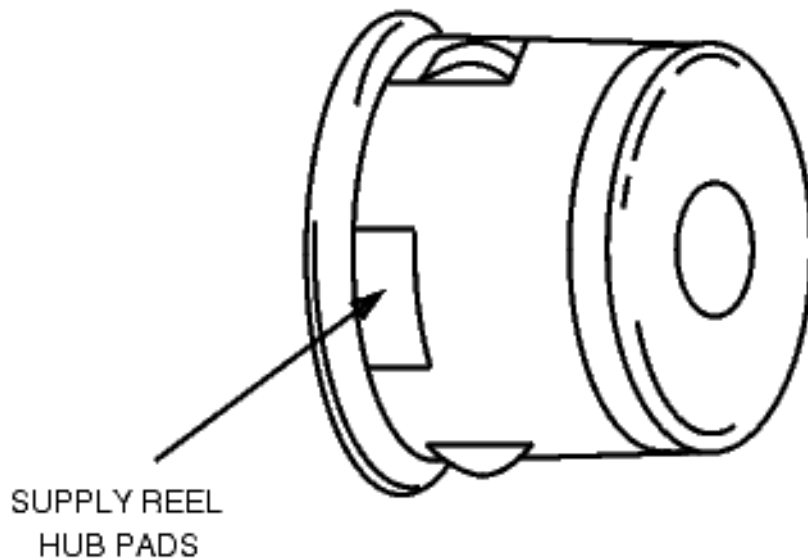
**WARNING:** Be sure all tape paths are dry before loading another tape; otherwise, damage to the tape will occur.

12. Close tape drive front door. At logic control panel, press **LOGIC ON** switch.

Response: **LOGIC ON** LED lighted.



**Figure 11.37-1 Magnetic Tape Head Components**



**Figure 11.37-2 Magnetic Tape Supply Reel Hub Pads**

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.38: PERFORM ORM ETR CONNECTION — 5E9(1) AND LATER

### OVERVIEW

This procedure provides the necessary steps to connect an External Timing Source (ETS) via an External Timing Reference (ETR) from the Dual Link Interface (DLI) of an Optical Remote Switching Module (ORM). One such appropriate external timing source which can be connected via the ETR would be the Building Integrated Timing Supply (BITS) Clock. Note, however, that the existence of an external timing source via an ETR is **mandatory** if the ORM has digital terminations and is **recommended** if the ORM has the stand-alone option. When the ORM obtains timing from an external timing source via the ETRs, timing from the umbilicals will not be used.

This procedure makes reference to two different types of switching module processor types, Module Controller and Time Slot Interchange Unit (MCTU) and model 2 of the same (MCTU2). All steps listing MCTU pertain to either MCTU or MCTU2.

### Prerequisite Conditions

- (1) The accuracy of the ETS should be of Stratum 3 level or higher.
- (2) The ORM ETR may be used in conjunction with auto power recovery (APR) in 5E10 and later software releases. Verify all required hardware, as listed in the following documents, is available.

**With APR:** J-5D003LA-1; ED5D503-32 group 380

**Without APR:** J-5D003LA-1; ED5D503-32 group 381

**NOTE:** The DLI must have a pack code of TN1077F or greater release.

- (3) This procedure should be exercised during low periods of traffic.
- (4) ElectroStatic Discharge (ESD) protection requirements must be followed.
- (5) If the ORM will be connected to a BITS clock, each DLI side must **NOT** share the same Timing Output DS1 Automatic card (TOTA) of the BITS clock. Per DLI, it is mandatory the T1 interface port of a single DLI is connected to a dedicated TOTA.

### PROCEDURE

1. Perform ORM ETR Connection — 5E9(1) AND Later

#### 11.38.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), verify normal conditions in the Switching Module (SM) to determine if system status is acceptable to start the connection procedure.

If a NORMAL indication is not obtained, type and enter: **OP:SYSSTAT**  
Correct any deficiencies as required.

#### 11.38.2 Record Communication Link (CLNK) Mapping Data

1. At MCC, type and enter command **1260**

Response: **CLNK SUMMARY** page displayed.

2. At MCC, type and enter command **126a**

Where: a = logical link map (1 through 4) reflecting the converting SM

Response: **LOGICAL LINK MAP a** page displayed.

3. View Path 0 and Path 1 ONTC columns of the converting SM. This column will contain the ONTC side (that is, 0 or 1) to which the CLNKs are logically linked to the converting SM.

### 11.38.3 Remove DLI Side 0 from Service

1. Type and enter: **RMV:DLI=a-0**

Where: a = SM number

Response: **RMV DLI=a-0 COMPLETED**

2. Type and enter command **126a**

Where: a = logical link map (1 through 4) reflecting the converting SM

Response: **LOGICAL LINK MAP a** page displayed.

3. Verify the CLNKs of the converting SM are linked to ONTC side 1 only.

### 11.38.4 Power Down the DLI Side 0

1. At DLI side 0 (TN1077), simultaneously depress the Manual Over Ride (MOR) and OFF buttons.

Response: **REPT PWR OFF DLI=a-0**

Where: a = SM number

### 11.38.5 Disengage Side 0 DLI Pack

1. Disengage side 0 DLI pack (TN1077) from SM frame.

### 11.38.6 Disengage Side 0 MCTU Fuse

1. Locate the side 0 MCTU fuse in the switching cabinet bezel according to the following EQL:

|         |  |
|---------|--|
| EQL     |  |
| 119-156 |  |

2. Disengage the side 0 MCTU fuse, as pictured in bezel diagram, by twisting the fuse to the left and pulling the fuse.

### 11.38.7 Disengage Side 0 Pin Protectors from the Backplane

1. Disengage the side 0 plastic pin protectors from the backplane according to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 006  |
| 119-156 | 106  |

### 11.38.8 Install the 127C Apparatus Mounting Retainer for Side 0, if Necessary

1. If not already present, install the 127C retainer to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 1B0  |

**NOTE:** See manufacturer note 38 and Table 8A for 127C installation instructions.

### 11.38.9 Connect Side 0 ETR Cable Connector to the DLI

1. Obtain the side 0 cable ED and group numbers from J-Drawing J-5D003LA-1 (See engineering note #66).
2. Connect the ETR cable to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 100  |

3. Verify that the other end of the external reference cable is properly connected to the external timing source (that is, Tip vs. Ring pairs).

### 11.38.10 Install the Side 0 963E-2 Shorting Connector

1. Install the side 0 963E-2 shorting connector to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 112  |

**NOTE:** See manufacturer note 21 for 963E-2 installation instructions.

### 11.38.11 Reseat Side 0 MCTU Fuse

1. Reseat the side 0 MCTU fuse and twist the fuse to the right according to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 |      |

### 11.38.12 Reseat DLI Side 0 Pack

1. Reseat and engage the DLI side 0 pack (TN1077) into the SM frame.

**11.38.13 Power Up the DLI Side 0**

1. At DLI side 0 (TN1077), depress the ON button.

Where: a = SM number

Response: **REPT PWR ON DLI=a-0**

**11.38.14 Update the Dual Link Interface (DLI) Side 0 Change Level Indicator (CLI) Value**

1. Select and prepare terminal for recent change and verify (RCV) activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form, 18.1, for the identified SM. This form should have the KEY attributes listed in the following display:

|        |
|--------|
| *1. SM |
|--------|

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change Validate, screen#, or Print:**

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **13**

Response: Cursor at DLI 0 CLI attribute.

8. Type and enter value from GRCV form.

Response: **Change field:**

9. Hit CARRIAGE RETURN.



Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED**  
**SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response: **RCV-196 COMPLETED**

### **11.38.15 Inhibit Hardware and Software Interrupts**

1. Type and enter **INH:HDWCHK,MCTSI=a-0,ALL**

Where: a = SM number

Response: **INH HDWCHK MCTSI=a-0 COMPLETED**

2. Type and enter **INH:SFTCHK,SM=a**

Where: a = SM number

Response: **OK**

### **11.38.16 Diagnose the Side 0 External Reference**

1. Type and enter: **DGN:DLI=a-0,RAW,TLP**

Where: a = SM number

Response: **DGN DLI=a-0 COMPLETED ATP**

2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.

### **11.38.17 Unconditionally Restore DLI Side 0 to Service**

1. Type and enter: **RST:DLI=a-0,ucl**

Where: a = SM number

Response: **RST DLI=a-0 COMPLETED**

2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.
3. Type and enter command **126a**  
Where:           a = logical link map (1 through 4) reflecting the converting SM  
Response:       **LOGICAL LINK MAP a** page displayed.
4. Verify the CLNKs of the converting SM are linked to ONTC sides 0 and 1.

#### **11.38.18 Allow Hardware and Software Interrupts**

1. At MCC, type and enter **ALW:HDWCHK,MCTSI=a-0,ALL**  
Response:       **ALW HDWCHK MCTSI=a-0 COMPLETED**
2. Type and enter **ALW:SFTCHK,SM=a**  
Where:           a = SM number  
Response:       **OK**

#### **11.38.19 Remove DLI Side 1 from Service**

1. Type and enter: **RMV:DLI=a-1**  
Where:           a = SM number  
Response:       **RMV DLI=a-1 COMPLETED**
2. Type and enter command **126a**  
Where:           a = logical link map (1 through 4) reflecting the converting SM  
Response:       **LOGICAL LINK MAP a** page displayed.
3. Verify the CLNKs of the converting SM are linked to ONTC side 0 only.

#### **11.38.20 Power Down the DLI Side 1**

1. At DLI side 1 (TN1077), simultaneously depress the MOR and OFF buttons.  
Where:           a = SM number  
Response:       **REPT PWR OFF DLI=a-1**

**11.38.21 Disengage Side 1 DLI Pack**

1. Disengage the side 1 DLI pack (TN1077) from SM frame.

**11.38.22 Disengage Side 1 MCTU Fuse**

1. Locate the side 1 MCTU fuse in the switching cabinet bezel according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 |      |

2. Disengage the side 1 MCTU fuse, as pictured in bezel diagram, by twisting the fuse to the left and pulling the fuse.

**11.38.23 Disengage Side 1 Pin Protectors from the Backplane**

1. Disengage side 1 plastic pin protectors from the backplane according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 006  |
| 128-156 | 106  |

**11.38.24 Install the 127C Apparatus Mounting Retainer for Side 1, if Necessary**

1. If not already present, install the 127C retainer to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 1B0  |

**NOTE:** See manufacturers note 38 and Table 8A for 127C installation instructions.

**11.38.25 Connect Side 1 ETR Cable Connector to the DLI**

1. Obtain the side 1 cable ED and group numbers from J-Drawing J-5D003LA-1 (See engineering note #66).
2. Connect the ETR cable to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 100  |

3. Verify that the other end of the external reference cable is properly connected to the external timing source (that is, Tip vs. Ring pairs).

**11.38.26 Install the Side 1 963E-2 Sorting Connector**

1. Install the side 1 963E-2 shorting connector to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 112  |

**NOTE:** See manufacturer note 21 for 963E-2 installation instructions.

**11.38.27 Reseat Side 1 MCTU Fuse**

1. Reseat the side 1 MCTU Fuse and twist the fuse to the right according to the following EQL:

|         |
|---------|
| EQL     |
| 128-156 |

**11.38.28 Reseat DLI Side 1 Pack**

1. Reseat and engage the DLI side 1 pack (TN1077) into the SM frame.

**11.38.29 Power Up the DLI Side 1**

1. At DLI side 1 (TN1077), depress the ON button.

Where:           a = SM number

Response:       **REPT PWR ON DLI=a-1**

**11.38.30 Update the DLI Side 1 CLI Value**

1. Select and prepare terminal for recent change and verify (RCV) activities.

Reference:       **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response:       **Enter Database Operation**  
                  **I=Insert R=Review U=Update D=Delete**

3. Type and enter **U**

Response:       **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
                  Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form, 18.1, for the identified SM. This form should have the KEY attributes listed in the following display:

|        |
|--------|
| *1. SM |
|--------|

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response:       System completes remainder of form.  
                  **Enter Update, Change Validate, screen#, or Print:**

6. Type and enter **C**

Response:       **Change field:**

7. Type and enter **14**

Response: Cursor at DLI 1 CLI attribute.

8. Type and enter value from GRCV form.

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED  
SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response: **RCV-196 COMPLETED**

### 11.38.31 Diagnose the Side 1 External Reference

1. Type and enter: **DGN:DLI=a-1,RAW,TLP**

Where: a = SM number

Response: **DGN DLI=a-1 COMPLETED ATP**

2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.

### 11.38.32 Conditionally Restore DLI Side 1 to Service

1. Type and enter: **RST:DLI=a-1**

Where: a = SM number

Response: **RST DLI=a-1 COMPLETED**

2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.

3. Type and enter command **126a**

Where:           a = logical link map (1 through 4) reflecting the converting SM

Response:       **LOGICAL LINK MAP a** page displayed.

4. Verify the CLNKs of the converting SM are linked to ONTC sides 0 and 1.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.39: PERFORM ORM ETR DISCONNECTION — 5E9(1) AND LATER

### OVERVIEW

This procedure provides the necessary steps to disconnect an External Timing Source (ETS) via an External Timing Reference (ETR) from the Dual Link Interface (DLI) from an Optical Remote Module (ORM). One such appropriate external timing source which can be connected via the ETR would be the Building Intergrated Timing Supply (BITS) Clock. Note, however, that the existence of an ETS via an ETR is **mandatory** if the ORM has digital terminations and is **recommended** if the ORM has the stand-alone option. When the ORM obtains timing from an external timing source via the ETRs, timing from the umbilicals will not be used.

This procedure makes reference to two different types of switching module processor types, Module Controller and Time Slot Interchange Unit (MCTU) and model 2 of the same (MCTU2). All steps listing MCTU pertain to either MCTU or MCTU2.

### Prerequisite Conditions

- (1) The accuracy of the ETS should be of Stratum 3 level or higher.
- (2) This procedure should be exercised during low periods of traffic.
- (3) ElectroStatic Discharge (ESD) protection requirements must be followed.

### PROCEDURE

1. Perform ORM ETR Disconnection — 5E9(1) and Later

#### 11.39.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), verify normal conditions in the Switching Module (SM) to determine if system status is acceptable to start the disconnection procedure.

If a NORMAL indication is not obtained, type and enter: **OP:SYSSTAT**  
Correct any deficiencies as required.

#### 11.39.2 Record Communication Link (CLNK) Mapping Data

1. At MCC, type and enter CMD **1260**

Response: **CLNK SUMMARY** page displayed.

2. At MCC, type and enter CMD **126a**

Where: a = logical link map (1 through 4) reflecting the converting SM

Response: **LOGICAL LINK MAP a** page displayed.

3. View Path 0 and Path 1 ONTC columns of the converting SM. This column will contain the ONTC side (that is, 0 or 1) to which the CLNKs are logically linked to the converting SM.

### 11.39.3 Remove DLI Side 0 from Service

1. Type and enter: **RMV:DLI=a-0**

Where: a = SM number

Response: **RMV DLI=a-0 COMPLETED**

2. Type and enter **CMD 126a**

Where: a = logical link map (1 through 4) reflecting the converting SM

Response: **LOGICAL LINK MAP a** page displayed.

3. Verify the CLNKs of the converting SM are linked to ONTC side 1 only.

### 11.39.4 Power Down the DLI Side 0

1. At DLI side 0 (TN1077), simultaneously depress the Manual Over Ride (MOR) and OFF buttons.

Response: **REPT PWR OFF DLI=a-0**

Where: a = SM number

### 11.39.5 Disengage Side 0 DLI Pack

1. Disengage side 0 DLI pack (TN1077) from SM frame.

### 11.39.6 Disengage Side 0 MCTU DLI Fuse

1. Locate the side 0 MCTU fuse in the switching cabinet bezel according to the following EQL:

|         |  |
|---------|--|
| EQL     |  |
| 119-156 |  |

2. Disengage the side 0 MCTU fuse, as pictured in bezel diagram, by twisting the fuse to the left and pulling the fuse.

### 11.39.7 Disengage Side 0 Shorting Connector 963E-2

1. Disengage the side 0 shorting connector 963E-2 from the backplane of the switching cabinet according to the following EQL:

|         |      |
|---------|------|
| EQL     | TERM |
| 119-156 | 112  |

**NOTE:** See manufacturer note 21 for 963E-2 installation instructions.



**11.39.8 Disconnect Side 0 ETR Cable Connector from the DLI**

1. Obtain the side 0 cable ED and group numbers from J-Drawing J-5D003LA-1 (see engineering note #66).
2. Disconnect the ETS cable from the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 100  |

**11.39.9 Disengage the 127C Apparatus Mounting Retainer for Side 0**

1. Disengage the 127C retainer from the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 1B0  |

**NOTE:** See manufacturer note 38 and Table 8A for 127C installation instructions.

**11.39.10 Install Side 0 Pin Protectors on the Backplane**

1. Install the side 0 plastic pin protectors on the backplane according to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 006  |
| 119-156 | 106  |

**11.39.11 Reseat Side 0 MCTU Fuse**

1. Reseat the side 0 MCTU fuse and twist the fuse to the right according to the following EQL:

| EQL     |
|---------|
| 119-156 |

**11.39.12 Reseat DLI Side 0 Pack**

1. Reseat and engage the DLI side 0 pack (TN1077) into the SM frame.

**11.39.13 Power Up the DLI Side 0**

1. At DLI side 0 (TN1077), depress the ON button.

Where:           a = SM number

Response:       **REPT PWR ON DLI=a-0**

**11.39.14 Update the Dual Link Interface (DLI) Side 0 Change Level Indicator (CLI) Value**

1. Select and prepare terminal for recent change and verify (RCV) activities.

Reference:       **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form, 18.1, for the identified SM. This form should have the KEY attributes listed in the following display:

|       |
|-------|
| *1 SM |
|-------|

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change Validate, screen#, or Print:**

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **13**

Response: Cursor at DLI 0 CLI attribute.

8. Type and enter value from GRCV form.

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED**  
**SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response: **RCV-196 COMPLETED**

**11.39.15 Inhibit Hardware and Software Interrupts**

1. Type and enter **INH:HDWCHK,MCTSI=a-0,ALL**  
Where: a = SM number  
Response: **INH HDWCHK MCTSI=a-0 COMPLETED**
2. Type and enter **ALW:SFTCHK,SM=a**  
Where: a = SM number  
Response: **OK**

**11.39.16 Diagnose the Side 0 External Reference**

1. At the MCC, type and enter: **DGN:DLI=a-0,RAW,TLP**  
Where: a = SM number  
Response: **DGN DLI=a-0 COMPLETED ATP**
2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.

**11.39.17 Unconditionally Restore DLI Side 0 to Service**

1. Type and enter: **RST:DLI=a-0,ucl**  
Where: a = SM number  
Response: **RST DLI=a-0 COMPLETED**
2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.
3. Type and enter **CMD 126a**  
Where: a = logical link map (1 through 4) reflecting the converting SM  
Response: **LOGICAL LINK MAP a** page displayed.
4. Verify the CLNKs of the converting SM are linked to ONTC sides 0 and 1.

**11.39.18 Allow Hardware and Software Interrupts**

1. At MCC, type and enter **ALW:HDWCHK,MCTSI=a-0,ALL**

Where: a = SM number

Response: **ALW HDWCHK MCTSI=a-0 COMPLETED**

2. Type and enter **ALW:SFTCHK,SM=a**

Where: a = SM number

Response: **OK**

### 11.39.19 Remove DLI Side 1 from Service

1. Type and enter: **RMV:DLI=a-1**

Where: a = SM number

Response: **RMV DLI=a-1 COMPLETED**

2. Type and enter **CMD 126a**

Where: a = logical link map (1 through 4) reflecting the converting SM

Response: **LOGICAL LINK MAP a** page displayed.

3. Verify the CLNKs of the converting SM are linked to ONTC side 0 only.

### 11.39.20 Power Down the DLI Side 1

1. At DLI side 1 (TN1077), simultaneously depress the MOR and OFF buttons.

Where: a = SM number

Response: **REPT PWR OFF DLI=a-1**

### 11.39.21 Disengage Side 1 DLI Pack

1. Disengage the side 1 DLI pack (TN1077) from SM frame.

### 11.39.22 Disengage Side 1 MCTU Fuse

1. Locate the side 1 MCTU fuse in the switching cabinet bezel according to the following EQL:

|         |  |
|---------|--|
| EQL     |  |
| 128-156 |  |

2. Disengage the side 1 MCTU fuse, as pictured in bezel diagram, by twisting the fuse to the left and pulling the

fuse.

### 11.39.23 Disengage Side 1 Shorting Connector 963E-2

1. Disengage the side 1 shorting connector 963E-2 from the backplane of the switching cabinet according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 112  |

**NOTE:** See manufacturer note 21 for 963E-2 installation instructions.

### 11.39.24 Disconnect Side 1 ETR Cable Connector from the DLI

1. Obtain the side 1 cable ED and group numbers from J-Drawing J-5D003LA-1 (see engineering note #66).
2. Disconnect the ETS cable from the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 100  |

### 11.39.25 Disengage the 127C Apparatus Mounting Retainer for Side 1

1. Disengage the 127C retainer from the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 1B0  |

**NOTE:** See manufacturer note 38 and Table 8A for 127C installation instructions.

### 11.39.26 Install Side 1 Pin Protectors on the Backplane

1. Install the side 1 plastic pin protectors on the backplane according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 006  |
| 128-156 | 106  |

### 11.39.27 Reseat Side 1 MCTU Fuse

1. Reseat the side 1 MCTU Fuse and twist the fuse to the right according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 |      |

### 11.39.28 Reseat DLI Side 1 Pack

1. Reseat and engage the DLI side 1 pack (TN1077) into the SM frame.

### 11.39.29 Power Up the DLI Side 1

1. At DLI side 1 (TN1077), depress the ON button.

Where: a = SM number

Response: **REPT PWR ON DLI=a-1**

### 11.39.30 Update the DLI Side 1 CLI Value

1. Select and prepare terminal for recent change and verify (RCV) activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form, 18.1, for the identified SM. This form should have the KEY attributes listed in the following display:

|       |
|-------|
| *1.SM |
|-------|

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change Validate, screen#, or Print:**

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **14**

Response: Cursor at DLI 1 CLI attribute.

8. Type and enter value from GRCV form.

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response:     **updating...FORM UPDATED**  
                  **SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response:     **RCV-196 COMPLETED**

### **11.39.31 Diagnose the Side 1 External Reference**

1. At the MCC, type and enter: **DGN:DLI=a-1,RAW,TLP**

Where:        a = SM number

Response:     **DGN DLI=a-1 COMPLETED ATP**

2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.

### **11.39.32 Conditionally Restore DLI Side 1 to Service**

1. Type and enter: **RST:DLI=a-1**

Where:        a = SM number

Response:     **RST DLI=a-1 COMPLETED**

2. Verify completion of MCTSI restoral in the ROP prior to continuing. MCTSI must be in active/standby configuration before continuing.

3. Type and enter **CMD 126a**

Where:        a = logical link map (1 through 4) reflecting the converting SM

Response:     **LOGICAL LINK MAP a** page displayed.

4. Verify the CLNKs of the converting SM are linked to ONTC sides 0 and 1.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.40: CONNECT VERY COMPACT DIGITAL EXCHANGE (VCDX) EXTERNAL TIMING SOURCE (ETS) — 5E9(2) AND LATER

### OVERVIEW

This procedure connects an External Timing Source (ETS) via a T1 interface to the Dual Link Interface (DLI) of a VCDX Switching Module (SM). One such appropriate ETS would be the Building Integrated Timing Source (BITS) clock.

### Prerequisite Conditions

- (1) The accuracy of the ETS should be of Stratum 3 level or higher.
- (2) Required to have ED5D765-17 Drawing for removal of CSC (TN1838) pack from MCTU2 shelf.
- (3) Verify all required hardware listed in the J-drawing J-5D003LA-1 Lists 7D,DL, DW,DX, and DY are available. The DLI must have a pack code of TN1077F or greater release.
- (4) Verify required hardware in ED5D503-32 Group 380 or 381, ETS cables, are available.

**NOTE:** Group 380 is for applications **With** Auto Power Recovery. Group 381 is for applications **Without** Auto Power Recovery.

- (5) This procedure requires two extra ETSs to connect the new DLIs while the old ETSs are still connected to the MCTSI. The end of this procedure will free up the MCTSI ETSs.
- (6) This procedure should be performed during low periods of traffic.
- (7) ElectroStatic Discharge (ESD) protection requirements must be followed.
- (8) If the VCDX is connected to a BITS clock, each DLI side must **NOT** share the same Timing Output DS1 Automatic card of the BITS clock. Per DLI, it is mandatory that the T1 interface port of a single DLI is connected to a dedicated card.

### PROCEDURE

1. Connect Very Compact Digital Exchange (VCDX) External Timing Source (ETS) — 5E9(2) and Later

#### 11.40.1 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), verify normal conditions in the SM to determine if system status is acceptable to start the procedure.

If a NORMAL indication is not obtained, type and enter: **OP:SYSSTAT**  
Correct any deficiencies as required.

2. At the MCC, type and enter: **OP:OFFNORM,SM=a**

Where:           a = SM number

Comment:        Evaluate system responses to determine if system status is acceptable to continue. Correct any deficiency as required.



3. At the MCC, type and enter: **INH:REX,SM=a**

Where: a = SM number

Response: **OK**

4. At the MCC, type and enter: **OP:REXINH**

Response: The inhibit status will be printed.

#### 11.40.2 Back Up Office Dependent Data

1. At the MCC, type and enter: **BKUP:ODD**

Response: **BKUP ODD COMPLETED**

#### 11.40.3 Allow Peripheral Fault Recovery Messages to be Printed

1. At the MCC, type and enter:  
**CHG:LPS,MSGCLS=ALL,TOBKUP**

Response: **OK**

2. At the MCC, type and enter:  
**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=ON**

Response: **OK**

3. At the MCC, type and enter:  
**SET:PERPH,SM=a,VERBOSE**

Where: a = SM number.

Response: **OK**

4. At the MCC, type and enter: **INH:BREVC,SM=a**

Where: a = SM number.

Response: **OK**

#### 11.40.4 Remove DLI Side 0 from Service

1. From the 1190 page, type and enter: **RMV:DLI=a-0**

Where: a = SM number

Response: **RMV DLI=a-0 COMPLETED**

#### 11.40.5 Power Down the DLI Side 0

- At DLI side 0 (TN1077), depress the **OFF** button.

Response: **REPT PWR OFF DLI=a-0**

Where: a = SM number

#### 11.40.6 Disengage Side 0 DLI Pack

- Disengage side 0 DLI pack (TN1077) from cabinet location 19-156.

#### 11.40.7 Remove Side 0 DLI Cables

- Using drawing ED5D765-17 remove the following Cable Group Connectors.

| GROUP | CONN | EQL     | TERM |
|-------|------|---------|------|
| 6     | 2    | 119-156 | 332  |
| 6     | 3    | 119-156 | 339  |
| 6     | 4    | 119-156 | 350  |
| 7     | 4    | 119-156 | 300  |
| 7     | 5    | 119-156 | 321  |

#### 11.40.8 Disengage Side 0 Pin Protectors from the Backplane

- Disengage the side 0 plastic pin protectors from the backplane according to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 006  |
| 119-156 | 106  |

#### 11.40.9 Install the 127C Apparatus Mounting Retainer for Side 0, if Necessary

**NOTE:** Position 1B0 refers to one row below pin position 100.

- If not already present, install the 127C retainer to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 1B0  |

#### 11.40.10 Install the Side 0 963E-2 Shorting Connector

- Install the side 0 963E-2 shorting connector from J-drawing J-5D003LA-1 List DL according to the following EQLs:

| FROM<br>EQL | FROM<br>TERM | TO<br>EQL | TO<br>TERM |
|-------------|--------------|-----------|------------|
| 119-156     | 012          | 119-156   | 112        |

**11.40.11 Install the Side 0 ED5D585-29 Group 42 Shorting Connector**

1. Install the side 0 ED5D585-29 Group 42 shorting connector from J-drawing J-5D003LA-1 List DW according to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 350  |

**11.40.12 Install the First Side 0 Loop-Back cable**

1. Install the first side 0 loop-back cable ED5D651-25 Group 14 from J-drawing J-5D003LA-1 List DX according to the following EQL:

| FROM<br>EQL | FROM<br>TERM | TO<br>EQL | TO<br>TERM |
|-------------|--------------|-----------|------------|
| 119-156     | 308          | 119-156   | 321        |

**11.40.13 Install the Second Side 0 Loop-Back Cable**

1. Install the second side 0 loop-back cable ED5D651-25 Group 13 from J-drawing J-5D003LA-1 List DY according to the following EQL:

| FROM<br>EQL | FROM<br>TERM | TO<br>EQL | TO<br>TERM |
|-------------|--------------|-----------|------------|
| 119-156     | 340          | 119-156   | 353        |

**11.40.14 Connect Side 0 ETR Cable Connector to the DLI**

1. Obtain the side 0 cable, ED5D503-32 Group 380 or 381.
2. Connect the ETR cable to the following EQL:

| EQL     | TERM |
|---------|------|
| 119-156 | 100  |

3. Verify that the other end of the external reference cable is properly connected to the external timing source according to following table:

| EQL     | TERM | NAME   | DESCRIPTION                |
|---------|------|--------|----------------------------|
| 119-156 | 100  | DS1INR | DS1 Input Ring             |
| 119-156 | 101  | DS1INT | DS1 Input Tip              |
| 119-156 | 000  | APRIPO | Enable Auto Power Recovery |
| 119-156 | 001  | GRD    | Ground                     |

**11.40.15 Reseat DLI Side 0 Pack**

1. Reseat and engage the new DLI side 0 pack (TN1077F) into cabinet location 19-156.

**11.40.16 Power Up the DLI Side 0**

1. At DLI side 0 (TN1077), depress the ON button.

Response: **REPT PWR ON DLI=a-0**

Where: a = SM number

#### 11.40.17 Update the Dual Link Interface (DLI) Side 0 Change Level Indicator (CLI) Value

1. Select and prepare terminal for recent change and verify (RCV) activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form 18.1, for the identified SM. This form should have the KEY attributes listed in the following display:

|        |
|--------|
| *1. SM |
|--------|

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change Validate, screen#, or Print:**

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **13**

Response: Cursor at DLI 0 CLI attribute.

8. Type and enter value from GRCV form.

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response:     **updating...FORM UPDATED**  
                  **SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response:     **RCV-196 COMPLETED**

#### **11.40.18 Diagnose the Side 0 DLI**

1. Type and enter: **DGN:DLI=a-0**

Where:        a = SM number

Response:     **DGN DLI=a-0 COMPLETED ATP**

#### **11.40.19 Inhibit Hardware and Software Interrupts**

1. Type and enter **INH:HDWCHK,MCTSI=a-0,ALL**

Where:        a = SM number

Response:     **INH HDWCHK MCTSI=a-0 COMPLETED**

2. Type and enter **INH:HDWCHK,MCTSI=a-1,ALL**

Where:        a = SM number

Response:     **INH HDWCHK MCTSI=a-1 COMPLETED**

3. Type and enter **INH:HDWCHK,DLI=a-0**

Where:        a = SM number

Response:     **INH HDWCHK DLI=a-0 COMPLETED**

4. Type and enter **INH:HDWCHK,DLI=a-1**

Where:        a = SM number

Response:     **INH HDWCHK DLI=a-1 COMPLETED**

5. Type and enter **INH:SFTCHK,SM=a**

Where:        a = SM number

Response:     **OK**

#### **11.40.20 Unconditionally Restore DLI Side 0 to Service**

1. Type and enter: **RST:DLI=a-0,ucl**

Where:           a = SM number

Response:       **RST DLI=a-0 COMPLETED**

2. From MCC page 1190, are DLI=a-0 and the External Timing Source connected to the DLI both active?

If **NO**, **SEEK TECHNICAL ASSISTANCE.**

If **YES**, continue with next step.

#### **11.40.21 Remove DLI Side 1 from Service**

1. Type and enter: **RMV:DLI=a-1**

Where:           a = SM number

Response:       **RMV DLI=a-1 COMPLETED**

#### **11.40.22 Allow Hardware and Software Interrupts**

1. At MCC, type and enter **ALW:HDWCHK,MCTSI=a-0,ALL**

Where:           a = SM number

Response:       **ALW HDWCHK MCTSI=a-0 COMPLETED**

2. At MCC, type and enter **ALW:HDWCHK,MCTSI=a-1,ALL**

Where:           a = SM number

Response:       **ALW HDWCHK MCTSI=a-1 COMPLETED**

3. At MCC, type and enter **ALW:HDWCHK,DLI=a-0**

Where:           a = SM number

Response:       **ALW HDWCHK DLI=a-0 COMPLETED**

4. At MCC, type and enter **ALW:HDWCHK,DLI=a-1**

Where:           a = SM number

Response: **ALW HDWCHK DLI=a-1 COMPLETED**

5. Type and enter **ALW:SFTCHK,SM=a**

Where: a = SM number

Response: **OK**

#### 11.40.23 Power Down the DLI Side 1

1. At DLI side 1 (TN1077), depress the **OFF** button.

Response: **REPT PWR OFF DLI=a-1**

Where: a = SM number

#### 11.40.24 Disengage Side 1 DLI Pack

1. Disengage side 1 DLI pack (TN1077) from cabinet location 28-156.

#### 11.40.25 Remove Side 1 DLI Cables

1. Using drawing ED5D765-17 remove the following Cable Group Connectors.

| GROUP | CONN | EQL     | TERM |
|-------|------|---------|------|
| 6     | 5    | 128-156 | 332  |
| 6     | 6    | 128-156 | 339  |
| 6     | 7    | 128-156 | 350  |
| 7     | 2    | 128-156 | 300  |
| 7     | 3    | 128-156 | 321  |

#### 11.40.26 Disengage Side 1 Pin Protectors from the Backplane

1. Disengage side 1 plastic pin protectors from the backplane according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 006  |
| 128-156 | 106  |

#### 11.40.27 Install the 127C Apparatus Mounting Retainer for Side 1, if Necessary

**NOTE:** Position 1B0 refers to one row below pin position 100.

1. If not already present, install the 127C retainer to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 1B0  |

#### 11.40.28 Install the Side 1 963E-2 Shorting Connector

1. Install the side 1 963E-2 shorting connector from J-drawing J-5D003LA-1 List DL according to the following EQLs:

| FROM<br>EQL | FROM<br>TERM | TO<br>EQL | TO<br>TERM |
|-------------|--------------|-----------|------------|
| 128-156     | 012          | 128-156   | 112        |

#### 11.40.29 Install the Side 1 ED5D585-29 Group 42 Shorting Connector

1. Install the side 1 ED5D585-29 Group 42 shorting connector from J-drawing J-5D003LA-1 List DW according to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 350  |

#### 11.40.30 Install the First Side 1 Loop-Back Cable

1. Install the first side 1 loop-back cable ED5D651-25 Group 14 from J-drawing J-5D003LA-1 List DX according to the following EQL:

| FROM<br>EQL | FROM<br>TERM | TO<br>EQL | TO<br>TERM |
|-------------|--------------|-----------|------------|
| 128-156     | 308          | 128-156   | 321        |

#### 11.40.31 Install the Second Side 1 Loop-Back Cable

1. Install the second side 1 loop-back cable ED5D651-25 Group 13 from J-drawing J-5D003LA-1 List DY according to the following EQL:

| FROM<br>EQL | FROM<br>TERM | TO<br>EQL | TO<br>TERM |
|-------------|--------------|-----------|------------|
| 128-156     | 340          | 128-156   | 353        |

#### 11.40.32 Connect Side 1 ETR Cable Connector to the DLI

1. Obtain the side 1 cable, ED5D503-32 Group 380 or 381.
2. Connect the ETR cable to the following EQL:

| EQL     | TERM |
|---------|------|
| 128-156 | 100  |

3. Verify that the other end of the external reference cable is properly connected to the external timing source (that is, Tip vs. Ring pairs).

| EQL     | TERM | NAME   | DESCRIPTION                |
|---------|------|--------|----------------------------|
| 128-156 | 100  | DS1INR | DS1 Input Ring             |
| 128-156 | 101  | DS1INT | DS1 Input Tip              |
| 128-156 | 000  | APRIPO | Enable Auto Power Recovery |
| 128-156 | 001  | GRD    | Ground                     |

#### 11.40.33 Reseat DLI Side 1 Pack

1. Reseat and engage the new DLI side 1 pack (TN1077F) into cabinet location 28-156.



**11.40.34 Power Up the DLI Side 1**

1. At DLI side 1 (TN1077), depress the **ON** button.

Response: **REPT PWR ON DLI=a-1**

Where: a = SM number

**11.40.35 Update the DLI Side 1 CLI Value**

1. Select and prepare terminal for recent change and verify (RCV) activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed.  
Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form 18.1, for the identified SM. This form should have the KEY attributes listed in the following display:

|        |
|--------|
| *1. SM |
|--------|

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change Validate, screen#, or Print:**

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **14**

Response: Cursor at DLI 1 CLI attribute.

8. Type and enter value from GRCV form.

Response: **Change field:**

9. Hit CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED**  
**SWITCHING MODULE SCREEN 1 of 5** page displayed.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **Q**

Response: **RCV-196 COMPLETED**

#### **11.40.36 Diagnose the Side 1 DLI**

1. Type and enter: **DGN:DLI=a-1**

Where: a = SM number

Response: **DGN DLI=a-1 COMPLETED ATP**

#### **11.40.37 Unconditionally Restore DLI Side 1 to Service**

1. Type and enter: **RST:DLI=a-1,ucl**

Where: a = SM number

Response: **RST DLI=a-1 COMPLETED**

#### **11.40.38 Verify External Reference Capability on MCC**

1. At the MCC, type and enter **1190,a**

Where: a = SM number

Response: **MCTSI** page displayed.

2. Do the External Reference indicators appear on the 1190 page as Active-Stby with the Active reference connected to the Active DLI?

If **NO**, **SEEK TECHNICAL ASSISTANCE.**

If **YES**, continue with next step.

#### **11.40.39 Remove MCTSI Side 0 from Service**

1. Type and enter: **RMV:MCTSI=a-0**

Where: a = SM number

Response: **RMV MCTSI=a-0 COMPLETED**

#### 11.40.40 Power Down the MCTSI Side 0

1. At MCTSI side 0 depress the **OFF** button.

Response: **REPT PWR OFF MCTSI=a-0**

Where: a = SM number

#### 11.40.41 Disengage Side 0 CSC Pack

1. Disengage side 0 CSC pack (TN1838) from cabinet location 19-120.

#### 11.40.42 Disengage Side 0 MCTU Fuse

1. Locate the side 0 MCTU fuse in the switching cabinet bezel.

| EQL     |
|---------|
| 119-156 |

2. Disengage the side 0 MCTU fuse, as pictured in bezel diagram, by twisting the fuse to the left and pulling the fuse.

#### 11.40.43 Remove Side 0 CSC Cables

1. Using drawing ED5D765-17 remove the following Cable Group Connectors.

| GROUP | CONN | EQL     | TERM |
|-------|------|---------|------|
| 1     | 2    | 119-120 | 333  |
| 4     | 1    | 119-120 | 154  |
| 6     | 1    | 119-120 | 202  |

2. Remove CSC/MCTU2 BITS Box cable.

| EQL     | TERM |
|---------|------|
| 119-120 | 402  |

3. Disconnect other end from BITS Box.

#### 11.40.44 Reseat Side 0 MCTU Fuse

1. Reseat the side 0 MCTU fuse and twist the fuse to the right.

| EQL     |
|---------|
| 119-156 |

**11.40.45 Insert Apparatus Blank**

1. Insert Apparatus Blank into cabinet location 19-120.

**11.40.46 Power Up the MCTSI Side 0**

1. At MCTSI side 0 depress the **ON** button.

Response:     **REPT PWR ON MCTSI=a-0**

Where:         a = SM number

**11.40.47 Diagnose the Side 0 MCTSI**

1. Type and enter: **DGN:MCTSI=a-0**

Where:         a = SM number

Response:     **DGN MCTSI=a-0 COMPLETED ATP**

**11.40.48 Unconditionally Restore MCTSI Side 0**

1. Type and enter: **RST:MCTSI=a-0,ucl**

Where:         a = SM number

Response:     **RST MCTSI=a-0 COMPLETED**

**11.40.49 Remove MCTSI Side 1 from Service**

1. Type and enter: **RMV:MCTSI=a-1**

Where:         a = SM number

Response:     **RMV MCTSI=a-1 COMPLETED**

**11.40.50 Power Down the MCTSI Side 1**

1. At MCTSI side 1 depress the **OFF** button.

Response:     **REPT PWR OFF MCTSI=a-1**

Where:         a = SM number

**11.40.51 Disengage Side 1 CSC Pack**

1. Disengage side 1 CSC pack (TN1838) from cabinet location 28-120.

**11.40.52 Disengage Side 1 MCTU Fuse**

1. Locate the side 1 MCTU fuse in the switching cabinet bezel.

| EQL     |
|---------|
| 128-156 |

2. Disengage the side 1 MCTU fuse, as pictured in bezel diagram, by twisting the fuse to the left and pulling the fuse.

**11.40.53 Remove Side 1 CSC Cables**

1. Using drawing ED5D765-17 remove the following Cable Group Connectors.

| GROUP | CONN | EQL     | TERM |
|-------|------|---------|------|
| 1     | 1    | 128-120 | 333  |
| 5     | 1    | 128-120 | 154  |
| 7     | 1    | 128-120 | 202  |

2. Remove CSC/MCTU2 BITS Box cable.

| EQL     | TERM |
|---------|------|
| 128-120 | 402  |

3. Disconnect other end from BITS Box.

**11.40.54 Reseat Side 1 MCTU Fuse**

1. Reseat the side 1 MCTU Fuse and twist the fuse to the right.

| EQL     |
|---------|
| 128-156 |

**11.40.55 Insert Apparatus Blank**

1. Insert Apparatus Blank into cabinet location 28-120.

**11.40.56 Power Up the MCTSI Side 1**

1. At MCTSI side 1 depress the **ON** button.

Response: **REPT PWR ON MCTSI=a-1**

Where: a = SM number

**11.40.57 Diagnose the Side 1 MCTSI**

1. Type and enter: **DGN:MCTSI=a-1**  
Where: a = SM number  
Response: **DGN MCTSI=a-1 COMPLETED ATP**

#### **11.40.58 Unconditionally Restore MCTSI Side 1**

1. Type and enter: **RST:MCTSI=a-1,ucl**  
Where: a = SM number  
Response: **RST MCTSI=a-1 COMPLETED**

#### **11.40.59 Back Up Office Dependent Data**

1. At the MCC, type and enter: **BKUP:ODD**  
Response: **BKUP ODD COMPLETED**

#### **11.40.60 Inhibit Fault Recovery Messages to be printed**

1. At the MCC, type and enter:  
**CHG:LPS,MSGCLS=ALL,FROMBKUP**  
Response: **OK**
2. At the MCC, type and enter: **CLR:PERPH,SM=a,VERBOSE**  
Where: a = SM number.  
Response: **OK**
3. At the MCC, type and enter: **ALW:BREVC,SM=a**  
Where: a = SM number.  
Response: **OK**

#### **11.40.61 Return Routine Exercises to Normal**

1. At the MCC, type and enter: **ALW:REX,SM=a**  
Where: a = SM number  
Response: **OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.41: CONVERT DATA-FANOUT TO DATA-FANOUT WITH MULTIPLE PERIPHERAL INTERFACE DATA BUS — 5E10(1) AND LATER SOFTWARE RELEASE

### OVERVIEW

The data fanout (DF) to data fanout with multiple peripheral interface data bus (DF-MP) conversion procedure converts a packet switch unit (PSU) or PSU model 2 (PSU2) shelf containing DF circuitry, capable of utilizing a single time slot interchange (TSI) interface data bus (PIDB), to a PSU/PSU2 shelf containing DF-MP circuitry, capable of utilizing multiple TSI PIDBs. Specifically, the new data fanout configuration (DF CON) will be able to accommodate four active and four standby TSI PIDBs on each PSU/PSU2 shelf.

The DF/DF-MP circuitry provides duplex access to the simplex protocol handlers (PH). The DF and DF-MP circuitry may not exist simultaneously on the same shelf. The DF supports 6 directly connected PIDBs (DPIDB) from the peripheral unit to the PSU and 1 module controller time slot interchanger (MCTSI) to PSU connected TSI PIDB. The DF-MP only supports 4 MCTSI to PSU connected TSI PIDBs.

All TSI PIDBs on a given PSU/PSU2 shelf with DF-MP circuitry must terminate on the same data expander (DX) board.

Unless indication is necessary, this procedure refers to both packet switch unit types, PSU or PSU2, as PSU.

**NOTE:** Should the PSU that is assigned to the data-fanout conversion have a **critical** designation, then it is required that the PSU be temporarily re-designated for the conversion process. Once completed the PSU is returned to its original state.

### PROCEDURE

#### 11.41.1 PREREQUISITE REQUIREMENTS

1. This procedure should be executed during low periods of traffic, service interruption could be impacted.
2. Electrostatic Discharge (ESD) protection requirements must be followed.
3. Verify all required hardware listed in the PSU J-drawing J5D003BY-1 List 17 or PSU2 J-drawing J5D003BY-1 List 4 table is available. The DF-MP board must have a pack code of UN399 or greater.
4. At the master control center (MCC), verify normal conditions in the switching module (SM) to determine if system status is acceptable to start the association procedure.

If a NORMAL indication is not obtained, type and enter: **OP:SYSSTAT**  
Correct any deficiencies as required.

#### 11.41.2 PRECONDITIONING

##### 11.41.2.1 Back Up Office Dependent Data

1. At MCC, type and enter **OP:BKUPSTAT**

Response: **AM CMP= x TO x NRODD = 1 TO 192 RODD=x EVERY= x AT=x**  
**OR**

**NG - NO SCHEDULE REQUEST**

Comment: If **NG - NO SCHEDULE REQUEST** is the response received, then automatic backups were



not previously scheduled.  
Continue with Step 4.

2. Record and save the schedule information for later reference. This is important since the next command clears the backups scheduled.

3. Type and enter **CLR:ODDBKUP**

Response: **CLR ODDBKUP COMPLETED**

4. Type and enter **BKUP:ODD**

Response: **BKUP ODD COMPLETED**

### 11.41.2.2 Inhibit Routine Exercises

**CAUTION:** Steps 1 through 15 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this procedure.

1. At MCC, type and enter **INH:DMQ,SRC=REX**

Response: **OK**

2. At MCC, type and enter **OP:DMQ**

Response: **REQUEST ACTIVE  
NONE  
REQUEST WAITING  
NONE  
INHIBIT SOURCES  
REX  
OP DMQ COMPLETED**

Comment: The output shown is for an office with no active or waiting administration module (AM) diagnostic requests in the deferred maintenance queue (DMQ). If requests are waiting or active, they will be displayed in the output instead.

3. Were there active or waiting AM diagnostic requests listed?

If **NO**, go to Step 6.

If **YES**, continue.

4. Type and enter **STOP:DMQ**

Response: **STP DMQ COMPLETED**  
AM units are left Out Of Service (OOS).

5. Manually restore any OOS AM units.

Reference: *Input/Output Messages Manuals (235-600-700/750)*

6. Type and enter **INH:REX,CM**

Response: **OK**

7. Type and enter **OP:DMQ,CM**

Response: **OP DMQ CM LAST RECORD  
ACTION UNIT OPTION SOURCE STATUS  
OR  
OP DMQ CM HAS NO REQUESTS ON THE DMQ**

8. Were there active or waiting CM diagnostic requests listed?

If **NO**, go to Step 11.

If **YES**, continue.

9. Type and enter **STP:REX,CM**

Response: **EXC REX CM DGN STOPPED**  
Most CM units will be automatically restored by the REX process.

10. Manually restore any OOS CM units.

11. Type and enter **INH:REX,SM=x&&y**

Where: x and y is the range of SMs

Response: **OK**

12. Type and enter **OP:DMQ,SM=x&&y**

Where: x and y is the range of SMs

Response: **OP DMQ SM n LAST RECORD  
ACTION UNIT SOURCE STATUS  
OR  
OP DMQ SM x HAS NO REQUESTS ON THE DMQ**

13. Were there active or waiting SM diagnostic requests listed?

Response: If **NO**, go to Step 15.  
If **YES**, continue.

14. Type and enter **STP:REX,SM=x&&y**

Where: x and y is the range of SMs

Response: **EX REX SM=x DGN|ELS|FAB STOPPED**  
Most SM units will be automatically restored by the REX process.

15. Manually restore any OOS SM units.

#### 11.41.2.3 Inhibit Automatic Data Base Relation Reorganization

1. At MCC, type and enter **INH:REORG**

Response: **OK**

#### 11.41.2.4 Turn On Fault Recovery Reports

1. At MCC, type and enter **SET:PERPH,SM=a,VERBOSE**

Where: a = SM number

Response: **OK**

#### 11.41.2.5 Save Office Message Class Print Options and Allow ALL Message Classes to Print

1. At MCC, type and enter **CHG:LPS,MSGCLS=ALL,TOBKUP**

Response: **OK** (with exception)

2. Type and enter **CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=OFF**

Response: **OK** (with exception)

#### 11.41.2.6 Inhibit Brevity Control

1. At MCC, type and enter **INH:BREVC,SM=a**

Where: a = SM number

Response: **OK**

**NOTE:** Brevity control should not be inhibited for more than ten SMs, concurrently. This can cause the loss of ROP messages.

#### 11.41.3 SAFE STOP POINT

1. Safe stop point.

#### 11.41.4 VERIFY CRITICAL PSU STATUS

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:** Procedure 11.1

2. Type and enter **22.2R**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

3. Select the completed growth RC/V (GRCV) form **22.2** for the identified PSU.
4. Using the GRCV form as a guide, type and enter the values for the key (\*) and required (#) attribute fields.

**Response: Enter Update, Change, Validate, Screen#, or Print:**

5. On the RC/V form 22.2, what is the value of the **CRIT PSU** attribute?

If **Y(es)**, continue with next Section.

If **N(o)**, go to **Section 11.41.6**

#### **11.41.5 CHANGE CRIT PSU VALUE TO "N"**

**NOTE:** This section is performed *only* if the **CRIT PSU** attribute on RC/V form 22.2 is populated with **Y(es)**.

1. At the RC/V terminal, type and enter **22.2U**

**Response: EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

2. Select the completed growth RC/V (GRCV) form **22.2** for the identified PSU.
3. Using the GRCV form as a guide, type and enter the values for the key (\*) and required (#) attribute fields.

**Response: Enter Update, Change, Validate, Screen#, or Print:**

4. Verify data is consistent with GRCV form.
5. Type and enter **C**

**Response: Change Field:**

6. Type and enter field value corresponding to the **CRIT PSU** attribute.

**Response: Cursor at CRIT PSU attribute.**

7. Type and enter **N**

**Response: Change Field:**

8. Press **CARRIGE RETURN**

**Response: Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **U**

**Response: EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

10. Type and enter **<**
11. Type and enter **q**

**Response: RCV-196 COMPLETED**

**11.41.6 CONDITIONALLY RESTORE PSU COMMON SIDE 1**

1. At the MCC, type and enter **RST:PSUCOM=a-b-1**

Where:           a = SM number  
                   b = PSU number = 0

Response:       **RST PSUCOM=a-b-1 COMPLETED**

**NOTE:** A COMPLETED response must be achieved in this Step before continuing.

**11.41.7 DIAGNOSE PSU COMMON SIDE 0**

1. At the MCC, type and enter **DGN:PSUCOM=a-b-0**

Where:           a = SM number  
                   b = PSU number = 0

Response:       **DGN PSUCOM=a-b-0 COMPLETED ATP**

**NOTE:** A COMPLETED ATP must be achieved in this Step before continuing.

**11.41.8 UPDATE DATA FANOUT CHANGE LEVEL INDICATOR VALUE FOR SIDE 0**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference:       **Procedure 11.1**

2. What shelf is conversion taking place?

If, **PSU Shelf 0**, continue with next Step.

If, **PSU Shelf 1-4**, then go to Step 12

3. At the RC/V terminal, type and enter **22.2U**

**Response:**     **EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
                   Cursor at SM attribute.

4. Select the completed growth recent change and verify (GRCV) form **22.2** for the identified PSU. This form should have the KEY attributes listed in the following display:

|     |     |       |
|-----|-----|-------|
| *1. | SM  | _____ |
| *2. | PSU | _____ |

5. Using the selected GRCV form as a guide, type and enter the value for each KEY (\*) attribute listed.

Response:       **System completes remainder of form.**  
                   **Enter Update, Change, Validate, screen#, or Print:**

6. Type and enter **C**

Response:       **Change field:**

7. Type and enter **16**

Response: Cursor at CLI SG0 attribute.

8. Type and enter the value corresponding to the CLI SG0 attribute on the GRCV form.

Response: **Change field:**

9. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED**  
**EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
 Cursor at SM attribute.

11. Go to Step 20.

12. At the RC/V terminal, type and enter **22.3U**

**Response: EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
 Cursor at SM attribute.

13. Select the completed GRCV form **22.3** for the identified PSU Shelf. This form should have the KEY attributes listed in the following display:

|     |       |       |
|-----|-------|-------|
| *1. | SM    | _____ |
| *2. | PSU   | _____ |
| *3. | SHELF | _____ |

14. Using the selected GRCV form as a guide, type and enter the value for each KEY ( \* ) attribute listed.

Response: **System completes remainder of form.**  
**Enter Update, Change, Validate, or Print:**

15. Type and enter **C**

Response: **Change field:**

16. Type and enter **4**

Response: Cursor at SG0 CLI attribute.

17. Type and enter the value corresponding to the SG0 CLI attribute on the GRCV form.

Response: **Change field:**

18. Enter **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, or Print:**

19. Type and enter **U**

Response:     **updating...FORM UPDATED**  
              **EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
              Cursor at SM attribute.

20. Type and enter **<**

Response:     **22.0 ISDN -- EQUIPMENT VIEWS** page displayed.

21. Type and enter **Q**

Response:     **RCV-196 COMPLETED**

#### **11.41.9 CONVERT DATA FANOUT TO DATA FANOUT WITH MULTIPLE PERIPHERAL INTERFACE DATA BUSES ON SIDE 0**

1. Disengage side 0 DF board (UN192) from the SM frame.
2. Install the side 0 new DF-MP board (UN399) into the SM frame.

#### **11.41.10 CONDITIONALLY RESTORE PSU COMMON SIDE 0 TO SERVICE**

1. At the MCC, type and enter **RST:PSUCOM=a-b-0**

Where:        a = SM number  
              b = PSU number = 0

Response:     **RST PSUCOM=a-b-0 COMPLETED**

**NOTE:** A COMPLETED response must be achieved in this Step before continuing.

#### **11.41.11 REMOVE PSU COMMON SIDE 1 FROM SERVICE**

1. At the MCC, type and enter **RMV:PSUCOM=a-b-1**

Where:        a = SM number  
              b = PSU number = 0

Response:     **RMV PSUCOM=a-b-1 COMPLETED**

#### **11.41.12 UPDATE DATA FANOUT CHANGE LEVEL INDICATOR VALUE FOR SIDE 1**

1. What shelf is conversion taking place?  
  
If, **PSU Shelf 0**, continue with next Step.  
  
If, **PSU Shelf 1-4**, then go to Step 11

2. At the RC/V terminal, type and enter **22.2U**

**Response:** **EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
Cursor at SM attribute.

3. Select the completed GRCV form **22.2** for the identified PSU. This form should have the KEY attributes listed in the following display:

|     |     |       |
|-----|-----|-------|
| *1. | SM  | _____ |
| *2. | PSU | _____ |

4. Using the selected GRCV form as a guide, type and enter the value for each KEY (\*) attribute listed.

**Response:** **System completes remainder of form.**  
**Enter Update, Change, Validate, screen#, or Print:**

5. Type and enter **C**

**Response:** **Change field:**

6. Type and enter **17**

**Response:** Cursor at CLI SG1 attribute.

7. Type and enter the value corresponding to the CLI SG1 attribute on the GRCV form.

**Response:** **Change field:**

8. Enter **CARRIAGE RETURN**.

**Response:** **Enter Update, Change, Validate, screen#, or Print:**

9. Type and enter **U**

**Response:** **updating...FORM UPDATED**  
**EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
Cursor at SM attribute.

10. Go to Step 19.

11. At the RC/V terminal, type and enter **22.3U**

**Response:** **EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
Cursor at SM attribute.

12. Select the completed GRCV form **22.3** for the identified PSU Shelf. This form should have the KEY attributes listed in the following display:

|     |       |       |
|-----|-------|-------|
| *1. | SM    | _____ |
| *2. | PSU   | _____ |
| *3. | SHELF | _____ |



13. Using the selected GRCV form as a guide, type and enter the value for each KEY ( \* ) attribute listed.

Response:     **System completes remainder of form.**  
                  **Enter Update, Change, Validate, or Print:**

14. Type and enter **C**

Response:     **Change field:**

15. Type and enter **4**

Response:     Cursor at SG1 CLI attribute.

16. Type and enter the value corresponding to the SG1 CLI attribute on the GRCV form.

Response:     **Change field:**

17. Enter **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, or Print:**

18. Type and enter **U**

Response:     **updating...FORM UPDATED**  
                  **EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
                  Cursor at SM attribute.

19. Type and enter **<**

Response:     **22.0 ISDN -- EQUIPMENT VIEWS** page displayed.

20. Type and enter **Q**

Response:     **RCV-196 COMPLETED**

#### **11.41.13 CONVERT DATA FANOUT TO DATA FANOUT WITH MULTIPLE PERIPHERAL INTERFACE DATA BUSES ON SIDE 1**

1. Disengage side 1 DF board (UN192) from the SM frame.
2. Install the side 1 new DF-MP board (UN399) into the SM frame.

#### **11.41.14 CONDITIONALLY RESTORE PSU COMMON SIDE 1 TO SERVICE**

1. At the MCC, type and enter **RST:PSUCOM=a-b-1**

Where:         a = SM number  
                  b = PSU number = 0

Response: **RST PSUCOM=a-b-1 COMPLETED**

**NOTE:** A COMPLETED response must be achieved in this Step before continuing.

#### 11.41.15 VALIDATE PSU STATE

1. Was the original CRIT state of PSU in **Section 11.41.4** = Y(es)?

If **YES**, then continue to **Section 11.41.16**

If **NO**, then go to **Section 11.41.17**.

#### 11.41.16 RESTORE CRIT PSU VALUE TO "Y"

**NOTE:** This section should be performed **only** if the **CRIT PSU** attribute on RC/V form was changed from **Y** to **N** in **Section 11.41.5**

1. At RC/V terminal, type and enter **22.2U**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

2. Select the completed GRCV form **22.2** for the identified PSU.

3. Using the GRCV form as a guide, type and enter the values for the key (\*) and required (#) attribute fields.

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

4. Verify data is consistent with GRCV form.

5. Type and enter **C**

**Response:** **Change Field:**

6. Type and enter field value corresponding to the **CRIT PSU** attribute.

**Response:** Cursor at **CRIT PSU** attribute.

7. Type and enter **Y**

**Response:** **Change Field:**

8. Press **CARRIGE RETURN**

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **U**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

10. Type and enter **<**

11. Type and enter **q**

**Response:** **RCV-196 COMPLETED**

**11.41.17 SAFE STOP POINT**

1. Safe stop point.

**11.41.18 RESTORE CONTROLS****11.41.18.1 Allow Brevity Control**

1. At MCC, type and enter **ALW:BREVC,SM=a**

Where: a = SM number

Response: **OK**

**11.41.18.2 Return Message Classes to Previous Print Status**

1. At MCC, type and enter **CHG:LPS,MSGCLS=ALL,FROMBKUP**

Response: **OK**

**11.41.18.3 Turn Off Fault Recovery Reports**

1. At MCC, type and enter **CLR:PERPH,SM=a,VERBOSE**

Where: a = SM number

Response: **OK**

**11.41.18.4 Allow Routine Exercises**

1. At MCC, type and enter **ALW:DMQ,SRC=REX**

Response: **OK**

2. Type and enter **ALW:REX,CM**

Response: **OK**

3. Type and enter **ALW:REX,SM=x&&y**

Where: x and y is the range of SMs

Response: **OK**

**11.41.18.5 Allow Automatic Data Base Relation Reorganization**

1. At MCC, type and enter **ALW:REORG**

Response: **OK**

**11.41.18.6 Reorganize Hashed Relations**

1. At MCC, type and enter **EXC:REORG**

Response: **REPT REORG COMPLETED RELATION a**

Wait 5 minutes after each completed message for additional responses before continuing.

Where: a = ALL

**11.41.18.7 Backup Office Dependent Data**

1. At MCC, type and enter **BKUP:ODD**

Response: **BKUP ODD COMPLETED**

**11.41.18.8 Reschedule Automatic Office Dependent Data Backup, if Necessary**

1. At MCC, type and enter **BKUP:ODD,EVERY=c,AT=d**

Where: c = interval in days (0-90) between successive ODD backup runs, recorded in earlier step  
d = Time of day in hours and minutes (0-2359), recorded in earlier step

**11.41.18.9 Recommended Soak Period**

1. Monitor the receive-only-printer (ROP) output for any peripheral fault recovery error messages. If any such messages occur within a period of 30 minutes, take appropriate action to determine the reason and correct the reported error(s), if necessary, before continuing.
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.42: CONVERT DATA-FANOUT WITH MULTIPLE PERIPHERAL INTERFACE DATA BUS TO DATA-FANOUT — 5E10(1) AND LATER SOFTWARE

### OVERVIEW

The data fanout with multiple peripheral interface data bus (DF-MP) to data fanout (DF) conversion procedure converts a packet switch unit (PSU) or PSU model 2 (PSU2) shelf containing DF-MP circuitry, capable of utilizing multiple time slot interchange (TSI) peripheral interface data bus (PIDB), to a PSU/PSU2 shelf containing DF circuitry, capable of utilizing a single TSI PIDB. Specifically, the new data fanout configuration (DF CON) will be able to accommodate 4 active TSI PIDBs on each PSU/PSU2 shelf.

The DF/DF-MP circuitry provides duplex access to the simplex protocol handlers (PH). The DF and DF-MP circuitry may not exist simultaneously on the same shelf. The DF supports 6 directly connected PIDBs (DPIDBs) from the peripheral unit to the PSU and 1 module controller time slot interchange (MCTSI) to PSU connected TSI PIDB. The DF-MP only supports 4 MCTSI to PSU connected TSI PIDBs.

All TSI PIDBs on a given PSU/PSU2 shelf with DF-MP circuitry must terminate on the same data expander (DX) board.

Unless indication is necessary, this procedure refers to both packet switch unit types, PSU or PSU2, as PSU.

**NOTE:** Should the PSU that is assigned to the data-fanout conversion have a **critical** designation, then it is required that the PSU be temporarily re-designated for the conversion process. Once completed the PSU is returned to its original state.

### PROCEDURE

#### 11.42.1 PREREQUISITE REQUIREMENTS

1. This procedure should be executed during low periods of traffic, service interruption could be impacted.
2. Electrostatic Discharge (ESD) protection requirements must be followed.
3. Verify all required hardware listed in the PSU J-drawing J5D003BY-1 List 17 or PSU2 J-drawing J5D003BY-1 List 4 table is available. The DF-MP board must have a pack code of UN399 or greater.
4. At the master control center (MCC), verify normal conditions in the switching module (SM) to determine if system status is acceptable to start the association procedure.

If a NORMAL indication is not obtained, type and enter: **OP:SYSSTAT**  
Correct any deficiencies as required.

#### 11.42.2 PRECONDITIONING

##### 11.42.2.1 Back Up Office Dependent Data

1. At MCC, type and enter **OP:BKUPSTAT**

Response: **AM CMP= x TO x NRODD = 1 TO 192 RODD=x EVERY= x AT=x**  
**OR**

**NG - NO SCHEDULE REQUEST**

**Comment:** If **NG - NO SCHEDULE REQUEST** is the response received, then automatic backups were not previously scheduled. Continue with Step 4.

2. Record and save the schedule information for later reference. This is important since the next command clears the backups scheduled.

3. Type and enter **CLR:ODDBKUP**

Response: **CLR ODDBKUP COMPLETED**

4. Type and enter **BKUP:ODD**

Response: **BKUP ODD COMPLETED**

### 11.42.2.2 Inhibit Routine Exercises

**CAUTION:** Steps 1 through 15 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this procedure.

1. At MCC, type and enter **INH:DMQ,SRC=REX**

Response: **OK**

2. At MCC, type and enter **OP:DMQ**

Response: **REQUEST ACTIVE  
NONE  
REQUEST WAITING  
NONE  
INHIBIT SOURCES  
REX  
OP DMQ COMPLETED**

**Comment:** The output shown is for an office with no active or waiting administration module (AM) diagnostic requests in the deferred maintenance queue (DMQ). If requests are waiting or active, they will be displayed in the output instead.

3. Were there active or waiting AM diagnostic requests listed?

If **NO**, go to Step 6.

If **YES**, continue.

4. Type and enter **STOP:DMQ**

Response: **STP DMQ COMPLETED**  
AM units are left Out Of Service (OOS).

5. Manually restore any OOS AM units.

6. Type and enter **INH:REX,CM**

Response:     **OK**

7. Type and enter **OP:DMQ,CM**

Response:     **OP DMQ CM LAST RECORD  
ACTION UNIT OPTION SOURCE STATUS  
OR  
OP DMQ CM HAS NO REQUESTS ON THE DMQ**

8. Were there active or waiting CM diagnostic requests listed?

If **NO**, go to Step 11.

If **YES**, continue.

9. Type and enter **STP:REX,CM**

Response:     **EXC REX CM DGN STOPPED**  
Most CM units will be automatically restored by the REX process.

10. Manually restore any OOS CM units.

11. Type and enter **INH:REX,SM=x&&y**

Where:        x and y is the range of SMs

Response:     **OK**

12. Type and enter **OP:DMQ,SM=x&&y**

Where:        x and y is the range of SMs

Response:     **OP DMQ SM n LAST RECORD  
ACTION UNIT SOURCE STATUS  
OR  
OP DMQ SM x HAS NO REQUESTS ON THE DMQ**

13. Were there active or waiting SM diagnostic requests listed?

Response:     If **NO**, go to Step 15.

If **YES**, continue.

14. Type and enter **STP:REX,SM=x&&y**

Where:        x and y is the range of SMs

Response:     **EX REX SM=x DGN|ELS|FAB STOPPED**  
Most SM units will be automatically restored by the REX process.

15. Manually restore any OOS SM units.

### 11.42.2.3 Inhibit Automatic Data Base Relation Reorganization

1. At MCC, type and enter **INH:REORG**

Response: **OK**

### 11.42.2.4 Turn On Fault Recovery Reports

1. At MCC, type and enter **SET:PERPH,SM=a,VERBOSE**

Where: a = SM number

Response: **OK**

### 11.42.2.5 Save Office Message Class Print Options and Allow ALL Message Classes to Print

1. At MCC, type and enter **CHG:LPS,MSGCLS=ALL,TOBKUP**

Response: **OK** (with exception)

2. Type and enter **CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=OFF**

Response: **OK** (with exception)

### 11.42.2.6 Inhibit Brevity Control

1. At MCC, type and enter **INH:BREVC,SM=a**

Where: a = SM number

Response: **OK**

**NOTE:** Brevity control should not be inhibited for more than ten SMs, concurrently. This can cause the loss of ROP messages.

## 11.42.3 SAFE STOP POINT

1. Safe stop point.

## 11.42.4 VERIFY CRITICAL PSU STATUS

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:** Procedure 11.1

2. Type and enter **22.2R**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

3. Select the completed growth RC/V (GRCV) form **22.2** for the identified PSU.



4. Using the GRCV form as a guide, type and enter the values for the key (\*) and required (#) attribute fields.

**Response:** Enter Update, Change, Validate, Screen#, or Print:

5. On the RC/V form 22.2, what is the value of the **CRIT PSU** attribute?

If **Y**(es), continue with next Section.

If **N**(o), go to **Section 11.42.6**

#### **11.42.5 CHANGE CRIT PSU VALUE TO "N"**

**NOTE:** This section is performed *only* if the **CRIT PSU** attribute on RC/V form 22.2 is populated with **Y**(es).

1. At the RC/V terminal, type and enter **22.2U**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

2. Select the completed growth RC/V (GRCV) form **22.2** for the identified PSU.
3. Using the GRCV form as a guide, type and enter the values for the key (\*) and required (#) attribute fields.

**Response:** Enter Update, Change, Validate, Screen#, or Print:

4. Verify data is consistent with GRCV form.
5. Type and enter **C**

**Response:** Change Field:

6. Type and enter field value corresponding to the **CRIT PSU** attribute.

**Response:** Cursor at **CRIT PSU** attribute.

7. Type and enter **N**

**Response:** Change Field:

8. Press **CARRIGE RETURN**

**Response:** Enter Update, Change, Validate, Screen#, or Print:

9. Type and enter **U**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

10. Type and enter **<**

11. Type and enter **q**

**Response:** **RCV-196 COMPLETED**

#### **11.42.6 CONDITINALLY RESTORE PSU COMMON SIDE 1**

1. At MCC, type and enter **RST:PSUCOM=a-b-1**

Where:           a = SM number  
                   b = PSU number = 0

Response:       **RST PSUCOM=a-b-1 COMPLETED**

**NOTE:** A COMPLETED response must be achieved in this step before continuing.

#### 11.42.7 DIAGNOSE PSU COMMON SIDE 0

1. At MCC, type and enter **DGN:PSUCOM=a-b-0,RAW,TLP**

Where:           a = SM number  
                   b = PSU number = 0

Response:       **DGN PSUCOM=a-b-0 COMPLETED ATP**

**NOTE:** A COMPLETED ATP response must be achieved in this step before continuing.

#### 11.42.8 UPDATE DATA FANOUT CHANGE LEVEL INDICATOR VALUE FOR SIDE 0

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:**       **Procedure 11.1**

2. What shelf is conversion taking place?

If, **PSU Shelf 0**, continue with next Step.

If, **PSU Shelf 1-4**, then go to Step 13

3. At the RC/V terminal, type and enter **22.2U**

**Response:**       **EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
                           Cursor at SM attribute.

4. Select the completed growth recent change and verify (GRCV) form **22.2** for the identified PSU. This form should have the KEY attributes listed in the following display:

|     |     |       |
|-----|-----|-------|
| *1. | SM  | _____ |
| *2. | PSU | _____ |

5. Using the selected GRCV form as a guide, type and enter the value for each KEY (\*) attribute listed.

Response:       **System completes remainder of form.**  
                           **Enter Update, Change, Validate, screen#, or Print:**

6. Type and enter **C**

Response:       **Change field:**

7. Type and enter **16**

Response: Cursor at CLI SG0 attribute.

8. Type and enter the value corresponding to the CLI SG0 attribute on the GRCV form.

Response: **Change field:**

9. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating...FORM UPDATED**  
**EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
 Cursor at SM attribute.

11. Go to Step 20

12. At the RC/V terminal, type and enter **22.3U**

**Response: EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
 Cursor at SM attribute.

13. Select the completed GRCV form **22.3** for the identified PSU shelf. This form should have the KEY attributes listed in the following display:

|     |       |   |
|-----|-------|---|
| *1. | SM    | — |
| *2. | PSU   | — |
| *3. | SHELF |   |

14. Using the selected GRCV form as a guide, type and enter the value for each KEY ( \* ) attribute listed.

Response: **System completes remainder of form.**  
**Enter Update, Change, Validate, or Print:**

15. Type and enter **C**

Response: **Change field:**

16. Type and enter **4**

Response: Cursor at SG0 CLI attribute.

17. Type and enter the value corresponding to the SG0 CLI attribute on the GRCV form.

Response: **Change field:**

18. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, or Print:**

19. Type and enter **U**

Response:     **updating...FORM UPDATED**  
                 **EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
                 Cursor at SM attribute.

20. Type and enter **<**

Response:     **22.0 ISDN -- EQUIPMENT VIEWS** page displayed.

21. Type and enter **Q**

Response:     **RCV-196 COMPLETED**

#### **11.42.9 CONVERT DATA FANOUT WITH MULTIPLE PERIPHERAL INTERFACE DATA BUS TO DATA FANOUT ON SIDE 0**

1. Disengage side 0 DF-MP board (UN399) from the SM frame.
2. Install the side 0 new DF (UN192) board into the SM frame.

#### **11.42.10 CONDITIONALLY RESTORE PSU COMMON SIDE 0 TO SERVICE**

1. At MCC, type and enter **RST:PSUCOM=a-b-0**

Where:         a = SM number  
                 b = PSU number = 0

Response:     **RST PSUCOM=a-b-0 COMPLETED**

**NOTE:** A COMPLETED response must be achieved in the step before continuing.

#### **11.42.11 REMOVE PSU COMMON SIDE 1 FROM SERVICE**

1. At MCC, type and enter **RMV:PSUCOM=a-b-1**

Where:         a = SM number  
                 b = PSU number = 0

Response:     **RMV PSUCOM=a-b-1 COMPLETED**

#### **11.42.12 UPDATE DATA FANOUT CHANGE LEVEL INDICATOR VALUE FOR SIDE 1**

1. What shelf is conversion taking place?

If, **PSU Shelf 0**, continue with next Step.

If, **PSU Shelf 1-4**, then go to Step 11

2. At the RC/V terminal, type and enter **22.2U**

**Response:**    **EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
                   Cursor at SM attribute.

3.    Select the completed GRCV form **22.2** for the identified PSU. This form should have the KEY attributes listed in the following display:

|     |     |       |
|-----|-----|-------|
| *1. | SM  | _____ |
| *2. | PSU | _____ |

4.    Using the selected GRCV form as a guide, type and enter the value for each KEY (\*) attribute listed.

**Response:**    **System completes remainder of form.**  
                   **Enter Update, Change, Validate, screen#, or Print:**

5.    Type and enter **C**

**Response:**    **Change field:**

6.    Type and enter **17**

**Response:**    Cursor at CLI SG1 attribute.

7.    Type and enter the value corresponding to the CLI SG1 attribute on the GRCV form.

**Response:**    **Change field:**

8.    Enter **CARRIAGE RETURN**.

**Response:**    **Enter Update, Change, Validate, screen#, or Print:**

9.    Type and enter **U**

**Response:**    **updating...FORM UPDATED**  
                   **EQUIPMENT UNIT -- PACKET SWITCH UNIT** page displayed.  
                   Cursor at SM attribute.

10.   Go to Step 19

11.   At the RC/V terminal, type and enter **22.3U**

**Response:**    **EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
                   Cursor at SM attribute.

12.   Select the completed GRCV form **22.3** for the identified PSU shelf. This form should have the KEY attributes listed in the following display:

|     |       |       |
|-----|-------|-------|
| *1. | SM    | _____ |
| *2. | PSU   | _____ |
| *3. | SHELF | _____ |

13.   Using the selected GRCV form as a guide, type and enter the value for each KEY ( \* ) attribute listed.

**Response:**    **System completes remainder of form.**

**Enter Update, Change, Validate, or Print:**

14. Type and enter **C**

Response: **Change field:**

15. Type and enter **5**

Response: Cursor at SG1 CLI attribute.

16. Type and enter the value corresponding to the SG1 CLI attribute on the GRCV form.

Response: **Change field:**

17. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, or Print:**

18. Type and enter **U**

Response: **updating...FORM UPDATED**  
**EQUIPMENT UNIT -- PACKET SWITCH UNIT SHELF (1-4)** page displayed.  
Cursor at SM attribute.

19. Type and enter **<**

Response: **22.0 ISDN -- EQUIPMENT VIEWS** page displayed.

20. Type and enter **Q**

Response: **RCV-196 COMPLETED**

**11.42.13 CONVERT DATA FANOUT WITH MULTIPLE PERIPHERAL INTERFACE DATA BUS TO DATA FANOUT ON SIDE 1**

1. Disengage side 1 DF-MP board (UN399) from the SM frame.
2. Install the side 1 new DF (UN192) board into the SM frame.

**11.42.14 CONDITIONALLY RESTORE PSU COMMON SIDE 1 TO SERVICE**

1. At MCC, type and enter **RST:PSUCOM=a-b-1**

Where: a = SM number  
b = PSU number = 0

Response: **RST PSUCOM=a-b-1 COMPLETED**

**NOTE:** A COMPLETED response must be achieved in the step before continuing.

**11.42.15 VALIDATE PSU STATE**

1. Was the original CRIT state of PSU in **Section 11.42.4** = Y(es)?

If **YES**, then continue to **Section 11.42.16**

If **NO**, then go to **Section 11.42.17** .

**11.42.16 RESTORE CRIT PSU VALUE TO "Y"**

**NOTE:** This section should be performed *only* if the **CRIT PSU** attribute on RC/V form was changed from **Y** to **N** in **Section 11.42.5**

1. At RC/V terminal, type and enter **22.2U**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

2. Select the completed GRCV form **22.2** for the identified PSU.

3. Using the GRCV form as a guide, type and enter the values for the key (\*) and required (#) attribute fields.

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

4. Verify data is consistent with GRCV form.

5. Type and enter **C**

**Response:** **Change Field:**

6. Type and enter field value corresponding to the **CRIT PSU** attribute.

**Response:** Cursor at **CRIT PSU** attribute.

7. Type and enter **Y**

**Response:** **Change Field:**

8. Press **CARRIGE RETURN**

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **U**

**Response:** **EQUIPMENT UNIT - PACKET SWITCH UNIT** page displayed.  
Cursor at **SM** attribute.

10. Type and enter **<**

11. Type and enter **q**

**Response:** **RCV-196 COMPLETED**

**11.42.17 SAFE STOP POINT**

1. Safe stop point.

## **11.42.18 RESTORE CONTROLS**

### **11.42.18.1 Allow Brevity Control**

1. At MCC, type and enter **ALW:BREVC,SM=a**

Where: a = SM number

Response: **OK**

### **11.42.18.2 Return Message Classes to Previous Print Status**

1. At MCC, type and enter **CHG:LPS,MSGCLS=ALL,FROMBKUP**

Response: **OK**

### **11.42.18.3 Turn Off Fault Recovery Reports**

1. At MCC, type and enter **CLR:PERPH,SM=a,VERBOSE**

Where: a = SM number

Response: **OK**

### **11.42.18.4 Allow Routine Exercises**

1. At MCC, type and enter **ALW:DMQ,SRC=REX**

Response: **OK**

2. Type and enter **ALW:REX,CM**

Response: **OK**

3. Type and enter **ALW:REX,SM=x&&y**

Where: x and y is the range of SMs

Response: **OK**

### **11.42.18.5 Reorganize Hashed Relations**

1. At MCC, type and enter **EXC:REORG**

Response: **REPT REORG COMPLETED RELATION a**

Wait 5 minutes after each completed message for additional responses before continuing.

Where: a = ALL



**11.42.18.6 Allow Automatic Data Base Relation Reorganization**

1. At MCC, type and enter **ALW:REORG**

Response:     **OK**

**11.42.18.7 Back Up Office Dependent Data**

1. At MCC, type and enter **BKUP:ODD**

Response:     **BKUP ODD COMPLETED**

**11.42.18.8 Reschedule Automatic Office Dependent Data Backup, if necessary**

1. At MCC, type and enter **BKUP:ODD,EVERY=c,AT=d**

Where:           c = interval in days (0-90) between successive ODD backup runs, recorded in earlier step  
                  d = Time of day in hours and minutes (0-2359), recorded in earlier step

**11.42.18.9 Recommended Soak Period**

1. Monitor the receive-only-printer (ROP) output for any peripheral fault recovery error messages. If any such messages occur within a period of 30 minutes, take appropriate action to determine the reason and correct the reported error(s), if necessary, before continuing.
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.43: INTEGRATED SERVICES LINE UNIT MODEL 2 LINE CIRCUIT SPARING OPERATIONS - 5E10 SOFTWARE RELEASE & LATER

### OVERVIEW

The ISLU2 LCKEN is defined as follows: LCKEN=SM-LU-LG-LBD-LCKT

#### Where:

SM = Switching module number  
LU = Line unit number  
LG = Line group number  
LBD = Line board number  
LCKT = Line circuit number

#### Prerequisite Conditions

- (1) The faulty LCKT must be OOS; otherwise, the sparing facility cannot be used.
- (2) The faulty LCKEN must have a port assignment.
- (3) Up to 4 spare LCKTs are populated and up to 4 spare connections are active simultaneously.
- (4) Only 1 faulty circuit is spared within a given LG.
- (5) The faulty circuit is only spared by a LCKT within the same ISLU2.
- (6) For U-circuits, possible sparing positions are as follows:

LG 0-LBD 0-LCKT 0  
LG 7-LBD 3-LCKT 0  
LG 8-LBD 0-LCKT 0  
LG 15-LBD 3-LCKT 0

### PROCEDURE

1. Integrated Services Line Unit Model 2 Line Circuit Sparing Operations - 5E10 Software Release & Later

#### 11.43.1 Identify Line Circuit Equipment Number of Faulty Line Circuit

1. If sparing actions are required because of a subscriber complaint, to find the LCKEN, type and enter the following:

**OP:CONV,DN=a;**

Where: a = DN of subscriber

**NOTE:** The system can find a faulty LCKT by REX. When REX finds the faulty pack, it is placed in a degraded state and prints the LCKEN. The LCKEN is used later in this procedure.

2. At the MCC terminal, for the SM involved, type and enter **1730,Y,Z** menu command.

Where: Y = ISLU2 number  
Z = LG number (obtained from LCKEN).

3. Check if the faulty LCKT is OOS. If not, to remove the faulty LCKT from service, type and enter **22X,Y** menu command.

Where: X = LBD number  
Y = LCKT number

**NOTE:** Camp-on occurs if the customer is using the line. Try again when the line is idle.

### 11.43.2 Activate Spare Line Circuit

1. At the RC/V terminal, type and enter **4.23**.
2. At the parameters **FAULTY OE** and **SPARE OE** enter the appropriate values.

Reference: Recent Change Manual

3. To insert the data, type and enter **i**

Response: **inserting. . . FORM INSERTED** is displayed

4. Return to the class menu.
5. Verify the subscriber is in service, type and enter:

**OP:STATUS,DN=a;**

Where: a = DN of subscriber

### 11.43.3 Operation with Spare Connections active

**NOTE:** The following should be noted when sparing connections are active.

1. Requests to diagnose or conditionally remove the spared faulty circuit, line board, LG, the designated spare circuit, or the MAN packs supporting the spare connection is denied.
2. Requests to unconditionally remove any of the circuits will succeed, and the spare path is automatically taken down. Once this happens, the faulty spare circuit cannot be restored again until the sparing data is removed by the RC/V terminal.
3. When a spare connection is active, diagnostics are inhibited on the entire line board associated with the faulty circuit (including other circuits that are not faulty).
4. To print a report of all active spare connections in an SM, type and enter:

**OP:CFGSTAT,SM=a,SPARE;**

Where:           a = SM number

#### 11.43.4 Deactivate Spare Connection

1. At the RC/V terminal, type and enter **4.23**.
2. At the parameter **FAULTY OE** enter **LCKEN**.
3. To deactivate the sparing connection between the faulty and spare LCKTs, type and enter **d**

Response:       **deleting. . . FORM DELETED** is displayed.

4. Return to the class menu.
5.               **CAUTION:** Service interruption occurs to other users of the same line board being replaced.  
Therefore, perform a conditional removal of the line board before replacement.

To replace and restore to service the line board where the faulty circuit was, follow the hardware installation procedures in the Hardware Change Manual.

6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.44: CONVERT SM-2000 CORE 40 TO CORE 60 — 5E10(1) AND LATER SOFTWARE RELEASE

### OVERVIEW

This procedure converts a live Switching Module-2000 (SM-2000) equipped with CORE40 (UN540 version) hardware to CORE60 (UN560 version) hardware.

The CORE60 hardware consists of the UN560 processor core circuit pack which replaces the UN540 processor core circuit pack on each side of the Module Controller/Time Slot Interchange (MCTSI). The CORE60 provides the core processor with 64 MB of on-board random access memory (RAM). This will replace 64 MB of existing memory.

### Prerequisite Conditions

- (1) The Bus Service Node (BSN) circuit pack on both MCTSI sides of the target SM-2000 must be a KBN8B or later version. Update the target SM-2000 if necessary before starting this procedure.
- (2) Execution of this procedure is recommended during low periods of traffic.
- (3) Electrostatic Discharge (ESD) protection requirements must be followed.

### PROCEDURE

1. Perform SM-2000 Core Conversion Procedure - 5E10 Software Release & Later

#### 11.44.1 Verify and Set Initial Conditions

1. At the MCC observe Summary Status Area for a **SYS NORM** indication.
2. If a **SYS NORM** indication is not obtained, type and enter: **OP:SYSSTAT**
3. At the MCC type and enter: **OP:OFFNORM,SM=a**

Where: a = SM-2000 number

Comment: Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this SM-2000 Core conversion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 and 5 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this growth procedure.

4. At the MCC type and enter: **INH:REX,SM =a**

Where: a = SM-2000 number

5. At the MCC type and enter: **OP:REXINH**

Response: The inhibit status will be printed.

6. If Steps 4 and 5 were performed, verify the inhibit status printout.

#### 11.44.2 Verify MCTSI Unit Functioning Without Fault

1. Conditionally restore MCTSI Side 0 by typing and entering: **RST:MCTSI=a-0**

Where: a = SM-2000 number

Response **RST MCTSI a 0 COMPLETED**

2. Conditionally restore MCTSI Side 1 by typing and entering: **RST:MCTSI=a-1**

Where: a = SM-2000 number

Response: **RST MCTSI a 1 COMPLETED**

#### 11.44.3 Allow Peripheral Fault Recovery (PFR) Messages to be printed

1. At the MCC type and enter: **CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF**

Response: **OK**

2. At the MCC type and enter: **SET:PERPH,SM =a,VERBOSE**

Where: a = SM-2000 number

Response: **OK**

3. At the MCC type and enter: **INH:BREVC,SM =a**

Where: a = SM-2000 number

Response: **OK**

#### 11.44.4 Determine Memory Board Equipage.

1. The 64 MB of on-board RAM located on the CORE60 circuit pack will replace 64 MB of existing memory. Determine which memory board(s) will need to be deleted and/or moved to account for the 64 MB of on-board RAM.

Memory boards must be deleted starting with the highest numbered slot and working toward the lower numbered slots.

**NOTE:** SM-2000 does not require that memory board sides be symmetrical. Verify the memory board configuration for both sides of the MCTSI.

2. There are three possible configurations for memory boards equipped in the highest numbered slots:

**Configuration 1:**

If a 64 MB memory board is equipped in the highest numbered slot, that memory board will be deleted during this procedure. Record the last slot number.

**Configuration 2:**

If two 32 MB memory boards are equipped in each of the two highest numbered slots, those memory boards will be deleted during this procedure. Record the last two slot numbers.

**Configuration 3:**

If a 32 MB memory board is equipped in the highest numbered slot, and a 64 MB memory board is equipped in the second highest numbered slot, the 64 MB memory board Change Level Indicator (CLI) will be updated to a 32 MB CLI, and the 32 MB memory board will be relocated to its slot during this procedure. Record the last two slot numbers.

**11.44.5 Remove MCTSI Side 0 From Service**

**NOTE:** This procedure assumes the MCTSI Side 0 is standby. If necessary, execute a switch to achieve this condition.

1. If necessary, at the MCC, execute a switch by typing and entering: **SW:MCTSI=a**

Where: a = SM-2000 number

Response: **SW MCTSI a COMPLETED**

2. At the MCC, remove MCTSI Side 0 from service by typing and entering: **RMV:MCTSI=a-0**

Where: a = SM-2000 number

Response: **RMV MCTSI a 0 COMPLETED**

**11.44.6 Update the MCTSI CLI Value for MCTSI Side 0**

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation  
I=Insert R=Review U=Update D=Delete:**

3. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed. Cursor at SM attribute.

4. Select the completed Growth RCV (GRCV) form 18.1, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

\*1. SM

5. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change, Validate, screen#, or Print:**

6. Type and enter **C**

Response: **Change field:**

7. Type and enter **15**

Response: Cursor at MCTSI 0 CLI attribute.

8. Type and enter **5**

Response: **Change field:**

9. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

10. Type and enter **U**

Response: **updating....FORM UPDATED**  
SWITCHING MODULE (SM AND RSM MODULES) page displayed.  
Cursor at SM attribute.

11. Type and enter **<**

Response: **18.0 SM AND REMOTE TERMINALS VIEWS** page displayed.

#### 11.44.7 Delete Memory Board Equipage In Data Base

1. At the RCV terminal, type and enter **18.4**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete:**

2. Type and enter **D**

Response: **MODULE MEMORY (SM AND RSM MODULES)** page displayed. Cursor at SM attribute.



3. Select the completed GRCV form 18.4, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

|              |       |
|--------------|-------|
| *1. SM       | _____ |
| *2. MC       | 0     |
| *3. POSITION | _____ |

4. Type and enter the value for each key attribute for the highest numbered memory board slot for MCTSI Side 0.

Response: **Enter Delete, Validate, or Print:**

5. Verify that the data is correct for the memory board being degrown.
6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
MODULE MEMORY (SM AND RSM MODULES) page displayed. Cursor at SM attribute.

7. What is the equipped memory board configuration?

**Reference:** Procedure **11.44.4**

If **Configuration 1**, continue with Step 9.

If **Configuration 2**, repeat Steps 3 through 6 for the memory board being deleted from the second highest numbered slot, then continue with Step 9.

If **Configuration 3**, repeat Steps 3 through 6 for the memory board being deleted from the second highest slot, then continue with Step 8.

8. Reinsert the data deleted for the 32 MB board (equipped in the highest numbered slot) into the second highest numbered slot position.

**NOTE:** Use the GRCV form 18.4 to insert the 32 MB data in the second highest numbered slot position.

9. Type and enter **<**

Response: **18.0 SM AND REMOTE TERMINALS VIEWS** page displayed.

#### 11.44.8 Power Down MCTSI Side 0

1. At MCTSI side 0 (SN516), simultaneously depress the Manual Override (**MOR**) and **OFF** buttons.

Response: **REPT PWR OFF MCTSI=a-0**

Where: a = SM-2000 number

#### 11.44.9 Reconfigure Memory Boards

**WARNING:** An antistatic wrist strap must be worn while handling circuit packs or system cables to prevent damage to components.

1. What is the equipped memory board configuration?

**Reference:** Procedure **11.44.4**, Step 2.

If **Configuration 1**, unseat the 64 MB memory board equipped in the highest numbered slot, and place it in the antistatic container. Go to Procedure **11.44.10**.

If **Configuration 2**, unseat the two 32 MB memory boards equipped in the two highest numbered slots, and place these in the antistatic containers. Go to Procedure **11.44.10**.

If **Configuration 3**, unseat the 64 MB memory board equipped in the second highest numbered slot, and place it in the antistatic container. Unseat the 32 MB memory board equipped in the highest numbered slot, and seat it in the slot previously equipped with the 64 MB memory board. Go to Procedure **11.44.10**.

#### **11.44.10 Replace Core Pack on MCTSI Side 0.**

1. Replace the UN540 processor core circuit pack with a UN560 processor core circuit pack on MCTSI Side 0.

#### **11.44.11 Power Up MCTSI Side 0**

1. At MCTSI side 0 (SN516), depress the **ON** button.

Response: **REPT PWR ON MCTSI=a-0**

Where: a = SM-2000 number

#### **11.44.12 Conditionally Restore MCTSI Side 0 to Service**

1. Conditionally restore MCTSI Side 0 by typing and entering: **RST:MCTSI=a-0**

Where: a = SM-2000 number

Response: **RST MCTSI a 0 COMPLETED**

#### **11.44.13 Allow Soak Period**

1. Allow MCTSI Side 0 to be active for 1 hour before continuing with this procedure. Monitor the ROP for any messages that may implicate the new hardware.

#### **11.44.14 Safe Stop Point**

1. Safe stop point.

#### **11.44.15 Remove MCTSI Side 1 From Service**

**NOTE:** This procedure assumes the MCTSI Side 1 is standby. If necessary, execute a switch to achieve this condition.

1. If necessary, at the MCC, execute a switch by typing and entering: **SW:MCTSI=a**

Where: a = SM-2000 number

Response: **SW MCTSI a COMPLETED**

2. At the MCC, remove MCTSI Side 1 from service by typing and entering: **RMV:MCTSI=a-1**

Where: a = SM-2000 number

Response: **RMV MCTSI a 1 COMPLETED**

#### 11.44.16 Update the MCTSI CLI Value for MCTSI Side 1

1. At the RCV terminal, type and enter **18.1**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete:**

2. Type and enter **U**

Response: **SWITCHING MODULE SCREEN 1 of 5** page displayed. Cursor at SM attribute.

3. Select the completed GRCV form 18.1, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

\*1 . SM

4. Using the selected GRCV form as a guide, type and enter the value for each key (\*) attribute listed.

Response: System completes remainder of form.  
**Enter Update, Change, Validate, screen#, or Print:**

5. Type and enter **C**

Response: **Change field:**

6. Type and enter **16**

Response: Cursor at MCTSI CLI attribute.

7. Type and enter **5**

Response: **Change field:**

8. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

9. Type and enter **U**

Response: **updating....FORM UPDATED**  
SWITCHING MODULE (SM AND RSM MODULES) page displayed. Cursor at SM attribute.

10. Type and enter **<**

Response: **18.0 SM AND REMOTE TERMINALS VIEWS** page displayed.

#### 11.44.17 Delete Memory Board Equipage In Data Base

1. At the RCV terminal, type and enter **18.4**

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete:**

2. Type and enter **D**

Response: **MODULE MEMORY (SM AND RSM MODULES)** page displayed. Cursor at SM attribute.

3. Select the completed GRCV form 18.4, for the identified SM-2000. This form should have the KEY attributes listed in the following display:

---

|               |         |
|---------------|---------|
| *1 . SM       | _____   |
| *2 . MC       | 1 _____ |
| *3 . POSITION | _____   |

4. Type and enter the value for each key attribute for the highest numbered memory board slot for MCTSI Side 1.

Response: **Enter Delete, Validate, or Print:**

5. Verify that the data is correct for the memory board being degrown.

6. Type and enter **D**

Response: **deleting ....FORM DELETED**  
MODULE MEMORY (SM AND RSM MODULES) page displayed. Cursor at SM attribute.

7. What is the equipped memory board configuration?

**Reference:** Procedure **11.44.4** , Step 2.

If **Configuration 1**, continue with Step 9.

If **Configuration 2**, repeat Steps 4 through 6 for the memory board being deleted from the second highest numbered slot, then continue with Step 9.

If **Configuration 3**, repeat Steps 4 through 6 for the memory board being deleted from the second highest slot, then continue with Step 8.

8. Reinsert the data deleted for the 32 MB board (equipped in the highest numbered slot) into the second highest numbered slot position.

**NOTE:** Use the GRCV form 18.4 to insert the 32 MB data in the second highest numbered slot position.

9. Type and enter <

Response: **18.0 SM AND REMOTE TERMINALS VIEWS** page displayed.

#### 11.44.18 Power Down MCTSI Side 1

1. At MCTSI side 1 (SN516), simultaneously depress the **MOR** and **OFF** button.

Response: **REPT PWR OFF MCTSI=a-1**

Where: a = SM-2000 number

#### 11.44.19 Reconfigure Memory Boards

**WARNING:** An antistatic wrist strap must be worn while handling circuit packs or system cables to prevent damage to components.

1. What is the equipped memory board configuration?

**Reference:** Procedure **11.44.4**, Step 2.

If **Configuration 1**, unseat the 64 MB memory board equipped in the highest numbered slot, and place it in the antistatic container. Go to Procedure **11.44.20**.

If **Configuration 2**, unseat the two 32 MB memory boards equipped in the two highest numbered slots, and place these in the antistatic containers. Go to Procedure **11.44.20**.

If **Configuration 3**, unseat the 64 MB memory board equipped in the second highest numbered slot, and place it in the antistatic container. Unseat the 32 MB memory board equipped in the highest numbered slot, and seat it in the slot previously equipped with the 64 MB memory board. Go to Procedure **11.44.20**.

#### 11.44.20 Replace Core Pack on MCTSI Side 1

1. Replace the UN540 processor core circuit pack with a UN560 processor core circuit pack on MCTSI Side 1.

#### 11.44.21 Power Up MCTSI Side 1

1. At the MCTSI Side 1 (SN516), depress the **ON** button.

Response: **REPT PWR ON MCTSI=a-1**

Where: a = SM-2000 number

#### 11.44.22 Conditionally Restore MCTSI Side 1 to Service

1. Conditionally restore MCTSI Side 1 by typing and entering: **RST:MCTSI=a-1**

Where: a = SM-2000 number

Response: **RST MCTSI a 1 COMPLETED**

#### 11.44.23 Allow Soak Period

1. Allow MCTSI Side 1 to be active for 1 hour before continuing with this procedure. Monitor the ROP for any messages that may implicate the new hardware.

#### 11.44.24 Safe Stop Point

1. Safe stop point.

#### 11.44.25 Turn Off Fault Recovery Reports

1. At the MCC, change log/print status of message class by typing and entering:

**CHG:LPS,MSGCLS=ALL,FROMBKUP**

Response: **OK** (with exceptions)

2. Set verbose status for SM by typing and entering: **CLR:PERPH,SM=a,VERBOSE**

Where: a = SM-2000 number

Response: **OK**

3. Allow brevity control by typing and entering: **ALW:BREVC,SM=a**

Where: a = SM-2000 number

Response: **OK**

#### 11.44.26 Return Routine Exercises to Normal

1. At the MCC type and enter: **ALW:REX,SM=a**

Where:           a = SM-2000 number

Response:       **OK**

#### **11.44.27 Back Up Office Dependent Data**

1. At MCC, type and enter: **BKUP:ODD;**

**NOTE:** Prior to the given response, there will be completed responses for each SM, the AM, and the CMP, if applicable.

Response:       **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## **Procedure 11.45: PERFORM TR008 TO TR303 RT CONVERSION OF A MODE II SLC-2000 ACCESS SYSTEM - 5E9(2) AND LATER**

### **OVERVIEW**

This Procedure is divided into four major sub-parts or sub-procedures:

- (1) 11.45.1 - Mode II TR008 VRT to TR303 VRT Conversion
- (2) 11.45.2 - Perform Line Rehoming
- (3) 11.45.3 - Perform TR008 to TR303 Conversion Backout
- (4) 11.45.4 - Restore 5ESS®-2000 Switch Office Controls to Normal.

The procedures and procedure steps must be performed in sequence unless instructed otherwise within a procedure step.

### **Prerequisite Conditions**

- (1) Verify that KBN6B board is installed in applicable Integrated Digital Carrier Unit (IDCU). If the KBN6 board is installed then it must be replaced with the new KBN6B board before continuing with this conversion procedure. Use applicable procedure to replace the KBN6 board.
- (2) Successful execution of Procedure 11.45 requires coordination between personnel performing the conversion at the remote terminal (RT) site and those performing conversion activity at the Local Digital Switch (LDS). Ideally, a mutually created Method Of Procedure (MOP) is used as a reference by both groups to govern the conversion activity.
- (3) The conversion process does not preserve data on special circuit cross-connects (e.g., DID, nailed-up ports). Service associated with these types of circuits must be reprovisioned manually at the conclusion of the TR303 conversion activity, at both the 5ESS®-2000 switch and the SLC®-2000 using its Craft Interface Terminal (CIT).
- (4) Verify that the SLC-2000 Access System is operating on software version 4.01.00 or later. The 5ESS-2000 switch should be on a minimum Software Release level of 5E9(2) with Software Update BWM95-0018.
- (5) If this is the first RT being converted to the TR303 interface on this Integrated Digital Carrier Unit (IDCU), verify that the Directly Connected Peripheral Interface Data Bus (DPIDB) assignments have been made and that the DPIDB cables are in place. If DPIDBs must be grown, refer to 235-105-231, *Hardware Change Procedures - Growth*.
- (6) Verify that the TR008 RT is operational prior to starting this procedure.
- (7) Obtain a work order containing the following information:
  - IFAC numbers
  - TMC PRI attributes
  - TMC NPRI attributes
  - EOC PRI attributes



- EOC NPRI attributes
- RT LINE SIZE attribute.

- (8) The channel groups that are used for the RT being grown, must be assigned to the PHs (protocol handlers) before the start of this procedure. Refer to Recent Change and Verify (RC/V) View 22.16 to confirm this assignment.

**Note 1:** To improve reliability, it is recommended, but not required, that the TMC/EOC PRI and NPRI [fields 171, 175, 179, 183 for 5E9(1,2) or fields 172, 176, 180, 184 for 5E10 and later] be assigned over different PHs.

**Note 2:** If different PHs are assigned in Note 1 above then the ACKTIMER (field 165) should be set to the default value of 150; otherwise, ACKTIMER should be set to 350 where the PHs are the same.

- (9) Obtain a hard-copy of RC/V View 18.15 for each TR008 RT being converted to TR303.
- (10) Verify that the suppression method currently used by the TR008 RT will be supported by the TR303 RT. Procedure **11.45.1.6** details the steps to accomplish this.
- (11) Obtain a hard-copy of the active nail-up/hairpin cross-connects existing in the 5ESS-2000 Switch data base, and nailup/hairpin assignments existing in the SLC-2000 data base. Procedure **11.45.1.4** provides the input messages required to identify the active nailup/hairpin connections.
- (12) Once the first RT has been converted to TR303, customer lines on any remaining virtual remote terminal(s) (VRTs) can be moved (rehomed) to the newly converted TR303 RT by changing their office equipment (OE) number. Conversion personnel have the option of making the required recent changes manually or using a script designed specifically for this purpose. The conversion script may be obtained by contacting Lucent Technologies Software Services at (954) 938-3700. Note that there is a fee for this service. It may also be necessary to redefine existing cross-connects at the RT.

## PROCEDURE

### 11.45.1 MODE II TR008 VRT TO TR303 VRT CONVERSION

#### 11.45.1.1 Verify and Set Initial Conditions

1. At the master control center (MCC), observe Summary Status Area for a **SYS NORM** indication.
2. If a SYS NORM indication is not observed, type and enter: **OP:SYSSTAT**
3. At the MCC type and enter: **OP:OFFNORM,SM=a**

Where:           a = SM that serves the VRT being converted to TR303.

**NOTE 1:** Evaluate the system status to determine if the conversion process should continue. Be alert to any system condition that could result in a service interruption during the execution of this procedure.

**NOTE 2:** Steps 4 through 7 that follow are recommended but not required; follow local practice. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this conversion procedure.

4. To inhibit REX, at the MCC type and enter: **INH:REX,SM=a**

Where: a = SM that serves the VRT being converted to TR303

Response: **OK**

5. At the MCC type and enter: **OP:REXINH**

Response: The inhibit status will be printed.

6. Verify REX is inhibited for the SM.

7. To backup the office dependent data (ODD), at the MCC type and enter:

**BKUP:ODD**

**Note 3:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

Response: **BKUP ODD COMPLETED**

**Note 4:** Data base backup will take several minutes to complete.

#### 11.45.1.2 Allow Peripheral Fault Recovery (PFR) Messages to Print

1. Save the existing Log and Print Status for all message classes, at the MCC type and enter:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

Response: **OK** (with exceptions)

2. Permit the Peripheral Fault Recognition monitor output message class to print, at the MCC type and enter:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF**

Response: **OK**

3. Set the verbose flag for peripheral fault reports, at the MCC type and enter:

**SET:PERPH,SM=a,VERBOSE**

Where: a = SM that serves the VRT being converted to TR303

Response: **OK**

4. Inhibit Brevity Control, at the MCC type and enter:

**INH:BREVC,SM=a**

Where: a = SM that serves the VRT being converted to TR303

Response: **OK**

### 11.45.1.3 Identify IFACs Associated with the TR008 RT Conversion

1. At the MCC or trunk and line work station (TLWS) type and enter:

**1870,y,x**

Where:            y = IDCU number  
                     x = SM number.

2. Record the IFACs that are associated with the VRT that will be converted to TR303.

### 11.45.1.4 Identify and Delete Nail-Up/Hairpin Connections

1. Identify existing nailups, at the MCC, type and enter: **OP:NAILUP,IFAC=a-b-c**

Where:            a = SM number  
                     b = IDCU number  
                     c = IFAC number.

Response:        **OP NAILUP IFAC xxxx PORT NOT NAILED UP**  
                     or

Response:        **OP NAILUP IFAC xxxx**  
                     **CON1    ILEN   xxxxx   xxxxx   xxxxx**  
                                         **ILEN   xxxxx   xxxxx   xxxxx**

2. Repeat Step 1 for each IFAC assigned to the RT that is being converted to TR303, then continue with Step 3.

**NOTE:** For each connected port, record port nailup connection data which will be used later when the connection is removed.

3. What is the nailup connection status for the IFAC?

If **NAILUP CONx EXIST**, continue with next Step.

If **PORT NOT NAILED UP**, continue with Procedure **11.45.1.5**.

4. At the MCC type and enter menu command: **196**  
Set PRINT OPTION to **YES**
5. Request RC/V View 7.11 (NAILUP and HAIRPIN SPECIFICATION), and specify "delete verify" for the operation (e.g., 7.11dv).
6. Print a copy of each existing nailed-up or hairpinned port before deleting it from the data base. **Save the hard-copies.** These will be needed to reinsert/reestablish the nailed-up or hairpinned ports.

### 11.45.1.5 Remove the IFACs from Service.

**CAUTION:** The following action is service affecting. Verify that there are no active calls to emergency services (e.g., police, fire) before proceeding.

**NOTE:** If the VRT is equipped with a protection line, remove the IFAC associated with the protection (PROT) line first.

1. At the MCC or TLWS type and enter:

**1870,y,x**

Where:           y = IDCU number  
                  x = SM number.

2. To remove the IFAC, at the MCC or TLWS enter menu command:

**2XX,UCL**

Where:           XX = IFAX number.

Response:       The status box associated with the IFAC is back lighted in red, and the status display is **OOS**.

**Note 2:** At this point the T0 cross-connects and T1 feeder cross-connects may be reestablished using the SLC-2000 CIT. Refer to 363-060-100, Section 3.1.1 for the procedure.

#### **11.45.1.6 Verify/Modify TR008 RT Suppression Method.**

1. Line encoding must be consistent at all network elements (e.g., DDM-2000, DACS, LDS) involved in transporting TR303 DS1s from the LDS to the remote terminal.

At the RC/V terminal type and enter **18.15u**

Response:       **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

2. Type and enter the KEY attributes.

Response:       System populates remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

3. Is the value of Field 13 (SUP METHOD) **TR8B8**?

If **YES**, go to Procedure **11.45.1.7**

If **NO**, continue with next Step.

4. Type and enter **c**

Response:       **Change Field:**

5. Type and enter **13**

Response:       Cursor at **SUP METHOD** attribute.

6. Type and enter **TR8B8**

Response:     **Change Field:**

7. Enter **CARRIAGE RETURN**

Response:     **Enter Update, Change, Validate, Screen#, or Print.**

8. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

9. Type and enter the KEY attributes.

Response:     System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

#### **11.45.1.7 Change RT Configuration Data From TR008 RT to TR303**

1. At the RC/V terminal, View 18.15, type and enter **c**

Response:     **Change Field:**

2. Type and enter **10**

Response:     Cursor at **PROT LINE** attribute.

**Note 1:** Save the current value for possible use later.

3. Type and enter **N**

Response:     **Change Field:**

4. Enter **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

6. Type and enter the KEY attributes.

Response:     System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

7. Type and enter **c**  
Response:     **Change Field:**
8. Type and enter **5**  
Response:     Cursor at **RT INTERFACE** attribute.
9. Type and enter **TR303**  
Response:     **Change Field:**
10. Type and enter **15**  
Response:     Cursor at **TR303 RT EQSTAT** attribute.
11. Type and enter **O** (letter 'O')  
Response:     **Change Field:**
12. Type and enter:  
  
For 5E9(2) and earlier: **150**  
  
For 5E10(1) and later: **151**  
  
Response:     For 5E9(2) and earlier: **Field 150: Row:**  
  
For 5E10(1) and later: **Field 151: Row:**
13. Type and enter row number **1**  
Response:     Cursor at **IFAC** attribute of **RT TERM 1**.
14. Type and enter the IFAC number from the work order form.  
Response:     For 5E9(2) and earlier: **Field 150: Row:**  
  
For 5E10(1) and later: **Field 151: Row:**
15. Type and enter row number **3**  
Response:     Cursor at **IFAC** attribute of **RT TERM 3**.
16. Type and enter the IFAC number from the work order form.

Response: For 5E9(2) and earlier: **Field 150: Row:**

For 5E10(1) and later: **Field 151: Row:**

17. Enter **CARRIAGE RETURN**.

Response: **Change Field:**

18. Type and enter:

For 5E9(2) and earlier: **163**

For 5E10(1) and later: **164**

Response: Cursor at **EOC/TMC BKUP RT TERM** attribute.

19. Type and enter **3**

Response: **Change Field:**

20. Type and enter:

For 5E9(2) and earlier: **164**

For 5E10(1) and later: **165**

Response: Cursor at **PROVISION RT** attribute.

21. Type and enter **Y**

Response: **Change Field:**

22. Type and enter:

For 5E9(2) and earlier: **165**

For 5E10(1) and later: **166**

Response: Cursor at **ACKTIMER** attribute.

23. Type and enter **150**

Response: **Change Field:**

24. Type and enter:

For 5E9(2) and earlier: **166**

For 5E10(1) and later: **167**

Response: Cursor at **NO RETRANS** attribute.

25. Type and enter **3**

Response: **Change Field:**

26. Type and enter:

For 5E9(2) and earlier: **167**

For 5E10(1) and later: **168**

Response: Cursor at **UNACK FRAMES** attribute.

27. Type and enter **7**

Response: **Change Field:**

28. Type and enter:

For 5E9(2) and earlier: **170**

For 5E10(1) and later: **171**

Response: Cursor at **ACTIVITY TIMER** attribute.

29. Type and enter **30**

Response: **Change Field:**

30. Type and enter:

For 5E9(2) and earlier: **171**

For 5E10(1) and later: **172**

Response: Cursor at **TMC PRI** attribute.

31. Type and enter data from work order form.

**Note 2:** The switch assigns values for the DPIDB and TIME SLOT attributes.



Response:      **Change Field:**

32. Type and enter:

For 5E9(2) and earlier: **175**

For 5E10(1) and later: **176**

Response:      Cursor at **TMC NPRI** attribute.

33. Type and enter data from work order form.

**Note 3:** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response:      **Change Field:**

34. Type and enter:

For 5E9(2) and earlier: **179**

For 5E10(1) and later: **180**

Response:      Cursor at **EOC PRI** attribute.

35. Type and enter data from work order form.

**Note 4:** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response:      **Change Field:**

36. Type and enter:

For 5E9(2) and earlier: **183**

For 5E10(1) and later: **184**

Response:      Cursor at **EOC NPRI** attribute.

37. Type and enter data from work order form.

**Note: 5** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response:      **Change Field:**

38. Are the same protocol handler assignments used for the previous entries in Steps 31,33,35 and 37?

**Note:** See Step 8 (and Notes 1 and 2) at PREREQUISITE CONDITIONS.

If **YES**, continue with next step.

If **NO**, go to Step 41.

39. Type and enter **165**

Response: Cursor at **ACKTIMER**

40. Type and enter **350**

Response: **Change Field:**

41. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

42. Type and enter **u**.

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

#### **11.45.1.8 Verify Accuracy of TR303 Configuration Data**

1. At the RC/V terminal, View 18.15, type and enter **^** (Shift + 6).

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

2. Type and enter **r**.

Response: **REMOTE TERMINAL** page displayed.  
Cursor at **SM** attribute.

3. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Verify data are consistent with the work order form.

5. Are corrections to TR303 RT data required?

If **NO**, go to Procedure **11.45.1.10**

If **YES**, continue with Procedure **11.45.1.9**

#### **11.45.1.9 Make Corrections to TR303 Configuration Data**

**CAUTION:** Data must be backed out and reentered by using the following steps ONLY!

1. At the RC/V terminal, View 18.15, type and enter ^ (Shift + 6)

Response:     **Enter Database Operation**  
                  **I=Insert R=Review U=Update D=Delete**

2. Type and enter **u**

Response:     **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

3. Type and enter the KEY attributes.

Response:     System populates remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **c**

Response:     **Change Field:**

5. Type and enter **21**

Response:     Cursor at **TR303 BK OUT** attribute.

6. Type and enter **B** (for BACKOUT).

Response:     **Change Field:**

7. Enter **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

8. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
                  Cursor at the **SM** attribute.

9. Type and enter the KEY attributes.

10. Return to Procedure **11.45.1.7** and reenter TR303 VRT attributes.

#### **11.45.1.10 Exit Recent Change**

1. Type and enter **q**

Response:     **REMOTE TERMINAL** page displayed.

2. Type and enter **<**

Response: **18.0 SM and REMOTE TERMINALS VIEWS** page displayed.

3. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### 11.45.1.11 Verify the Accuracy of TR303 Configuration Display

1. At the MCC or TLWS type and enter:

For 5E9(2) and later: **1880,y,z,x**

Where:           y = IDCU number  
                  z = RT number  
                  x = SM number.

2. Verify that the VRT is displayed as a **TR303** RT and that the IFAC assignments are correct.

#### 11.45.1.12 Inhibit Routine Port Conditioning

1. At the MCC type and enter:

For 5E9(2) and later: **INH:RPC,SM=a**

Where:           a = SM that serves the VRT being converted to TR303.

#### 11.45.1.13 Restore the Primary EOC/TMC IFAC to Service

1. Only RT FAC number 1 will be restored to service.

At the MCC or TLWS type and enter menu command:

For 5E9(2) and later: **1880,y,z,x**

Where:           y = IDCU number  
                  z = RT number  
                  x = SM number.

2. At the MCC or TLWS to restore the IFAC to service type and enter menu command: **3XX**

Where:           XX = IFAC number of primary EOC/TMC links.

Response:       The status box associated with the IFAC is back lighted in green, and the status displayed is **ACT**.

3. Monitor the state of the EOC/TMC links.

**Note 1:** If the switch removes the links from service due to excessive Level 2 errors, verify that the line encoding is consistent across all network elements (e.g., LDS, DACS, DDM-2000) involved in the transport of the TR303 DS1s from the LDS to the RT. The line encoding should be set to **B8ZS**.

4. Verify RT hardware integrity.

**Note 2:** This activity should be performed at the RT in accordance with procedures outlined in 363-208-001, *SLC-2000 Access System User Manual*.

**Note 3:** Do not restore the secondary EOC/TMC at this time.

#### 11.45.1.14 Request Provisioning of the TR303 VRT

1. Perform this procedure ONLY if the EOC/TMC links are in service and stable.

At the MCC type and enter: **EXC:RT,PROV,TYPE=ALL,LRT=a-b-c**

Where:           a = SM number  
                   b = IDCU number  
                   c = Local RT number.

Response:       **EXC RT PROV TYPE=ALL SID=d LRT=a b c  
 COMPLETED - NO TASKS PENDING**

Where:           d = Site identification number.

**NOTE:** If system response is "... **SOME TASKS PENDING**" request provisioning again. If provisioning fails a second time, seek technical assistance.

**CAUTION:** If the **EXC:RT** command fails, the SLC-2000 Access System may be in a condition where provisioning cannot be executed. Nevertheless, it is possible that some or all of the lines in the converted RT will restore to service.

2. Is the SLC-2000 Access System on software release 4.01.00?

If **YES**, perform 363-060-100, Procedure 3.2, then continue with **Step 4**.

If **NO**, continue with next Step.

3. Make originating and terminating test calls at the RT site.
4. Was call set-up verification testing successful?

If **YES**, continue with Procedure **11.45.1.15**.

If **NO**, go to Procedure **11.45.3**.

#### 11.45.1.15 Commit To The TR303 Conversion

1. At the MCC toggle CMD/MSG key until the terminal is in the menu mode.
2. At the MCC type and enter menu command: **196**

Reference:       **Procedure 11.1**

3. Type and enter **18.15u**

Response:       **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

4. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **c**

Response: **Change Field:**

6. Type and enter **21**

Response: Cursor at **TR303 BK OUT** attribute.

7. Type and enter **C** (for COMPLETED).

Response: **Change Field:**

8. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **u**

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at **SM** attribute.

10. Type and enter **<**

Response: **18.0 SM and REMOTE TERMINALS VIEWS** page displayed.

#### **11.45.1.16 Move Secondary EOC/TMC From *RT TERM 3* to *RT TERM 2***

1. The Primary and Secondary EOC/TMCs must be assigned to the first and second RT Facilities, respectively. This procedure makes the needed configuration change.

At the RC/V type and enter **18.15u**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

2. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **c**

Response: **Change Field:**

4. Type and enter:

For 5E9(2) and earlier: **150**

For 5E10(1) and later: **151**

Response: For 5E9(2) and earlier: **Field 150: Row:**

For 5E10(1) and later: **Field 151: Row:**

5. Type and enter row number **3**

Response: Cursor at **IFAC** attribute of **RT TERM 3**.

**Note:** Record the IFAC number that appears in this row. It is needed in Step 8 that follows.

6. To null out the current IFAC value, type and enter a single quote ( ' )

Response: For 5E9(2) and earlier: **Field 150: Row:**

For 5E10(1) and later: **Field 151: Row:**

7. Type and enter row number **2**

Response: Cursor at **IFAC** attribute of **RT TERM 2**.

8. Type and enter the **IFAC** number that was recorded in Step 5.

Response: For 5E9(2) and earlier: **Field 150: Row:**

For 5E10(1) and later: **Field 151: Row:**

9. Enter **CARRIAGE RETURN**.

Response: **Change Field:**

10. Type and enter:

For 5E9(2) and earlier: **163**

For 5E10(1) and later: **164**

Response: Cursor at **EOC/TMC BKUP RT TERM** attribute.

11. Type and enter **2**

Response: **Change Field:**

12. Enter **CARRIAGE RETURN** until the following response is received:

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

13. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed. Cursor at the **SM** attribute.

14. Type and enter **<**

Response:     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

15. Type and enter **q**

Response:     **RCV-196 COMPLETED**

#### 11.45.1.17 Restore Remaining IFAC To Service

1. At the MCC or TLWS, type and enter menu command:

For 5E9(2) and later: **1880,y,z,x**

Where:        y = IDCU number  
                z = RT number  
                x = SM number.

2. At the MCC or TLWS to restore the IFAC to service type and enter menu command: **3XX**

Where:        XX = IFAC number

Response:     The status box associated with the IFAC is back lighted in green, and the status displayed is **ACT**.

**Note 1:** The secondary EOC/TMC links may have to be restored manually. Once restored, the previously active EOC/TMC will switch to standby. This is normal.

3. Monitor the state of the EOC/TMC links.

**Note 2:** If the switch removes the links from service due to excessive Level 2 errors, verify the line encoding at all network elements (e.g., LDS, DACS, DDM-2000) involved in the transport of the TR303 DS1s from the LDS to the RT. The line coding should be set to **B8ZS**.

#### 11.45.1.18 Reestablish Nail-Up/Hairpin Connections (TR303)

1. At the MCC toggle CMD/MSG key until the terminal is in the menu mode.



2. At the MCC type and enter menu command: **196**

Reference: **Procedure 11.1**

3. To insert data, type and enter **7.11i**.

Response: **NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed. Cursor at C OE field.

4. Using the list of existing nail-up or hairpin ports/circuits obtained in Step 11 of Prerequisite Conditions, perform an insert operation for each nail-up/hairpin circuit that is to be restored.
5. At the MCC to obtain a list of the reestablished nail-ups/hairpin circuits, type and enter:

**OP:NAILUP,IFAC=a-b-c**

Where:        a = SM number  
                  b = IDCU number  
                  c = IFAC number.

Response:

```
OP NAILUP IFAC xxxx
CON1 ILEN xxxxxx xxxxxx xxxxxx
      ILEN xxxxxx xxxxxx xxxxxx
```

6. Compare the new list with the previous list to ensure that all the nail-ups/hairpin circuits have been reestablished.
7. Reprovision the special service cross-connects in the SLC-2000 database.

**NOTE 1:** Reprovisioning must be completed before the cross-connects can be placed into service.

**NOTE 2:** Use the CIT to reenter the cross-connect information that was obtained at the start of this procedure.

**Reference:** 363-208-003, *SLC-2000 Access System Command and Message Manual*

8. Are lines being moved (rehomed) to the TR303 VRT in conjunction with the conversion procedure?

If **YES**, go to **Procedure 11.45.2**

If **NO**, go to **Procedure 11.45.4**

## **11.45.2 PERFORM LINE REHOMING**

1. This procedure guides the user through the steps generally associated with relocating lines (rehoming) to a newly converted VRT. It assumes that all the lines are being relocated from a RT that is being totally deloaded (vacated). If this is not the case then go to Procedure **11.122.5**, otherwise continue with Procedure **11.45.2.1**.

### **11.45.2.1 Verify Line Size of the TR303 VRT**

1. Is the value of the RT LINE SIZE attribute to be increased (refer to work order form)?

If **YES**, continue with next Step.

If **NO**, go to Procedure **11.45.2.2** .

2. At the MCC toggle the CMD/MSG key until the terminal is in the menu mode.

3. At the MCC type and enter menu command: **196**

Reference: **Procedure 11.1**

4. To update the RC/V view, type and enter **18.15u**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

5. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **c**

Response: **Change Field:**

7. Type and enter **16**

Response: Cursor at **RT LINE SIZE** attribute

8. Type and enter the new line size value from the work order form.

Response: **Change Field:**

9. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

10. Type and enter **u**

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

11. Type and enter **<**

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter **q**

Response: **RCV-196 COMPLETED**

### 11.45.2.2 Identify Lines That Are To Be Rehomed

1. At the MCC type and enter: **OP:LISTOTO,ILEN=a-b-c-1&&d;**

Where:           a = SM number  
                   b = IDCU number  
                   c = Local RT number of RT being vacated  
                   d = Highest terminal number on this RT.

Response:       **OP LISTOTO n DN=a&&b ILEN=c&&d**

The switch responds with a list of the Directory Numbers associated with lines (ports) served by the specified RT.

2. Use the originating equipment (OE) information to relocate these lines to the TR303 VRT

### 11.45.2.3 Move Lines to the TR303 VRT

1. At this point, lines may be moved (rehomed) to the newly converted TR303 VRT by changing their OE number. Conversion personnel have the option of making the required changes manually or using a script designed specifically for this purpose. Once all lines have been rehomed, the vacated TR008 VRT may be deleted from the data base and its IFACs reused.

**CAUTION:** The following action is service affecting:

Verify that there are NO active calls to emergency services (for example, police, fire) before proceeding.

2. At the MCC or TLWS type and enter menu command:

**1870,y,x**

Where:           y = IDCU number  
                   x = SM number.

3. At the MCC or TLWS, to restore IFACs to service type and enter menu command: **2XX,UCL**

Where:           XX = IFAC number

Response:       The status box associated with the IFAC is back lighted, and the status displayed is **OOS**.

4. Verify that the IFACs have been removed from service.
5. Conversion personnel at the 5EES Switch should request their counterpart at the RT site to establish the new T0 cross-connects.
6. Conversion personnel at the RT site should notify their counterpart at the 5ESS-2000 Switch when the T0 cross-connects have been established and line rehoming to the TR303 VRT can begin.
7. Perform line rehoming to the TR303 VRT

### 11.45.2.4 Verify The Accuracy of Line Rehoming Activity

1. The following steps verify the accuracy and completeness of the line transfers. These should be performed at

the conclusion of the rehoming activity. Step 1 obtains a list of directory numbers (DN) associated with lines (ports) served by the local RT being vacated. Step 3 obtains a list of DNs associated with lines (ports) served by the local RT being relocated to the TR303 VRT.

At the MCC type and enter: **OP:LISTOTO,ILEN=a-b-c-1&&d;**

Where:        a = SM number  
               b = IDCU number  
               **c = Local RT number of RT being vacated**  
               d = Highest terminal number on this RT.  
               (i.e., value of RT LINE SIZE).

Response:     **OP LISTOTO n DN=a&&b ILEN=c&&d**

The switch responds with a list of the Directory Numbers associated with lines (ports) served by the RT being vacated.

2. Verify that all the entries on the OP LISTOTO LINE REPORT obtained in Step 1 show a status of UNASSIGNED.

3. At the MCC type and enter: **OP:LISTOTO,ILEN=a-b-c-1&&d;**

Where:        a = SM number  
               b = IDCU number  
               **c = Local RT number of TR303 VRT**  
               d = Highest terminal number on this RT.  
               (i.e., value of RT LINE SIZE).

Response:     **OP LISTOTO n DN=a&&b ILEN=c&&d**

The switch responds with a list of the Directory Numbers associated with lines (ports) served by the local RT being relocated to the TR303 VRT.

4. Verify that all lines previously associated with the vacated VRT have been relocated to the TR303 VRT.

**Note 1:** Do this by comparing the OP LISTOTO LINE REPORT obtained in Procedure **11.45.2.2** with the list obtained in Step 3 above.

#### 11.45.2.5 Request TR303 VRT Provisioning

1. To provision the TR303 VRT, at the MCC type and enter:

**EXC:RT,PROV,TYPE=ALL,LRT=a-b-c**

Where:        a = SM number  
               b = IDCU number  
               c = Local RT number of the TR303 VRT.

Response:     **EXC RT PROV TYPE=ALL SID=d LRT=a b c**  
                   **COMPLETED - NO TASKS PENDING**

Where:        d = Site identification number.

**CAUTION:** If the **EXC:RT** command fails, the SLC-2000 Access System may be in a condition where provisioning cannot be executed. Nevertheless, it is possible that some or all of the lines in the converted RT will restore to service.

2. Is the SLC-2000 Access System on software release 4.01.00?

If **YES**, perform 363-060-100, procedure 3.2 then continue with Step 4.

If **NO**, continue with next Step.

3. Make test calls from a select group of newly rehomed lines.
4. Are other VRTs being deloaded and vacated?

If **YES**, return to Procedure **11.45.2.2**.

If **NO**, continue with Procedure **11.45.2.6**.

#### **11.45.2.6 Determine Disposition of the Vacated TR008 VRT**

1. Is the vacated TR008 VRT to be deleted from the 5ESS-2000 Switch database?

If **NO**, go to **Procedure 11.45.4**

If **YES**, continue with next Step.

2. Select and prepare terminal for RC/V activities.

Reference: **Procedure 11.1**

3. Type and enter **18.15dv**

Response: **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

4. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. **CAUTION:** Verify that this is the VRT to be deleted!

To delete VRT, type and enter **d**

Response: **Deleting.... FORM DELETED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

6. Repeat Steps **3** through **5** for each VRT to be deleted. Continue with next Step when completed.

7. Type and enter **<**

Response: **18.0 SM** and **REMOTE TERMINALS VIEWS** page displayed.

8. Type and enter **q**

Response: **RCV-196 COMPLETED**

9. Are the IFACs that were previously assigned to the now deleted TR008 VRT being reused in a TR303 VRT?

If **YES**, continue with **Procedure 11.45.2.7**

If **NO**, go to Procedure **11.45.4**

#### **11.45.2.7 Change Suppression Method of Old IFACs**

1. This procedure changes the Suppression Method of the IFACS that were associated with the deleted TR008 VRTs so that they may be utilized by a TR303 VRT.

Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 11.1**

2. Type and enter **20.23u**

Response: **FACILITY EQUIPMENT (IFAC)** page displayed.  
Cursor at **SM** attribute.

3. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **c**

Response: **Change Field:**

5. Type and enter **4**

Response: **Field 4: Row:**

6. Type and enter the row number of the IFAC whose Suppression Method is to be changed.

Response: Cursor at **EQSTAT** of row specified.

7. Enter **CARRIAGE RETURN** to move cursor to the **SUP MTHD** field.

8. Type and enter **303B8**.

9. Enter **CARRIAGE RETURN** until:

Response: **Field 4: Row:**

10. Repeat Steps 6 through 9 until the Suppression Method has been changed for all the desired IFACs, then continue with next Step.
11. Enter **CARRIAGE RETURN** until:  
Response: **Enter Update, Change, Validate, Screen#, or Print:**
12. Type and enter **u**  
Response: **updating . . .FORM UPDATED. IDCU FACILITY EQUIPMENT** page displayed.  
Cursor at the **SM** attribute.
13. If necessary, repeat Steps 3 through 12 for LSI 1, then continue to next Step.
14. Type and enter **<**  
Response: **20.0 SM PACK & SUBPACK** page displayed.

#### 11.45.2.8 Add IFACs to TR303 VRT.

1. This procedure adds IFACs whose suppression method is now **303B** to the newly converted TR303 VRT.  
At the RC/V type and enter **18.15u**  
Response: **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.
2. Type and enter the KEY attributes.  
Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**
3. Type and enter **c**  
Response: **Change Field:**
4. Type and enter:  
  
For 5E9(2) and earlier: **150**  
  
For 5E10(1) and later: **151**  
  
Response: For 5E9(2) and earlier: **Field 150: Row:**  
  
For 5E10(1) and later: **Field 151: Row:**
5. Type and enter the desired row number.  
Response: Cursor at **IFAC** attribute of **RT TERM x**.

6. Type and enter the IFAC number being added to the TR303 VRT.

Response: For 5E(9) and earlier: **Field 150: Row:**

For 5E10(1) and later: **Field 151: Row:**

7. Repeat Step 6 until all the IFACs that will be associated with this TR303 VRT have been defined, then continue to next Step.

8. Enter **CARRIAGE RETURN** until:

Response: **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **u**.

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

10. Type and enter **<**

Response: **18.0 SM** and **REMOTE TERMINALS VIEWS** page displayed.

11. Type and enter **q**

Response: **RCV-196 COMPLETED**

12. Request conversion personnel at the RT site to define the T1 cross-connects for the newly added DS1 feeders in the logical TR303 VRT.

Reference: 363-208-003, Section 3.1.1.

**Note:** Perform only the step required to establish the T1 cross-connects for the newly added feeders.

#### 11.45.2.9 Restore IFACs To Service

1. Proceed only after the T1 cross-connects have been defined at the RT site for the newly added feeders.

At the MCC or TLWS type and enter menu command:

**1870,y,x**

Where: y = IDCU number  
x = SM number.

2. At the MCC or TLWS to restore IFACs to service, type and enter menu command: **3XX**



Where: XX = IFAC number

Response: The status box associated with the IFAC is back lighted in green, and the status displayed is **ACT**.

3. Go to Procedure **11.45.4**

### **11.45.3 PERFORM TR008 TO TR303 CONVERSION BACKOUT**

1. **CAUTION:** These procedures should be performed **ONLY** if the TR303 conversion process is being aborted and the VRT will be restored to service.

#### **11.45.3.1 Remove Primary EOC/TMC IFAC from Service**

1. At the MCC to remove the primary EOC/TMC IFAC from service, type and enter:

**RMV:IFAC=a-b-c,UCL**

Where: a = SM number  
b = IDCU number  
c = IFAC number of the primary EOC/TMC links.

Response: **RMV IFAC a b c COMPLETED**

#### **11.45.3.2 Restore Original TR008 VRT Configuration Data**

1. Select and prepare terminal for RC/V activities.

Reference: **Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15u**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **c**

Response: **Change Field:**

5. Type and enter **21**

Response: Cursor at **TR303 BK OUT** attribute

6. Type and enter **B** (for Backout)

Response: **Change Field:**

7. Enter **CARRIAGE RETURN**

Response: **Enter Update, Change, Validate, Screen#, or Print:**

8. Type and enter **u**

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at **SM** attribute.

## 9. Does the TR008 VRT have a protection line assigned?

If **YES**, continue with next Step.

If **NO**, go to Step 16.

## 10. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

11. Type and enter **c**

Response: **Change Field:**

12. Type and enter **10**

Response: Cursor at **PROT LINE** attribute.

13. Type and enter PROT LINE value saved in Procedure **11.45.1.7 , Step (b)**.

Response: **Change Field:**

14. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

15. Type and enter **u**

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

16. Type and enter **^** (Shift + 6)

Response: **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

**11.45.3.3 Verify TR008 RT Data**

1. Type and enter **r**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

2. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Verify all TR303 data was backed out and that the original TR008 data populates the view.

4. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

5. Type and enter **<**

Response: **18.0 SM and REMOTE TERMINALS VIEWS** page displayed.

6. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### 11.45.3.4 Reinstall TR008 Hardware/Software

1. Perform activities at the RT site in accordance with procedures outlined in the following reference:

**Reference:** 363-208-001, *SLC-2000 Access System User Manual*

**NOTE:** At this point the T0 cross-connects and the T1 feeder cross-connects can be reestablished using the SLC-2000 CIT.

#### 11.45.3.5 Verify the Accuracy of the TR008 Configuration Display

1. At the MCC or TLWS type and enter menu command:

For 5E9(2) and later: **1880,y,z,x**

Where:  
y = IDCU number  
y = RT number  
x = SM number.

2. Verify that the VRT is displayed as a "TR008 RT" and that the IFAC assignments are correct.

#### 11.45.3.6 Restore TR008 VRT Facilities

1. At the MCC type and enter the following command for each IFAC associated with the RT:

**RST:IFAC=a-b-c,UCL**

**Note 1:** Restore the lowest numbered RT FAC first.

Where:        a = SM number  
                  b = IDCU number  
                  c = IFAC number.

Response:     **RST IFAC a b c COMPLETED**

The status box associated with the IFAC is back-lighted in green, and the status displayed is **ACT**.

2. Verify RT hardware integrity.

**Note 2:** Verification activity is performed at the RT site.

3. Repeat Steps 1 and 2 until all remaining RT FACs are restored.

#### 11.45.3.7 Perform Call Set-Up Verification

1. At the RT site, make originating and terminating test calls.
2. If call set-up fails, seek technical assistance.

#### 11.45.3.8 Reestablish Nail-Up/Hairpin Connections (TR008)

1. At the MCC toggle CMD/MSG key until the terminal is in the menu mode.
2. At the MCC type and enter menu command: **196**

Reference:     **Procedure 11.1**

3. To insert data, type and enter **7.11i**

Response:     **NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed.  
                  Cursor at C OE field.

4. Populate data fields as required for nail-up/hairpin circuit that is to be restored.
5. Enter **CARRIAGE RETURN**.

Response:     **Enter Insert, Change, Validate, Screen#, or Print:**

6. Type and enter **i**

Response:     **inserting . . . FORM INSERTED. NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed.  
                  Cursor at C OE field.

7. Repeat Step 4 through 6 until all circuits have been restored, then continue with next Step.
8. At the MCC to obtain a list of the restored nail-ups/hairpin circuits, type and enter:

**OP:NAILUP,IFAC=a-b-c**

Where:        a = SM number  
               b = IDCU number  
               c = IFAC number.

Response:     **OP NAILUP IFAC xxxx**  
                   **CON1    ILEN xxxxxx xxxxxx xxxxxx**  
                                   **ILEN xxxxxx xxxxxx xxxxxx**

9. Compare the new list with the list obtained in Procedure **11.45.1.4** to ensure that all the nail-ups/hairpin circuits have been restored.
10. At the RT site, reprovision the special service cross-connects in the SLC-2000 database.

**Note 1:** Reprovisioning must be completed before the cross-connects can be placed into service.

**Note 2:** Use the CIT to reenter the cross-connect information that was obtained at the start of this procedure.

Reference:     363-208-003, *SLC-2000 Access System Command and Message Manual*

## **11.45.4 RESTORE 5ESS®-2000 SWITCH OFFICE CONTROLS TO NORMAL**

### **11.45.4.1 Restore Message Control to Normal**

1. The following Steps will return output message routing to its previous state, clear the inhibits on Routine Port Conditioning and Routine Exercises, and perform a full backup of the ODD.
2. Wait 30 minutes and monitor the ROP for any abnormal reports (interrupts, audits, asserts, etc.) related to the RT conversion and take corrective action if necessary. If the ROP is quiet after this interval, continue with this procedure.

At the MCC type and enter the following command to enable brevity control:

**ALW:BREVC,SM=a**

Where:        a = SM that serves the RT being converted to TR303

3. At the MCC type and enter the following command to deactivate the peripheral message verbose mode:

**CLR:PERPH,SM=a,VERBOSE**

Where:        a = SM that serves the RT being converted to TR303.

4. At the MCC type and enter the following command to restore original message class logging and printing:

**CHG:LPS,MSGCLS=ALL,FROMBKUP**

### **11.45.4.2 Allow Routine Port Conditioning**

1. At the MCC type and enter:

For 5E9(2) and later: **ALW:RPC,SM=a**

Where: a = SM that serves the RT being converted to TR303.

#### 11.45.4.3 Allow Routine Exercises (REX) to Resume

1. This step is necessary only if routine exercises were inhibited at the start of the conversion procedure.

At the MCC type and enter: **ALW:REX,SM=a**

Where: a = SM that serves the VRT being converted to TR303.

Response: **OK**

#### 11.45.4.4 Back Up the Office-Dependent Data (ODD)

1. At the MCC type and enter: **BKUP:ODD**

**NOTE:** There will be "COMPLETED" responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

Response: **BKUP ODD COMPLETED**

**Note 2:** Data base backup will take several minutes to complete.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.46: PERFORM TR008 TO TR303 RT CONVERSION OF A MODE I SLC<sup>®</sup>-2000 ACCESS SYSTEM - 5E9(2) AND LATER

### OVERVIEW

This Procedure is divided into four major sub-parts or sub-procedures:

- (1) 11.46.1 - Mode I TR008 VRT to TR303 VRT Conversion.
- (2) 11.46.2 - Perform Line Rehoming
- (3) 11.46.3 - Perform TR008 to TR303 Conversion Backout
- (4) 11.46.4 - Restore 5ESS<sup>®</sup>-2000 Switch Office Controls to Normal

The procedures and procedure steps must be performed in sequence unless instructed otherwise within a procedure step.

### Prerequisite Conditions

- (1) Verify that KBN6B board is installed in applicable Integrated Digital Carrier Unit (IDCU). If the KBN6 board is installed then it must be replaced with the new KBN6B board before continuing with this conversion procedure. Use applicable procedure to replace the KBN6 board.
- (2) Successful execution of Procedure **11.46** requires coordination between personnel performing the conversion at the remote terminal (RT) site and those performing conversion activity at the Local Digital Switch (LDS). Ideally, a mutually created Method Of Procedure (MOP) is used as a reference by both groups to govern the conversion activity.
- (3) The conversion process does not preserve data on special circuit cross-connects (e.g., DID, nailed-up ports). Service associated with these types of circuits must be reprovisioned manually at the conclusion of the TR303 conversion activity, at both the 5ESS<sup>®</sup>-2000 Switch and the SLC<sup>®</sup>-2000 using its Craft Interface Terminal (CIT).
- (4) Verify that the SLC-2000 Access System is operating on software version 4.01.00 or later. The 5ESS-2000 switch should be on a minimum Software Release level of 5E9(2) with Software Update BWM95-0018.
- (5) If this is the first RT being converted to the TR303 interface on this Integrated Digital Carrier Unit (IDCU), verify that the Directly Connected Peripheral Interface Data Bus (DPIDB) assignments have been made and that the DPIDB cables are in place. If DPIDBs must be grown, refer to 235-105-231, *Hardware Change Procedures - Growth*.
- (6) Verify that the TR008 RT is operational prior to starting this procedure.
- (7) Obtain a work order containing the following information:
  - IFAC numbers
  - TMC PRI attributes
  - TMC NPRI attributes
  - EOC PRI attributes

- EOC NPRI attributes
- RT LINE SIZE attribute.

- (8) The channel groups that are used for the RT being grown, must be assigned to the PHs (protocol handlers) before the start of this procedure. Refer to Recent Change and Verify (RC/V) View 22.16 to confirm this assignment.

**Note 1:** To improve reliability, it is recommended, but not required, that the TMC/EOC PRI and NPRI [fields 171, 175, 179, 183 for 5E9(1,2) or fields 172, 176, 180, 184 for 5E10 and later] be assigned over different PHs.

**Note 2:** If different PHs are assigned in Note 1 above then the ACKTIMER (field 165) should be set to the default value of 150; otherwise, ACKTIMER should be set to 350 where the PHs are the same.

- (9) Obtain a hard-copy of Recent Change and Verify (RC/V) View 18.15 for each TR008 RT being converted to TR303.
- (10) Verify that the suppression method currently used by the TR008 RT will be supported by the TR303 RT. Procedure **11.46.1.6** details the steps to accomplish this.
- (11) Obtain a hard-copy of the active nail-up/hairpin cross-connects existing in the 5ESS-2000 Switch data base, and nailup/hairpin assignments existing in the SLC-2000 data base. Procedure **11.46.1.4** provides the input messages required to identify the active nailup/hairpin connections.
- (12) Once the first RT has been converted to TR303, customer lines on any remaining virtual remote terminal(s) (VRTs) can be moved (rehomed) to the newly converted TR303 RT by changing their office equipment (OE) number. Conversion personnel have the option of making the required recent changes manually or using a script designed specifically for this purpose. The conversion script may be obtained by contacting Lucent Technologies Software Services at (954) 938-3700. Note that there is a fee for this service. It may also be necessary to redefine existing cross-connects at the RT.

## PROCEDURE

### 11.46.1 MODE I TR008 VRT TO TR303 VRT CONVERSION

#### 11.46.1.1 Verify and Set Initial Conditions

1. At the master control center (MCC), observe Summary Status Area for a **SYS NORM** indication.
2. If a SYS NORM indication is not observed, type and enter: **OP:SYSSTAT**
3. At the MCC type and enter: **OP:OFFNORM,SM=a**

Where: a = SM that serves the VRT being converted to TR303.

**Note 1:** Evaluate the system status to determine if the conversion process should continue. Be alert to any system condition that could result in a service interruption during the execution of this procedure.

**Note 2:** Steps 4 through 7 that follow are recommended but not required; follow local practice. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this conversion procedure.



4. To inhibit REX, at the MCC type and enter: **INH:REX,SM=a**

Where: a = SM that serves the VRT being converted to TR303

Response: **OK**

5. At the MCC type and enter: **OP:REXINH**

Response: The inhibit status will be printed.

6. Verify REX is inhibited for the SM.

7. To backup the office dependent data (ODD), at the MCC type and enter:

**BKUP:ODD**

**Note 3:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

Response: **BKUP ODD COMPLETED**

**Note 4:** Data base backup will take several minutes to complete.

#### 11.46.1.2 Allow Peripheral Fault Recovery (PFR) Messages to Print

1. Save the existing Log and Print Status for all message classes, at the MCC type and enter:

**CHG:LPS,MSGCLS=ALL, TOBKUP**

Response: **OK** (with exceptions)

2. Permit the Peripheral Fault Recognition monitor output message class to print, at the MCC type and enter:

**CHG:LPS,MSGCLS=pfr\_mon,PRINT=ON,LOG=OFF**

Response: **OK**

3. Set the verbose flag for peripheral fault reports, at the MCC type and enter:

**SET:PERPH,SM=a,VERBOSE**

Where: a = SM that serves the VRT being converted to TR303

Response: **OK**

4. Inhibit Brevity Control, at the MCC type and enter:

**INH:BREVC,SM=a**

Where: a = SM that serves the VRT being converted to TR303

Response: **OK**

### 11.46.1.3 Identify IFACs Associated with the TR008 RT Conversion

1. At the MCC or trunk and line work station (TLWS) type and enter:

For 5E9(2) and later: **1870,y,x**

Where: y = IDCU number  
x = SM number.

2. Record the IFACs that are associated with the VRT that will be converted to TR303.

### 11.46.1.4 Identify and Delete Nail-Up/Hairpin Connections

1. Identify existing nailups, at the MCC, type and enter: **OP:NAILUP,IFAC=a-b-c**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **OP NAILUP IFAC xxxx PORT NOT NAILED UP**  
or

Response: **OP NAILUP IFAC xxxx**  
**CON1 ILEN xxxxx xxxxx xxxxx**  
**ILEN xxxxx xxxxx xxxxx**

2. Repeat Step 1 for each IFAC assigned to the RT that is being converted to TR303, then continue with Step 3.

**NOTE:** For each connected port, record port nailup connection data which will be used later when the connection is removed.

3. What is the nailup connection status for the IFAC?

If **NAILUP CONx EXIST**, continue with next Step.

If **PORT NOT NAILED UP**, continue with Procedure **11.46.1.5**.

4. At the MCC type and enter menu command: **196**  
Set PRINT OPTION to **YES**
5. Request RC/V View 7.11 (NAILUP and HAIRPIN SPECIFICATION), and specify "delete verify" for the operation (e.g., 7.11dv).
6. Print a copy of each existing nailed-up or hairpinned port before deleting it from the data base. **Save the hard-copies.** These will be needed to reinsert/reestablish the nailed-up or hairpinned ports.

### 11.46.1.5 Remove the IFACs from Service.

**CAUTION:** The following action is service affecting. Verify that there are no active calls to emergency services (e.g., police, fire) before proceeding.

**NOTE:** If the VRT is equipped with a protection line, remove the IFAC associated with the protection (PROT) line first.

1. At the MCC or TLWS type and enter:

For 5E9(2) and later: **1870,y,x**

Where:            y = IDCU number  
                     x = SM number.

2. To remove the IFAC, at the MCC or TLWS enter menu command:

**2XX,UCL**

Where:            XX = IFAX number.

Response:        The status box associated with the IFAC is back lighted in red, and the status display is **OOS**.

**Note 2:** At this point the T0 cross-connects and T1 feeder cross-connects may be reestablished using the SLC-2000 CIT. Refer to 363-060-100, Section 3.1.1 for the procedure.

#### **11.46.1.6 Verify/Modify TR008 RT Suppression Method**

1. Line encoding must be consistent at all network elements (e.g., DDM-2000, DACS, LDS) involved in transporting TR303 DS1s from the LDS to the remote terminal.

At the RC/V terminal type and enter **18.15u**

Response:        **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

2. Type and enter the KEY attributes.

Response:        System populates remainder of view.  
                     **Enter Update, Change, Validate, Screen#, or Print:**

3. Is the value of Field 13 (SUP METHOD) **TR8B8**?

If **YES**, go to Procedure **11.46.1.8**

If **NO**, continue with next Step.

4. Type and enter **c**

Response:        **Change Field:**

5. Type and enter **13**

Response:        Cursor at **SUP METHOD** attribute.

6. Type and enter **TR8B8**

Response:     **Change Field:**

7. Enter **CARRIAGE RETURN**

Response:     **Enter Update, Change, Validate, Screen#, or Print.**

8. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

9. Type and enter the KEY attributes.

Response:     System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

#### **11.46.1.7 Change RT Configuration Data From TR008 RT to TR303.**

1. At the RC/V terminal, View 18.15, type and enter **c**

Response:     **Change Field:**

2. Type and enter **10**

Response:     Cursor at **PROT LINE** attribute.

**Note 1:** Save the current value for possible use later.

3. Type and enter **N**

Response:     **Change Field:**

4. Enter **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

6. Type and enter the KEY attributes.

Response:     System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

7. Type and enter **c**

Response: **Change Field:**

8. Type and enter **5**

Response: Cursor at **RT INTERFACE** attribute.

9. Type and enter **TR303**

Response: **Change Field:**

10. Type and enter **15**

Response: Cursor at **TR303 RT EQSTAT** attribute.

11. Type and enter **O** (letter 'O')

Response: **Change Field:**

12. Type and enter:

For 5E9(2) and earlier: **150**

For 5E10(1) and later: **151**

Response: For 5E9(2) and earlier: **Field 150:** **Row:**

For 5E10(1) and later: **Field 151:** **Row:**

13. Type and enter row number **1**

Response: Cursor at **IFAC** attribute of **RT TERM 1**.

14. Type and enter the IFAC number from the work order form.

Response: For 5E9(2) and earlier: **Field 150:** **Row:**

For 5E10(1) and later: **Field 151:** **Row:**

15. Have all IFACs associated with this TR303 VRT been defined?

If **NO**, continue with next Step.

If **YES**, go to Step 19.

16. Type and enter next appropriate row number.
17. Type and enter the IFAC number from the work order form.

Response: For 5E9(2) and earlier: **Field 150:** **Row:**

For 5E10(1) and later: **Field 151:** **Row:**

18. Return to Step 15.
19. Enter **CARRIAGE RETURN**.

Response: **Change Field:**

20. Type and enter:

For 5E9(2) and earlier: **163**

For 5E10(1) and later: **164**

Response: Cursor at **EOC/TMC BKUP RT TERM** attribute.

21. Type and enter **2**

Response: **Change Field:**

22. Type and enter:

For 5E9(2) and earlier: **164**

For 5E10(1) and later: **165**

Response: Cursor at **PROVISION RT** attribute.

23. Type and enter **Y**

Response: **Change Field:**

24. Type and enter:

For 5E9(2) and earlier: **165**

For 5E10(1) and later: **166**

Response: Cursor at **ACKTIMER** attribute.

25. Type and enter **150**

Response: **Change Field:**

26. Type and enter:

For 5E9(2) and earlier: **166**

For 5E10(1) and later: **167**

Response: Cursor at **NO RETRANS** attribute.

27. Type and enter **3**

Response: **Change Field:**

28. Type and enter:

For 5E9(2) and earlier: **167**

For 5E10(1) and later: **168**

Response: Cursor at **UNACK FRAMES** attribute.

29. Type and enter **7**

Response: **Change Field:**

30. Type and enter:

For 5E9(2) and earlier: **170**

For 5E10(1) and later: **171**

Response: Cursor at **ACTIVITY TIMER** attribute.

31. Type and enter **30**

Response: **Change Field:**

32. Type and enter:

For 5E9(2) and earlier: **171**

For 5E10(1) and later: **172**

Response: Cursor at **TMC PRI** attribute.

33. Type and enter data from work order form.

**Note 2:** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response: **Change Field:**

34. Type and enter:

For 5E9(2) and earlier: **175**

For 5E10(1) and later: **176**

Response: Cursor at **TMC NPRI** attribute.

35. Type and enter data from work order form.

**Note 3:** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response: **Change Field:**

36. Type and enter:

For 5E9(2) and earlier: **179**

For 5E10(1) and later: **180**

Response: Cursor at **EOC PRI** attribute.

37. Type and enter data from work order form.

**Note 4:** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response: **Change Field:**

38. Type and enter:

For 5E9(2) and earlier: **183**

For 5E10(1) and later: **184**

Response: Cursor at **EOC NPRI** attribute.

39. Type and enter data from work order form.



**Note: 5** The switch assigns values for the DPIDB and TIME SLOT attributes.

Response:      **Change Field:**

40. Are the same protocol handler assignments used for the previous entries in Steps 33,35,37 and 39?

**NOTE:** See Step 8 (and Notes 1 and 2) at Prerequisite Conditions.

If **YES**, continue with next step.

If **NO**, go to Step 43.

41. Type and enter **165**

Response:      Cursor at **ACKTIMER**

42. Type and enter **350**

Response:      **Change Field:**

43. Enter **CARRIAGE RETURN**.

Response:      **Enter Update, Change, Validate, Screen#, or Print:**

44. Type and enter **u**.

Response:      **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

#### 11.46.1.8 Verify Accuracy of TR303 Configuration Data

1. At the RC/V terminal, View 18.15, type and enter **^** (Shift + 6).

Response:      **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

2. Type and enter **r**.

Response:      **REMOTE TERMINAL** page displayed.  
Cursor at **SM** attribute.

3. Type and enter the KEY attributes.

Response:      System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Verify data are consistent with the work order form.

5. Are corrections to TR303 RT data required?

If **NO**, go to Procedure **11.46.1.10**

If **YES**, continue with Procedure **11.46.1.9**

### **11.46.1.9 Make Corrections to TR303 Configuration Data**

**CAUTION:** Data must be backed out and reentered by using the following steps **ONLY!**

1. At the RC/V terminal, View 18.15, type and enter ^ (Shift + 6)

Response:     **Enter Database Operation**  
                  **I=Insert R=Review U=Update D=Delete**

2. Type and enter **u**

Response:     **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

3. Type and enter the KEY attributes.

Response:     System populates remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **c**

Response:     **Change Field:**

5. Type and enter **21**

Response:     Cursor at **TR303 BK OUT** attribute.

6. Type and enter **B** (for BACKOUT).

Response:     **Change Field:**

7. Enter **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print:**

8. Type and enter **u**

Response:     **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
                  Cursor at the **SM** attribute.

9. Type and enter the KEY attributes.

10. Return to Procedure **11.46.1.7** and reenter TR303 VRT attributes.

### **11.46.1.10 Exit Recent Change**

1. Type and enter **q**

Response: **REMOTE TERMINAL** page displayed.

2. Type and enter **<**

Response: **18.0 SM and REMOTE TERMINALS VIEWS** page displayed.

3. Type and enter **q**

Response: **RCV-196 COMPLETED**

#### 11.46.1.11 Verify the Accuracy of TR303 Configuration Display

1. At the MCC or TLWS type and enter:

For 5E9(2) and later: **1880,y,z,x**

Where:           y = IDCU number  
                  z = RT number  
                  x = SM number.

2. Verify that the VRT is displayed as a **TR303** RT and that the IFAC assignments are correct.

#### 11.46.1.12 Inhibit Routine Port Conditioning

1. At the MCC type and enter:

For 5E9(2) and later: **INH:RPC,SM=a**

Where:           a = SM that serves the VRT being converted to TR303.

#### 11.46.1.13 Restore the Primary EOC/TMC IFAC to Service

1. Only RT FAC number 1 will be restored to service.

At the MCC or TLWS type and enter menu command:

For 5E9(2) and later: **1880,y,z,x**

Where:           y = IDCU number  
                  z = RT number  
                  x = SM number.

2. At the MCC or TLWS to restore the IFAC to service type and enter menu command: **3XX**

Where:           XX = IFAC number of primary EOC/TMC links.

Response:       The status box associated with the IFAC is back lighted in green, and the status displayed is **ACT**.

3. Monitor the state of the EOC/TMC links.

**Note 1:** If the switch removes the links from service due to excessive Level 2 errors, verify that the line encoding is consistent across all network elements (e.g., LDS, DACS, DDM-2000) involved in the transport of the TR303 DS1s from the LDS to the RT. The line encoding should be set to **B8ZS**.

4. Verify RT hardware integrity.

**Note 2:** This activity should be performed at the RT in accordance with procedures outlined in 363-208-001, *SLC-2000 Access System User Manual*.

**Note 3:** Do not restore the secondary EOC/TMC at this time.

#### 11.46.1.14 Request Provisioning of the TR303 VRT

1. Perform this procedure ONLY if the EOC/TMC links are in service and stable.

At the MCC type and enter: **EXC:RT,PROV,TYPE=ALL,LRT=a-b-c**

Where:           a = SM number  
                   b = IDCU number  
                   c = Local RT number.

Response:       **EXC RT PROV TYPE=ALL SID=d LRT=a b c  
 COMPLETED - NO TASKS PENDING**

Where:           d = Site identification number.

**NOTE:** If system response is "... **SOME TASKS PENDING**" request provisioning again. If provisioning fails a second time, seek technical assistance.

**CAUTION:** If the **EXC:RT** command fails, the SLC-2000 Access System may be in a condition where provisioning cannot be executed. Nevertheless, it is possible that some or all of the lines in the converted RT will restore to service.

2. Is the SLC-2000 Access System on software release 4.01.00?

If **YES**, perform 363-060-100, Procedure 3.2, then continue with Step 4.

If **NO**, continue with next Step.

3. Make originating and terminating test calls at the RT site.
4. Was call set-up verification testing successful?

If **YES**, continue with Procedure **11.46.1.15**.

If **NO**, go to Procedure **11.46.3**.

#### 11.46.1.15 Commit To The TR303 Conversion

1. At the MCC toggle CMD/MSG key until the terminal is in the menu mode.
2. At the MCC type and enter menu command: **196**

**Reference:** Procedure 11.1

3. Type and enter **18.15u**

**Response:** REMOTE TERMINAL page displayed. Cursor at SM attribute.

4. Type and enter the KEY attributes.

**Response:** System populates remainder of view.  
Enter Update, Change, Validate, Screen#, or Print:

5. Type and enter **c**

**Response:** Change Field:

6. Type and enter **21**

**Response:** Cursor at TR303 BK OUT attribute.

7. Type and enter **C** (for COMPLETED).

**Response:** Change Field:

8. Enter **CARRIAGE RETURN**.

**Response:** Enter Update, Change, Validate, Screen#, or Print:

9. Type and enter **u**

**Response:** updating . . . FORM UPDATED. REMOTE TERMINAL page displayed.  
Cursor at **SM** attribute.

10. Type and enter **<**

**Response:** 18.0 SM and REMOTE TERMINALS VIEWS page displayed.

#### 11.46.1.16 Restore Remaining IFAC To Service

1. At the MCC or TLWS, type and enter menu command:

For 5E9(2) and later: **1880,y,z,x**

Where: y = IDCU number  
z = RT number  
x = SM number.

2. At the MCC or TLWS to restore the IFAC to service type and enter menu command: **3XX**

Where: XX = IFAC number

**Response:** The status box associated with the IFAC is back lighted in green, and the status displayed is **ACT**.

**Note 1:** The secondary EOC/TMC links may have to be restored manually. Once restored, the previously

active EOC/TMC will switch to standby. This is normal.

3. Monitor the state of the EOC/TMC links.

**Note 2:** If the switch removes the links from service due to excessive Level 2 errors, verify the line encoding at all network elements (e.g., LDS, DACS, DDM-2000) involved in the transport of the TR303 DS1s from the LDS to the RT. The line coding should be set to **B8ZS**.

#### 11.46.1.17 Reestablish Nail-Up/Hairpin Connections (TR303)

1. At the MCC toggle CMD/MSG key until the terminal is in the menu mode.
2. At the MCC type and enter menu command: **196**

**Response:**     **Procedure 11.1**

3. To insert data, type and enter **7.11i**.

**Response:**     **NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed. Cursor at C OE field.

4. Using the list of existing nail-up or hairpin ports/circuits obtained in Step 9 of Prerequisite Conditions (Procedure ), perform an insert operation for each nail-up/hairpin circuit that is to be restored.
5. At the MCC to obtain a list of the reestablished nail-ups/hairpin circuits, type and enter:

**OP:NAILUP,IFAC=a-b-c**

Where:           a = SM number  
                   b = IDCU number  
                   c = IFAC number.

**Response:**     **OP NAILUP IFAC xxxx**  
                   **CON1 ILEN xxxxxx xxxxxx xxxxxx**  
                   **ILEN xxxxxx xxxxxx xxxxxx**

6. Compare the new list with the previous list to ensure that all the nail-ups/hairpin circuits have been reestablished.
7. Reprovision the special service cross-connects in the SLC-2000 database.

**NOTE 1:** Reprovisioning must be completed before the cross-connects can be placed into service.

**NOTE 2:** Use the CIT to reenter the cross-connect information that was obtained at the start of this procedure.

**Reference:**       363-208-003, *SLC-2000 Access System Command and Message Manual*

8. Are lines being moved (rehomed) to the TR303 VRT in conjunction with the conversion procedure?

If **YES**, continue with Procedure **11.46.2**

If **NO**, go to Procedure **11.46.4**

#### 11.46.2 PERFORM LINE REHOMING

1. This procedure guides the user through the steps generally associated with relocating lines (rehoming) to a newly converted VRT. It assumes that all the lines are being relocated from a RT that is being totally deloaded (vacated). If this is not the case then go to Procedure **11.46.4** , otherwise continue with Procedure **11.46.2** .

#### **11.46.2.1 Verify Line Size of the TR303 VRT**

1. Is the value of the RT LINE SIZE attribute to be increased (refer to work order form)?

If **YES**, continue with next Step.

If **NO**, go to Procedure **11.46.2.2** .

2. At the MCC toggle the CMD/MSG key until the terminal is in the menu mode.
3. At the MCC type and enter menu command: **196**

Reference: **Procedure 11.1**

4. To update the RC/V view, type and enter **18.15u**

Response: **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

5. Type and enter the KEY attributes.

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **c**

Response: **Change Field:**

7. Type and enter **16**

Response: Cursor at **RT LINE SIZE** attribute

8. Type and enter the new line size value from the work order form.

Response: **Change Field:**

9. Enter **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

10. Type and enter **u**

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

11. Type and enter <

Response: **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

12. Type and enter q

Response: **RCV-196 COMPLETED**

### 11.46.2.2 Identify Lines That Are To Be Rehomed

1. At the MCC type and enter: **OP:LISTOTO,ILEN=a-b-c-1&&d;**

Where:           a = SM number  
                   b = IDCU number  
                   c = Local RT number of RT being vacated  
                   d = Highest terminal number on this RT.

Response: **OP LISTOTO n DN=a&&b ILEN=c&&d**

The switch responds with a list of the Directory Numbers associated with lines (ports) served by the specified RT.

2. Use the originating equipment (OE) information to relocate these lines to the TR303 VRT

### 11.46.2.3 Move Lines to the TR303 VRT

1. At this point, lines may be moved (rehomed) to the newly converted TR303 VRT by changing their OE number. Conversion personnel have the option of making the required changes manually or using a script designed specifically for this purpose. Once all lines have been rehomed, the vacated TR008 VRT may be deleted from the data base and its IFACs reused.

**CAUTION:** The following action is service affecting:

Verify that there are NO active calls to emergency services (for example, police, fire) before proceeding.

2. At the MCC or TLWS type and enter menu command:

For 5E9(2) and later: **1870,y,x**

Where:           y = IDCU number  
                   x = SM number.

3. At the MCC or TLWS, to restore IFACs to service type and enter menu command: **2XX,UCL**

Where:           XX = IFAC number

Response:       The status box associated with the IFAC is back lighted, and the status displayed is **OOS**.

4. Verify that the IFACs have been removed from service.
5. Conversion personnel at the 5EES Switch should request their counterpart at the RT site to establish the new T0 cross-connects.



6. Conversion personnel at the RT site should notify their counterpart at the 5ESS-2000 Switch when the T0 cross-connects have been established and line rehomeing to the TR303 VRT can begin.
7. Perform line rehomeing to the TR303 VRT

#### 11.46.2.4 Verify The Accuracy of Line Rehomeing Activity

1. The following steps verify the accuracy and completeness of the line transfers. These should be performed at the conclusion of the rehomeing activity. Step 1 obtains a list of directory numbers (DN) associated with lines (ports) served by the local RT being vacated. Step 3 obtains a list of DNs associated with lines (ports) served by the local RT being relocated to the TR303 VRT.

At the MCC type and enter: **OP:LISTOTO,ILEN=a-b-c-1&&d;**

Where:           a = SM number  
                   b = IDCU number  
                   **c = Local RT number of RT being vacated**  
                   d = Highest terminal number on this RT.  
                   (i.e., value of RT LINE SIZE).

Response:       **OP LISTOTO n DN=a&&b ILEN=c&&d**

The switch responds with a list of the Directory Numbers associated with lines (ports) served by the RT being vacated.

2. Verify that all the entries on the OP LISTOTO LINE REPORT obtained in Step 1 show a status of UNASSIGNED.
3. At the MCC type and enter: **OP:LISTOTO,ILEN=a-b-c-1&&d;**

Where:           a = SM number  
                   b = IDCU number  
                   **c = Local RT number of TR303 VRT**  
                   d = Highest terminal number on this RT.  
                   (i.e., value of RT LINE SIZE).

Response:       **OP LISTOTO n DN=a&&b ILEN=c&&d**

The switch responds with a list of the Directory Numbers associated with lines (ports) served by the local RT being relocated to the TR303 VRT.

4. Verify that all lines previously associated with the vacated VRT have been relocated to the TR303 VRT.

**Note 1:** Do this by comparing the OP LISTOTO LINE REPORT obtained in Procedure **11.46.2.2** with the list obtained in Step 3 above.

#### 11.46.2.5 Request TR303 VRT Provisioning

1. To provision the TR303 VRT, at the MCC type and enter:

**EXC:RT,PROV,TYPE=ALL,LRT=a-b-c**

Where:           a = SM number

b = IDCU number  
c = Local RT number of the TR303 VRT.

Response: **EXC RT PROV TYPE=ALL SID=d LRT=a b c  
COMPLETED - NO TASKS PENDING**

Where: d = Site identification number.

**CAUTION:** If the **EXC:RT** command fails, the SLC-2000 Access System may be in a condition where provisioning cannot be executed. Nevertheless, it is possible that some or all of the lines in the converted RT will restore to service.

2. Is the SLC-2000 Access System on software release 4.01.00?

If **YES**, perform 363-060-100, procedure 3.2 then continue with Step 4.  
If **NO**, continue with next Step.

3. Make test calls from a select group of newly rehomed lines.

4. Are other VRTs being deloaded and vacated?

If **YES**, return to Procedure **11.46.2.2**.

If **NO**, continue with Procedure **11.46.2.6**.

#### **11.46.2.6 Determine Disposition of the Vacated TR008 VRT**

1. Is the vacated TR008 VRT to be deleted from the 5ESS-2000 Switch database?

If **NO**, go to Procedure **11.46.4**

If **YES**, continue with next Step.

2. Select and prepare terminal for RC/V activities.

**Reference:** Procedure **11.1**

3. Type and enter **18.15dv**

**Response:** **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

4. Type and enter the KEY attributes.

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

5. **Caution: Verify that this is the VRT to be deleted!**

To delete VRT, type and enter **d**

**Response:** **Deleting.... FORM DELETED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

6. Repeat Steps 3 through 5 for each VRT to be deleted. Continue with next Step when completed.

7. Type and enter <

**Response:** 18.0 SM and REMOTE TERMINALS VIEWS page displayed.

8. Type and enter q

**Response:** RCV-196 COMPLETED

9. Are the IFACs that were previously assigned to the now deleted TR008 VRT being reused in a TR303 VRT?

If **YES**, go to Procedure 11.46.2.7

If **NO**, go to Procedure 11.46.4

#### 11.46.2.7 Change Suppression Method of Old IFACs

1. This procedure changes the Suppression Method of the IFACS that were associated with the deleted TR008 VRTs so that they may be utilized by a TR303 VRT.

Select and prepare terminal for recent change and verify activities.

**Reference:** Procedure 11.1

2. Type and enter 20.23u

**Response:** FACILITY EQUIPMENT (IFAC) page displayed.  
Cursor at **SM** attribute.

3. Type and enter the KEY attributes.

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter c

**Response:** Change Field:

5. Type and enter 4

**Response:** Field 4: Row:

6. Type and enter the row number of the IFAC whose Suppression Method is to be changed.

**Response:** Cursor at **EQSTAT** of row specified.

7. Enter **CARRIAGE RETURN** to move cursor to the **SUP MTHD** field.

8. Type and enter 303B8.

9. Enter **CARRIAGE RETURN** until:

**Response:** Field 4: Row:

10. Repeat Steps 6 through 9 until the Suppression Method has been changed for all the desired IFACs, then continue with next Step.

11. Enter **CARRIAGE RETURN** until:

**Response:** Enter Update, Change, Validate, Screen#, or Print:

12. Type and enter **u**

**Response:** updating . . . **FORM UPDATED. IDCU FACILITY EQUIPMENT** page displayed.  
Cursor at the **SM** attribute.

13. If necessary, repeat Steps 3 through 12 for LSI 1, then continue to next Step.
14. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK** page displayed.

#### 11.46.2.8 Add IFACs to TR303 VRT.

1. This procedure adds IFACs whose suppression method is now **303B** to the newly converted TR303 VRT.

At the RC/V type and enter **18.15u**

**Response:** **REMOTE TERMINAL** page displayed. Cursor at **SM** attribute.

2. Type and enter the KEY attributes.

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **c**

**Response:** **Change Field:**

4. Type and enter:

For 5E9(2) and earlier: **150**

For 5E10(1) and later: **151**

**Response:** For 5E9(2) and earlier: **Field 150: Row:**  
For 5E10(1) and later: **Field 151: Row:**

5. Type and enter the desired row number.

**Response:** Cursor at **IFAC** attribute of **RT TERM x**.

6. Type and enter the IFAC number being added to the TR303 VRT.

**Response:** For 5E(9) and earlier: **Field 150: Row:**

For 5E10(1) and later: **Field 151: Row:**

7. Repeat Step 6 until all the IFACs that will be associated with this TR303 VRT have been defined, then continue to next Step.
8. Enter **CARRIAGE RETURN** until:

Response: **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **u**.

Response: **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

10. Type and enter **<**

Response: **18.0 SM** and **REMOTE TERMINALS VIEWS** page displayed.

11. Type and enter **q**

Response: **RCV-196 COMPLETED**

12. Request conversion personnel at the RT site to define the T1 cross-connects for the newly added DS1 feeders in the logical TR303 VRT.

**Reference:** *363-208-003, Section 3.1.1.*

**NOTE:** Perform only the step required to establish the T1 cross-connects for the newly added feeders.

#### 11.46.2.9 Restore IFACs To Service

1. Proceed only after the T1 cross-connects have been defined at the RT site for the newly added feeders.

At the MCC or TLWS type and enter menu command:

For 5E9(2) and later: **1870,y,x**

Where: y = IDCU number  
x = SM number.

2. At the MCC or TLWS to restore IFACs to service, type and enter menu command: **3XX**

Where: XX = IFAC number

Response: The status box associated with the IFAC is back lighted in green, and the status displayed is **ACT**.

3. Go to Procedure **11.46.4**

#### 11.46.3 PERFORM TR008 TO TR303 CONVERSION BACKOUT

1. **CAUTION:** These procedures should be performed ONLY if the TR303 conversion process is being aborted and the VRT will be restored to service.

##### 11.46.3.1 Remove Primary EOC/TMC IFAC from Service

1. At the MCC to remove the primary EOC/TMC IFAC from service, type and enter:

**RMV:IFAC=a-b-c,UCL**

Where:           a = SM number  
                  b = IDCU number  
                  c = IFAC number of the primary EOC/TMC links.

Response:       **RMV IFAC a b c COMPLETED**

**11.46.3.2 Restore Original TR008 VRT Configuration Data**

1. Select and prepare terminal for RC/V activities.

**Reference:**       **Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15u**

**Response:**   **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Type and enter the KEY attributes.

**Response:**   System populates remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

4. Type and enter **c**

**Response:**   **Change Field:**

5. Type and enter **21**

**Response:**   Cursor at **TR303 BK OUT** attribute

6. Type and enter **B** (for Backout)

**Response:**   **Change Field:**

7. Enter **CARRIAGE RETURN**

**Response:**   **Enter Update, Change, Validate, Screen#, or Print:**

8. Type and enter **u**

**Response:**   **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
                  Cursor at **SM** attribute.

9. Does the TR008 VRT have a protection line assigned?

If **YES**, continue with next Step.

If **NO**, go to Step 16.

10. Type and enter the KEY attributes.

**Response:**   System populates remainder of view.  
                  **Enter Update, Change, Validate, Screen#, or Print:**

11. Type and enter **c**

**Response:**    **Change Field:**

12. Type and enter **10**

**Response:**    Cursor at **PROT LINE** attribute.

13. Type and enter PROT LINE value saved in Procedure **11.46.1.7** , Step 2.

**Response:**    **Change Field:**

14. Enter **CARRIAGE RETURN**.

**Response:**    **Enter Update, Change, Validate, Screen#, or Print:**

15. Type and enter **u**

**Response:**    **updating . . . FORM UPDATED. REMOTE TERMINAL** page displayed.  
Cursor at the **SM** attribute.

16. Type and enter **^** (Shift + 6)

**Response:**    **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete**

#### **11.46.3.3 Verify TR008 RT Data**

1. Type and enter **r**

**Response:**    **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

2. Type and enter the KEY attributes.

**Response:**    System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Verify all TR303 data was backed out and that the original TR008 data populates the view.

4. Type and enter **q**

**Response:**    **REMOTE TERMINAL** page displayed.

5. Type and enter **<**

**Response:**    **18.0 SM and REMOTE TERMINALS VIEWS** page displayed.

6. Type and enter **q**

**Response:**    **RCV-196 COMPLETED**

#### **11.46.3.4 Reinstall TR008 Hardware/Software**

1. Perform activities at the RT site in accordance with procedures outlined in the following reference:

**Reference:** 363-208-001, *SLC-2000 Access System User Manual*

**NOTE:** At this point the T0 cross-connects and the T1 feeder cross-connects can be reestablished using the SLC-2000 CIT.

#### 11.46.3.5 Verify the Accuracy of the TR008 Configuration Display

1. At the MCC or TLWS type and enter menu command:

For 5E9(2) and later: **1880,y,z,x**

Where: y = IDCU number  
z = RT number  
x = SM number.

2. Verify that the VRT is displayed as a "TR008 RT" and that the IFAC assignments are correct.

#### 11.46.3.6 Restore TR008 VRT Facilities

1. At the MCC type and enter the following command for each IFAC associated with the RT:

**RST:IFAC=a-b-c,UCL**

**NOTE:** Restore the lowest numbered RT FAC first.

Where: a = SM number  
b = IDCU number  
c = IFAC number.

Response: **RST IFAC a b c COMPLETED**

The status box associated with the IFAC is back-lighted in green, and the status displayed is **ACT**.

2. Verify RT hardware integrity.

**Note 2:** Verification activity is performed at the RT site.

3. Repeat Steps 1 and 2 until all remaining RT FACs are restored.

#### 11.46.3.7 Perform Call Set-Up Verification

1. At the RT site, make originating and terminating test calls.
2. If call set-up fails, seek technical assistance.

#### 11.46.3.8 Reestablish Nail-Up/Hairpin Connections (TR008)

1. At the MCC toggle CMD/MSG key until the terminal is in the menu mode.
2. At the MCC type and enter menu command: **196**



**Reference: Procedure 11.1**

3. To insert data, type and enter **7.11i**

**Response:** **NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed.  
Cursor at C OE field.

4. Populate data fields as required for nail-up/hairpin circuit that is to be restored.
5. Enter **CARRIAGE RETURN**.

**Response:** **Enter Insert, Change, Validate, Screen#, or Print:**

6. Type and enter **i**

**Response:** **inserting . . . FORM INSERTED. NAIL-UP AND HAIRPIN SPECIFICATION** page is displayed.  
Cursor at C OE field.

7. Repeat Step 4 through 6 until all circuits have been restored, then continue with next Step.
8. At the MCC to obtain a list of the restored nail-ups/hairpin circuits, type and enter:

**OP:NAILUP,IFAC=a-b-c**

Where: a = SM number  
b = IDCU number  
c = IFAC number.

**Response:** **OP NAILUP IFAC xxxx**  
**CON1 ILEN xxxxx xxxxx xxxxx**  
**ILEN xxxxx xxxxx xxxxx**

9. Compare the new list with the list obtained in **Procedure 11.46.1.4** to ensure that all the nail-ups/hairpin circuits have been restored.
10. At the RT site, reprovision the special service cross-connects in the SLC-2000 database.

**NOTE 1:** Reprovisioning must be completed before the cross-connects can be placed into service.

**NOTE 2:** Use the CIT to reenter the cross-connect information that was obtained at the start of this procedure.

**Reference:** 363-208-003, *SLC-2000 Access System Command and Message Manual*

## **11.46.4 RESTORE 5ESS®-2000 SWITCH OFFICE CONTROLS TO NORMAL**

1. The following Steps will return output message routing to its previous state, clear the inhibits on Routine Port Conditioning and Routine Exercises, and perform a full backup of the ODD.

### **11.46.4.1 Restore Message Control to Normal**

1. Wait 30 minutes and monitor the ROP for any abnormal reports (interrupts, audits, asserts, etc.) related to the RT conversion and take corrective action if necessary. If the ROP is quiet after this interval, continue with this procedure.

At the MCC type and enter the following command to enable brevity control:

**ALW:BREVC,SM=a**

Where: a = SM that serves the RT being converted to TR303

2. At the MCC type and enter the following command to deactivate the peripheral message verbose mode:

**CLR:PERPH,SM=a,VERBOSE**

Where: a = SM that serves the RT being converted to TR303.

3. At the MCC type and enter the following command to restore original message class logging and printing:

**CHG:LPS,MSGCLS=ALL,FROMBKUP**

#### 11.46.4.2 Allow Routine Port Conditioning

1. At the MCC type and enter:

For 5E9(2) and later: **ALW:RPC,SM=a**

Where: a = SM that serves the RT being converted to TR303.

#### 11.46.4.3 Allow Routine Exercises (REX) to Resume

1. This step is necessary only if routine exercises were inhibited at the start of the conversion procedure.

At the MCC type and enter: **ALW:REX,SM=a**

Where: a = SM that serves the VRT being converted to TR303.

Response: **OK**

#### 11.46.4.4 Back Up the Office-Dependent Data (ODD)

1. At the MCC type and enter: **BKUP:ODD**

**Note 1:** There will be "COMPLETED" responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

Response: **BKUP ODD COMPLETED**

**Note 2:** Data base backup will take several minutes to complete.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.47: AUTO-SYNCHRONIZATION FEATURE ACTIVATION FOR NETWORK CLOCK MODEL 2

### OVERVIEW

This section describes the procedure to activate Auto-synchronization on Network Clock Model 2 (NC2). This activation allows the NC2 to perform a continuous integrity check on an out-of-service reference. When the NC2 determines that the reference is good, the AM will automatically restore it to service.

This feature is applicable to Communication Module 2 (CM2) and Communication Model 2 Compact (CM2C).

### Prerequisite Conditions

- (1) The Auto-Synchronization feature requires that the NC2 TN1276 circuit packs be equipped with the following firmware:
  - High Stability NC2 : TN1276 with microcode of MC5D222A2 or higher.
  - Medium Stability NC2 : TN1276 with microcode of MC5D215A2 or higher.

The firmware can be upgraded to the proper level by two different methods. If the TN1276 circuit packs are series 3 or lower, the pack itself needs to be replaced. If the existing TN1276 circuit packs are series 4 or greater, the EPROMs on the circuit packs can be replaced. If the existing circuit packs need to be upgraded (Reference ED5D818-30), all required hardware should be at site prior to the start of this procedure.

- (2) The office must be running the following software:
  - 5E9(1) with Software Update applied that has Auto-Synchronization.
  - 5E9(2) with Software Update applied that has Auto-Synchronization.
  - 5E10 or later Software Release.

**NOTE:** Contact your Regional Technical Assistance Center if there are questions concerning which update contains Auto-Synchronization.

- (3) Each Switching Module functioning in an active/standby mode.
- (4) All routine exercises and automatically scheduled diagnostics must run trouble free. Minor problems should be assessed prior to performing this activation to determine if this procedure could have an adverse affect on the operation of the switch.
- (5) Person performing the conversion must be able to use RC/V in order to complete this procedure.
- (6) A standard IC extraction tool must be available if the EPROMs will be replaced on the TN1276 circuit pack.

### PROCEDURE

1. Auto-Synchronization Feature Activation for Network Clock Model 2

#### 11.47.1 Obtain System Status

1. At Master Control Center (MCC) observe Summary Status Area for a **SYS NORM** indication. If a **SYS NORM** indication is not obtained, type and enter **OP:SYSSTAT**;
2. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM isolation or service impact during this activation procedure. Correct any deficiency as required.

#### 11.47.2 Inhibit Routine Exercise and ODD Backup

1. At MCC, type and enter **INH:REX,CM**;  
Response: **OK**
2. At MCC, type and enter **INH:DMQ,SRC=REX**;  
Response: **OK**
3. At MCC, type and enter **INH:BKUP:ODD**;  
Response: **OK**

#### 11.47.3 Remove ONTCCOM 0

1. At MCC, type and enter **RMV:ONTCCOM=0**;  
Response: **RMV ONTCCOM 0 COMPLETED**

#### 11.47.4 Power Down ONTCCOM

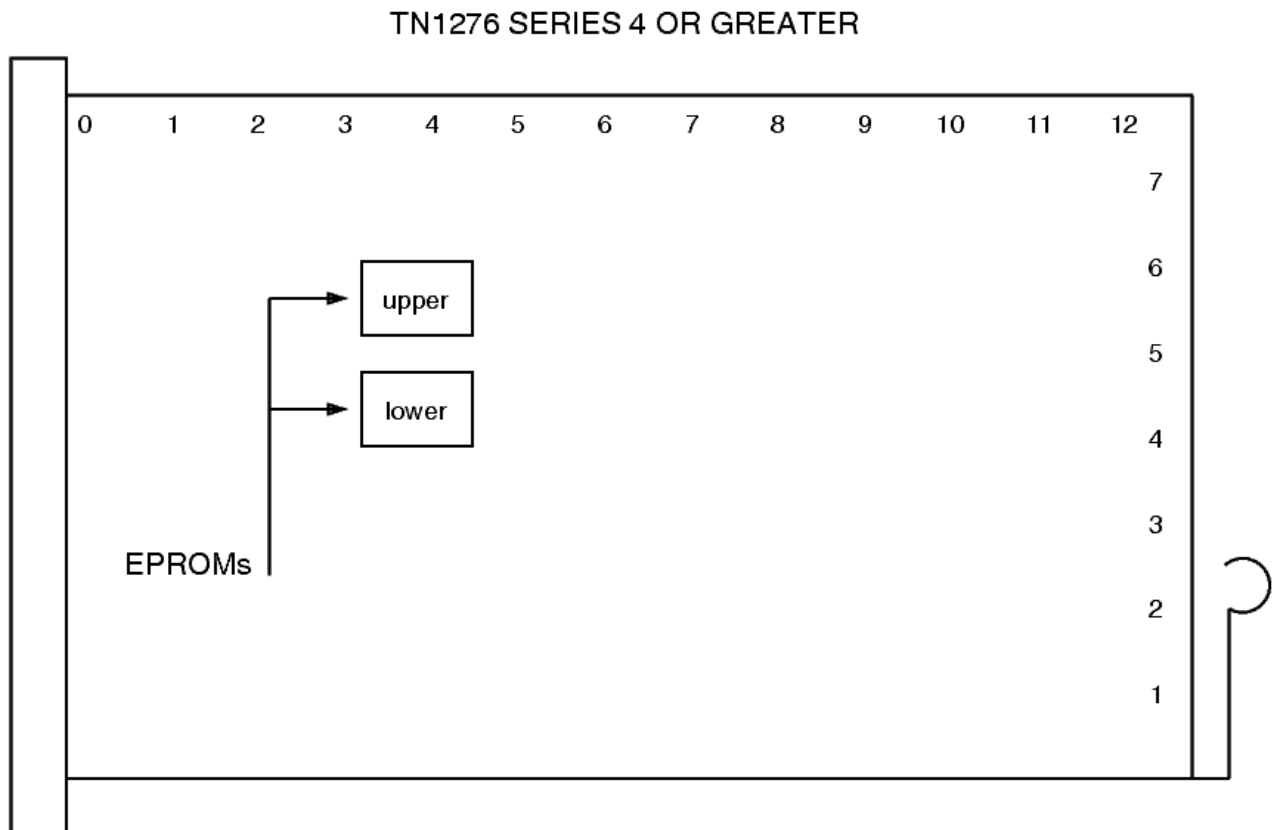
1. Power down the CMCU by pressing the **OFF** button on the SN516 at 528-006.  
Response: **REPT POWER OFF ONTCCOM 0**

#### 11.47.5 Determine NC2 Firmware Equipage

1. If the TN1276 at location 528-070 is equipped with microcode MC5D215A2 or MC5D222A2 or greater go to Procedure **11.47.7**.
2. If the TN1276 at location 528-070 is a series 3 or less, replace the circuit pack with the new TN1276 equipped with the proper firmware (microcode MC5D215A2 or MC5D222A2) and then go to Procedure **11.47.7**.
3. If the TN1276 at location 528-070 is series 4 or greater, the NC2 firmware must be replaced by using the EPROMs included in the upgrade baggie kit.

### 11.47.6 Replacing TN1276 NC2 Firmware

1. Remove the TN1276 from the unit, observing all ESD precautions.
2. Go to the static-free work area and ensure you are properly grounded.
3. Remove the EPROMs using an IC extraction tool. Refer to Figure 11.47.6-1 for EPROM location.



- Circuit pack is shown with device side up
- EPROMs are located at 38-40 (X-Y axis).
- The EPROM with the lowest right-hand letter is inserted in the lower EPROM socket. For example, for EPROMs labeled AHBHJ and AHBHK, the EPROM labeled AHBHJ should be installed in the lower EPROM socket.

**Figure 11.47.6-1 EPROM Locations**

4. Install the new EPROMs into the sockets. Be careful that the pins line up with the sockets and that when fully inserted there are no bent pins. Retain the old EPROMs until the end of the procedure.
5. Use the label included in the baggie kit to relabel the faceplate so that the circuit pack reflects the correct firmware version.
6. Return the circuit pack to the original position in the CMCU unit.

### 11.47.7 Power up ONTCCOM 0

1. Power up the CMCU by pressing the **ON** button on the SN516 at 528-006.

Response:     **REPT POWER ON ONTC 0**

#### **11.47.8 Update the CLI and Auto-Synchronization Fields**

1. Enter RC/V by entering **RCV:MENU:APPRC;**
2. Bring up the 17.16 view for side 0 in the update mode.
3. Change field 8. If NC2 is High Stability with MC5D222A2 firmware, enter **88**. If NC2 is Medium Stability with MC5D215A2 firmware, enter **80**.
4. Change field 15 from no to yes.
5. Update the view.
6. Exit RC/V.

#### **11.47.9 Restore ONTCCOM 0 to Service**

1. At MCC, type and enter **RST:ONTCCOM=0;**

Response:     **RST ONTCCOM 0 COMPLETED ATP**

2. Resolve any diagnostic failures before continuing procedure. Allow CLNORM time to finish remapping CLNKs before continuing. Refer to MCC page 1260 to observe CLNK remapping.

#### **11.47.10 Remove ONTCCOM 1**

1. At MCC, type and enter **RMV:ONTCCOM=1;**

Response:     **RMV ONTCCOM 1 COMPLETED**

#### **11.47.11 Power down ONTCCOM 1**

1. Power down the CMCU by pressing the **OFF** button on the SN516 at 628-006.

Response:     **REPT POWER OFF ONTCCOM 1**

#### **11.47.12 Determine NC2 Firmware Equipage**

1. If the TN1276 at location 628-070 and/or spare circuit pack is equipped with microcode MC5D215A2 or MC5D222A2 or greater go to Procedure **11.47.14**.

2. If the TN1276 is a series 3 or less, replace the circuit pack with the new TN1276 (microcode MC5D215A2 or MC5D222A2) and go to Procedure **11.47.14**.
3. If the TN1276 is series 4 or greater, the NC2 firmware must be replaced by using the EPROMs included in the upgrade baggie kit.

#### **11.47.13 Replacing TN1276 NC2 Firmware**

1. Remove the TN1276 from the unit, observing all ESD precautions.
2. Go to the static-free work area and ensure you are properly grounded.
3. Remove the EPROMs using an IC extraction tool. Refer to Figure 11.47.6-1 for EPROM location.
4. Install the new EPROMs into the sockets. Be careful that the pins line up with the sockets and that when fully inserted there are no bent pins. Retain the old EPROMs until the end of the procedure.
5. Use the label included in the baggie kit to relabel the faceplate so that the circuit pack reflects the correct firmware version.
6. Return the circuit pack to the original position in the CMCU unit.

#### **11.47.14 Power up ONTCCOM 1**

1. Power up the CMCU by pressing the **ON** button on the SN516 at 628-006.

Response: **REPT POWER ON ONTC 1**

#### **11.47.15 Diagnose NC1 and Resolve any Failures Before Continuing**

1. At MCC, type and enter **DGN:NC=1,RAW,TLP;**

Response: **DGN NC COMPLETED ATP**

#### **11.47.16 Updating Spare TN1276 Circuit Packs**

1. If there are any spare TN1276 circuit packs to be updated, repeat Procedure **11.47.11** through **11.47.15**. After each spare has been upgraded and diagnosed ATP, continue with Procedure **11.47.17**.

If there are no spare TN1276 circuit packs to upgrade, continue with Procedure **11.47.17**.

#### **11.47.17 Update the CLI and Auto-Synchronization Fields**

1. Enter RC/V by entering **RCV:MENU:APPRC;**
2. Bring up the 17.16 view in the update mode.
3. Change field 8. If NC2 is High Stability with MC5D222A2 firmware, enter **88**. If NC2 is Medium Stability with MC5D215A2 firmware, enter **80**.

4. Change field 15 from no to yes.
5. Update the view.
6. Exit RC/V.

#### 11.47.18 Restore ONTCCOM 1 to Service

1. At MCC, type and enter **RST:ONTCCOM=1;**

Response:     **RST ONTCCOM 1 COMPLETED ATP**

#### 11.47.19 Initialize ONTC Process

##### OVERVIEW

**NOTE:** To start the Auto-Synchronization process, the SMKP process ONTCSSP must be initialized. This is a non-service-impacting, single-process purge.

1. At MCC, type and enter **INIT:AM,SMKP,SPP,PID=28;**

Response:     **INIT AM LVL=SPP SMKP MANUAL-REQ  
EVENT=X COMPLETED**

#### 11.47.20 Allow REX and ODD Backup

1. At MCC, type and enter **ALW:REX,CM;**

Response:     **OK**

2. At MCC, type and enter **ALW:DMQ,SRC=REX;**

Response:     **OK**

3. At MCC, type and enter **ALW:BKUP:ODD;**

Response:     **OK**

#### 11.47.21 Perform AM ODD Backup

1. At MCC, type and enter **BKUP:ODD,AM;**

Response:     **BKUP FULL AM COMPLETED**

#### 11.47.22 Testing Auto-Synchronization



1. Create a NC reference fault by opening the incoming reference signal at the repeater bay or DSX panel using a 310 plug.
2. Observe the MCC page 1211 to ensure that the reference is removed from service.
3. Eliminate condition triggering reference removal.
4. Verify that within 10 minutes the reference is automatically restored.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.48: MAKE SCAN POINT ASSIGNMENTS FOR THE MSU/MMSU

### OVERVIEW

The TN220B scan pack provides the Metallic Service Unit (MSU) and the Modular Metallic Service Unit (MMSU) with the miscellaneous scanning capabilities. A scan pack contains 32 scan points which are used to monitor various points in the 5ESS®-2000 Switch periphery as well as points external to the switch.

Of the 32 scan points, 31 (scan point 0-30) are designated as Type A that respond to a closure loop resistance. The other (scan point 31) is a single Type B that responds to a current sensing closed loop.

Making scan point assignments requires first knowing the scan point function type and whether it's a Type A or Type B application. Refer to the office records or to installation technical resource.

### Assign Scan Points for MSU/MMSU

### PROCEDURE

- To obtain status of existing scan points, at MCC type and enter:

**OP:MSUSP=a-b-c-d;**

**Where:**

d = SM number  
 b = MSU/MMSU number, 0-1  
 c = Service group number, 0-1  
 d = Scan board number, 0-1

Response:

| OP MSUSP = a-b-c-d COMPLETED |        |    |        |    |        |    |        |
|------------------------------|--------|----|--------|----|--------|----|--------|
| SP                           | STATUS | SP | STATUS | SP | STATUS | SP | STATUS |
| 0                            | f      | 8  | f      | 16 | f      | 24 | f      |
| -                            | -      |    |        |    |        |    |        |
| -                            | -      |    |        |    |        |    |        |
| 7                            | f      | x  | f      | x  | f      | 31 | f      |

**Where:**

a = SM number  
 b = MSU number  
 c = Service group number  
 d = Scan board number  
 f = Scan point state, 0 = off, 1 = on.  
 x = Scan point number. Scan point 31 is current sensing and turns on when current falls below threshold.

- To remove MSU scan board from service, at MCC type and enter:

**RMV:SCAN=a-b-c-d;**

**Where:**

a = SM number

b = MSU/MMSU number, 0-1  
 c = Service group number, 0-1  
 d = Scan board number, 0-1

Response: **RMV SCAN =a-b-c-d COMPLETED**

3. Select and prepare terminal for RC/V activities.

Reference: **Procedure 11.1**

4. Are scan point assignments new or update assignments?

If **NEW ASSIGNMENTS**, continue with next step

If **UPDATE ASSIGNMENTS**, go to Step 9

5. To assign new scan points, at the RC/V terminal, type and enter **8.13i**

Response: The MSU/MMSU SCAN POINT ASSIGNMENT page is displayed. The cursor is positioned at the SCAN POINT field.

6. Type and enter data for the following fields:

|                   |                   |       |            |
|-------------------|-------------------|-------|------------|
| *1.               | SCAN POINT        | _____ | See Note 1 |
| 2.                | SCAN POINT TYPE   | _____ | See Note 1 |
| 3.                | ACTION            | _____ | See Note 1 |
| 4.                | NORMAL STATE      | _____ | See Note 1 |
| #5.               | IN USE            | _____ | See Note 1 |
| 6.                | DUPLEX SCAN POINT | _____ | See Note 1 |
| 7.                | SIDE              | _____ | See Note 1 |
| 8.                | LABEL             | _____ | See Note 1 |
| 9.                | VERBOSE           | _____ | See Note 1 |
| PORT CONDITIONING |                   |       |            |
| 10.               | TN                | _____ | See Note 1 |
| 11.               | MLHG              | _____ | See Note 1 |
| 12.               | TERM              | _____ | See Note 1 |
| 13.               | TGN               | _____ | See Note 1 |
| 14.               | MEMB              | _____ | See Note 1 |

**NOTE 1:** Refer to field definitions in 235-118-250, Section 10.15, "Recent Change Reference for 8v13 (RC\_MSUSP)."

**NOTE 2:** For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;) for the field. Once all the fields are completed, the following response appears:

Response: **Enter I=Insert, R=Review, U=Update, D=Delete**

7. To insert the data, type and enter **i**

Response: inserting . . . FORM INSERTED. The MSU/MMSU SCAN POINT ASSIGNMENT page is displayed. The cursor is positioned at the SCAN POINT field.

8. Go to Step 15.

9. To make scan point update changes, at the RC/V terminal, type and enter **8.13u**

Response: The MSU/MMSU SCAN POINT ASSIGNMENT page is displayed. The cursor is positioned at the SCAN POINT field.

10. Type and enter data for KEY attribute field, SCAN POINT.

\*1. SCAN POINT = aaabcddee

**Where:**

|       |                                         |
|-------|-----------------------------------------|
| aaa = | SM number, 001-192                      |
| b =   | Metallic service unit (MSU) number, 0-1 |
| c =   | MSU service group, 0-1                  |
| dd =  | MSU board number, 00-31                 |
| ee =  | MSU scan point number, 00-31            |

Response: System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

11. Type and enter **c**

Response: **Change Field:**

12. Make required changes to the appropriate fields.

**NOTE:** Refer to field definitions in 235-118-250, Section 10.15, "Recent Change Reference for 8v13 (RC\_MSUSP)" for the correct values. Scan point 31 is current sensing and only the appropriate hardware function can be assigned.

Response: **Enter I=Insert, R=Review, U=Update, D=Delete**

13. When all entries have been made, enter **RETURN**

Response: **Enter Update, Change, Validate, Screen#, or Print:**

14. To update the data, type and enter **u**

Response: updating . . . FORM UPDATED. The MSU/MMSU SCAN POINT ASSIGNMENT page is displayed.  
The cursor is positioned at the SCAN POINT field.

15. Exit the RC/V.

16. To back up the ODD, at MCC type and enter: **BKUP:ODD;**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

Response: **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

17. To restore MSU scan board to service, at MCC type and enter:

**RST:SCAN=a-b-c-d;**

|        |     |                      |                               |
|--------|-----|----------------------|-------------------------------|
| Where: | a = | SM Number.           | Same value as used in Step 2. |
|        | b = | MSU/MMSU number      | Same value as used in Step 2. |
|        | c = | Service group number | Same value as used in Step 2. |
|        | d = | Scan board number    | Same value as used in Step 2. |

18. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.49: ASSIGN DNU-S DS1 FACILITY TO TR303 RT — 5E12(1) AND LATER

### OVERVIEW

This procedure assigns Digital Networking Unit - SONET (DNU-S) Digital Signal 1 (DS1) facilities to an operational TR303 remote terminal (RT).

#### Requirements:

- The DNU-S VT1.5/DS1 facilities must be in the ACT/GROW state prior to performing this procedure.
- Separate growth procedures exist for growing the VT1.5/DS1 facilities.
- The parent STS-1 Facility must be in-service and not spared.
- The peripheral control and timing (PCT) link, that corresponds to the selected DS1, must be operational.

### PROCEDURE

1. Assign DNU-S DS1 Facility to TR303 RT — 5E12(1) and Later

#### 11.49.1 Verify and Set Initial Conditions.

1. At Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

#### Where:

a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this DS1 Facility assignment procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this facility assignment procedure.

5. At the MCC, type and enter the following command:

**602 (1800 CMD)**

or

**INH:REX,SM=a;**

**Where:**

a = number of the SM-2000 assigning the DS1 Facilities.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

**11.49.2 Allow Peripheral Fault Recovery Messages to Be Printed.**

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response:** OK with exceptions

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response:** OK

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response:** OK

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response:** OK

**11.49.3 Backup Office Dependent Data.**

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.49.4 Verify DS1 Facility

1. At the MCC, type and enter the following command:

*For 5E12(1) and earlier:*

**1511,b,ce,a**

*For 5E13(1) and later:*

**1511,b,cde,a**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data group number
- d = STE facility number
- e = STS-1 facility number.

2. Verify that the DNU-S VT1.5/DS1 facilities associated with the growth DNU-S TR303 RT are shown as **ACT/GROW** and the application is for 303.  
If not, refer to the appropriate **DNU-S VT1.5/DS1 Facility Growth Procedure** for information on obtaining this configuration.
  - 5E12(1) and earlier, Procedure **11.29** .
  - 5E13(1) and later, Procedure **11.53** .
3. Repeat Steps 1 and 2 for all VT1.5/DS1 facilities being assigned to a TR303 RT.

#### 11.49.5 Perform DS1 Cross Connects

1. This is the Telephone Company responsibility. Request action be performed.

#### 11.49.6 Update DS1 Facility to Operational.

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **20.24U**

**Response: DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.



3. Using the selected work order form as a guide, type and enter the indicated values for each KEY attribute.

**NOTE:** Refer to Recent Change screen with the correct Software release.

---

```

      RECENT CHANGE 20.24 --- 5E12(1) AND EARLIER
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STS         _____
5. VT         _____

```

---

```

      RECENT CHANGE 20.24 --- 5E13(1) AND LATER
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP   _____
7. VT MEMBER  _____

```

---

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Type and enter **C**

**Response:** **Change Field:**

5. Type and enter **DS1SEQSTAT** or field number

**Response:** Cursor at DS1S EQSTAT attribute.

6. Type and enter **O**

**Response:** **Change Field:**

7. Enter CARRIAGE RETURN.

**Response:** **Enter Update, Change, Validate, or Print:**

8. Type and enter **U**

**Response:** updating ....FORM UPDATED  
 DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000) page displayed.

9. Repeat Steps 3 through 8 for each DS1 facility being assigned.

10. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.49.7 Verify DS1 Facility Is Out Of Service.

1. At the MCC, type and enter the following command:

*For 5E12(1) and earlier:*

**1511,b,ce,a**

*For 5E13(1) and later:*

**1511,b,cde,a**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data group number
- d = STE facility number
- e = STS-1 facility number.

2. Is the DS1SFAC state **ACT**?

If **NO**, go to Step 4.

If **YES**, continue with the next Step.

3. To remove the DS1SFAC from service, at the MCC type and enter:

*For 5E12(1) and earlier:*

**22ee,UCL (1511,b,cd,a CMD)**

or

**RMV:DS1SFAC=a-b-c-d-e,UCL;**

*For 5E13(1) and later:*

**22fg,UCL (1511,b,cde,a CMD)**

or

**RMV:DS1SFAC=a-b-c-d-e-f-g,UCL;**

**Where:**

- a = SM-2000 number
- b = DNU-S number
- c = Data group number
- d = STE facility number
- e = STS-1 facility number
- f = VT1.5 facility number.
- g = VT1.5 facility member number.

**Response: RMV DS1SFAC a b c d e f gCOMPLETED**

4. Repeat Steps 1 and 2 for each DS1 facility being removed from service.

### 11.49.8 Assign DS1 Facilities to TR303 RT

1. At the RC/V terminal, type and enter **18.15U**

**Response: REMOTE TERMINAL** page displayed. Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the values for each KEY attribute.

---

```

      RECENT CHANGE 18.15
1. SM          _____
2. UNIT TYPE   _
3. UNIT NUMBER _
4. RT EX       _

```

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **RTFACTRM** or field number.

**Response:** **Change field: RTFACTRM row:**

5. Type and enter the row number (RT termination number) of a facility being added to the RT.

**Response:** Cursor at FAC attribute of an RT FAC TERMINATION.

6. Type and enter data from the selected work order form.

**Response:** **Change field: RTFACTRM row:**

7. Repeat Steps 5 and 6 for each remaining DS1 facility to be added to this RT. When no DS1 facilities remain to be added, continue with next Step.

8. Enter CARRIAGE RETURN twice.

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **U**

**Response:** **updating ....FORM UPDATED**  
**REMOTE TERMINAL** page displayed.

10. Type and enter **<**

**Response:** **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

11. Type and enter **q**

**Response:** **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.49.9 Restore Newly Assigned RTFAC to Service

1. At the MCC, type and enter the following command:

```

3cc (1660,b,a CMD)
or
RST:RTFAC=b-c;

```

**Where:**

a = SM-2000 number  
b = SID number  
c = RTFAC number

**Response: RST RTFAC b c COMPLETED**

**NOTE:** No REPT DS1SFAC or CGA output messages should be seen for this facility.

2. Repeat Step 1 for each RTFAC being restored for this TR303 RT assignment.

#### 11.49.10 Verify DS1 Facility Assignment

1. At the MCC, type and enter the following command:

**1660,b,a**

**Where:**

a = SM-2000 number.  
b = SID number

2. Verify that the DNU-S DS1 facilities that were added to the TR303 RT are active with no carrier-group alarms.

#### 11.49.11 Back Up Office Dependent Data.

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.49.12 Inhibit Additional Fault Recovery Message Printing.

**NOTE:** Wait one-half hour before continuing this procedure and monitor the ROP for "ANALYSIS ONLY", "REPT TRBL", and "PFR" messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709 (1800,a CMD)**

or

**ALW:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### **11.49.13 Return Routine Exercises to Normal.**

1. At the MCC, type and enter the following command:

**702** (1800,a CMD)

or

**ALW:REX,SM=a;**

**Where:**

a = SM-2000 inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.50: UNASSIGN DNU-S DS1 FACILITY FROM TR303 RT — 5E12(1) AND LATER

### OVERVIEW

This procedure unassigns digital networking unit - SONET (DNU-S) digital signal 1 (DS1) facilities from a TR303 remote terminal (RT). Separate procedures exist for assigning DNU-S DS1 facilities to a TR303 RT and degrowing DNU-S VT1.5/DS1 facilities.

#### Requirements:

- All terminal assignments (lines and trunks) which are assigned to this DNU-S DS1 facility must be removed from the facility before unassigning it from the TR303 RT.
- The facilities which carry the embedded operations channel (EOC) and time-slot management channel (TMC) data links to the TR303 RT may not be deleted.

### PROCEDURE

1. Unassign DNU-S DS1 Facility From TR303 - 5E12(1) and Later

#### 11.50.1 Verify and Set Initial Conditions

1. At Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

#### Where:

a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this DNU-S DS1 facility degrowth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this degrowth procedure.

5. At the MCC, type and enter the following command:

**602 (1800 CMD)**

or

**INH:REX,SM=a;**

**Where:**

a = number of the SM-2000.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

### 11.50.2 Allow Peripheral Fault Recovery Messages to Be Printed

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response: OK with exceptions**

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response: OK**

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM =a;**

**Where:**

a = SM-2000 number.

**Response: OK**

### 11.50.3 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

### 11.50.4 Remove RTFAC Associated with the DS1 Unassignment, From Service

**CAUTION:** If this conditional remove fails due to camping onto calls, the UCL option may be used with this command, but stable calls may be lost.

1. At the MCC, type and enter the following command:

**2cc (1660,b,a CMD)**

or

**RMV:RTFAC=b-c;**

**Where:**

|     |                |
|-----|----------------|
| a = | SM-2000 number |
| b = | SID number     |
| c = | RTFAC number   |

**Response: RMV RTFAC b c COMPLETED**

2. Repeat Step 1 for each DS1 being unassigned.

### 11.50.5 Delete DS1 Facility to TR303 RT Assignments

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15U**

**Response: REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the values for each KEY attribute.

---

```

      RECENT CHANGE  18.15
1. SM                ____
2. UNIT TYPE         _
3. UNIT NUMBER       _

```



4. RT EX       —

**Response:**     System completes remainder of view.  
Enter Update, Change, Validate, Screen#, or Print:

4. Type and enter **C**

**Response:**     **Change Field:**

5. Type and enter **RTFACTRM** or field number.

**Response:**     **Change field: RTFACTRM row:**

6. Type and enter the row number (RT termination number) of a facility being degrown from the TR303 RT.

**Response:**     Cursor at FAC attribute of an **RT FAC TERMINATION**.

7. Type and enter **'**

**Response:**     **Change field: RTFACTRM row:**

8. Repeat Steps 6 and 7 for each remaining DS1 Facility to be unassigned from this TR303 RT. When no DS1 facilities remain to be unassigned, continue with next Step.

9. Enter **CARRIAGE RETURN** twice.

**Response:**     **Enter Update, Change, Validate, Screen#, or Print:**

10. Type and enter **U**

**Response:**     **updating ....FORM UPDATED**  
**REMOTE TERMINAL** page displayed.

11. Type and enter **<**

**Response:**     **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

#### 11.50.6 Update DS1 Facilities to GROW

1. Type and enter **20.24U**

**Response:**     **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the values for each KEY attribute.

**NOTE:** Refer to Recent Change screen with the correct Software release.

RECENT CHANGE 20.24 --- 5E12(1) AND EARLIER

1. SM               —  
2. DNUS           —  
3. DATA GROUP   —  
4. STS            —  
5. VT             —

---

```

      RECENT CHANGE 20.24 --- 5E13 (1) AND LATER
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP    _____
7. VT MEMBER   _____

```

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **DS1SEQSTAT** or field number.

**Response:** Cursor at DS1S EQSTAT attribute.

5. Type and enter **G**

**Response:** **Change Field:**

6. Enter **CARRIAGE RETURN**.

**Response:** **Enter Update, Change, Validate, or Print:**

7. Type and enter **U**

**Response:** **updating ....FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

8. Repeat Steps 2 through 7 for each DS1 facility being updated. Then continue with next Step.

9. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

10. Type and enter **q**

**Response:** **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.50.7 Reorganize Hashed Relations

1. At the MCC, type and enter the following command:

**EXC:REORG;**

**Response:** **REPT REORG COMPLETED RELATION a**  
 Wait 5 minutes after each completed message for additional responses before continuing.

**Where:**

a = ALL

### 11.50.8 Remove DS1 Cross Connects

1. This is the Telephone Company responsibility. Request cross connects be removed for degrown DS1s.

### 11.50.9 Verify Unassignment of DS1 Facilities From TR303 RT

1. At the MCC, type and enter the following command:

**1660,b,a**

**Where:**

a = SM-2000 number  
b = SID number.

2. Verify unassigned DS1 facilities do not appear on the MCC page.

### 11.50.10 Verify VT1.5/DS1 Facilities

1. At the MCC, type and enter the following command:

*For 5E12(1) and earlier:*

**1511,b,ce,a**

*For 5E13(1) and later:*

**1511,b,cde,a**

**Where:**

a = SM-2000 number  
b = DNU-S number  
c = Data Group number  
d = STE facility  
e = STS-1 Facility number.

2. Verify that the VT1.5/DS1 facilities are displayed as **ACT/GROW**.  
If degrowth of the VT1.5/DS1 facilities is required, refer to **Procedure 11.30 - DEGROW DNU-S VT1.5/DS1 FACILITY**.
  - 5E12(1) and earlier, Procedure **11.30** .
  - 5E13(1) and later, Procedure **11.54** .

### 11.50.11 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.50.12 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before continuing this procedure and monitor the ROP for "ANALYSIS ONLY", "REPT TRBL", and "PFR" messages that may implicate this degrown hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)

or

**ALW:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### 11.50.13 Return Routine Exercises to Normal

1. At the MCC, type and enter the following command:

**702** (1800,a CMD)

or

**ALW:REX,SM=a;**

**Where:**

a = SM-2000 inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.51: GROW DNU-S TR303 RT — 5E12(1) AND LATER

### OVERVIEW

**CAUTION:** This procedure is not to be performed unless the Remote Terminal (RT) is physically turned up.

This procedure grows a TR303 remote terminal (RT) using Digital Networking Unit - SONET (DNU-S) Digital Signal 1 (DS1) facilities.

For assigning DNU-S DS1 Facilities to a TR303 RT, refer to **Procedure 11.49**.

#### Requirements:

- The DNU-S VT1.5/DS1 facilities, which are to be associated with the growth TR303 RT, must be in the ACT/GROW state. Refer to
  - 5E12(1) and earlier, **Procedure 11.29**.
  - 5E13(1) and later, **Procedure 11.53**.
- The channel groups to be used for the RT being grown, must be assigned to the protocol handlers (PH)s before the start of this procedure. Refer to Recent Change and Verify (RC/V) 22.16 to confirm this assignment.
- This growth procedure may only be performed on a SM-2000.

### PROCEDURE

1. Grow DNU-S TR303 RT — 5E12(1) and Later

#### 11.51.1 Verify and Set Initial Conditions

1. At Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Number of switching module-2000 (SM-2000) growing the DS1 facilities.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this TR303 RT growth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is

inhibited, it must be allowed at the conclusion of this growth procedure.

5. At the MCC, type and enter the following command:

**602** (1800 CMD)

or

**INH:REX,SM=a;**

**Where:**

a = number of the SM-2000 growing the DS1 facilities.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

### 11.51.2 Allow Peripheral Fault Recovery Messages to Be Printed

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response:** OK with exceptions

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response:** OK

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response:** OK

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

### 11.51.3 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.51.4 Verify DS1 Facility at MCC

1. At the MCC, type and enter the following command:

*For 5E12(1) and Earlier:*

**1511,b,ce,a**

*For 5E13(1) and Later:*

**1511,b,cde,a**

**Where:**

|     |                        |
|-----|------------------------|
| a = | SM-2000 number         |
| b = | DNU-S number           |
| c = | Data group number      |
| d = | STE facility number    |
| e = | STS-1 facility number. |

2. Verify that the DNU-S VT1.5/DS1 facilities associated with the growth DNU-S TR303 RT are displayed as **ACT/GROW** and the application is for TR303.  
If not, refer to the appropriate **DNU-S VT1.5/DS1 Facility Growth Procedure** for information on obtaining this configuration.
  - 5E12(1) and earlier, **Procedure 11.29** .
  - 5E13(1) and later, **Procedure 11.53** .

### 11.51.5 Perform DS1 Cross Connects

1. This is the Telephone Company responsibility. Request action be performed.

### 11.51.6 Insert TR303 RT Information Into Data Base



1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:**           **Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15i**

**Response:**    **REMOTE TERMINAL** page displayed. Cursor at SM attribute.

3. Obtain RT vendor documentation for correct facility assignment and EOC/TMC backup designation.

Example:

The Lucent Technologies *SLC*® Series 5 FP303G EOC/TMC backup designation must be on RT TERM 3.  
For Lucent Technologies *SLC*® Series 2000 FP303G EOC/TMC, the backup designation must be on RT TERM 2.

**NOTE 1:** To improve reliability, it is recommended (but not required) that the **TMCPRI**, **EOCPRI**, **TMCNPRI**, and **EOCNPRI** attributes be assigned over different protocol handlers (PH).

**NOTE 2:** If different protocol handlers are assigned per previous Note, then the **ACKTIMER** attribute should be set to the default value of 150; otherwise, **ACKTIMER** should be set to 350 where the protocol handlers are the same.

4. Using the selected work order form 18.15 for the identified DNU-S TR303 RT as a guide, type and enter the values for each KEY attribute.

---

```

      RECENT CHANGE 18.15
1. SM          _____
2. UNIT TYPE   _
3. UNIT NUMBER _
4. RT EX       _

```

5. For the **RT EQSTAT** attribute marked ``per HCP'', enter a **G**.

**NOTE:** The **RTVENDOR**, **TMCPRI**, **TMCNPRI**, **EOCPRI**, and **EOCNPRI** attributes are not entered at this time.

**Response:**    **Enter Insert, Change, Validate, Screen#, or Print:**

6. Type and enter **i**

**Response:**    **inserting ....FORM INSERTED**  
**REMOTE TERMINAL** page displayed.

7. Type and enter **<**

**Response:**    **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.51.7 Update DS1 Facility to Operational

1. At the RC/V terminal, type and enter **20.24U**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form 20.24 as a guide, type and enter values for each KEY attribute.

**NOTE:** Refer to Recent Change screen with the correct Software Release.

---

```

      RECENT CHANGE 20.24  ---  5E12 (1)  AND  EARLIER
1.  SM                _____
2.  DNUS              _
3.  DATA GROUP      _
4.  STS               _
5.  VT                _

```

---

```

      RECENT CHANGE 20.24  ---  5E13 (1)  AND  LATER
1.  SM                _____
2.  DNUS              _
3.  DATA GROUP      _
4.  STE              _
5.  STS               _
6.  VT GROUP         _
7.  VT MEMBER        _

```

---

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **DS1SEQSTAT** or field number.

**Response:** Cursor at DS1S EQSTAT attribute.

5. Type and enter **O**

**Response:** **Change Field:**

6. ENTER **CARRIAGE RETURN**.

**Response:** **Enter Update, Change, Validate, or Print:**

7. Type and enter **U**

**Response:** **updating ....FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

8. Repeat Steps 2 through 7 for each DS1 facility being updated as part of this DNU-S TR303 RT growth. Then continue with next Step.
9. Type and enter **<**

**Response:** 20.0 SM PACK & SUBPACK VIEWS page displayed.

### 11.51.8 Update TR303 RT from Grow to Operational

1. Type and enter **18.15U**

**Response:** REMOTE TERMINAL page displayed. Cursor at SM attribute.

2. Using the selected work order form 18.15 as a guide, type and enter the values for each KEY attribute.

---

```

      RECENT CHANGE 18.15
1. SM          _____
2. UNIT TYPE   _
3. UNIT NUMBER _
4. RT EX       _
  
```

**Response:** System completes remainder of view.  
Enter Update, Change, Validate, Screen#, or Print:

3. Type and enter **C**

**Response:** Change Field:

4. Type and enter **RTEQSTAT** or field number.

**Response:** Cursor at **TR303 RT EQSTAT** attribute.

5. Type and enter **O**

**Response:** Change Field:

6. Type and enter **TMCPRI** or field number.

**Response:** Cursor at **TMC PRI ISCN** attribute.

7. Type and enter value from the selected work order form.

**Response:** Cursor at **TMC PRI DPIDB** attribute.

8. Enter **CARRIAGE RETURN** twice.

**Response:** Change Field:

9. Type and enter **TMCNPRI** or field number.

**Response:** Cursor at **TMC NPRI ISCN** attribute.

10. Type and enter value from the selected work order form.

**Response:** Cursor at **TMC NPRI DPIDB** attribute.

11. Enter **CARRIAGE RETURN** twice.

**Response: Change Field:**

12. Type and enter **EOCPRI** or field number.

**Response:** Cursor at **EOC PRI ISCN** attribute.

13. Type and enter value from the selected work order form.

**Response:** Cursor at **EOC PRI DPIDB** attribute.

14. Enter **CARRIAGE RETURN** twice.

**Response: Change Field:**

15. Type and enter **EOCNPRI** or field number.

**Response:** Cursor at **EOC NPRI ISCN** attribute.

16. Type and enter value from the selected work order form.

**Response:** Cursor at **EOC NPRI DPIDB** attribute.

17. Enter **CARRIAGE RETURN** three times.

**Response: Enter Update, Change, Validate, Screen#, or Print:**

18. Type and enter **U**

**Response:** updating ....**FORM UPDATED**  
**REMOTE TERMINAL** page displayed.

19. Type and enter **<**

**Response: 18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

20. Type and enter **q**

**Response: RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.51.9 Verify That TR303 RT Is No Longer in the Growth State

1. At the MCC, type and enter the following command:

**1660,b,a**

**Where:**

a = SM-2000 number  
b = SID number.

2. Verify that the TR303 RT and the RT's EOCs and TMCs are not in the **GROW** state.

### 11.51.10 Restore RTFACs to Service

1. At the MCC, type and enter the following command:

**3cc** (1660,b,a CMD)

or

**RST:RTFAC=b-c;**

**Where:**

|     |                |
|-----|----------------|
| a = | SM-2000 number |
| b = | SID number     |
| c = | RTFAC number   |

**Response: RST RTFAC b a COMPLETED**

**NOTE:** No REPT DS1SFAC or CGA output messages should be seen for this facility.

2. Repeat Step 1 for each RTFAC being restored for this TR303 RT growth.

### 11.51.11 Verify That TR303 RT Has No Alarms Present

1. At the MCC, type and enter the following command:

**1660,b,a**

**Where:**

|     |                 |
|-----|-----------------|
| a = | SM-2000 number. |
| b = | SID number      |

2. Verify that:

- DS1 FACs are active with NO alarms present.
- RT and the RT's EOCs and TMCs are active with NO alarms present.

### 11.51.12 Perform a Switch of the Active EOCs and TMCs

1. At the MCC, type and enter the following command:

**400** (1660,b,a CMD)

or

**SW:DNUSEOC=a-c-d;**

**Where:**

|     |                |
|-----|----------------|
| a = | SM-2000 number |
| b = | SID number     |
| c = | DNUS number    |
| d = | RT number.     |

2. Verify that the EOC switches successfully.

3. At the MCC, type and enter the following command:

**401** (1660,b,a CMD)

or

**SW:DNUSTMC=a-c-d;**

**Where:**

|     |                |
|-----|----------------|
| a = | SM-2000 number |
| b = | SID number     |
| c = | DNUS number    |
| d = | RT number.     |

4. Verify that the TMC switches successfully.

### 11.51.13 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

### 11.51.14 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before continuing this procedure and monitor the ROP for "ANALYSIS ONLY", "REPT TRBL", and "PFR" messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)

or

**ALW:BREVC,SM=a;**

**Where:**

|     |                 |
|-----|-----------------|
| a = | SM-2000 number. |
|-----|-----------------|

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### **11.51.15 Return Routine Exercises to Normal**

1. At the MCC, type and enter the following command:

**702** (1800,a CMD)

or

**ALW:REX,SM=a;**

**Where:**

a = SM-2000 inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.52: DEGROW DNU-S TR303 RT — 5E12(1) AND LATER

### OVERVIEW

This procedure degrows a TR303 remote terminal (RT) that uses Digital Networking Unit - SONET (DNU-S) Digital Signal 1 (DS1) facilities.

Separate procedures exist for degrowing DNU-S VT1.5/DS1 facilities:

- For 5E12(1) and earlier **Procedure 11.30**
- For 5E13(1) and later **Procedure 11.54**

Unassigning DNU-S DS1 Facilities from a TR303 RT refer to **Procedure 11.50**.

Before removing the terminal assignments from the DNU-S TR303 RT identified for degrowth, the RC\_HOLE relation must be updated through ACCED (ACCess EDitor).

### PROCEDURE

1. Degrow DNU-S TR303 RT — 5E12(1) and Later

#### 11.52.1 Update RC\_HOLE Relation

**NOTE:** The values for some fields will vary, depending on whether the RC\_HOLE relation has tuples populated or not. Make sure that the following fields are correct: acc\_rid, rel\_hsze, rel\_dsze, and rel\_tmax.

1. Select and prepare recent change and verify (RC/V) terminal for ACCess EDitor (ACCED) activity.
2. At the RC/V, type and enter **RCV:MENU:ACCED;**

**Response: Processor Number?**

3. Type and enter **194**

**Response:**

- 1 : REVIEW**
- 2 : SCAN**
- 3 : REORG**
- 4 : DESTROY**
- 5 : OVERWRITE**
- 6 : HASHSUM**
- 7 : QUIT**

**Operation?**

4. Type and enter **3**

**Response: Relation Name? (<CR> leaves it unchanged)**

5. Type and enter **RC\_HOLE**

**Response: ACCDICT**



```

acc_rid = 1820
acc_head = 0
acc_rcnt = 0
acc_wflg = 0
acc_grbg = 0
acc_state = ACCCURRENT
acc_nidix = 0
acc_bidx = 0
rel_hsze = 256

```

Hit <CR> to see access method specific dictionary

6. Enter **CARRIAGE RETURN**.

**Response:**   ACC\_HASH  
                  acc\_rid = 1820  
                  acc\_oflg = 0  
                  acc\_foldtype = DBDEFAULT  
                  acc\_probdepth = 3  
                  acc\_tpag = 0  
                  rel\_dsize = 256  
                  acc\_npag = 0 0 0 0 0  
                  acc\_totp = 0  
  
                  rel\_tmax = 200

There are 0 pages of overflow

Relation 'RC\_HOLE' is empty, but you may still modify its access dictionary.

Do you want to run hashing simulation before REORG?  
 (y or <cr>)

7. Enter **CARRIAGE RETURN**.

**Response:**   Enter desired access dictionary value for REORG.

                 acc\_probdepth = 3

                 Maximum search depth per stage (acc\_probdepth) (<CR> keeps default)?

8. Enter **CARRIAGE RETURN**.

**Response:**   acc\_foldtype = DBDEFAULT

                 1 : DBDEFAULT  
                  2 : DBG31

                 Folding algorithm (acc\_foldtype) (<CR> keeps default)?

9. Enter **CARRIAGE RETURN**.

**Response:**   rel\_hsze = 256

                 Head table size (rel\_hsze) (<CR> keeps default)?

10. Type and enter **1024**

**Response:** rel\_dsize = 256

Data page size (rel\_dsize) (<CR> keeps default)?

11. Type and enter **1024**

**Response:** rel\_tmax = 200

Maximum number of tuples (rel\_tmax) (<CR> keeps default)?

12. Type and enter **5000**

**Response:** After REORG, the new access dictionary will be the following.

```
ACCDICT
acc_rid = 1820
acc_head = 0
acc_rcnt = 0
acc_wflg = 0
acc_grbg = 0
acc_state = ACCCURRENT
acc_nidix = 0
acc_bidx = 0
rel_hsize = 1024
```

Hit <CR> to see access method specific dictionary

13. Enter **CARRIAGE RETURN**.

**Response:** ACC\_HASH

```
acc_rid = 1820
acc_oflg = 0
acc_foldtype = DBDEFAULT
acc_probdepth = 3
acc_tpag = 126
rel_dsize = 1024
acc_npag = 37 11 5 1 1
acc_totp = 55
rel_tmax = 5000
```

There are 0 pages of overflow

Please confirm: are these the access dictionary values you want? (y or <cr>)

14. Type and enter **Y**

**Response:** REORG in progress ... please wait

REORG COMPLETED

Access dictionaries used for REORG on pcr=194, rel=RC\_HOLE,  
acctype=DBACC\_HASH

```

ACCDICT
acc_rid = 1820
acc_head = 0
acc_rcnt = 0
acc_wflg = 0
acc_grbg = 0
acc_state = ACCCURRENT
acc_nidix = 0
acc_bidx = 0
rel_hsze = 1024

```

Hit <CR> to see access method specific dictionary

15. Enter **CARRIAGE RETURN**.

**Response:**    **ACC\_HASH**

```

acc_rid = 1820
acc_oflg = 0
acc_foldtype = DBDEFAULT
acc_probdepth = 3
acc_tpag = 126
rel_dsize = 1024
acc_npag = 37 11 5 1 1
acc_totp = 55
rel_tmax = 5000

```

There are 0 pages of overflow

Relation 'RC\_HOLE' is empty, but you may still modify its access dictionary.

Do you want to run hashing simulation before REORG?  
(y or <cr>)

16. Type and enter !

**Response:**    **Current relation is 'RC\_HOLE'**

Relation Name (<CR> leaves it unchanged)

17. Type and enter !

**Response:**    **1 : REVIEW**  
                  **2 : SCAN**  
                  **3 : REORG**  
                  **4 : DESTROY**  
                  **5 : OVERWRITE**  
                  **6 : HASHSUM**  
                  **7 : QUIT**

Operation?

18. Type and enter 7

**Response:**    **RCV MENU ACCED COMPLETED**

### 11.52.2 Remove All Terminal Assignments from the Remote Terminal Being Degrown

1. Remove all terminal assignments (lines and/or trunks) from the remote terminal.

### 11.52.3 Verify and Set Initial Conditions

1. At the Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = SM-2000 number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this TR303 RT degrowth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this degrowth procedure.

5. At the MCC, type and enter the following command:

**602** (1800 CMD)

or

**INH:REX,SM=a;**

**Where:**

a = number of the SM-2000.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

### 11.52.4 Allow Peripheral Fault Recovery Messages to Be Printed

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response: OK with exceptions**

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response: OK**

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)  
or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)  
or

**INH:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

### 11.52.5 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

### 11.52.6 Remove RTFACs From Service (on TR303 RT Being Degrown)

1. At the MCC, type and enter the following command:

**2cc,UCL** (1660,b,a CMD)

or

**RMV:RTFAC=b-c ,UCL;**

**Where:**

a = SM-2000 number  
b = SID number  
c = RTFAC number

**Response: RMV RTFAC b c COMPLETED**

2. Repeat Step 1 for each remaining active **RTFAC**.

### 11.52.7 Delete TR303 RT from Data Base

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **18.15D**

**Response: REMOTE TERMINAL VIEW** page displayed. Cursor at SM attribute.

3. Using the selected work order form 18.15 as a guide, type and enter the values for each KEY attribute.

---

```

      RECENT CHANGE 18.15
1. SM              _____
2. UNIT TYPE      _
3. UNIT NUMBER    _
4. RT EX          _

```

**Response: Enter Delete, Validate, or Print:**

4. Type and enter **D**

**Response: deleting ....FORM DELETED**  
**REMOTE TERMINAL** page displayed.

5. Type and enter **<**

**Response: 18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

### 11.52.8 Update DS1 Facilities Associated with TR303 RT Being Degrown

1. Type and enter **20.24U**

**Response: DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form 20.24 as a guide, type and enter the values for each KEY attribute.

**NOTE:** Refer to Recent Change screen with the correct Software release.

---

```

      RECENT CHANGE 20.24   --- 5E12(1) AND EARLIER
1.  SM                      _____
2.  DNUS                     _
3.  DATA GROUP             _
4.  STS                      _
5.  VT                       _

```

---

```

      RECENT CHANGE 20.24   --- 5E13(1) AND LATER
1.  SM                      _____
2.  DNUS                     _
3.  DATA GROUP             _
4.  STE                      _
5.  STS                      _
6.  VT GROUP                _
7.  VT MEMBER               _

```

**Response:**    **System completes remainder of view.**  
                  **Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:**    **Change Field:**

4. Type and enter **DS1SEQSTAT** or field number.

**Response:**    Cursor at DS1S EQSTAT attribute.

5. Type and enter **G**

**Response:**    **Change Field:**

6. Enter **CARRIAGE RETURN**.

**Response:**    **Enter Update, Change, Validate, or Print:**

7. Type and enter **U**

**Response:**    **updating ....FORM UPDATED**  
                  **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

8. Repeat Steps 2 through 7 for all remaining DS1 Facilities assigned to this DNU-S TR303 RT. Then continue with next Step.

9. Type and enter **<**

**Response:**    **20.0 SM PACK & SUBPACK VIEWS** page displayed.

10. Type and enter **q**

**Response:**    **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.52.9 Reorganize Hashed Relations

1. At the MCC, type and enter the following command:

**EXC:REORG;**

**Response: REPT REORG COMPLETED RELATION = a**

Wait 5 minutes after each completed message for additional responses before continuing.

**Where:**

a = ALL

### 11.52.10 Remove DS1 Cross Connects

1. This is the Telephone Company responsibility. Request cross connects for degrown DS1s be removed.

### 11.52.11 Verify Degrowth of DNU-S TR303 RT

1. At the MCC, type and enter the following command:

**1660, b,a**

**Where:**

a = SM-2000 number  
b = SID number.

2. Verify that this MCC page does not come up and system responds with **NG**.

### 11.52.12 Verify VT1.5/DS1 Facilities

1. At the MCC, type and enter the following command:

*For 5E12(1) and earlier:*

**1511,b,ce,a**

*For 5E13(1) and later:*

**1511,b,cde,a**

**Where:**

a = SM-2000 number  
b = DNU-S number  
c = Data group number  
d = STE facility number  
e = STS-1 facility number.

2. Verify that the VT1.5/DS1 facilities are displayed as **ACT/GROW**.



**Reference:** If degrowth of the VT1.5/DS1 facilities is required, refer to:

- 5E12(1) and earlier, **Procedure 11.30** .
- 5E13(1) and later, **Procedure 11.54** .

### 11.52.13 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

### 11.52.14 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before continuing this procedure and monitor the ROP for "ANALYSIS ONLY", "REPT TRBL", and "PFR" messages that may implicate this degrown hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)

or

**ALW:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response:   OK**

#### **11.52.15 Return Routine Exercises to Normal**

1. At the MCC, type and enter the following command:

**702 (1800,a CMD)**

or

**ALW:REX,SM=a;**

**Where:**

a =                   SM-2000 inhibited.

**Response:   OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.53: GROW DNU-S VT1.5/DS1 FACILITY — 5E13(1) AND LATER

### OVERVIEW

This procedure grows Digital Networking Unit - SONET (DNU-S) Virtual Tributary 1.5/Digital Signal 1 (VT1.5/DS1) facilities. It accommodates the changes to numbering VT1.5 facilities from 1-28 to the new VT Groups 1-4 and VT Members 1-7.

This procedure requires that the parent STS-1 Facility be in-service and not spared. Also, the Peripheral Control & Timing (PCT) link that corresponds to the selected DS1 must be operational.

Refer to 235-080-100 TG-5, Division 8, Section 60, "FORM AND RECORD ENTRIES", "\* VT" for tables showing these relationships.

To grow DNU-S VT1.5/DS1 facility for 5E12(1) and earlier software releases, refer to **Procedure 11.29**.

To grow DNU-S SONET Termination Equipment (STE) facilities and the Synchronous Transport Signal (STS-1) facilities for 5E13(1) and later software releases refer to **Procedure 11.31**.

Safe Stop points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

### PROCEDURE

1. Grow DNU-S VT1.5/DS1 Facility — 5E13(1) and Later

#### 11.53.1 Verify and Set Initial Conditions

1. At Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this VT1.5/DS1 Facility growth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 56 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this growth procedure.

5. At the MCC, type and enter the following command:

**602** (1800 CMD)  
or  
**INH:REX,SM =a;**

**Where:**

a = number of the SM-2000 growing the VT1.5/DS1 Facilities.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

### 11.53.2 Allow Peripheral Fault Recovery Messages to Be Printed

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response:** OK with exceptions

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response:** OK

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response:** OK

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

or

**INH:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response:** OK

### 11.53.3 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD.**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.53.4 Verify Parent STE Facility

1. At the MCC, type and enter the following command:

**1510,b,a**

**Where:**

a = SM-2000 number  
b = DNU-S number of growth VT1.5/DS1.

2. At the MCC, verify that the service TMUX for the Parent STE Facility is NOT spared.

#### 11.53.5 Verify Parent STS-1 Facility

1. At the MCC, type and enter the following command:

**1511,b,cde,a**

**Where:**

a = SM-2000 number  
b = DNU-S number of growth VT1.5/DS1  
c = Data group number  
d = STE facility number  
e = STS-1 facility number of growth VT1.5/DS1.

2. At the MCC, verify that the Parent STS-1 Facility is in-service.

#### 11.53.6 Safe Stop Point

1. This is a safe stop point.

#### 11.53.7 Verify Operational PCT Link

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference: Procedure 11.1**

2. To review the 19.14 page, at the RC/V terminal type and enter **19.14R**

**Response:** **DIGITAL NETWORKING UNIT SONET (SM2000)** page displayed.

3. Type and enter data for the following key attributes:

---

```

          RECENT CHANGE 19.14
1. SM      _____
2. DNUS    _____

```

---

**Response:** System completes remainder of view.  
**Enter Review, Change-insert, Validate, Screen#, or Print:**

4. Verify that the PCT link corresponding to the selected DS1(s) is operational for both Common Data (CD)s.

**NOTE:** The PCT Link number is one less than the STE number. For example, if the STE number is 2 in Data Group 1, the PCT Link number will be 1 for both CDs

**Comment:** If PCT link is not operational, refer to the *DNU-S PCT LINK GROWTH PROCEDURE* in 235-105-231, **5ESS Switch and 5ESS-2000 Switch Hardware Change Procedures - Growth** and correct using terminal in the update mode.

5. Type and enter <

**Response:** **19.0 SM UNIT VIEWS** page displayed.

### 11.53.8 Verify Sufficient UODD Space in the SM Data Base

1. Verify that sufficient UODD space is available.

**NOTE:** A full 28 VT1.5 and 28 DS1 facilities grown in on a single STS-1 facility will require at least 1350 Kbytes of UODD space.

**Response:** **Procedure 6.25 , Steps 4 and 5.**

### 11.53.9 Allow Automatic Data Base Relation Reorganization

1. At the MCC, type and enter the following command:

**ALW:REORG**

**Response:** **OK**

### 11.53.10 Insert VT1.5/DS1 Facility Data Into Data Base

1. At the RC/V terminal, type and enter **20.24i**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
 Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter KEY (\*) attribute values.
-

```

          RECENT CHANGE 20.24
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP   _____
7. VT MEMBER  _____

```

---

3. Using the selected work order form as a guide, type and enter the values for each of the remaining attributes.

The VT and DS1S EQSTAT attributes for the VT1.5 and DS1 Facilities being grown default to **G**.

**Response:** Enter Insert, Change, Validate, or Print:

4. Type and enter i

**Response:** inserting ....**FORM INSERTED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

5. Repeat Steps 2 through 4 for each VT1.5/DS1 Facility being grown.

6. Type and enter <

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

### 11.53.11 Reorganize Hashed Relations

1. At the MCC, type and enter the following command:

**EXC:REORG;**

**Response:** **REPT REORG COMPLETED RELATION a**  
 Wait 5 minutes after each completed message for additional responses before continuing.

**Where:**

a = ALL

### 11.53.12 Identify Application For VT1.5/DS1 Facilities

1. Are the VT1.5/DS1 Facilities being used for trunk application?

If **YES**, continue with next Section.

If **NO**, go to Section **11.53.17**.

### 11.53.13 Identify Update Method For VT1.5 And DS1 Facilities

1. What method is the VT1.5 and DS1 Facility update to be done?

**NOTE:** The update decision (separately or one operation) is made by the telephone company.

If **SEPARATELY**, go to Section **11.53.17**.

If **ONE OPERATION**, continue with next Section.

#### 11.53.14 Update VT1.5/DS1 to Operational

1. At the RC/V terminal, type and enter **20.24U**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the values for each KEY attribute.

---

```

                RECENT CHANGE 20.24
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP    _____
7. VT MEMBER   _____
  
```

---

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **VTEQSTAT** or field number.

**Response:** Cursor at VT EQSTAT attribute.

5. Type and enter **O**

**Response:** **Change Field:**

6. Type and enter **DS1SEQSTAT** or field number.

**Response:** Cursor at DS1S EQSTAT attribute.

7. Type and enter **O**

**Response:** **Change Field:**

8. Enter **CARRIAGE RETURN**.

**Response:** **Enter Update, Change, Validate, or Print:**

9. Type and enter **U**

**Response:** updating ....**FORM UPDATED**



**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

10. Repeat Steps 2 through 9 for each VT1.5/DS1 Facility being grown.

11. Type and enter <

**Response:** 20.0 SM PACK & SUBPACK VIEWS1 page displayed.

12. Type and enter q

**Response:** RCV-196 COMPLETED or RCV MENU APPRC COMPLETED

**11.53.15 Restore VT1.5 Facility to Service**

1. At the MCC, type and enter the following command:

**31fg** (1511,b,cde,a CMD)

or

**RST:VT1FAC=a-b-c-d-e-f-g;**

**Where:**

|     |                               |
|-----|-------------------------------|
| a = | SM-2000 number                |
| b = | DNU-S number                  |
| c = | Data group number             |
| d = | STE facility number           |
| e = | STS-1 facility number         |
| f = | VT1.5 facility group number   |
| g = | VT1.5 facility member number. |

**Response:** RST VT1FAC a b c d e f g COMPLETED

**NOTE:** No REPT FAC ALERT or CGA output messages should be seen for this facility.

2. Repeat step 1 for each VT1.5 Facility being grown.

**11.53.16 Verify VT1.5 Facility at MCC**

1. At the MCC, type and enter the following command:

**1511,b,cde,a**

**Where:**

|     |                        |
|-----|------------------------|
| a = | SM-2000 number         |
| b = | DNU-S number           |
| c = | Data group number      |
| d = | STE facility number    |
| e = | STS-1 facility number. |

**NOTE:** Verify that the DNU-S VT1.5 facility has no associated CGA and remains in service.

2. Repeat step 1 for the parent STS-1 of each VT1.5 Facility being grown.

3. To perform Final Growth Steps, go to Section **11.53.23**.

### 11.53.17 Update VT1.5 to Operational

1. At the RC/V terminal, type and enter **20.24U**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the values for each KEY attribute.

---

```

          RECENT CHANGE 20.24
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP   _____
7. VT MEMBER  _____

```

---

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **VTEQSTAT** or field number.

**Response:** Cursor at **VT EQSTAT** attribute.

5. Type and enter **O**

**Response:** **Change Field:**

6. Enter **CARRIAGE RETURN**.

**Response:** **Enter Update, Change, Validate, or Print:**

7. Type and enter **U**

**Response:** **updating ....FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

8. Repeat Steps 2 through 7 for each VT1.5 Facility being grown.

9. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

10. Type and enter **q**

**Response:** **RCV-196 COMPLETED** or **RCV MENU APPRC COMPLETED**

### 11.53.18 Restore VT1.5 Facility to Service

1. At the MCC, type and enter the following command:

**31fg** (1511,b,cde,a CMD)

or

**RST:VT1FAC=a-b-c-d-e-f-g;**

**Where:**

|     |                               |
|-----|-------------------------------|
| a = | SM-2000 number                |
| b = | DNU-S number                  |
| c = | Data group number             |
| d = | STE facility number           |
| e = | STS-1 facility number         |
| f = | VT1.5 facility group number   |
| g = | VT1.5 facility member number. |

**Response: RST VT1FAC a b c d e f g COMPLETED**

**NOTE:** No REPT FAC ALERT or CGA output messages should be seen for this facility.

2. Repeat step 1 for each VT1.5 Facility being grown.

### 11.53.19 Verify VT1.5 Facility at MCC

1. At the MCC, type and enter the following command:

**1511,b,cde,a**

**Where:**

|     |                        |
|-----|------------------------|
| a = | SM-2000 number         |
| b = | DNU-S number           |
| c = | Data group number      |
| d = | STE facility number    |
| e = | STS-1 facility number. |

**NOTE:** Verify that the DNU-S VT1.5 facility has no associated CGA and remains in service.

2. Repeat step 1 for the parent STS-1 of each VT1.5 Facility being grown.

### 11.53.20 Safe Stop Point

1. This is a safe stop point.

### 11.53.21 Identify Application For VT1.5/DS1 Facilities

1. Are the VT1.5/DS1 Facilities being used for trunk application?

If **YES**, continue with next Section.

If **NO**, go to Section **11.53.25**.

### 11.53.22 Update DS1 Facility to Operational

1. At the RC/V terminal, type and enter **20.24U**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

2. Using the selected work order form as a guide, type and enter the values for each KEY attribute.

---

```

          RECENT CHANGE 20.24
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP   _____
7. VT MEMBER  _____

```

---

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

3. Type and enter **C**

**Response:** **Change Field:**

4. Type and enter **DS1SEQSTAT** or field number.

**Response:** Cursor at DS1S EQSTAT attribute.

5. Type and enter **O**

**Response:** **Change Field:**

6. Enter **CARRIAGE RETURN**.

**Response:** **Enter Update, Change, Validate, or Print:**

7. Type and enter **U**

**Response:** **updating ....FORM UPDATED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

8. Repeat Steps 3 through 7 for each DS1 Facility being grown.

9. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

10. Type and enter **q**

**Response:** RCV-196 COMPLETED or RCV MENU APPRC COMPLETED

### 11.53.23 Restore DS1 Facility to Service

1. At the MCC, type and enter the following command:

**32fg** (1511,b,cde,a CMD)

or

**RST:DS1SFAC=a-b-c-d-e-f-g;**

**Where:**

|     |                               |
|-----|-------------------------------|
| a = | SM-2000 number                |
| b = | DNU-S number                  |
| c = | Data group number             |
| d = | STE facility number           |
| e = | STS-1 facility number         |
| f = | VT1.5 facility group number   |
| g = | VT1.5 facility member number. |

**Response:** RST DS1SFAC a b c d e f g COMPLETED

**NOTE:** No REPT DS1SFAC or CGA output messages should be seen for this facility.

2. Repeat step 1 for each DS1 Facility being grown.

### 11.53.24 Verify VT1.5/DS1 Facility at MCC

1. At the MCC, type and enter the following command:

**1511,b,cde,a**

**Where:**

|     |                        |
|-----|------------------------|
| a = | SM-2000 number         |
| b = | DNU-S number           |
| c = | Data group number      |
| d = | STE facility number    |
| e = | STS-1 facility number. |

**NOTE:** Verify that the DNU-S VT1.5/DS1 facility has no associated CGA and remains in service.

2. Repeat step 1 for the parent STS-1 of each VT1.5/DS1 Facility being grown.

### 11.53.25 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

### 11.53.26 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before continuing this procedure and monitor the receive-only printere (ROP) for **ANALYSIS ONLY**, **REPT TRBL**, and **PFR** messages that may implicate this new hardware or associated hardware. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)  
or  
**ALW:BREVC,SM=a;**

**Where:**  
a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)  
or  
**CLR:PERPH,SM=a,VERBOSE;**

**Where:**  
a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

### 11.53.27 Return Routine Exercises to Normal

1. At the MCC, type and enter the following command:

**702** (1800,a CMD)  
or  
**ALW:REX,SM=a;**

**Where:**  
a = SM-2000 inhibited.

**Response: OK**

2. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

## Procedure 11.54: DEGROW DNU-S VT1.5/DS1 FACILITY — 5E13(1) AND LATER

### OVERVIEW

This procedure degrows Digital Networking Unit - SONET (DNU-S) Virtual Tributary 1.5/ Digital Signal 1 (VT1.5/DS1) facilities for 5E13(1) and later software releases. It accommodates the changes to numbering VT1.5 facilities from 1-28 to the newer VT Groups 1-4 and VT Members 1-7.

This procedure requires that all digital trunks or other applications on the selected DS1 be previously unassigned.

Refer to 235-080-100 TG-5, Division 8, Section 60, "FORM AND RECORD ENTRIES", "\* VT" for tables showing these relationships.

To degrow DNU-S VT1.5/DS1 facility for 5E12(1) and earlier software releases, refer to **Procedure 11.30**.

To degrow DNU-S SONET Termination Equipment (STE) facilities and the Synchronous Transport Signal (STS-1) facilities for 5E13(1) and later software releases refer to **Procedure 11.33**.

Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

### PROCEDURE

1. Degrow DNU-S VT1.5/DS1 Facility — 5E13(1) and later

#### 11.54.1 Verify and Set Initial Conditions

1. At Master Control Center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At the MCC, type and enter the following command:

**OP:OFFNORM,SM=a;**

**Where:**

a = Switching Module-2000 (SM-2000) number.

4. Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause SM-2000 isolation or service impact during this VT1.5/DS1 Facility degrowth procedure. Correct any deficiency as required.

**NOTE:** Steps 5 and 6 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of this growth procedure.

5. At the MCC, type and enter the following command:



**602** (1800 CMD)

.or

**INH:REX,SM =a;**

**Where:**

a = number of the SM-2000 growing the VT1.5/DS1 Facilities.

6. At the MCC, type and enter the following command:

**OP:REXINH;**

**Response:** The inhibit status will be printed.

7. If Steps 5 and 6 were performed, verify the inhibit status printout.

#### **11.54.2 Allow Peripheral Fault Recovery Messages to Be Printed**

1. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response: OK with exceptions**

2. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response: OK**

3. At the MCC, type and enter the following command:

**412** (1800,a CMD)

.or

**SET:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

4. At the MCC, type and enter the following command:

**609** (1800,a CMD)

.or

**INH:BREVC,SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

#### **11.54.3 Backup Office Dependent Data**

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.54.4 Verify Parent STE Facility

1. At the MCC, type and enter the following command:

**1510,b,a**

**Where:**

a = SM-2000 number .br b = DNU-S number of growth VT1.5/DS1.

2. At the MCC, verify that the Parent STE Facility is NOT spared.

#### 11.54.5 Verify Parent STS-1 Facility

1. At the MCC, type and enter the following command:

**1511,b,cde,a**

**Where:**

a = SM-2000 number  
b = DNU-S number of growth VT1.5/DS1  
c = Data group number  
d = STE facility number  
e = STS-1 facility number of growth VT1.5/DS1.

2. At the MCC, verify that the Parent STS-1 Facility is in-service.

#### 11.54.6 Safe Stop Point

1. This is a safe stop point.

#### 11.54.7 Remove VT1.5 Facility from Service

**NOTE:** Before removing the VT1.5 facility from service, it must be determined what applications or trunks are assigned. Once identified, the trunks or applications must be unassigned.

1. To list the status of all trunks on a given VT1.5/DS1 facility, type and enter

**OP:LIST,VT1FAC;**

2. Are trunks assigned to the facility?

If **YES**, unassign the trunks and go to Step 5.

If **NO**, continue with next Step.

3. To identify applications assigned to the facility, type and enter

**1512,b,cde,a**

**Where:**

|     |                                           |
|-----|-------------------------------------------|
| a = | SM-2000 number                            |
| b = | DNU-S number of growth VT1.5/DS1          |
| c = | Data group number                         |
| d = | STE facility number                       |
| e = | STS-1 facility number of growth VT1.5/DS1 |

4. Unassign the applications.

5. To remove the facility from service, type and enter the following command:

**NOTE:** ,UCL must be appended to the command when removing more than the OSS THRESHOLD allows.

**21fg (1511,b,cde,a CMD)**

or

**RMV:VT1FAC=a-b-c-d-e-f-g;**

**Where:**

|     |                               |
|-----|-------------------------------|
| a = | SM-2000 number                |
| b = | DNU-S number                  |
| c = | Data group number             |
| d = | STE facility number           |
| e = | STS-1 facility number         |
| f = | VT1.5 facility group number   |
| g = | VT1.5 facility member number. |

**Response: RMV VT1FAC a b c d e f g COMPLETED**

6. Repeat from Step 1 for each VT1.5/DS1 Facility being degrown.

#### **11.54.8 Allow Automatic Data Base Relation Reorganization**

1. At the MCC, type and enter **ALW:REORG;**

**Response: OK**

#### **11.54.9 Delete VT1.5/DS1 Facility Data from Data Base**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Response: Procedure 11.1**

2. To delete data, at the RC/V terminal, type and enter **20.24D**

**Response:** **DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.  
Cursor at SM attribute.

3. Using the selected work order form as a guide, type and enter the values for each KEY attribute.
- 

```

          RECENT CHANGE 20.24
1. SM          _____
2. DNUS        _____
3. DATA GROUP _____
4. STE         _____
5. STS         _____
6. VT GROUP   _____
7. VT MEMBER   _____

```

---

**Response:** **Enter Delete, Validate, or Print:**

4. Type and enter **D**

**Response:** **deleting ....FORM DELETED**  
**DIGITAL NETWORKING UNIT SONET VIRTUAL TRIBUTARY (SM2000)** page displayed.

5. Repeat Steps 3 and 4 for each VT1.5/DS1 Facility being degrown.
6. Type and enter **<**

**Response:** **20.0 SM PACK & SUBPACK VIEWS** page displayed.

#### 11.54.10 Reorganize Hashed Relations

1. At the MCC, type and enter the following command:

**EXC:REORG;**

**Response:** **REPT REORG COMPLETED RELATION a**  
Wait 5 minutes after each completed message for additional responses before continuing.

**Where:**

a = ALL

#### 11.54.11 Verify VT1.5/DS1 Facility Has Been Degrown at MCC

1. At the MCC, type and enter the following command:

**1511,b,cde,a**

**Where:**

a = SM-2000 number

b = DNU-S number

c = Data group number  
d = STE facility number  
e = STS-1 facility number.

2. At the MCC, verify that the degrown DNU-S VT1.5/DS1 Facility is NOT displayed.
3. Repeat Steps 1 and 2 for each facility being degrown.

#### 11.54.12 Back Up Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.54.13 Inhibit Additional Fault Recovery Message Printing

**NOTE:** Wait one-half hour before starting this procedure and monitor the receive-only printer (ROP) for **ANALYSIS ONLY, REPT TRBL**, and **PFR** messages that may implicate this SM-2000. If any messages are seen, take appropriate corrective maintenance action and wait again. When no messages are seen, continue with this procedure.

1. At the MCC, type and enter the following command:

**709** (1800,a CMD)

or

**ALW:BREVC, SM=a;**

**Where:**

a = SM-2000 number.

**Response: OK**

2. At the MCC, type and enter the following command:

**512** (1800,a CMD)

or

**CLR:PERPH,SM=a,VERBOSE;**

**Where:**

a = SM-2000 number.

**Response: OK**

3. At the MCC, type and enter the following command:

**CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### **11.54.14 Return Routine Exercises to Normal**

1. At the MCC, type and enter the following command:

**702 (1800,a CMD)**

or

**ALW:REX,SM=a;**

**Where:**

a = SM-2000 inhibited.

**Response: OK**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.55: SET CONTROL TIME SLOT SWITCHES ON SM-2000 BKD4 CIRCUIT PACK

### OVERVIEW

The BKD4 Control Time Slot Number Switches (CTSNS) circuit pack has two DIP switches for setting the Control Time Slot (CTS) number: CTSN 0 for the even CTS and CTSN 1 for the odd CTS. There are two BKD4 packs, one for Side 0, one for Side 1.

**Figure 11.55-1** identifies the 10 individual positions on each DIP switch. The BKD4 is located in Time Slot Interchange Unit Model 4 (TSIU4 or TSIU4-2).

The CTS assignments are identified in Recent Change and Verify (RC/V) view 18.1 for the particular switch module (SM). This procedure is not applicable for the non-SM-2000 (classic SM).

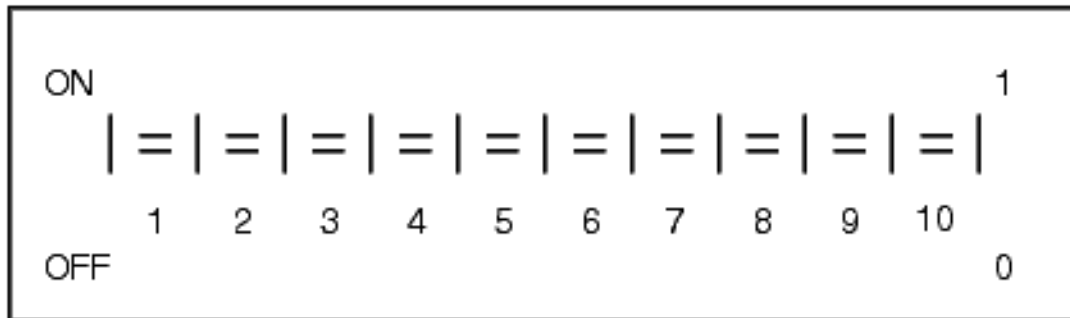
### PROCEDURE

1. Bring up the RC/V terminal.
2. To identify the CTS odd and even assignments,  
  
type and enter **18.1R**  
enter SM number.
3. On the 18.1 view, record the values for fields EVEN NCT CTS and ODD NCT CTS.
4. Exit RC/V.
5. From **Figures 11.55-2, 11.55-3, 11.55-4** identify the corresponding binary value for the odd and even NCT CTS identified in Step 2.
6. At the BKD4 board set the binary value in the corresponding switch: even CTS in the CTSN-0, odd CTS in the CTSN-1 (**Figure 11.55-1**).

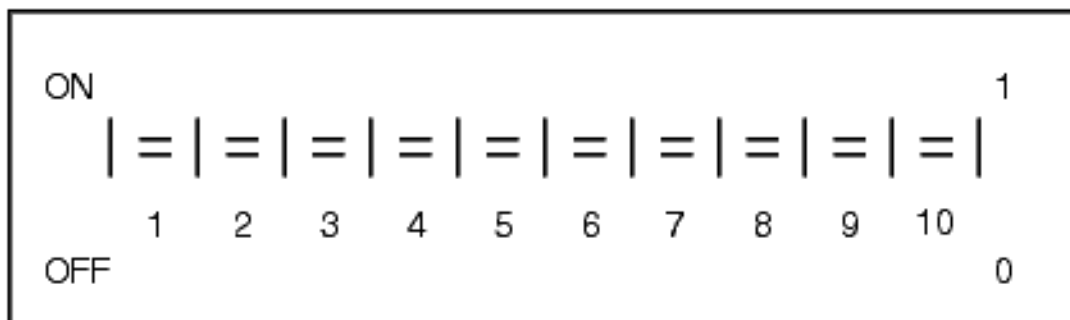
**NOTE:** The least significant bit (LSB) is on the right at position 10, the most significant bit (MSB) is on the left at position 1.

7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## CTSN 1 (ODD CTS)



## CTSN 0 (EVEN CTS)



Switch 1 = Most Significant Bit (MSB)  
Switch 10 = Least Significant Bit (LSB)

Figure 11.55-1 CTSNS DIP Switch Settings



| <b>NCT<br/>CTS</b> | <b>Hex<br/>Value</b> | <b>Binary<br/>S1-----S10</b> | <b>NCT<br/>CTS</b> | <b>Hex<br/>Value</b> | <b>Binary<br/>S1-----S10</b> | <b>NCT<br/>CTS</b> | <b>Hex<br/>Value</b> | <b>Binary<br/>S1-----S10</b> |
|--------------------|----------------------|------------------------------|--------------------|----------------------|------------------------------|--------------------|----------------------|------------------------------|
| 0                  | kkkkk                | kkkkk                        | 32                 | kkkkk                | kkkkk                        | 64                 | kkkkk                | kkkkk                        |
| 1                  | kkkkk                | kkkkk                        | 33                 | kkkkk                | kkkkk                        | 65                 | kkkkk                | kkkkk                        |
| 2                  | 0x6                  | 00 0000 0110                 | 34                 | 0x86                 | 00 1000 0110                 | 66                 | 0x106                | 01 0000 0110                 |
| 3                  | 0x8                  | 00 0000 1000                 | 35                 | 0x88                 | 00 1000 1000                 | 67                 | 0x108                | 01 0000 1000                 |
| 4                  | 0x12                 | 00 0001 0010                 | 36                 | 0x92                 | 00 1001 0010                 | 68                 | 0x112                | 01 0001 0010                 |
| 5                  | 0x14                 | 00 0001 0100                 | 37                 | 0x94                 | 00 1001 0100                 | 69                 | 0x114                | 01 0001 0100                 |
| 6                  | 0x16                 | 00 0001 0110                 | 38                 | 0x96                 | 00 1001 0110                 | 70                 | 0x116                | 01 0001 0110                 |
| 7                  | 0x18                 | 00 0001 1000                 | 39                 | 0x98                 | 00 1001 1000                 | 71                 | 0x118                | 01 0001 1000                 |
| 8                  | kkkkk                | kkkkk                        | 40                 | kkkkk                | kkkkk                        | 72                 | kkkkk                | kkkkk                        |
| 9                  | kkkkk                | kkkkk                        | 41                 | kkkkk                | kkkkk                        | 73                 | kkkkk                | kkkkk                        |
| 10                 | 0x26                 | 00 0010 0110                 | 42                 | 0xa6                 | 00 1010 0110                 | 74                 | 0x126                | 01 0010 0110                 |
| 11                 | 0x28                 | 00 0010 1000                 | 43                 | 0xa8                 | 00 1010 1000                 | 75                 | 0x128                | 01 0010 1000                 |
| 12                 | 0x32                 | 00 0011 0010                 | 44                 | 0xb2                 | 00 1011 0010                 | 76                 | 0x132                | 01 0011 0010                 |
| 13                 | 0x34                 | 00 0011 0100                 | 45                 | 0xb4                 | 00 1011 0100                 | 77                 | 0x134                | 01 0011 0100                 |
| 14                 | 0x36                 | 00 0011 0110                 | 46                 | 0xb6                 | 00 1011 0110                 | 78                 | 0x136                | 01 0011 0110                 |
| 15                 | 0x38                 | 00 0011 1000                 | 47                 | 0xb8                 | 00 1011 1000                 | 79                 | 0x138                | 01 0011 1000                 |
| 16                 | kkkkk                | kkkkk                        | 48                 | kkkkk                | kkkkk                        | 80                 | kkkkk                | kkkkk                        |
| 17                 | kkkkk                | kkkkk                        | 49                 | kkkkk                | kkkkk                        | 81                 | kkkkk                | kkkkk                        |
| 18                 | 0x46                 | 00 0100 0110                 | 50                 | 0xc6                 | 00 1100 0110                 | 82                 | 0x146                | 01 0100 0110                 |
| 19                 | 0x48                 | 00 0100 1000                 | 51                 | 0xc8                 | 00 1100 1000                 | 83                 | 0x148                | 01 0100 1000                 |
| 20                 | 0x52                 | 00 0101 0010                 | 52                 | 0xd2                 | 00 1101 0010                 | 84                 | 0x152                | 01 0101 0010                 |
| 21                 | 0x54                 | 00 0101 0100                 | 53                 | 0xd4                 | 00 1101 0100                 | 85                 | 0x154                | 01 0101 0100                 |
| 22                 | 0x56                 | 00 0101 0110                 | 54                 | 0xd6                 | 00 1101 0110                 | 86                 | 0x156                | 01 0101 0110                 |
| 23                 | 0x58                 | 00 0101 1000                 | 55                 | 0xd8                 | 00 1101 1000                 | 87                 | 0x158                | 01 0101 1000                 |
| 24                 | kkkkk                | kkkkk                        | 56                 | kkkkk                | kkkkk                        | 88                 | kkkkk                | kkkkk                        |
| 25                 | kkkkk                | kkkkk                        | 57                 | kkkkk                | kkkkk                        | 89                 | kkkkk                | kkkkk                        |
| 26                 | 0x66                 | 00 0110 0110                 | 58                 | 0xe6                 | 00 1110 0110                 | 90                 | 0x166                | 01 0110 0110                 |
| 27                 | 0x68                 | 00 0110 1000                 | 59                 | 0xe8                 | 00 1110 1000                 | 91                 | 0x168                | 01 0110 1000                 |
| 28                 | 0x72                 | 00 0111 0010                 | 60                 | 0xf2                 | 00 1111 0010                 | 92                 | 0x172                | 01 0111 0010                 |
| 29                 | 0x74                 | 00 0111 0100                 | 61                 | 0xf4                 | 00 1111 0100                 | 93                 | 0x174                | 01 0111 0100                 |
| 30                 | 0x76                 | 00 0111 0110                 | 62                 | 0xf6                 | 00 1111 0110                 | 94                 | 0x176                | 01 0111 0110                 |
| 31                 | 0x78                 | 00 0111 1000                 | 63                 | 0xf8                 | 00 1111 1000                 | 95                 | 0x178                | 01 0111 1000                 |

Figure 11.55-2 NCT CTS Binary Value (0-95) Mapping

Binary values apply only to the SM-2000 switch.  
NCT positions \*\*\*\*\* not used in the SM-2000 switch.

| NCT CTS | Hex Value | Binary S1-----S10 | NCT CTS | Hex Value | Binary S1-----S10 | NCT CTS | Hex Value | Binary S1-----S10 |
|---------|-----------|-------------------|---------|-----------|-------------------|---------|-----------|-------------------|
| 96      | kkkkk     | kkkkk             | 128     | kkkkk     | kkkkk             | 160     | kkkkk     | kkkkk             |
| 97      | kkkkk     | kkkkk             | 129     | kkkkk     | kkkkk             | 161     | kkkkk     | kkkkk             |
| 98      | 0x186     | 01 1000 01 10     | 130     | 0x206     | 10 0000 01 10     | 162     | 0x286     | 10 1000 01 10     |
| 99      | 0x188     | 01 1000 1000      | 131     | 0x208     | 10 0000 1000      | 163     | 0x288     | 10 1000 1000      |
| 100     | 0x192     | 01 1001 0010      | 132     | 0x212     | 10 0001 0010      | 164     | 0x292     | 10 1001 0010      |
| 101     | 0x194     | 01 1001 0100      | 133     | 0x214     | 10 0001 0100      | 165     | 0x294     | 10 1001 0100      |
| 102     | 0x196     | 01 1001 01 10     | 134     | 0x216     | 10 0001 01 10     | 166     | 0x296     | 10 1001 01 10     |
| 103     | 0x198     | 01 1001 1000      | 135     | 0x218     | 10 0001 1000      | 167     | 0x298     | 10 1001 1000      |
| 104     | kkkkk     | kkkkk             | 136     | kkkkk     | kkkkk             | 168     | kkkkk     | kkkkk             |
| 105     | kkkkk     | kkkkk             | 137     | kkkkk     | kkkkk             | 169     | kkkkk     | kkkkk             |
| 106     | 0x1a6     | 01 1010 01 10     | 138     | 0x226     | 10 0010 01 10     | 170     | 0x2a6     | 10 1010 01 10     |
| 107     | 0x1a8     | 01 1010 1000      | 139     | 0x228     | 10 0010 1000      | 171     | 0x2a8     | 10 1010 1000      |
| 108     | 0x1b2     | 01 1011 0010      | 140     | 0x232     | 10 0011 0010      | 172     | 0x2b2     | 10 1011 0010      |
| 109     | 0x1b4     | 01 1011 0100      | 141     | 0x234     | 10 0011 0100      | 173     | 0x2b4     | 10 1011 0100      |
| 110     | 0x1b6     | 01 1011 01 10     | 142     | 0x236     | 10 0011 01 10     | 174     | 0x2b6     | 10 1011 01 10     |
| 111     | 0x1b8     | 01 1011 1000      | 143     | 0x238     | 10 0011 1000      | 175     | 0x2b8     | 10 1011 1000      |
| 112     | kkkkk     | kkkkk             | 144     | kkkkk     | kkkkk             | 176     | kkkkk     | kkkkk             |
| 113     | kkkkk     | kkkkk             | 145     | kkkkk     | kkkkk             | 177     | kkkkk     | kkkkk             |
| 114     | 0x1c6     | 01 1100 01 10     | 146     | 0x246     | 10 0100 01 10     | 178     | 0x2c6     | 10 1100 01 10     |
| 115     | 0x1c8     | 01 1100 1000      | 147     | 0x248     | 10 0100 1000      | 179     | 0x2c8     | 10 1100 1000      |
| 116     | 0x1d2     | 01 1101 0010      | 148     | 0x252     | 10 0101 0010      | 180     | 0x2d2     | 10 1101 0010      |
| 117     | 0x1d4     | 01 1101 0100      | 149     | 0x254     | 10 0101 0100      | 181     | 0x2d4     | 10 1101 0100      |
| 118     | 0x1d6     | 01 1101 01 10     | 150     | 0x256     | 10 0101 01 10     | 182     | 0x2d6     | 10 1101 01 10     |
| 119     | 0x1d8     | 01 1101 1000      | 151     | 0x258     | 10 0101 1000      | 183     | 0x2d8     | 10 1101 1000      |
| 120     | kkkkk     | kkkkk             | 152     | kkkkk     | kkkkk             | 184     | kkkkk     | kkkkk             |
| 121     | kkkkk     | kkkkk             | 153     | kkkkk     | kkkkk             | 185     | kkkkk     | kkkkk             |
| 122     | 0x1e6     | 01 1110 01 10     | 154     | 0x266     | 10 0110 01 10     | 186     | 0x2e6     | 10 1110 01 10     |
| 123     | 0x1e8     | 01 1110 1000      | 155     | 0x268     | 10 0110 1000      | 187     | 0x2e8     | 10 1110 1000      |
| 124     | 0x1f2     | 01 1111 0010      | 156     | 0x272     | 10 0111 0010      | 188     | 0x2f2     | 10 1111 0010      |
| 125     | 0x1f4     | 01 1111 0100      | 157     | 0x274     | 10 0111 0100      | 189     | 0x2f4     | 10 1111 0100      |
| 126     | 0x1f6     | 01 1111 01 10     | 158     | 0x276     | 10 0111 01 10     | 190     | 0x2f6     | 10 1111 01 10     |
| 127     | 0x1f8     | 01 1111 1000      | 159     | 0x278     | 10 0111 1000      | 191     | 0x2f8     | 10 1111 1000      |

Figure 11.55-3 NCT CTS Binary Value (96-191) Mapping (Contd)

Binary values apply only to the SM-2000 switch.  
NCT positions \*\*\*\*\* not used in the SM-2000 switch.

| NCT<br>CTS | Hex<br>Value | Binary<br>S1-----S10 |
|------------|--------------|----------------------|
| 192        | kkkkk        | kkkkk                |
| 193        | kkkkk        | kkkkk                |
| 194        | 0x306        | <b>11 0000 0110</b>  |
| 195        | 0x308        | <b>11 0000 1000</b>  |
| 196        | 0x312        | <b>11 0001 0010</b>  |
| 197        | 0x314        | <b>11 0001 0100</b>  |
| 198        | 0x316        | <b>11 0001 0110</b>  |
| 199        | 0x318        | <b>11 0001 1000</b>  |
| 200        | kkkkk        | kkkkk                |
| 201        | kkkkk        | kkkkk                |
| 202        | 0x326        | <b>11 0010 0110</b>  |
| 203        | 0x328        | <b>11 0010 1000</b>  |
| 204        | 0x332        | <b>11 0011 0010</b>  |
| 205        | 0x334        | <b>11 0011 0100</b>  |
| 206        | 0x336        | <b>11 0011 0110</b>  |
| 207        | 0x338        | <b>11 0011 1000</b>  |
| 208        | kkkkk        | kkkkk                |
| 209        | kkkkk        | kkkkk                |
| 210        | 0x346        | <b>11 0100 0110</b>  |
| 211        | 0x348        | <b>11 0100 1000</b>  |
| 212        | 0x352        | <b>11 0101 0010</b>  |
| 213        | 0x354        | <b>11 0101 0100</b>  |
| 214        | 0x356        | <b>11 0101 0110</b>  |
| 215        | 0x358        | <b>11 0101 1000</b>  |
| 216        | kkkkk        | kkkkk                |
| 217        | kkkkk        | kkkkk                |
| 218        | 0x366        | <b>11 0110 0110</b>  |
| 219        | 0x368        | <b>11 0110 1000</b>  |
| 220        | 0x372        | <b>11 0111 0010</b>  |
| 221        | 0x374        | <b>11 0111 0100</b>  |
| 222        | 0x376        | <b>11 0111 0110</b>  |
| 223        | 0x378        | <b>11 0111 1000</b>  |

| NCT<br>CTS | Hex<br>Value | Binary<br>S1-----S10 |
|------------|--------------|----------------------|
| 224        | kkkkk        | kkkkk                |
| 225        | kkkkk        | kkkkk                |
| 226        | 0x386        | <b>11 1000 0110</b>  |
| 227        | 0x388        | <b>11 1000 1000</b>  |
| 228        | 0x392        | <b>11 1001 0010</b>  |
| 229        | 0x394        | <b>11 1001 0100</b>  |
| 230        | 0x396        | <b>11 1001 0110</b>  |
| 231        | 0x398        | <b>11 1001 1000</b>  |
| 232        | kkkkk        | kkkkk                |
| 233        | kkkkk        | kkkkk                |
| 234        | 0x3a6        | <b>11 1010 0110</b>  |
| 235        | 0x3a8        | <b>11 1010 1000</b>  |
| 236        | 0x3b2        | <b>11 1011 0010</b>  |
| 237        | 0x3b4        | <b>11 1011 0100</b>  |
| 238        | 0x3b6        | <b>11 1011 0110</b>  |
| 239        | 0x3b8        | <b>11 1011 1000</b>  |
| 240        | kkkkk        | kkkkk                |
| 241        | kkkkk        | kkkkk                |
| 242        | 0x3c6        | <b>11 1100 0110</b>  |
| 243        | 0x3c8        | <b>11 1100 1000</b>  |
| 244        | 0x3d2        | <b>11 1101 0010</b>  |
| 245        | 0x3d4        | <b>11 1101 0100</b>  |
| 246        | 0x3d6        | <b>11 1101 0110</b>  |
| 247        | 0x3d8        | <b>11 1101 1000</b>  |
| 248        | kkkkk        | kkkkk                |
| 249        | kkkkk        | kkkkk                |
| 250        | 0x3e6        | <b>11 1110 0110</b>  |
| 251        | 0x3e8        | <b>11 1110 1000</b>  |
| 252        | 0x3f2        | <b>11 1111 0010</b>  |
| 253        | 0x3f4        | <b>11 1111 0100</b>  |
| 254        | 0x3f6        | <b>11 1111 0110</b>  |
| 255        | 0x3f8        | <b>11 1111 1000</b>  |

**Figure 11.55-4 NCT CTS Binary Value (192-255) Mapping (Contd)**

Binary values apply only to the SM-2000 switch.

NCT positions \*\*\*\*\* not used in the SM-2000 switch.

## Procedure 11.56: INTEGRATE VENDOR STRATUM 3 BITS TIMING SOURCE FOR EXM-2000 — 5E13 and Later

### OVERVIEW

This procedure performs the following three major activities:

- Verifies that the timing references are connected for the vendor BITS (Building Integrated Timing Supply) clock (referred to later in this procedure as the "BITS box"), with Stratum 3 capability.
- Installs error detection scan points.
- Upgrades the TSICOM circuit pack with UM74D.

This procedure applies to 5ESS®-2000 switches configured as EXM-2000 (Extended Switch Module-2000) and DRM-2000 (Distant Reliable Switch Module-2000). For offices configured with VCDX (Very Compact Digital Exchange) switches refer to Lucent Document 235-120-120.

This procedure applies to switches operating on software release 5E13 and later.

### PROCEDURE

#### 11.56.1 Safe Stop Point

1. Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

#### 11.56.2 Prerequisite Conversion Conditions

1. The following prerequisites must be satisfied before performing this procedure.
  - The vendor supplied BITS clock:

*HP55400A™ or Telecom Solutions® DCD-523*

is installed and operational and is supplying a reference signal for the existing EXM-2000.

**NOTE:** This procedure is based on the use of a Telecom Solutions BITS clock being in place.

- The following cables must be connected (See **Figure 11.56-1**):
  - (a) Input clock reference cables (2).
  - (b) Output clock reference cables (2) to TSIU4/TSIU4-2.
  - (c) Scan points wired to the MDF (main distribution frame) for the BITS box.
  - (d) Scan point alarm cable (1) from the MDF to the MMSU (modular metallic service unit).

- Two UM74D circuit packs must be available.
- The user must be familiar with ESD (electrostatic discharge) protection requirements.
- Customer-supplied Recent Change Verify (RCV) view for view 8.11 must be available.

### 11.56.3 PRECONDITIONING

#### 11.56.3.1 Verify and Set Initial Conditions

1. At master control center (MCC), observe Summary Status Area for a SYS NORM indication.
2. If a SYS NORM indication is not obtained, type and enter the following command:

**OP:SYSSTAT;**

3. At MCC, type and enter

**OP:OFFNORM,SM=a;**

**Where:**

a = EXM-2000 number.

**Comment:** Evaluate system response to determine if system status is acceptable to continue. Specific attention is required for areas that can cause EXM-2000 isolation or service impact during this conversion procedure. Correct any deficiency as required.

**CAUTION:** Steps 4 through 6 are recommended but not required. Local practices should control their use. If routine exercise (REX) is inhibited, it must be allowed at the conclusion of this conversion procedure.

4. At MCC, type and enter

**INH:REX,SM=a;**

**Where:**

a = EXM-2000 number.

**Response: OK**

5. At MCC, type and enter

**OP:REXINH;**

**Response:** The inhibit status will be printed. Verify this printout.

6. To backup ODD, at the MCC, type and enter

**BKUP:ODD,NRODD=a,RODD,AM,CMP=0;**

**Where:**

a = EXM-2000 number

**NOTE:** Prior to the response, there will be completed responses for the EXM-2000, the AM, and the CMP.

**Response: BKUP NRODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

### 11.56.3.2 Turn On Fault Recovery Reports

1. At MCC, either:

type and enter **SET:PERPH,SM=a,VERBOSE;**

or

enter input command **412** (1800,a CMD)

**Where:**

a = EXM-2000 number

**Response: OK**

### 11.56.3.3 Save Office Message Class Print Options

1. At MCC, type and enter **CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response: OK** (with exception)

### 11.56.3.4 Allow All Message Classes to Print

1. At MCC, type and enter

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response: OK** (with exception)

### 11.56.3.5 Inhibit Brevity Control

**CAUTION:** Brevity control should not be inhibited for more than ten EXM-2000s, concurrently. This can cause the loss of receive-only printer (ROP) messages.

1. At MCC, either:

type and enter **INH:BREVC,SM=a;**

or

enter input command **609** (1800,a CMD)

Where:

a = EXM-2000 number

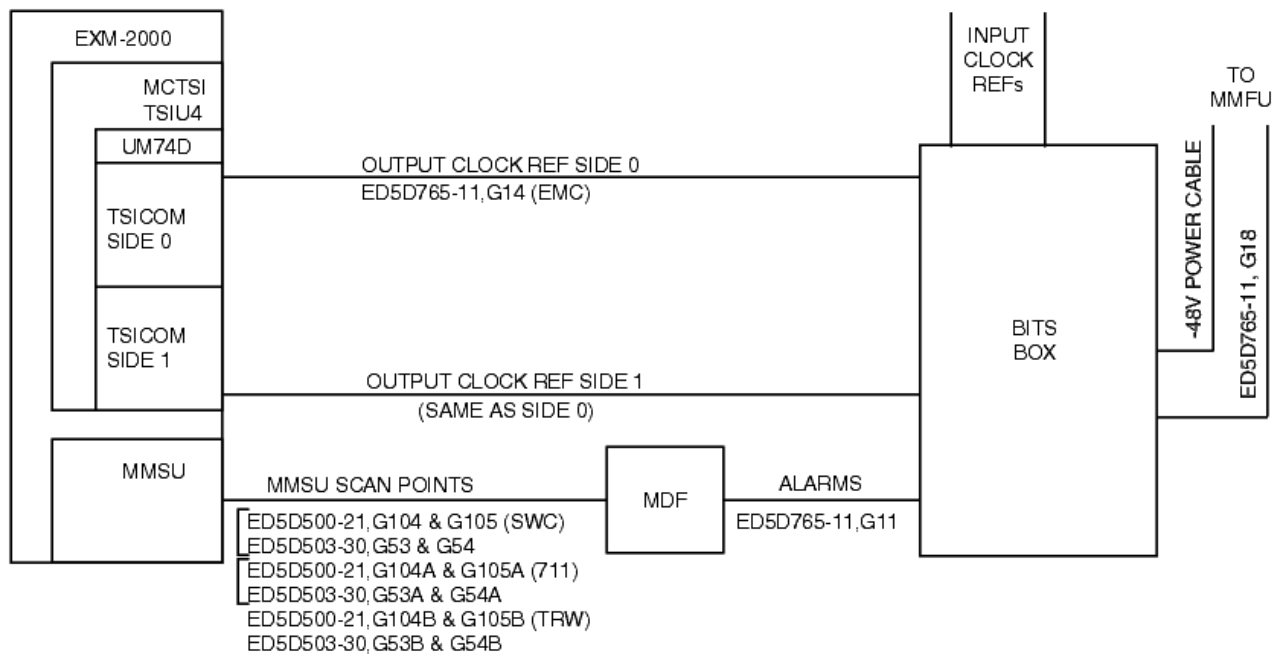
Response: OK

#### 11.56.4 SAFE STOP POINT

1. This is a **Safe Stop Point**.

#### 11.56.5 VERIFY TIMING REFERENCE CONNECTIONS

1. Verify that timing reference cables are installed (**Figure 11.56-1**):
  - Input clock reference cables to BITS box.
  - Output clock reference cables between BITS box and TSIU4/TSIU4-2.



**Figure 11.56-1 BITS BOX Cabling**

2. At MCC page 1190, verify that both Module Controller/Time Slot Interchange (MCTSI) 0 and 1 are ACT/STBY.

##### 11.56.5.1 Verify Timing Reference Connections for MCTSI Side 1

1. With MCTSI-0 active, remove MCTSI-1 from service:

enter input command **201** (1190,a CMD)

Response: **RMV MCTSI = a-1 COMPLETED**

Where:



a = EXM-2000 number

2. At the MCTSI cabinet, side 1, Power and Control Display (PCD) pack, depress:

**OFF** button.

**Response: REPT PWR OFF MCTSI = a-1**

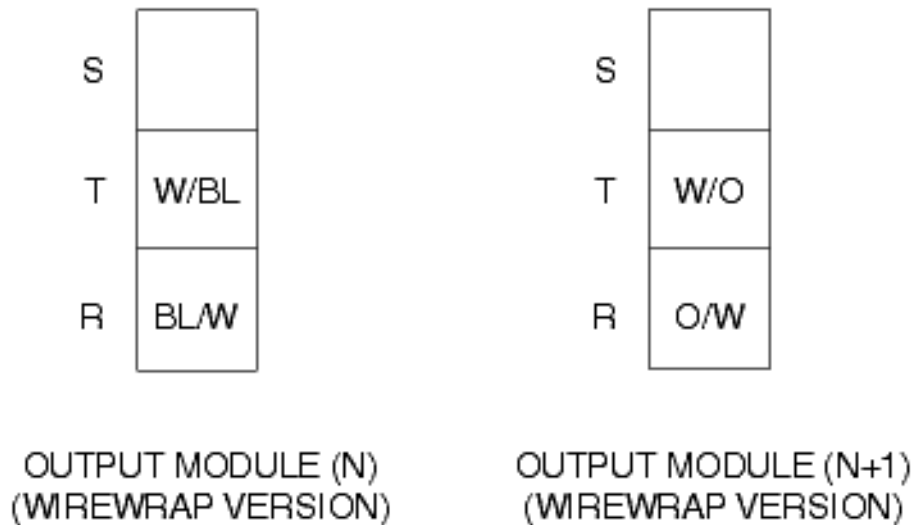
**Where:**

a = EXM-2000 number

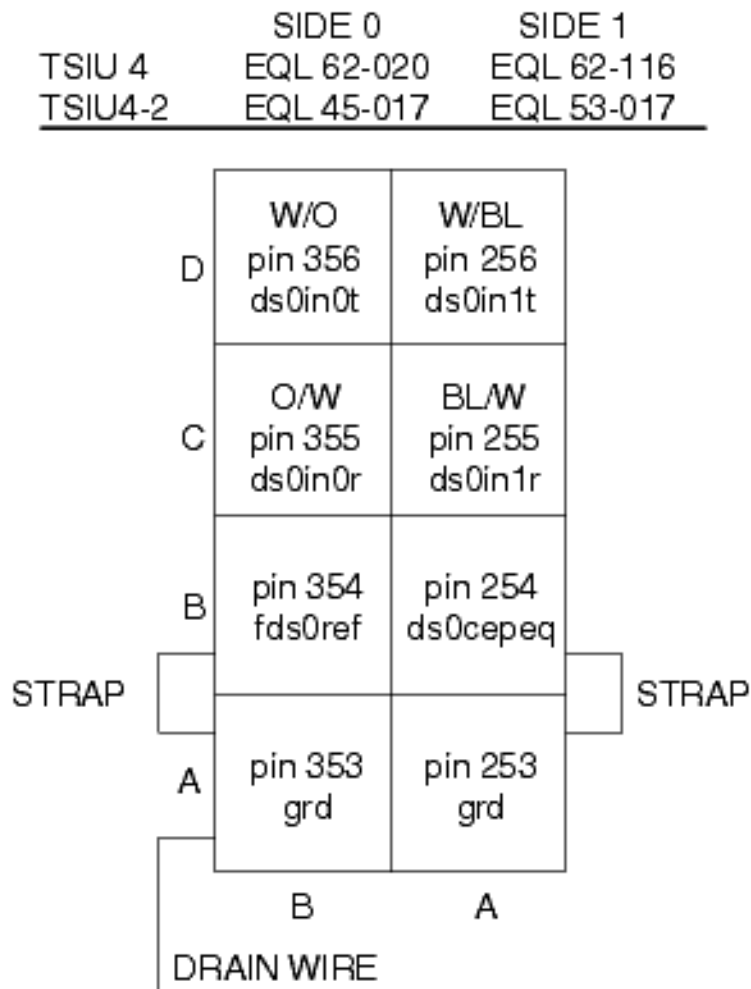
3. Visually verify connection of output clock reference cable as shown below.

| FROM                                       | TO                   |
|--------------------------------------------|----------------------|
| BITS BOX                                   | TSICOM-1             |
| (See Figure 11.56-2)                       | (See Figure 11.56-3) |
| EQL 62-116 (TSIU4), 353 (Berg Connector)   |                      |
| EQL 53-017 (TSIU4-2), 353 (Berg Connector) |                      |

### BITS BOX TELECOM SOLUTIONS DCD-523



**Figure 11.56-2 Telecom Solutions, BITS BOX Cabling Connection**



MCTSI CABLE CONNECTOR  
LAYOUT - TSIU END  
(ED5D765-11, G13 OR G14)

**Figure 11.56-3 TSICOM Cabling Connection**

4. Perform BITS Box acceptance tests. Refer to vendor documentation.
5. At the MCTSI cabinet, side 1 PCD pack, depress the **ON** button.

**Response:** REPT PWR ON MCTSI=a-1

**Where:**

a = EXM-2000 number

6. At MCC page 1190 diagnose MCTSI-1, enter input command **501**
7. Did MCTSI-1 pass all diagnostics?

If, **YES**, continue with next Step.

If, **NO**, resolve problem, contact next level of technical support as required. Do not continue until problem is resolved.

8. At MCC page 1190, are MCTSI-1 external references 0 and 1 in **STBY** state?

If, **YES**, continue with next Step.

If, **NO**, resolve problem, contact next level of technical support as required. Do not continue until problem is resolved.

### 11.56.5.2 Verify Timing Reference Connections for MCTSI Side 0

1. At MCC page 1190 switch MCTSI-1 to active side, enter command **403**.

**Response:** MCTSI-1 REF 0 and 1 ACTIVE  
MCTSI-0 REF 0 and 1 STBY

2. Observe a 15 minute soak period.

**NOTE:** Should problems occur, contact the next level of technical support and resolve problem. Do not continue until problem is resolved.

3. At MCC page 1190, with MCTSI-1 active remove MCTSI-0 from service:

enter input command **200**

**Response:** RMV MCTSI = a-0 COMPLETED

**Where:**

a = EXM-2000 number

4. At the MCTSI cabinet, side 0 PCD pack, depress:

**OFF** button.

**Response:** REPT PWR OFF MCTSI = a-0

**Where:**

a = EXM-2000 number

5. Visually verify connection of output clock reference cable as shown below.

| BITS BOX             | FROM                                                                                                            | TO<br>TSICOM-0 |
|----------------------|-----------------------------------------------------------------------------------------------------------------|----------------|
| (See Figure 11.56-2) | (See Figure 11.56-3 )<br>EQL 62-020 (TSIU4), 353 (Berg Connector)<br>EQL 45-017 (TSIU4-2), 353 (Berg Connector) |                |

6. Perform BITS Box acceptance tests. Refer to vendor documentation.

7. At the MCTSI cabinet, side 0 PCD pack, depress the **ON** button.

**Response:**     **REPT PWR ON MCTSI=a-0**

**Where:**

a =                      EXM-2000 number

8. At MCC page 1190 diagnose MCTSI-0, enter input command **500**
9. Did MCTSI-0 pass all diagnostics?

If, **YES**, continue with next Step.

If, **NO**, resolve problem, contact next level of technical support as required. Do not continue until problem is resolved.

10. At MCC page 1190, are MCTSI-0 external clock references 0 and 1 in **STBY** state?

If, **YES**, continue with next Step.

If, **NO**, resolve problem, contact next level of technical support as required. Do not continue until problem is resolved.

11. Observe a 15 minute soak period.

**NOTE:** Should problems occur, contact the next level of technical support and resolve problem. Do not continue until problem is resolved.

### 11.56.5.3 Install MMSU Scan Points

1. Select customer-supplied RCV 8.11 forms identifying BITS BOX scan points.
2. From the DCD-523, cross connect terminals (two audible **minor** alarms), connect to an available pair of scan leads from the MMSU. Record scan point used for the minor alarm connection.
3. From the DCD-523, cross connect terminals (two audible **major** alarms), connect to an available pair of scan leads from the MMSU. Record scan point used for the major alarm connection.
4. Select and prepare terminal for recent change and verify (RCV) activities.

**Reference:**             **Procedure 11.1**

**NOTE:** The identification of the scan points should be known before continuing with the RCV activity.

5. To provision the first alarm scan point, at the RCV terminal type and enter **8.11i**

**Response:**     The REMOTE ALARM ASSIGNMENT page is displayed. The cursor is positioned at the REMOTE MODULE field.

6. To assign alarms, type and enter data for the following fields:

REMOTE MODULE \_\_\_\_\_

ALARM POINT \_\_\_\_\_ (000-054, refer to completed 8.11 form for assignment)

SCAN POINT = aaabcddee

**Where:**

aaa = EXM-2000 number, 001-192  
 b = Metallic service unit (MSU) number, 0,1  
 c = MSU service group, 0,1  
 dd = MSU board number, 00-31  
 ee = MSU scan point number, 00-31

**Response: Enter Insert, Change, Validate, or Print:**

7. To insert, type and enter i

**Response: inserting . . . FORM INSERTED.**

8. Repeat from Step 6 to insert additional scan point.
9. With all scan points assigned, exit RC/V.
10. To backup ODD, at the MCC, type and enter

**BKUP:ODD,NRODD=a,RODD,AM,CMP=0;**

**Where:**

a = EXM-2000 number

**NOTE:** Prior to the response, there will be completed responses for the EXM-2000, the AM, and the CMP.

**Response: BKUP NRODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 11.56.5.4 Test BITS Box Alarms

1. Disconnect one of the input clocks from the BITS box.

**Response:** A **MINOR** alarm output message is generated.  
**MINOR** alarm LED on the BITS Box **SAI/MTS** card is lighted.

2. Reconnect the clock input that was disconnected in the previous step.
3. At the BITS Box press the **ACO** switch on the **SAI/MTS** card to clear the **MINOR** alarm.

**Response: MINOR** alarm LED on the BITS box **SAI/MTS** card is off.

4. **WARNING:** An antistatic wrist strap must be worn while handling circuit packs or system cables to prevent damage to components by static electricity.

At the BITS Box temporarily remove the active **CI** card.

**Response:** A **MAJOR** alarm output message is generated.  
**MAJOR** alarm LED on the BITS box **SAI/MTS** card is lighted.

- Re-install the **CI** card and press the **ACO** switch on the **SAI/MTS** card to clear the **MAJOR** alarm.

**Response:** **MAJOR** alarm LED on the BITS box **SAI/MTS** card is off.

### 11.56.6 UPGRADE TSICOM PACK

#### 11.56.6.1 Remove MCTSI 0 From Service

- With MCTSI-1 active, remove (MCTSI) side 0 from service: at MCC, either:

type input message: **RMV:MCTSI=a-0**;  
or  
enter input command: **200** (1190,a CMD)

**Where:**

a = EXM-2000 number

**Response:** **RMV MCTSI=a-0 COMPLETED**

#### 11.56.6.2 Update TSICOM 0 CLI

- Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:** **Procedure 11.1**

- At the RC/V terminal, type and enter **18.1U**

**Response:** **SWITCHING MODULE (RC\_EQIM) 18V1** page displayed.  
Cursor at **SM** attribute.

- Type and enter EXM-2000 number.

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, or Print:**

- Type and enter **C**

**Response:** **Change field:**

- Type and enter **TSICOM 0 CLI** or field number.

**Response:** Cursor at **TSICOM 0 CLI** attribute.

- Type and enter the appropriate hex value:

| DESCRIPTION                          | HEX VALUE |
|--------------------------------------|-----------|
| TSIU4 with external clock reference  | 23        |
| TSIU4-2 with external clock eference | 33        |

**Response:** **Change field:**

- Enter **CARRIAGE RETURN**

**Response:** **Enter Update, Change, Validate, or Print:**

8. Type and enter **U**

**Response:** updating...FORM UPDATED  
**SWITCHING MODULE (RC\_EQIM) 18V1** page displayed.  
 Cursor at **SM** attribute.

9. Type and enter **<**

**Response:** **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

10. Type and enter **Q**

**Response:** **RCV-196 COMPLETED**

### 11.56.6.3 Power Down MCTSI Side 0 And Replace Circuit Pack

1. At the MCTSI cabinet, side 0 PCD pack, depress:

**OFF** button.

**Response:** **REPT PWR OFF MCTSI=a-0**

**Where:**

a = EXM-2000 number

2. **WARNING:** An antistatic wrist strap must be worn while handling circuit packs or system cables to prevent damage to components by static electricity.

Remove the UM74B/UM74C circuit pack from MCTSI side 0 (per EQL below) and replace with UM74D.

|            |         |
|------------|---------|
| EQL 62-020 | TSIU4   |
| EQL 45-017 | TSIU4-2 |

### 11.56.6.4 Power Up MCTSI Side 0

1. At the MCTSI cabinet, side 0 PCD pack, depress the **ON** button.

**Response:** **REPT PWR ON MCTSI=a-0**

**Where:**

a = EXM-2000 number

### 11.56.6.5 Diagnose MCTSI Side 0

1. At MCC, either:

type input message: **DGN:MCTSI=a-0,PH=33,RAW,TLP;**

or

enter input command: **500,PH=33** (1190,a CMD)

**Where:**

a = EXM-2000 number

**Response:** DGN MCTSI=a-0 COMPLETED ATP

#### 11.56.6.6 Unconditionally Restore MCTSI Side 0

1. At MCC, either:

type input message **RST:MCTSI=a-0,UCL**;  
or  
enter input command: **300,UCL** (1190,a CMD)

**Where:**

a = EXM-2000 number

**Response:** RST MCTSI=a-0 COMPLETED

#### 11.56.6.7 Remove MCTSI 1 From Service

1. Switch MCTSI-0 to active side, enter input command **403**
2. With MCTSI-0 active, remove (MCTSI) Side 1 from service: at MCC, either:

type input message: **RMV:MCTSI=a-1**;  
or  
enter input command: **201** (1190,a CMD)

**Where:**

a = EXM-2000 number

**Response:** RMV MCTSI=a-1 COMPLETED

#### 11.56.6.8 Update TSICOM 1 CLI

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:** Procedure 11.1

2. At the RC/V terminal, type and enter **18.1U**

**Response:** SWITCHING MODULE (RC\_EQIM) 18V1 page displayed.  
Cursor at **SM** attribute.

3. Type and enter EXM-2000 number.

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Type and enter **C**

**Response:** Change field:

5. Type and enter **TSICOM 1 CLI** or field number.



**Response:** Cursor at **TSICOM 1 CLI** attribute.

6. Type and enter the appropriate hex value:

| DESCRIPTION                          | HEX VALUE |
|--------------------------------------|-----------|
| TSIU4 with external clock reference  | 23        |
| TSIU4-2 with external clock eference | 33        |

**Response:** Change field:

7. Enter **CARRIAGE RETURN**

**Response:** Enter Update, Change, Validate, or Print:

8. Type and enter **U**

**Response:** updating...FORM UPDATED  
**SWITCHING MODULE (RC\_EQIM) 18V1** page displayed.  
 Cursor at **SM** attribute.

9. Type and enter **<**

**Response:** **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

10. Type and enter **Q**

**Response:** **RCV-196 COMPLETED**

#### 11.56.6.9 Power Down MCTSI Side 1 And Replace Circuit Pack

1. At the MCTSI cabinet, side 1 PCD pack, depress:

**OFF** button.

**Response:** **REPT PWR OFF MCTSI=a-1**

**Where:**

a = EXM-2000 number

2. **WARNING:** An antistatic wrist strap must be worn while handling circuit packs or system cables to prevent damage to components by static electricity.

Remove the UM74B/UM74C circuit pack from MCTSI side 1 (per EQL below) and replace with UM74D.

|            |         |
|------------|---------|
| EQL 62-116 | TSIU4   |
| EQL 53-017 | TSIU4-2 |

#### 11.56.6.10 Power Up MCTSI Side 1

1. At the MCTSI cabinet, side 1 PCD pack, depress the **ON** button.

**Response:** **REPT PWR ON MCTSI=a-1**

**Where:**

a = EXM-2000 number

### 11.56.6.11 Diagnose MCTSI Side 1

1. At MCC, either:

type input message: **DGN:MCTSI=a-1,PH=33,RAW,TLP;**  
or  
enter input command: **501,PH=33** (1190,a CMD)

**Where:**

a = EXM-2000 number

**Response: DGN MCTSI=a-1 COMPLETED ATP**

### 11.56.6.12 Unconditionally Restore MCTSI Side 1

1. At MCC, either:

type input message **RST:MCTSI=a-1,UCL;**  
or  
enter input command: **301,UCL** (1190,a CMD)

**Where:**

a = EXM-2000 number

**Response: RST MCTSI=a-1 COMPLETED**

### 11.56.7 SAFE STOP POINT

1. This is a **Safe Stop Point**.

### 11.56.8 RESTORE CONTROLS

#### 11.56.8.1 Allow Brevity Control

1. At MCC, either:

type input message: **ALW:BREVC,SM=a;**  
or  
enter input command: **709** (1800,a CMD)

**Where:**

a = EXM-2000 number

**Response: OK**

#### 11.56.8.2 Return Message Classes to Previous Print Status

1. At MCC, type input message: **CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

### 11.56.8.3 Turn Off Fault Recovery Reports

1. At MCC, either:

type input message: **CLR:PERPH,SM=a,VERBOSE;**

or

type and input command: **512** (1800,a CMD)

**Where:**

a = EXM-2000 number

**Response: OK**

### 11.56.8.4 Allow Routine Exercises

**CAUTION:** All routine exercises inhibited earlier in the procedure must be allowed. Failure to do this may result in office degradation over time.

1. At MCC, type input message: **ALW:DMQ,SRC=REX;**

**Response: ALW DMQ ENABLED REX**

2. At MCC, either:

type input message: **ALW:REX,CM;**

or

enter input command: **717** (110 CMD)

**Response: OK**

3. At MCC, either:

type input message: **ALW:REX,SM=a;**

or

enter input command: **702** (1800,a CMD)

**Where:**

a = EXM-2000 number

**Response: OK**

### 11.56.8.5 Back Up Office Dependent Data

1. At the MCC, type and enter

**BKUP:ODD,NRODD=a,RODD,AM,CMP=0;**

**Where:**

a = EXM-2000 number

**NOTE:** Prior to the response, there will be completed responses for the EXM-2000, the AM, and the CMP.

**Response: BKUP NRODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### **11.56.8.6 Reschedule Automatic Office Dependent Data Backup, If Necessary**

1. At MCC, type input message: **BKUP:ODD,EVERY=c,AT=d;**

**Where:**

c = interval in days (0-90) between successive ODD backup runs  
d = Time of day in hours and minutes (0-2359)

**Response: OK**

#### **11.56.8.7 Recommended Soak Period**

1. Monitor the ROP output for any peripheral fault recovery error messages. If any such messages occur within a period of 30 minutes take appropriate action to determine the reason; and, correct the reported error(s), if necessary, before continuing.
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.57: CONFIGURE AMA SINGLE STREAM BILLING FROM DUAL STREAM

### OVERVIEW

This procedure converts an existing AMA dual stream to a single stream configuration. This configuration allows a higher capacity billing transfer for AMA data network application.

This procedure should only be performed during low traffic periods.

Conversion to High Speed Billing can be implemented once this procedure is completed and the appropriate hardware is available and the appropriate SFID (secured feature ID) is turned on.

### PROCEDURE

1. Select and prepare terminal for recent change and verify (RCV) activities.

**Reference:** Procedure 11.1

#### 11.57.1 Transfer Billing Option From Dual Stream (ST2) To Single Stream (ST1)

**NOTE:** This procedure is to be performed for all SMs in the office.

1. At the RCV terminal type and enter **18.1u**

**Response:** The SM & REMOTE TERMINALS (RC\_EQIM) page is displayed. The cursor is positioned at the SM field.

2. Type and enter SM number \_\_\_\_

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **c**

**Response:** Change Field:

4. Type and enter BILLINGSTRM or field number.

**Response:** Cursor at BILLINGSTRM

5. Type and enter **ST1**

**Response:** Enter I=Insert, R=Review, U=Update, D=Delete

6. Type and enter **U**

**Response:** updating . . . FORM UPDATED.

7. Repeat from Step 3 for other SMs as required.

8. When all entries have been made, enter **RETURN**

**Response:** Enter Update, Change, Validate, Screen#, or Print:

9. To update the data, type and enter **u**

**Response:** updating . . . FORM UPDATED.

10. Exit RC/V.

### 11.57.2 Backup ODD

1. To backup ODD, at the MCC, type and enter

**BKUP:ODD,NRODD=a&&b,RODD,AM,CMP=0;**

**Where:**

a and b = Range of SMs

**Note 1:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

**Response:** BKUP NRODD COMPLETED

**Note 2:** Data base back up will take several minutes to complete.

### 11.57.3 Transfer AMA Billing Data

**NOTE:** Before reconfiguring to single stream, all AMA data on the second stream must be written to disk and then transferred to tape or to the teleprocessing center.

1. **NOTE 1:** The following input message **WRT:AMADATA** should not be used if any SMs are in isolation. Check the 141 MCC page to ensure no SM is listed as isolated before proceeding. If an SM is isolated, the **CLR:ISOL-SM** input message can be used to take it out of isolation.

To write AMA data to disk, type and enter **WRT:AMADATA;**

**NOTE 2:** The output is delayed until all of the daily SM billing data has been written to disk (10 - 15 seconds for every 10 equipped SMs in the office, depending on the amount of daily billing to be collected).

**Response:** WRT AMA DATA HAS BEEN WRITTEN TO DISK READY TO TRANSFER DATA FROM DISK TO OUTPUT MEDIUM

2. Read all AMA data off disk for stream ST2 using tape or teleprocessing per local practice.
3. Determine if all stream ST2 AMA blocks have been transferred to teleprocessing or tape, type and enter **OP:AMA:DISK,ST2;**

**Response:** REPT AMA DISK SUMMARY FOR STREAM ST2 DISK IS CURRENTLY b% FULL  
NUMBER OF PRIMARY AMA BLOCKS IN USE IS APPROXIMATELY:c

4. Is the number of AMA disk blocks in use equal to 0?

If **YES**, continue with next Step.

If **NO**, return to Step 2.

### 11.57.4 Reassign Billing Partitions

1. To identify the billing partitions assigned to stream ST2, type and enter **OP:AMA:CONFIG,ST2;**

**Response:** REPT AMA CONFIG FILE FOR STREAM ST2 NUMBER OF EQUIPPED PARTITIONS d  
TOTAL NUMBER OF  
AMA BLOCKS e f g h

**Where:**

|     |                                                    |
|-----|----------------------------------------------------|
| d = | Number of AMA partitions equipped for this stream. |
| e = | Total number of AMA blocks for this stream.        |
| f = | AMA partition number.                              |
| g = | AMA partition file name.                           |
| h = | Number of AMA blocks in this partition.            |

2. To determine read/write partition (should be same partition) for stream ST2, type and enter **OP:AMA:MAPS;**

**Response:** REPT AMA DISK MAPS FOR STREAM a  
WRITE PARTITION b READ PARTITION c  
PARTITION d DISK MAP:  
FPO: e LPO: f FPS: g LPS:

3. Prohibit the ST2 configuration for AMA partition, type and enter the following for some partition other than the read/write partition for stream ST2:

**SET:AMA:CONFIG:ST2,PART=x,UNEQUIP;**

**Where:**

x = partition number (other than read/write partition).

**Response:** REPT AMA CONFIG FILE FOR STREAM ST2 NUMBER OF EQUIPPED PARTITIONS d  
TOTAL NUMBER OF  
  
AMA BLOCKS e [ f g h ]

4. Repeat Step 3 for all partitions other than the read/write partition for stream ST2.
5. Unequip the read/write partition for stream ST2, type and enter

**SET:AMA:CONFIG:ST2,PART=x,UNEQUIP;**

**Where:**

x = read/write partition number.

6. After all partitions have been unequipped, make backup tapes to prevent loss of the updated AMA configuration files in the event of a reload from tape.
7. Reconfigure billing partitions (recorded in Step 1) for stream ST1, type and enter

**SET:AMA:CONFIG:ST1,PART=x,EQUIP;**

**Where:**

x = partition number.

**NOTE:** Any of the unequipped partitions can be equipped first.

**Response:** REPT AMA CONFIG FILE FOR STREAM ST1 NUMBER OF EQUIPPED PARTITIONS d  
TOTAL NUMBER OF AMA BLOCKS e [ f g h ]

8. Repeat Step 7 until all partitions identified in Step 1 have been equipped.

**NOTE:** This can be performed for the remaining unequipped partitions in any order.

9. After all partitions have been equipped, make backup tapes to prevent loss of the updated AMA configuration files in the event of a reload from tape.
10. Set AMA office configuration stream for ST1, type and enter

**SET:AMA:STREAM,ST1;**

**Response:** REPT AMA STREAM INDICATOR IS ST1

### 11.57.5 Final Single Stream Provisioning

1. At the RCV terminal type and enter **8.1u**

**Response:** The OFFICE PARAMETERS (MISCELLANEOUS) page is displayed. The cursor is positioned at the OFFICE ID field.

2. Type and enter OFFICE ID \_\_\_\_\_

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **c**

**Response:** Change Field:

4. Type and enter AMAOPTION or field number.

**Response:** Cursor at AMAOPTION

5. Type and enter **AMATPS** or **AMATPS1**

**Response:** Enter I=Insert, R=Review, U=Update, D=Delete

6. Type and enter **U**

**Response:** updating . . . FORM UPDATED.

7. Enter **RETURN**

**Response:** Enter Update, Change, Validate, Screen#, or Print:

8. To update the data, type and enter **u**



**Response:** updating . . . FORM UPDATED.

9. Exit RC/V.

### 11.57.6 Backup ODD

1. To backup ODD, at the MCC, type and enter

**BKUP:ODD,NRODD=a&&b,RODD,AM,CMP=0;**

**Where:**

a and b = Range of SMs

**Note 1:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

**Response: BKUP NRODD COMPLETED**

**Note 2:** Data base back up will take several minutes to complete.

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 11.58: CONFIGURE AMA DUAL STREAM BILLING

### OVERVIEW

This procedure configures dual stream billing capability for AMA (automatic Message Accounting) data records from the SM to be separated in the AM into two data streams and be directed into two separate disk partition groups. Each partition group can be independently redirected to a tape or teleprocessing port. Separation is on a per-SM basis. Tracer counts are collected and recorded per data stream.

The office options for AMA are as follows:

- AMATPS — Single stream data transfer, default to stream 1
- AMATPS1 — Dual stream billing (single stream billing on stream 1)
- AMATPS2 — Dual stream billing (single stream billing on stream 2)
- AMADUAL — Dual stream data transfer
- NONE — No AMA.

The dual stream billing capability requires each stream to have its own tape drive or data link. For example, if both streams use teleprocessing, then two data links are required.

**NOTE:** Dual stream billing is not available if 56 kb/s data links are being used.

### PROCEDURE

#### 11.58.1 Verify Current State Of Single Stream Recording

1. Select and prepare terminal for recent change and verify (RCV) activities.

**Reference:** Procedure 11.1

2. Use Recent Change View 18.1, BILLING STRM Field, to verify that the billing option on each SM is set to ST1.
3. Use Recent Change View 8.1, AMAOPTION Field to verify that the AMA office option is either AMATPS or AMATPS1.
4. To check the default option for input messages, type and enter at the Master Control Center (MCC):

**OP:AMA:STREAM;**

**Response:** The stream indicator should be set to ST1.

5. To verify the list of partitions equipped in the configuration file for stream ST1, type and enter

**OP:AMA:CONFIG;**

**Response:** There should be as many AMA partitions equipped as there are moving head disks in the office.

6. To verify the forwarding options for tape or teleprocessing, type and enter **OP:AMA:CONTROLFILE;**

**Response:** For teleprocessing, expect the option to be set to teleprocessing, the office ID to be populated with the correct number, sessions will not be manually inhibited, and the host collector (HOC) password and backup password to be populated correctly.

**Response:** For tape, expect the option to be set to tape, the office ID to be populated with the correct number, and sessions will not be manually inhibited.

### 11.58.2 Configure AMA For Dual Stream Billing

1. Identify the SMs that are to be reassigned to stream ST2.
2. Identify which AMA partitions are to be reassigned to stream ST2. (All odd partitions are suggested).
3. Teleprocess (or write a tape) per local procedures, until all stream ST1 AMA data is marked secondary.
4. To determine the contents of all the partition type and enter **OP:AMA:MAPS;**

**Response:** REPT AMA DISK MAPS FOR STREAM a WRITE PARTITION b READ PARTITION c  
PARTITION d DISK MAP: FPO: e LPO: f FPS: g LPS:

5. To determine the percentage of disk space occupied by primary AMA records, type and enter **OP:AMA:DISK;**

**Response:** REPT AMA DISK SUMMARY DISK IS CURRENTLY b% FULL NUMBER OF PRIMARY  
AMA BLOCKS IN USE IS APPROXIMATELY:c

6. To set up stream variable, type and enter

**SET:AMA:STREAM:DUAL;**

**Response:** REPT AMA STREAM INDICATOR IS \_\_\_\_

### 11.58.3 Dual Stream Provisioning

1. At the RCV terminal type and enter **8.1u**

**Response:** The OFFICE PARAMETERS (MISCELLANEOUS) page is displayed. The cursor is positioned at the OFFICE ID field.

2. Type and enter OFFICE ID \_\_\_\_

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

3. Type and enter **c**

**Response:** **Change Field:**

4. Type and enter AMAOPTION or field number.

**Response:** Cursor at AMAOPTION

5. Type and enter **AMADUAL**

**Response:** Enter I=Insert, R=Review, U=Update, D=Delete

6. Type and enter **U**

**Response:** updating . . . FORM UPDATED.

7. Enter **RETURN**

**Response:** Enter Update, Change, Validate, Screen#, or Print:

8. To update the data, type and enter **u**

**Response:** updating . . . FORM UPDATED.

9. Exit RC/V.

### 11.58.3.1 Backup ODD

1. To backup ODD, at the MCC, type and enter

**BKUP:ODD,NRODD=a&&b,RODD,AM,CMP=0;**

**Where:**

a and b = Range of SMs

**NOTE:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

**Response:** BKUP NRODD COMPLETED

**NOTE:** Data base back up will take several minutes to complete.

### 11.58.3.2 This is a "Don't Care" Heading

### 11.58.4 Configure AMA Partitions

1. To clear configuration information for ST1 and ST2, at *UNIX*® system terminal, type and enter

```
/no5text/prc/amnullcf > /database/amafiles/config.oc
/no5text/prc/amnullcf > /database/amafiles/config.ic
```

2. To configure and equip all AMA partitions, at the MCC type and enter

**SET:AMA:CONFIG:ST1,PART=0,EQUIP;**  
**SET:AMA:CONFIG:ST2,PART=1,EQUIP;**

Equip additional partitions similarly.

3. Initialize ST2 disk writer, type and enter

**INIT:AM:AMDW2,FPI;**

**Response:** REPT AMA DISK WRITER FOR STREAM ST2 INITIALIZATION COMPLETE

4. At the RCV terminal type and enter **18.1u**

**Response:** The SM & REMOTE TERMINALS (RC\_EQIM) page is displayed. The cursor is positioned at the SM field.

5. Type and enter SM number \_\_\_\_

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, Screen#, or Print:**

6. Type and enter **c**

**Response:** **Change Field:**

7. Type and enter BILLINGSTRM or field number.

**Response:** Cursor at BILLINGSTRM

8. Type and enter **ST2**

**Response:** **Enter I=Insert, R=Review, U=Update, D=Delete**

9. Type and enter **U**

**Response:** updating . . . FORM UPDATED.

10. Repeat from Step 4 for other SMs as required.

11. When all entries have been made, enter **RETURN**

**Response:** **Enter Update, Change, Validate, Screen#, or Print:**

12. To update the data, type and enter **u**

**Response:** updating . . . FORM UPDATED.

13. Exit RC/V.

#### 11.58.4.1 Backup ODD

1. To backup ODD, at the MCC, type and enter

**BKUP:ODD,NRODD=a&&b,RODD,AM,CMP=0;**

**Where:**

a and b = Range of SMs

**NOTE:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

**Response:** BKUP NRODD COMPLETED

**NOTE:** Data base back up will take several minutes to complete.

#### 11.58.4.2 This is a "Don't Care" heading

**11.58.5 Set Up Teleprocessing Or Tape Writing For Stream ST2**

1. If teleprocessing, type and enter

**SET:AMA:CONTROL:ST2,OFFICEID=XXXXXX,OPTION=TP,HOCPSWD=XXXXXXXXXX;  
ALW:AMA:SESSION:ST2;**

2. If a tape is being written, type and enter

**SET:AMA:CONTROL:ST2,OFFICEID=XXXXXX,OPTION=TAPE,TAPEID=XXXXXXXXXX;  
ALW:AMA:SESSION:ST2;**

**NOTE:** 17 characters are allowed for a tape ID.

3. If dual tape units are being used, type and enter

**SET:AMA:CONTROL:ST2:MT=1;**

If automatic tape writing is desired between 2:00 a.m. and 6:00 a.m., type and enter

**SET:AMA:CONTROL:ST2:START=02-00,STOP=06-00;  
ALW:AMA:AUTOST;**

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## 12. ROUTINE EXERCISE DESCRIPTION

### 12.1 GENERAL

This section provides a description of the 5ESS®-2000 switch routine exercise (REX) for the high capacity offices capability. Included are detailed descriptions and examples of the REX craft interface and a set of guidelines for establishing a schedule of tests for the Administration Module (AM), Communication Module (CM), and Switching Modules/Switching Module-2000s (SMs/SM-2000s).

Section 13 contains detailed level procedures for the 5ESS-2000 switch REX for the high capacity offices capability. Included are procedures for the AM, CM, and SMs/SM-2000s.

**NOTE:** The Operational Support System (OSS) REX scheduler is a PC supported tool, and needs to be ordered. This tool is strongly recommended for scheduling REX, as improper implementation of REX can overtax system resources.

A new feature called "automatic REX scheduler" was introduced with the 5E8 software release. This feature is not to be confused with "REX automatic scheduling" discussed in Section 12.5 of this document. With the new "automatic REX scheduler", the schedule is calculated and entered into RC/V views, and REX runs, all from one command. With the old "REX automatic scheduling" the schedule must be calculated by the user and entered manually, after which REX will run "automatically" every day. The new "automatic REX scheduler" performs the same logical function as the "OSS REX scheduler program" (Section 12.10), but the new program resides in the switch instead of a personal computer.

### 12.2 PURPOSE OF REX

The purpose of the 5ESS-2000 switch REX is to routinely schedule tests, in the AM, CM or SMs/SM-2000s, in order to detect latent faults present in in-service units. Simply stated, REX is nothing more than an automatic scheduler of tests. The types of tests that REX schedules are dependent upon the module type, either AM, CM, or SM/SM-2000.

In the AM, the REX processor searches the Unit Control Block (UCB) records of the Equipment Configuration Data base (ECD) for hardware communities that can be removed from service. REX can only be performed on equipment that has duplex mode configuration, not simplex mode. When REX locates a hardware community that can be removed from service, REX requests a remove diagnosis and restore of the hardware community. When the exercise of the hardware community is completed, REX resumes searching the data base for the next hardware community that can be removed from service and exercised.

It should be noted that in the AM, REX is allowed to be performed only on the control unit (CU). REX is prohibited on the following devices:

- IOP (input/output processor)
- DFC (disk file controller)
- MHD (moving head disk)
- CNI (common network interface), a stored program control system.

In the CM, two test types are available for scheduling. They are a full and partial diagnostic, described as follows:

- **Full diagnostic (DGN):** A full diagnostic results in a conditional restore request including the Trouble Location Procedure (TLP) option. A conditional restore consists of: a remove of the target unit if it is not already out-of-service, a full diagnostic on the unit, and a restore of the unit to service if the diagnostic result was all tests pass (ATP) or conditional all tests pass (CATP).

If the diagnostic fails during REX, and only during REX, the failure message along with the TLP will print out. The message (format defined below) STF RETRY TO FOLLOW will print, then a retry will be done beginning with the first phase. If the diagnostics (C)ATP on the retry, the diagnostics will be run one more time to verify the failure.

If the diagnostics (C)ATP on both of these retries, the circuit/unit will then be restored to service. If the diagnostic fails during either of the retries, the failure will print out along with the TLP, and the circuit/unit will be considered faulty and will be left OOS. The failure message that will be printed when a retry is going to be done, will have the following format:

**DGN xyz = a COMPLETED STF RETRY TO FOLLOW**

Where: **xyz** is the circuit/unit being diagnosed and **a** is the circuit/unit number.

**NOTE:** Due to the severity of type of diagnostic failure, some failures may not cause a retry to be done; therefore, if the diagnostic fails, it will stop, no retry done, and the circuit/unit will be left OOS.

- **Partial diagnostic (SWITCH):** SWITCH results in a soft switch of the communication module processor (CMP), the pump peripheral controller (PPC), the foundation peripheral controller (FPC), and the office network and timing complex (ONTC). No diagnostics are executed.

In the SM/SM-2000, three test types can be specified. They are as follows:

- **Full diagnostic (DGN):** A full diagnostic results in a conditional restore request including the trouble location procedure (TLP) option. A conditional restore consists of: a remove of the target unit/circuit, a full diagnostic on the unit/circuit, and a restore of the unit/circuit to service if the diagnostic result was all tests pass (ATP) or conditional all tests pass (CATP).

If the diagnostic fails during REX, and only during REX, the failure message along with the TLP will print out. The message (format defined below) STF RETRY TO FOLLOW will print, then a retry will be done beginning with the first phase. If the diagnostics (C)ATP on the retry, the diagnostics will be run one more time to verify the failure. If the diagnostics (C)ATP on both of these retries, the circuit/unit will then be restored to service. If the diagnostic fails during either of the retries, the failure will print out along with the TLP, and the circuit/unit will be considered faulty and will be left OOS or put in the degraded state. The failure message that will be printed when a retry is going to be done, will have the following format:

**DGN xyz=a COMPLETED STF RETRY TO FOLLOW**

Where: **xyz** is the circuit/unit being diagnosed and **a** is the circuit/unit number.

**NOTE:** Due to the severity of type of diagnostic failure, some failures may not cause a retry to be done; therefore, if the diagnostic fails, it will stop, no retry done, and the circuit/unit will be left OOS or degraded.

- **Fabric exerciser (FAB):** The FAB tests the operation of the gated diode crosspoints (GDX) in the line unit (LU) concentrator grids and grid boards. It requests a path to each crosspoint to be tested by calling peripheral control (PC) path hunt routines. A series of tests are then performed on the crosspoint and its associated path using a high-level service circuit (HLSC).
- **Electronic loop segregation (ELS):** ELS tests customer lines to determine a suitable network balance necessary to reduce the amount of potential echoing in the transmission path. Office data is updated, as needed, storing the proper balance network value to be used in call setup.

The following comments apply to both CM and SM/SM-2000 diagnostics. A global parameter can be modified using



ODBE to control the diagnostic retry. The name of the global parameter is GLRETRY. The default value for GLRETRY is 2, which will produce the same results for the retry as described in the previous sections. If GLRETRY is changed to 1, the first failure message and the STF RETRY TO FOLLOW message will be silenced. In this mode, the output of the diagnostic retry will be unseen by the craft. If GLRETRY is modified to 0, the diagnostic retry will be completely turned off.

### 12.3 REX SCHEDULING

Each module has its own REX schedule. A schedule is defined as the start time and duration for each test type along with a verbose option flag. The REX schedule is resident in the office dependent data (ODD) data base, and can be changed and/or displayed via recent change/verify (RCV) mechanisms. The REX program obtains the schedule, from the ODD relation ``rlRXSCHD'', for the current day at midnight. Therefore, if the REX schedule is modified, the new schedule is not effective until the midnight following the change.

REX also provides the ability to turn off the REX scheduling without modifying the data base. This can be done by putting a module test type in an inhibit state via the **INH:REX** command. The inhibit state remains active until it is removed via the **ALW:REX** command. The inhibit status is printed automatically at midnight so that the craft can keep track of what modules have been inhibited or what modules have individual units inhibited for test.

In the AM, REX is scheduled and initiated by the CRON process in the *UNIX*<sup>®</sup> RTR. The schedule is set in */user/lib/crontab* file. Refer to 235-700-200, *UNIX*<sup>®</sup> *System Reference Manual* for the details of the system CRON file and the man pages for cron and crontab.

Two CM models are available as part of the 5ESS-2000 switch architecture: communication module, model 1 (CM1) for configurations up to 48 SMs/SM-2000s, and communication module, model 2 (CM2) for configurations up to 192 SMs/SM-2000s. For the CM, REX schedules full diagnostics for the message switch (MSGS) and the ONTC. Growable units, that is, module message processors (MMPs) are scheduled as they became fully operational in the ODD data base.

In both CM1 and CM2, the MSGS consists of the message switch control unit (MSCU), the CMP, the PPC, the FPC, and the MMPs. For 5E9(2) and later software releases, CM2 may have optional QLPS Gateway Processor (QGP) in the MSGS. For CM1, the ONTC consists of the link interface (LI), the network clock (NC), the message interface (MI), the time multiplexed switch (TMS), and the dual link interfaces (DLIs).

For 5E9(2) and later software releases, CM2 may have optional QLPS in the ONTC. If equipped with SM-2000, NLIs are used instead of DLIs. In the CM2 ONTC, the dual message interface (DMI) replaces both the MI and LI to account for both the dual and single fabric configurations of the TMS. The role of the NC, TMS, and DLIs remains the same in CM2 as in CM1.

In the SMs/SM-2000s, the module controller/time slot interchanger (MCTSI) and its associated peripheral units are scheduled for full diagnostics. The number and types of peripheral units scheduled are based on how the SM/SM-2000 is equipped.

### 12.4 REX MANUAL COMMANDS

#### 12.4.1 EXECUTE

The execute command will initiate routine exercise scheduling for the entire office, a single module, and/or a single test type. If a test type is currently executing or is inhibited, the request will be ignored. A message signaling that REX has started will be printed after all operational units have been tallied and placed in the not started column of the REX summary report. See Procedure 13.1 for complete command syntax and Procedure 13.2 to analyze the resulting output message. (There is no manual execution for REX in the AM.)

#### 12.4.2 VERBOSE OPTION

The verbose option, when used with the execute command, will provide the craft with the ability to print each unit completion message on the receive-only printer (ROP). This option can also be specified for REX when it is started automatically via RC/V. More information about the running of REX automatically can be found in Section 12.5 (REX Automatic Scheduling).

The verbose option should be used with care. No more than two modules should be running with the verbose option at a time. Having more than two modules running at the same time with the verbose option can result in flooding of the ROP with unit completion messages, which could result in some messages being lost.

### 12.4.3 DEMAND OPTION

Some diagnostics have demand phases that are traffic affecting. The demand option is provided to perform tests that are not run in normal mode operations. This option gives the testers at the factory the ability to run all diagnostic phases since no consequences from the demand phases are realized.

**NOTE:** This option should not be used in an office that has been cutover.

### 12.4.4 STOP

Stop halts current routine exercise activity. Stop may halt exercises in the entire office, a range of modules, and/or a single test type. If a test is not executing, the request will be ignored. A message signaling the stop of exercises will be printed. In both the CM and SMs/SM-2000s, tests in progress are stopped and the unit restored.

In the AM, the user can stop an active or waiting REX process maintenance request in the Deferred Maintenance Queue (DMQ) of the Maintenance Input Request Administrator (MIRA). **STOP:DMQ** may leave the hardware community in the OOS state if the REX maintenance request was active, and manual action may be required to restore the hardware community to service. **STOP:DMQ** does not stop the REX process. The format of the **STOP:DMQ** input message is as follows:

**{STOP | STP}:DMQ;{ACTIVE | WAITING|unit#[subunit#]}!**

See Procedure 13.3 for complete command syntax.

### 12.4.5 REPORT

The report command will display a test type result summary of the hardware units tested in the last REX session. In the case of the DGN and FAB tests, the summary includes the circuit type exercised and a circuit count for each test status (for example, ATP, STF, etc.). A unit out of service will be skipped by REX, and hence, will appear as part of the not started totals. For the ELS test, the summary report will contain the number of lines completed, skipped, and not started.

A summary report may be requested for the entire office (that is, all modules and tests) for a single module (that is, one SM/SM-2000 or CM) and/or a single test type (for example, ELS). A report for the entire office is automatically generated every day at 8:00 AM summarizing the activity of the previous night (if any).

See Procedure 13.4 for complete command syntax. Procedures 13.5 and 13.6 show the resulting output messages for DGN/FAB and ELS, respectively.

### 12.4.6 REXINH STATUS

#### 12.4.6.1 Module Inhibit Status

The output status command is used to request the REX status for the entire office or a single module (that is, SMs/SM-2000s or CM). Displayed is the inhibit, the allow, or the in-progress state of a particular test type. The status may be changed by using the **INH:REX** and **ALW:REX** commands or the start and stop commands.

For the diagnostic (DGN) test type, two entries are displayed, one for the module and one to indicate if any units in the module have been inhibited. The module entry will either display the inhibit, the allow, or the in-progress state. The units entry will only display the inhibit or allow state since the in-progress state does not apply.

When REX is running in a module, the status of the module will reflect the in-progress state. When it completes, it will display its inhibit or allow state. Hence, the in-progress state has higher precedence than the inhibit or the allow state. It should also be noted that if a test type is inhibited, it will remain inhibited until an allow command is issued to remove the inhibit.

See Procedure 13.7 for complete command syntax and for complete command syntax and Procedure 13.8 to analyze the resulting output message.

#### **12.4.6.2 UNITS Option**

If the REXINH status shows a module to have units inhibited for DGN test, the UNITS option of the OP:REXINH command can be used to list the individual units that have been inhibited for DGN tests. This option is used primarily to list the units on the ROP since the inhibits themselves can be viewed on Page 1280 for the SM/SM-2000 or Page 1290 for the CM.

See Procedure 13.9 for complete command syntax and Procedure 13.10 to analyze the resulting output message.

### **12.4.7 INHIBIT**

#### **12.4.7.1 Module Inhibit**

Routine exercise of the entire office, a single module, and/or single test type may be disabled using the inhibit command. If the unit and/or test type has already been inhibited, the inhibit command will merely give an "OK" acknowledgment. Inhibiting a test type that is in-progress will not cause the testing to halt. The **STP:REX** command should be used to halt execution.

To keep track of all modules that are inhibited in an office, a REXINH status report is generated automatically every day at midnight for all operational SMs/SM-2000s and the CM. This report will allow the craft to keep track of all REX inhibits in an office so that no module is inadvertently inhibited forever.

See Procedure 13.11 for complete command syntax.

#### **12.4.7.2 Unit Inhibit**

When it is determined that a unit in a module should be skipped during REX, the craft may inhibit that unit for test by using the unit inhibit command. The unit inhibited will stay inhibited until a full initialization has occurred or until the unit is allowed via the unit allow command.

When the unit is inhibited the SM STAT box will reflect the REX inhibit status, unless there is a higher priority status that must be shown. (To view the status for an SM STATUS box and their priority, use the OP:SYSSTAT command.)

See Procedure 13.12 for complete command syntax.

### **12.4.8 ALLOW**

#### **12.4.8.1 Module Allow**

If routine exercise has been previously inhibited, the allow command will enable routine exercise to be started via

automatic scheduling or through the manual execute (EXC) command for an entire office, a single module, and/or a single test type. If a unit and/or test type is currently allowed, the allow command will merely give craft acknowledgment. At full initialization time, all modules (CM and SMs/SM-2000s) and tests are allowed.

See Procedure 13.13 for complete command syntax.

### 12.4.8.2 Unit Allow

Those units that have been inhibited for diagnostic test via the unit inhibit command can be allowed for test again by using the unit allow command. When the last unit in a module has been allowed for DGN test, the SM status (STAT) box for that module will not display the REX inhibit status.

**NOTE:** The unit allow command does not apply to ELS and FAB test types.

See Procedure 13.14 for complete command syntax.

## 12.5 REX AUTOMATIC SCHEDULING

### 12.5.1 General

The REX program obtains the schedule from the ODD relation ``rRXSCHD" for the current day at midnight. Therefore, if the REX schedule is modified, the new schedule is not effective until the midnight following the change.

Routine exercise tests may also be started and stopped automatically as described in the ODD. The 5ESS-2000 switch RC/V mechanism may be used to alter and view the scheduled start and stop times.

Each module has a RC/V display page containing the time of day (hours and minutes in military time) at which test scheduling should begin, the scheduling duration (hours), a verbose option flag, and the day of the week test scheduling should take place. See Figure 12-1 .

---

|                                      |                      |             |          |          |
|--------------------------------------|----------------------|-------------|----------|----------|
| 5ESS (R) SWITCH                      |                      |             |          |          |
| RECENT CHANGE                        |                      |             |          |          |
| ROUTINE EXERCISE SCHEDULE VIEW - 8.3 |                      |             |          |          |
|                                      |                      | DIAGNOSTICS | ELS      | FABRIC   |
| *1. ENTITY                           | START TIME - HOURS   | 2. ____     | 13. ____ | 24. ____ |
|                                      | START TIME - MINUTES | 3. ____     | 14. ____ | 25. ____ |
|                                      | DURATION OF TESTS    | 4. ____     | 15. ____ | 26. ____ |
|                                      | REX VERBOSE          | 5. ____     | 16. ____ | 27. ____ |
|                                      | SUNDAY               | 6. ____     | 17. ____ | 28. ____ |
|                                      | MONDAY               | 7. ____     | 18. ____ | 29. ____ |
|                                      | TUESDAY              | 8. ____     | 19. ____ | 30. ____ |
|                                      | WEDNESDAY            | 9. ____     | 20. ____ | 31. ____ |
|                                      | THURSDAY             | 10. ____    | 21. ____ | 32. ____ |
|                                      | FRIDAY               | 11. ____    | 22. ____ | 33. ____ |
|                                      | SATURDAY             | 12. ____    | 23. ____ | 34. ____ |

---

**Figure 12-1 Recent Change REX (View 8.3)**

If the verbose option is specified for a module, it will result in the REX started and completed message along with each unit completion message being sent to the DAYLOG file. All TLP data that results from failing diagnostics will still be sent to the ROP. The message class used to retrieve REX messages from the daylog file is lrex. See the

**DUMP:DAYLOG** command to retrieve the REX data from the daylog file and the **CHG:LPS** command to have logging turn on.

Each page can be accessed by selecting view 8.3 on the RC/V menu (Page 196). A series of prompts will ask you if you wish to update the existing page, review it, etc.

For the three test types (DGN, FAB, and ELS), there is a position associated with each day the test is to run. FAB and ELS tests do not apply to CM, and any attempt to alter the CM page for these tests will result in an error. An ``F" in a position indicates run a full test on the day corresponding to that position. An ``N" indicates no tests are to be run. In the case of the CM, a ``P" (for partial test) in the DGN column will schedule the CM switch test. Partial test only applies to the CM and not the SMs/SM-2000s.

## 12.5.2 Digital Network Unit - SONET (DNU-S)

In the 5E10 and later software releases, the FI SWITCH INT field on Recent Change View 8.1 allows the DNU-S SFI switching by REX. The default value for FI SWITCH INT is 28 days. SFI switching causes a glitch which generates transient errors on the facilities. The FI SWITCH INT allows the user to set how often the SFIs will switch due to REX. REX switches the SFIs ACT/STBY every FI SWITCH INT days. The DNU-S SFI switching can be disabled by setting the FI SWITCHINT field to a 0. The current status of the DNU-S is available on MCC page 1510.

## 12.6 REX MCC PAGES

### 12.6.1 GENERAL

A set of REX master control center (MCC) pages are provided to help manage REX activities in large offices. These pages will allow the operating company personnel to monitor REX at either a high level view or at a module-level view. The new pages are the REX SUMMARY pages, the SM REX STATUS page, and the CM REX STATUS page.

### 12.6.2 REX SUMMARY PAGE

There are four pages which comprise the REX summary pages (1271 - SM 1 - 48 REX STATUS, 1272 - SM 49 - 96 REX STATUS, 1273 - SM 97 - 144 REX STATUS, and 1274 - SM 145 - 192 REX STATUS). These pages are used to display the REX status of 48 SMs/SM-2000s at a glance.

The information displayed for each operational SM/SM-2000 will be the SM/SM-2000 number and any test type that is in-progress or inhibited. The test displayed for in-progress is ``IP" and that for inhibit is ``INH". The in-progress status has a higher procedure than the FAB test type is inhibited for test, and in-progress status will be displayed for DGN test and the inhibited status for FAB will not show up. If REX is allowed and not in-progress for any test type, no state text will be displayed. Only the SM/SM-2000 number will appear.

If the DGN test type appears as inhibited, either the module has been inhibited for DGN test or a unit in the module has been inhibited for DGN test. To determine which one is inhibited, use the **OP:REXINH** command or display the appropriate SM status page.

The video attributes for the in-progress status are black on yellow for color terminals and reverse video for black and white terminals. The video attributes for the inhibit status are blue on yellow for color terminals and reverse video for black and white. All other states will be normal video (white on black).

There is also an indicator on MCC Page 1271 to display summary status for the CM in the same manner as for the SMs/SM-2000s. For the CM, only the DGN test type will show up as being inhibited or in-progress. Like the SMs/SM-2000s, if you need to determine whether the CM module has been inhibited for DGN test or a unit has been inhibited, use the **OP:REXINH** command or display the CM status page.

There are menu commands to direct the craft to the correct detail page for the other REX SUMMARY pages, to the SM REX STATUS page for a particular SM/SM-2000, and to the CM REX STATUS page. A copy of the REX

STATUS page can be found in 235-105-110, *System Maintenance Requirements and Tools*.

### 12.6.3 SM X REX STATUS DISPLAY PAGES

There is a REX STATUS page [1280 (1280 - 1289 for 5E9(2) and later software releases) - SM X REX STATUS] for each SM/SM-2000. Displayed will be the units equipped for REX in the SM/SM-2000 for which the page is being displayed, the in-progress or inhibit status of REX on a per-unit basis [with the same characteristics as described for the 1271 (1271 - 1274 for 5E9(2) and later software releases) - REX STATUS page], and the REX automatic schedule table for that SM/SM-2000.

**NOTE:** The REX schedule is updated daily at midnight. Any changes made after midnight will not take affect until the following midnight.

The schedule could be updated if the REX administrative module (AM) process is initialized either through a partial or full initialization or through a single process purge of the REX AM process.

Menu commands are provided for starting a particular exercise type, and an output command will be provided to obtain a ROP listing of the REX diagnostic summary for the SM/SM-2000. A copy of the REX SM page can be found in the 235-105-110, *System Maintenance Requirements and Tools*.

### 12.6.4 CM REX STATUS DISPLAY PAGE

There is a REX STATUS page (1290 - CM REX STATUS) to display the summary status of REX for the CM. The REX status is displayed for MSGS 0, MSGS 1, ONTC 0, and ONTC 1. The REX status for each of these units is displayed as described for the 1271 - REX SUMMARY page. This page (1290) also provides a REX automatic schedule table for the CM REX like that for the SM Page 1280. It also provides commands to start REX and to print on the ROP the REX diagnostic summary for the CM. A copy of the REX CM page can be found in 235-105-110, *System Maintenance Requirements and Tools*.

## 12.7 REX SCHEDULING ALGORITHMS

### 12.7.1 COMMUNICATION MODULE UNITS

In the CM, two types of tests can be performed: a SWITCH or a DGN. When the SWITCH test type is requested, the result is a soft switch of the CMP, followed by the FPC, then the PPC, and then the ONTC. When the DGN test type is requested, the standby CMP, FPC and PPC are scheduled for test. These two or three units are always scheduled for test in the CM whenever diagnostics are requested to run.

Next, REX schedules the rest of the units in a round-robin algorithm. This means that REX will start scheduling test on the last unit that it had stopped during the last invocation and continue either until it has reached the same unit that it originally started with in the CM or until it is stopped. The stop could come from the manual **STP:REX** command or from the automatic scheduler if the allotted time given to CM REX runs out. The round-robin algorithm assures that each unit is exercised. This scheme allows large offices to complete CM REX in one or more invocations.

### 12.7.2 SWITCHING MODULE UNITS

As mentioned previously, there are three test types that can be scheduled in an SM/SM-2000: ELS, FAB, and DGN. ELS and FAB tests are scheduled in the same manner. Both start scheduling the grid in the line unit that it had stopped on previously and proceeds to test all the grids in the module until all grids in each line unit have been tested. If the test is not stopped via a manual command or because the time allowed has run out, they will stop on the same grid that they had originally started on. It should be noted that, even though the tests that ELS and FAB perform are different, the algorithm that is used to schedule the grids is similar.

The algorithm used to schedule diagnostics is similar to that of the CM. There are global units, such as the MCTSI,

BTSR, GDSU, MSU, etc., which are always scheduled for test in an SM/SM-2000, if equipped. These units are always exercised first because other circuits depend on them for their diagnostic testing. After the global units have been scheduled for test, the local units are then scheduled. The algorithm used in scheduling the local units is the same as that in the CM. The local units are those that are connected to peripheral interface control buses (PICBs) and are not part of the global units. These units consist of the LU, TU, LDSU, etc. In an SM-2000, concurrency is employed which allows as many as 8 LU3s to be scheduled for DGN testing at the same time. This concurrency also allows as many as 8 LU3s to be scheduled for FAB testing at the same time.

Testing of the local units starts with the unit that REX had stopped on during its last invocation and continues until all local units have been diagnosed. If the test is not stopped via a manual command or because the time allowed has run out, it will stop on the same local unit (or units, in the case of concurrent REX in an SM-2000) that it had originally started on. If it does stop on another unit, then the next time REX is run on the local units, it will start with the new unit.

In each case mentioned previously, REX remembers where it finished testing (the grid number in the FAB and ELS cases and the PICB number in the DGN case) in order to resume scheduling where it left off. The scheduling DGN scheme for the SM/SM-2000 is illustrated in Procedure 13.5.

## 12.8 REX SCHEDULING RECOMMENDATIONS

### 12.8.1 COMMUNICATION MODULE

#### 12.8.1.1 Run Time Data on Each of the CM Test Types

- The total time in hours required for CM REX to complete diagnostic test on all units in the CM can be determined by the following formula. Note this time may vary slightly depending on the activity within the system.

Total time = [45.5 + 3.10 times no. MMPs + 5.33 times no. DLIs + 11 times no. QLPS Gateway Processors (QGP) + 3 times no. QLPSs + 8 times no. of NLIs] divided by 60.

The number 45.5 is the approximate time in minutes required to diagnose the standby FPC, standby PPC, MSCUs, and the ONTC Commons (ONTCCOMs). This number is adjusted to 52 minutes, which includes the time to diagnose the standby CMP.

- Partial test of the CM, a switch of the FPC, PPC, and ONTC, this takes approximately 0.5 to 1.0 minutes to complete. Which includes the switch of the CMP.

#### 12.8.1.2 Recommendations of CM REX

Full routine exercise (DGN) of the CM should be scheduled so that the total time to complete DGN testing, as computed by the previous formula, is spread over 6 days. For example, this means that if there are 8 MMPs and 50 DLIs in an office, it would take approximately 6.5 hours to complete. This would then imply that REX in the CM should be scheduled to run 1.5 hours each day for 6 days or any other combination which will allow CM REX diagnostics to complete testing each unit in the CM in 6 days. The seventh day a CM partial test should be performed.

REX is usually scheduled to run at times when call traffic is at its minimum. This time is usually between the hours of 12:00 midnight and 8:00 a.m. with traffic not exceeding 30,000 calls per hour. During this time the UNIX real-time reliable (RTR) system can be scheduling REX to run on its components. The UNIX RTR system schedules diagnostics on the AM equipment and is discussed in Section 12.9.2. If UNIX RTR REX system is scheduled to run, CM REX should be postponed until a later time. Simply stated, CM REX should not be scheduled to run at the same time UNIX RTR REX system is scheduled to run.

## 12.8.2 SWITCH MODULE

### 12.8.2.1 Run Time Data on Each of the SM/SM-2000 Test Types

- ELS tests take approximately 8 minutes per grid or 4 minutes per grid board. Each line unit has 8 grids or 16 half grids; therefore, it takes slightly over 1 hour for ELS exercises to complete on a line unit. ELS tests are scheduled on a grid basis.
- FAB tests take approximately 15 minutes per grid or 7.5 minutes per grid board. Again, each line unit has 8 grids or 16 half grids; therefore, it takes about 2 hours for the FAB exercises to complete on a line unit. Fabric tests are also scheduled on a grid basis.
- DGN tests take approximately 3 hours to complete in SMs/SM-2000s that have one line unit. This may vary slightly based on SM/SM-2000 peripheral equipage. For modules with more than one line unit, estimate an additional 1.75 hours for each additional line unit.
- With LU3 in an SM-2000, FAB tests take approximately 10 minutes per grid or 5 minutes per grid board. Again each LU3 has 10 grids or 20 grid boards; therefore, it takes about 1.5 hours to complete an LU3. Up to 8 LU3s on the same SM-2000 can run concurrent FAB exercises.
- With LU3 in an SM-2000, DGN tests take approximately 33 minutes to complete one line unit with alternate Step 1/Step 2 diagnostics. Up to 8 LU3s on the same SM-2000 can run concurrent DGN tests.

### 12.8.2.2 Recommendation for SM/SM-2000 REX

The goals in the SM/SM-2000 are the same as the goals for the CM; that is, for DGN test, REX should test each unit in each SM/SM-2000 at least once per week, and for ELS and FAB tests all grids should be tested at least once per week. It is recommended that DGN, FAB, and ELS not overlap. The overlapping of these tests may result in some circuits being skipped for a test because they may be taken out of service as a result of another test.

- For the **ELS** exercise, the maximum number of SMs/SM-2000s concurrently executing ELS tests should not exceed the total number of transmission test facility (TTF) responders and global digital services function (GDSF) GDG transceivers made available for ELS. For example, if an office with five SM/SM-2000s has three TTF responders assigned for ELS, only 3 SMs/SM-2000s should perform ELS tests at the same time.

The amount of time allocated for ELS tests and the number of SMs/SM-2000s for which ELS tests are to run can be determined by the number of line units equipped in each SM/SM-2000. The run times, as previously mentioned, should be used to help guide the craft in determining the most appropriate ELS schedule.

- For the **FAB** exercise there are no restrictions on the number of SMs/SM-2000s that can run fabric test concurrently. This then implies that all SMs/SM-2000s can run FAB test at the same time. The only variable that must be used to determine the best schedule is the amount of time that can be used. If time is at a premium for FAB test, then it should be run at the same time as CM diagnostics, and longer if necessary. Fabric test should not be run with ELS or SM/SM-2000 diagnostic test, as will be explained later.
- **Diagnostic tests** should be run in a similar manner as in the CM. Based on the run times as mentioned in the previous section, SM/SM-2000 diagnostics should be spaced out over seven days and enough time allocated to complete each unit. Up to 50 SMs/SM-2000s may run diagnostic tests in parallel.

## 12.9 REX SCHEDULING CONFLICTS

### 12.9.1 TTF RESOURCE CONTENTION



The ELS exerciser uses TTF or GDSF circuits (a shared resource among SMs/SM-2000s) to perform its tests. If ELS exercises are running concurrently in more SMs/SM-2000s than there are TTF or GDSF circuits, exercisers in some of the SMs/SM-2000s may terminate due to the unavailability of a TTF or GDSF. The user should consult Section 12.8 — "REX Scheduling Recommendations" for scheduling procedures to eliminate this problem.

### 12.9.2 **UNIX<sup>®</sup> RTR/CM REX System**

Apart from 5ESS-2000 switch routine exercise, *UNIX<sup>®</sup>* RTR REX system has its own routine exercise. Its functions and actions are totally independent of 5ESS-2000 switch routine exercise. The units that the UNIX RTR system exercises include, Control Units (CU), Disk File Controllers (DFC), Moving Head Disks (MHD), and Input/Output Processors (IOP).

The MSGS, which is the responsibility of 5ESS-2000 switch REX, is permanently inhibited for UNIX RTR REX system in the equipment configuration data (ECD).

It is important for the user of both UNIX RTR REX system and 5ESS-2000 switch REX to realize that input commands to both are similar in syntax. One should refer to the procedures in this section for correct 5ESS-2000 switch REX command syntax.

As mentioned in previous sections, CM REX should not be scheduled to run at the same time as UNIX RTR REX system. This is due mainly to the fact that when a soft switch of the CUs is performed, all active CM diagnostics will be aborted by the switch maintenance kernel process (SMKP). This may leave units like the ONTC and the MSGS in a simplex configuration.

### 12.9.3 **SM/SM-2000 DGN/FAB EXERCISE**

Fabric exercise holds a high-level service circuit (HLSC) for about 5 to 7 minutes per grid or grid board. If fabric exercises are running in line unit 0 (LU0) and diagnostics start on LU0, diagnostics will not be able to run on that HLSC. Hence, diagnostics will skip the GDXACC circuit in both service groups of LU0.

Similarly, if REX is running line unit channel circuit diagnostics and FAB exercise needs the associated B-link, then fabric tests will result in a conditional all tests pass (CATP).

The user should consult Section 12.8 entitled "REX SCHEDULING RECOMMENDATIONS" for scheduling procedures to eliminate these problems. Section 12.10 describes a newly developed program, called the "Operations Support System (OSS) REX SCHEDULER PROGRAM", which is useful for avoiding conflicts in any central office, especially those having a large number of switching modules.

## 12.10 **OSS REX SCHEDULER PROGRAM**

### 12.10.1 **GENERAL**

The OSS REX scheduler is a non-switch resident, support-system based program developed to ease the process of customizing REX schedule offices. See Section 12.11 , Automatic REX Scheduler).

The process is divided into four major phases:

- (1) **Data Collection:** The user is prompted for pertinent central office equipage data that is needed to create a REX schedule.
- (2) **Data Processing:** The program uses formulas and algorithms designed to reduce resource contention and generates a REX schedule tailored to the configuration of each central office.
- (3) **Recent Change Script Generation:** The program creates a recent change APPTXT file that can be executed from the switching control center (SCC) using the **SEND:OFC** command. This SCC command

allows the user to observe message acceptance or rejection, and to stop and restart message transmission using the available **SEND:OFC** message options. The contents of the recent change APPTTEXT file will cause the 5ESS-2000 switch to update recent change Views 8.1 and 8.3 automatically. For example, the command **SEND:OFC;CHANNEL FIVE.SMTC, FILE REX.FIVE!** will send the APPTTEXT recent change messages in file ``rex.five" to the central office over its second maintenance channel.

**NOTE:** To prevent loss of messages on the loffing channel, the SCC should use a recent change channel (if available) or a second maintenance channel to execute the recent change file.

- (4) **REX Schedule Output:** The program also generates a printout of the REX schedule that resembles RC/V Views 8.1 and 8.3. If you elect not to use the recent change APPTTEXT file that was generated by the program, this printout simplifies the process of transcribing data from the schedule into the 5ESS-2000 switch data base. It also reduces the likelihood of input errors.

## 12.10.2 PROGRAM LIMITATIONS

The program has the following limitations:

- (1) **Number Of Global Digital Service Unit (GDSU)/Transmission Test Facility (TTF) Responders (TN304B):** The maximum number of SMs/SM-2000s concurrently executing ELS tests cannot exceed the total number of TTF responders available for testing. The program will schedule as many SMs/SM-2000s as possible, and then creates an ELS overflow list to identify the SMs/SM-2000s that could not be scheduled successfully. In these instances, one alternative is to extend the duration of REX by starting it earlier or letting it run longer. The other alternative is to equip the switch with an additional TTF responder board.

## 12.11 AUTOMATIC REX SCHEDULER

### 12.11.1 GENERAL

The automatic REX scheduler program is a switch-resident software tool that eliminates the work of determining an optimal REX [and optionally, automatic line-insulation test (ALIT)] schedule and entering it manually through RC/V views.

The tool reads the ODD to determine what equipment is operational in the given office and calculates a REX schedule that provides the most complete coverage for the given equipment. This schedule is then printed to the ROP. If the ``UPDATE" option is used, the program also will automatically update the RC/V views (8.1 and 8.3) to place the schedule into effect.

**NOTE:** Verify that RC/V view 8.3 exists before executing the Automatic REX Scheduler with the update (UPD) option. If RC/V view 8.3 does not exist (as with a newly grown SM/SM-2000), it must be inserted or the Automatic REX Scheduler will fail.

Whenever a CM REX schedule is printed, a companion warning message is also printed. The warning is intended to alert the craft that when CM REX is running, AM REX,VFY:MHD or CMPR:MHD must not be running. The craft should execute the CRONTAB UNIX command on the Lucent Technologies 3B20/3B21D computer to display these schedules.

### 12.11.2 COMMAND SYNTAX

The basic command, entered at the MCC or trunk and line work station (TLWS), is: **EXC:SCHED[,ALL=]REX | ALIT**; where the choices in brackets indicate the scheduling desired, whether REX, ALIT, or both (ALL). Details of input and output messages to the ROP are shown in 235-600-700, *Input Message Manual*, and 235-600-750, *Output Message Manual*.

### 12.11.3 OPTIONS

Options exist to allow the user to specify (1) the days REX is to be run, (2) the start time, and (3) the duration. Additional options exist to specify ALIT end time and duration, as well as an option to update RC/V views with the new schedule. The user need only specify these options, if desired. If not desired, the program will use its own set of default options.

### 12.11.4 DEFAULT OPTIONS

Default options are as follows:

|               |                                                                                                                                          |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>REX</b>    | The REX runs 7 days a week, beginning at midnight and running for 6 hours.                                                               |
| <b>CM REX</b> | The CM REX begins at 1:00 a.m. and runs for 5 hours.                                                                                     |
| <b>ALIT</b>   | The ALIT ends at midnight with ``start" time based on the amount of time needed to diagnose all lines, or 5 hours, whichever is shorter. |

**NOTE:** The ALIT runs every day, regardless of options.

### 12.11.5 ERROR CHECKING

One of the goals of the REX scheduler is to diagnose all equipment in the office within at least a 1 week interval. If this is not possible, a message will be printed on the ROP indicating this, along with an estimate of what percentage of equipment will complete REX in a given week. The schedule will still go into effect (if the UPDATE option is used) or the user may retry the command with a different set of days or hours.

Warnings are also issued if SM/SM-2000 REX and ALIT overlap in their start and stop times, as well as warnings for CM and AM REX schedule conflicts. (This will not happen unless the user-specified options override the default options.)

### 12.11.6 OUTPUT

The ROP output gives the calculated REX schedule by day; that is, each day of the week is shown with a list of the SMs/SM-2000s running on that day. This list is duplicated for each of the REX test types (DGN, FAB, and ELS). Start time and duration are given at the top, as they will be the same for each day. The ALIT schedule shows start time and duration.

### 12.11.7 RECOMMENDATIONS FOR USE

The tool should be run for any new office that comes on line, as well as any times of major equipment growth, or change in maintenance hours and days. If the tool is rerun to try out different combinations of hours or days, no penalty is incurred, even if the UPDATE option is used. The REX schedules take effect only at midnight. Thus, a schedule that begins REX at 10:00 p.m. will not go into effect until the following day.

## 12.12 DIAGNOSTIC FAILURES

### 12.12.1 GENERAL

Since REX is nothing more than an automatic scheduler of tests, diagnostic tests are treated by the diagnostic itself and the diagnostic control software as they were a manual input request from the MCC. If the unit that was scheduled fails a test, it is removed from service, the failure is noted through an output message on the ROP, an appropriate alarm is generated, a trouble location procedure (TLP) process is invoked to locate the faulty circuit

board, and TLP information is printed at the ROP.

### **12.12.2 COMMON CONTROL CIRCUITS**

When a common control circuit (for example, a GDSUCOM in the SM/SM-2000 or MSCU in the CM) fails a diagnostic during routine exercise, the unit is taken out of service, TLP information is printed detailing the faulty circuit board and procedures to repair the faulty unit, and REX bypasses scheduling diagnostics on the subtending circuits.

### **12.12.3 OUT-OF-SERVICE UNITS**

Before REX schedules tests on a particular unit, it reads a data base to determine its switch maintenance state (OOS, ACT, STBY, etc.). All out-of-service (OOS) units are not scheduled for diagnostics because they are assumed to be faulty. It would be redundant to run diagnostics again.

### **12.12.4 SWITCHING OF ACTIVE/STANDBY UNITS**

When REX requests a standby unit to be diagnosed, either in the CM or in an SM/SM-2000, that unit will be restored to an active state and the active unit will be placed in the standby state, if the diagnostic indicated ATP. Switching the active and standby guarantees that each standby unit is put into a fully active state at least once per week and is not left in a standby state waiting for the active unit to be taken out of service. The switching of the standby unit also allows any latent operational faults to be detected which may not be detected during the running of the diagnostics.

### **12.12.5 COMMUNICATION MODULE UNITS**

#### **12.12.5.1 ONTC Diagnostics**

A duplex FPC is needed to run ONTCCOM diagnostics. If a standby FPC is not available, tests will not be performed. The ONTCCOM will be skipped. Therefore, it should be noted that if such a configuration exists, REX will not be able to run ONTCCOM diagnostics, and the REX summary will reflect a "Not Started" count for the ONTC.

### **12.12.6 SWITCH MODULE UNITS**

#### **12.12.6.1 Trunk Groups**

Each trunk group has associated with it an automatic maintenance limit (AML). This limit represents a minimal number of trunk circuits needed for service. If this limit is reached while REX is scheduling diagnostics on a particular trunk group, all subsequent trunk circuits that fail diagnostic tests will be restored back to service (even though a failure occurred) with a failure message printed on the ROP.

#### **12.12.6.2 Line Units**

The grid fabric exerciser (FAB) is an in-service diagnostic test. For software releases, a FAB failure in the grid of LU Model 1 or halfgrid of LU Models 2 or 3 line units, changes its MCC display state to degraded (DGR).

REX skips FAB testing of grids or gridboards that are out of service (OOS) and those marked customer deny (CDNY). Grids or gridboards in the DGR state are also skipped because they are known to have failures and have been identified for craft attention.

#### **12.12.6.3 Other SM/SM-2000 Peripherals**

Each type of peripheral circuit has a similar out-of-service threshold like the trunk circuits. These circuits will have the same affect as the trunk circuits if diagnostic test fail while the AML has been reached.



## **13. ROUTINE EXERCISE PROCEDURES**

### **GENERAL**

Section 13 contains detailed level procedures for the 5ESS®-2000 switch routine exercise (REX) for the high-capacity offices capability. Included are procedures for the administration module (AM), communication module (CM), and switching modules (SMs).

## Procedure 13.1: INITIATE REX SCHEDULING

### OVERVIEW

The **EXC:REX** input message executes either one or all valid test types of routine exercise (REX) of the hardware in the communication module (CM), and all switching modules (SMs) or in the CM, or in a range of SMs. The demand mode or the verbose mode can be specified.

**Caution:** *The EXC:REX message may result in severe traffic interruption if the DEMAND option is used.*

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:  
**EXC:REX[,CM][,SM=a&&b][,c][,VERBOSE][,DEMAND];**

Where:

- a** = Number of the SM on which REX is to start running or the lower limit of a range of module numbers
- b** = Upper limit on a range of SMs
- c** = REX test type to be executed (default is to execute all three test types)
  - = DGN - Execute the summary of diagnostic tests
  - DGN on CM can take some time.
  - = ELS - Execute the summary of electronic loop segregation tests (This is not a valid test type for the CM.)
  - = FAB - Execute the summary of fabric exerciser tests of grids (This is not a valid test type for the CM.)
  - = SWITCH - Switch of the CM hardware states only (If neither CM nor SM is specified the hardware is tested in the CM and all of the operational SMs.)
- DEMAND** = Start the REX in the demand mode. Default is the nondemand mode. Do not use the DEMAND option if the SM is cut-over and taking live traffic, as this results in severe traffic interruption. The DEMAND option is specified only when the SM is in the pre-cut state (that is, not in operation and taking no live traffic.) This mode is provided to test the circuits that are not tested in normal mode because, when they are taken out of service for test, the subtending trunks are also taken out of service. The demand-only phases of the circuit diagnostics are also run during this mode. The demand option is not allowed for the CM.
- VERBOSE** = Print each unit completion message on the ROP and on the terminal that requested it. (Default is not to print the completion message for each unit but still print failures for each unit on the ROP.)

Response: **PF** is printed followed by the **EXC REX** output message.

2. Analyze EXC REX output message.

Reference: **Procedure 13.2**

**Results:** REX scheduling initiated.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.2: ANALYZE EXC REX OUTPUT MESSAGE

### OVERVIEW

The purpose of the EXC REX output message is to inform the user that routine exercise (REX) for a valid test type has started, completed, or stopped in the switching module (SM), or the communication module (CM).

### PROCEDURE

1. At master control center (MCC) or receive-only printer (ROP), analyze the following output message:  
**EXC:REX=[AM][CM][SM=a b c]**

Where:

- a** = Number of the SM for which REX is to start, complete, or stop
- b** = DGN - Diagnostic tests
- or
- b** = ELS - electronic loop segregation (ELS) tests
- or
- b** = FAB - Fabric exercise tests of grids
- or
- b** = SWITCH - Switch of administrative module hardware
- c** = STARTED - Tests have started
- or
- c** = COMPLETED - Routine exercise tests have completed
- or
- c** = STOPPED - Tests have stopped due to a manual stop command or time has expired for tests via recent change and verify (RC/V).

**Results:** EXC REX output message analyzed.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 13.3: STOP TEST TYPES OF REX

### OVERVIEW

The **STP:REX** message stops either one or all valid test types of routine exercise (REX) of the hardware in the communication module (CM), and all switching modules/switching module-2000s (SMs/SM-2000s) or in the CM or in a range of SMs/SM-2000s.

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:

**STP:REX=[AM][CM][SM=a&&b][,c];**

Where:

- a** = Number of the SM/SM-2000 for which REX has been requested to be stopped or lower limit of a REX of module numbers
- b** = Upper limit of a range of module numbers requested to be stopped
- c** = REX test type to be stopped (default is to stop all valid test types)
- or
- c** = DGN - Stop diagnostic exercise
- or
- c** = ELS - Stop electronic loop segregation tests. This is not a valid test type for the CM.
- or
- c** = FAB - Stop fabric exerciser tests of grids. This is not a valid test type for the CM. (If neither AM, CM, or SM/SM-2000 is specified, the default is to stop exercise hardware in the CM and all SMs/SM-2000s).

Response: **PF** is printed followed by the **OP:REX** output message.

**Results:** Test types of REX stopped.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.4: REQUEST SUMMARY OF VALID REX TEST TYPES

### OVERVIEW

The **OP:REX** message is used to request the summary of one or all valid test types of routine exercise (REX) for the hardware in the communication module (CM), and all switching modules (SMs) or in the AM, CM or in an SM.

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:

**OP:REX=[AM][CM][SM=a][,b];**

Where:

**a** = Module number for which the summary was requested

**b** = REX test type whose summary is to be printed (default is to print the summary of all valid test types for the module)

or

**b** = DGN - Print the summary of diagnostic tests

or

**b** = ELS - Print the summary of electronic loop segregation tests. This is not a valid test type for the CM.

or

**b** = FAB - Print the summary of fabric exerciser tests of grids. This is not a valid test type for the CM.

**Note:** (If neither the AM, CM, or SM is specified, the hardware test results in the AM, CM, and all of the SMs are retrieved).

Response: **PF** is printed in response message.

2. Is **OP REX (DGN, FAB)** or **OP REX (ELS)** output message printed?

If **OP REX (DGN, FAB)**, continue with Step 3.

If **OP REX (ELS)**, go to Step 4.

3. Analyze **OP REX (DGN, FAB)** output message.

Reference: **Procedure 13.5**

4. Analyze **OP REX (ELS)** output message.

Reference: **Procedure 13.6**

**Results:** Summary of valid REX test types.

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.5: ANALYZE OP REX (DGN, FAB) PRINTOUT

### OVERVIEW

The summary of diagnostic and/or fabric tests of routine exercise (REX) is printed automatically once a day at 8:00 a.m. The purpose of the summary printout is to summarize diagnostic and/or fabric tests of routine exercise for hardware in the communication module (CM), and all switching modules (SMs) or in the CM, or an SM. If required, the data will be printed in more than one block. This message is for information only.

### PROCEDURE

1. Analyze the following printout:
2. **OP REX DGN FAB AM CM SM=a BLOCK b OF c;**

---

| CIRCUIT<br>TYPE | NOT STARTED | COMPLETED |     |      |     | STOPPED |
|-----------------|-------------|-----------|-----|------|-----|---------|
|                 |             | ATP       | STF | CATP | NTR |         |
| d               | e           | f         | g   | h    | i   | j       |

---

Where:

**AM** = The AM based hardware summary is to be printed  
**CM** = The CM based hardware summary is to be printed  
**SM** = The SM hardware summary is to be printed  
 (If neither AM, CM or SM is printed, the AM, CM summary and all SM summaries are to be printed.)  
**a** = SM number  
**b** = Current number of the block of data printed  
**c** = Total blocks of data to be printed  
**d** = Circuit type tested, such as bootstrapper (BTSR), line unit (LU), or test access circuit (TAC). Only GRID and GRIDBD prints under circuit type when specifying fabric tests (FAB).  
**e** = Number of circuits for which the test did not start. This field is initialized to the total number of circuits that REX will schedule for a test when an EXC:REX input command is received.  
**f** = Number of circuits with all tests passed (ATP)  
**g** = Number of circuits with some tests failed (STF)  
**h** = Number of circuits with conditionally all tests passed (CATP)  
**i** = Number of circuits for which tests did not run  
**j** = Number of circuits for which tests stopped or aborted.

**Note:** If a summary for all test types is requested, a full table with a number of data blocks will be provided. This will include a separate table for electronic loop segregation (ELS) tests also. Otherwise, a partial table of summary for the requested test type will be provided. The GRID and GRIDBD circuit types in the table of this message will give the fabric test results. If all variables equal zero, no tests have been run since the previous invocation.

**Results:** OP REX (DGN, FAB) printout analyzed.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.6: ANALYZE OP REX (ELS) PRINTOUT

### OVERVIEW

The **OP REX** electronic loop segregation (ELS) output message follows the **OP:REX-DGN-FAB** output message if a summary of all test types (DGN, ELS, and FAB) is requested. The purpose of the OP REX (ELS) printout is to provide a summary of the tests skipped and completed during the testing of ELS. This testing was scheduled by routine exercise (REX) in one or all switching modules (SMs). This output message is printed in response to an **OP:REX** command. It is also printed automatically at 8:00 a.m. daily.

### PROCEDURE

1. Analyze the following printout: **OP REX (ELS) [SM = a]**

---

| CIRCUIT<br>TYPE | NOT STARTED | COMPLETED | SKIPPED |
|-----------------|-------------|-----------|---------|
| LINE            | b           | c         | d       |

Where:

**a** = SM number (default is all SMs)

**b** = Number of lines for which the tests were not started for reasons such as unavailability of resources, failure to release resources, or data base error. This field is initialized to the total number of grids that REX will test after the EXC:REX input message is received.

**c** = Number of lines for which the tests are completed

**d** = Number of lines skipped for reasons such as the lines were unassigned, out of service, or private branch exchange (PBX) lines.

**Results:** OP REX (ELS) printout analyzed.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.7: REQUEST REX STATUS OF AM, CM, AND SM(S)

### OVERVIEW

The **OP:REXINH** message is used to request the status of the administration module (AM), communication module (CM), and all switching modules (SMs) or in the AM, CM, or in a range of SMs. This report shows whether the test types for a module have been inhibited or allowed or whether that test is in progress (IP).

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter: **OP:REXINH[,AM][,CM][,SM=a&&b];**

Where:           **a** = Number of the SM whose hardware status is requested or the lower limit of a range of module numbers  
                    **b** = Upper limit of a range of SMs

Response:       **PF** is printed followed by the **OP REXINH** output message.

**Note:** If neither AM, CM, nor SM is specified, the default is to request the inhibit status of hardware in the AM, CM, and all operational SMs.

2. Analyze OP REXINH output message.

Reference:       **Procedure 13.8**

**Results:** REX status of AM, CM, and SM(s).

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.8: ANALYZE OP REXINH OUTPUT MESSAGE

### OVERVIEW

The purpose of the REXINH output message is to provide the status list of routine exercise (REX) for all valid test types in the administration module (AM), communication module (CM), and all switching modules (SMs) or in the AM, CM, or in a range of SMs. The data for the CM and each SM is given on a separate line of output. Therefore, this message may have many lines of output contained in one or more blocks of data. This output message is printed in response to an **OP:REXINH** input message. The OP REXINH output message is for information only.

### PROCEDURE

1. Analyze the REXINH output message printout:

---

| MODULE<br>ID | DIAGNOSTICS |          | ELS | FABRIC |
|--------------|-------------|----------|-----|--------|
|              | MODULE      | UNIT (S) |     |        |
| CM           | c           | d        | N/A | N/A    |
| SM e         | c           | d        | c   | c      |
| .            | .           |          | .   | .      |
| .            | .           |          | .   | .      |
| .            | .           |          | .   | .      |
| SM e         | c           | d        | c   | c      |

---

Where:

- a** = Current block number of the data in this output message
- b** = Total number of blocks of data in this output message
- c** = INH - The test type is inhibited
- ALW** = The test type is allowed
- IP** = The test type is in progress
- d** = INH - The test type is inhibited
- ALW** = The test type is allowed
- e** = Number of the SM whose inhibit status is listed on this line
- AM** = Data on this line is for an AM
- CM** = Data on this line is for the CM
- SM** = Data on this line is for an SM
- N/A** = Not applicable.

**Results:** OP REXINH output message analyzed.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.9: LIST UNITS THAT ARE INHIBITED FOR REX

### OVERVIEW

The **OP:REXINH** message is used to list the units which are currently inhibited for routine exercise (REX) in a administration module (AM), switching module/switching module-2000 (SM/SM-2000), or the communication module (CM).

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:  
**OP:REXINH[,AM][,CM][,SM=a&&b][,UNITS][,PERM];**

Where:            **a** = SM/SM-2000 number

Response:        **PF** is followed by **OP REXINH UNIT COMPLETED** is printed in response message.

2. Analyze **OP REXINH UNIT COMPLETED** output message.

Reference:        **Procedure 13.10**

**Results:** Units that are inhibited for REX are listed.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.10: ANALYZE OP:REXINH-UNIT OUTPUT MESSAGE

### OVERVIEW

The **OP:REXINH[,UNIT]** output message is used to list the hardware units of a given module for which routine exercise (REX) is currently inhibited for an administration module (AM), switching module (SM), or the communication module (CM). This message is printed in response to an **OP:REXINH** input message.

### PROCEDURE

1. At master control center (MCC) or receive-only printer (ROP), analyze the following message:

**OP REXINH a**  
**b REX INHIBITED UNITS [ : ]**  
**c d**

Where:

- a = COMPLETED** if entire report has been processed. The last lines of the report follow the **COMPLETED** message.
- or
- a = IN PROGRESS** if the report has not yet been completed.
- b =** This field is set to **NO** if no REX-inhibited units are found in the ECD. If this field is **NO**, then the optional colon at the end of the text will not be generated. If REX-inhibited units are found in the ECD, then this field will be empty and the optional colon will be generated followed by a list of the REX-inhibited units.
- c =** Unit name.
- d =** Unit number.

**Note:** Some units like the bootstrapper (BTSR), remote link interface (RLI), and the remote alarm unit (RAU) have no unit number.

**Results:** OP:REXINH,UNIT message analyzed.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 13.11: INHIBIT VALID TEST TYPES FOR REX

### OVERVIEW

The **INH:REX** message inhibits either one or all valid test types for routine exercise (REX) of the hardware in the communication module (CM), and all switching modules (SMs) or in the CM, or in a range of SMs.

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:  
**INH:REX[,AM][,CM][,SM=a&&b][,c];**

Where:

- a** = Number of the SM for which REX is to be inhibited or lower limit of a range of module numbers
- b** = Upper limit of a range of SMs requested to be inhibited
- c** = Routine exercise test type to be inhibited (default is to inhibit all three test types)
- or
- c** = DGN - Inhibit diagnostic exercise
- or
- c** = ELS - Inhibit electronic loop segregation tests. This is not a valid test type for the CM.
- or
- c** = FAB - Inhibit fabric exerciser tests for grids. This is not a valid test type for the CM.

**Note:** If neither CM nor SM is specified, the default is to inhibit all test types for the CM and all SMs.

Response: **OK** is printed to indicate request is valid and accepted.

**Results:** Valid test types for REX inhibited.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.12: INHIBIT SCHEDULING OF DGN REX TEST FOR A UNIT

### OVERVIEW

The **INH:REX** message is used to inhibit the scheduling of a unit for routine exercise (REX) in the administration module (AM), communication module (CM), or in a switching module/switching module-2000 (SM/SM-2000) for diagnostic (DGN) test only.

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:  
**INH:REX[,AM=f][,CM=f][,SM=a,b];**

Where:

- a** = Number of the SM/SM-2000 for which REX is to be inhibited
- b** = The SM/SM-2000 unit type to be inhibited. The DGN tests are the only test types that may be inhibited on a unit basis.

|              |                                            |
|--------------|--------------------------------------------|
| AIU=c        | - Access Interface Unit                    |
| ASC          | - Alarm service circuit                    |
| BTSR         | - Bootstrapper circuit                     |
| DCLU=c       | - Digital carrier line unit                |
| DCTU=0       | - Directly connected test unit             |
| DLTU=(0-5)   | - Digital line and trunk unit              |
| DNUS         | - Digital Network Unit - SONET             |
| GDSU=d       | - Global digital service unit              |
| IDCU=c       | - Integrated digital carrier unit          |
| ISLU=c       | - Integrated services line unit            |
| ISTF=e       | - Integrated services test facility        |
| LDSU=0       | - Local digital service unit               |
| LU=c         | - Line unit                                |
| MCTSI        | - Module controller/time slot interchanger |
| MSGs = {0 1} | - Message Switch                           |
| MSU={0 1}    | - Metallic service unit                    |
| MTIB         | - Metallic test interface bus              |
| ONTc = {0 1} | - Office Network Timing Complex            |
| PSU=0        | - Packet switching unit                    |

RAF=**c** - Recorded announcement function

RAU - Remote answering unit

RCLK - Remote clock

RLI - Remote line interface

SAS=**c** - Service announcement system

TU=**c** - Trunk unit

Where: **c** = Unit number between 0 and 7 (0 and 42 for SM-2000 except RAF and SAS).

**d** = Unit number between 1 and 7.

**e** = Unit number between 0 and 3.

**f** = The AM or CM unit type to be inhibited. If none is specified, all units are inhibited.

Response: **OK** is printed in response message to indicate request is valid and accepted.

**Results:** Scheduling of DGN REX test for a unit inhibited.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.13: ALLOW ONE OR ALL VALID TEST TYPES OF REX

### OVERVIEW

The **ALW:REX** message is used to allow either one or all valid test types of routine exercise (REX) of the hardware in the administration module (AM), communication module (CM), and all switching modules (SMs) or in the AM, CM, or in a range of SMs.

### PROCEDURE

1. At master control center (MCC) video terminal, type and enter:

**ALW:REX[,AM][,CM[,SM=a&&b][,c];**

Where:

- a** = Number of the SM for which REX is to be allowed or lower limit of a range of module numbers
- b** = Upper limit of a range of SMs requested to be allowed
- c** = REX test type to be allowed (default is to allow all three test types)
- or
- c** = DGN - Allow diagnostic exercise
- or
- c** = ELS - Allow electronic loop segregation tests. This is not a valid test type for the CM.
- or
- c** = FAB - Allow fabric exerciser tests of grids. This is not a valid test type for CM.

Response: **OK** is printed in response message to indicate the request is valid and accepted.

**Note:** If neither AM, CM, nor SM is specified, the default is to exercise hardware in the AM, CM, and all SMs.

**Results:** One or all valid test types of REX allowed.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 13.14: ALLOW SCHEDULING OF A UNIT FOR REX DGN TEST

### OVERVIEW

The **ALW:REX** message is used to allow the scheduling of a unit for routine exercise (REX) in the administration module (AM), communication module (CM), or in a switching module/switching module-2000 (SM/SM-2000) for diagnostic (DGN) test only.

### PROCEDURE

1. At the master control center (MCC) video terminal, type and enter:  
**ALW:REX[,AM][,CM][,SM=a,b];**

Where:            **a** = Number of the SM/SM-2000 that has been selected to be allowed  
                      **b** = Unit to be allowed within a module for DGN test only.

|            |                                            |
|------------|--------------------------------------------|
| AIU=c      | - Access Interface Unit                    |
| ASC        | - Alarm service circuit                    |
| BTSR       | - Bootstrapper circuit                     |
| DCLU=c     | - Digital carrier line unit                |
| DCTU=0     | - Directly connected test unit             |
| DLTU=(0-5) | - Digital line and trunk unit              |
| DNUS       | - Digital Network Unit - SONET             |
| GDSU=d     | - Global digital service unit              |
| IDCU=c     | - Integrated digital carrier unit          |
| ISLU=c     | - Integrated services line unit            |
| ISTF=e     | - Integrated services test facility        |
| LDSU=0     | - Local digital service unit               |
| LU=c       | - Line unit                                |
| MCTSI      | - Module controller/time slot interchanger |
| MSU={0 1}  | - Metallic service unit                    |
| MTIB       | - Metallic test interface bus              |
| PSU=0      | - Packet switching unit                    |
| RAF=c      | - Recorded announcement function           |
| RAU        | - Remote answering unit                    |

RCLK            - Remote clock  
RLI             - Remote line interface  
SAS=**c**         - Service announcement system  
TU=**c**           - Trunk unit

Where:        **c** = Number between 0 and 7 (0 and 42 for SM-2000 except RAF and SAS).  
                 **d** = Number between 1 and 7.  
                 **e** = Number between 0 and 3.

Response:     **OK** is printed in response message to indicate request is valid and accepted.

**Results:** Scheduling of a unit for REX DGN test allowed.

2.    **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## 14. FEATURE ACTIVATION PROCEDURES

### DESCRIPTION

The procedures in this section activate or turn-on various exchange features. This could be a complete growth of a feature or just the changing or updating of one or more attributes for a specific feature. This section also covers the removal from service or de-activation (de-growth) of a feature.

The majority of the work required is performed at the RC/V (recent change and verify) terminal for RC (recent change) work and at the MCC (master control center) terminal for input commands and system observation.

This section does not cover the growth and de-growth of hardware units. Refer to the following for that information:

- 235-105-231 - Issue 9.00 - Hardware Change Procedures - Growth
- 235-105-331 - Issue 9.00 - Hardware Change Procedures - Degrowth

## Procedure 14.1: ACTIVATE FEATURE FOR RECOVERY FROM ALTERNATE BOOT DISK (UN597)

### OVERVIEW

This procedure provides the 5ESS®-2000 switch customer with access to the Alternate Boot Disk (ABD) capability in the event of required system recovery action. The ABD feature enables the customer to select MHDs 14 or 15 as an alternate boot MHD remotely from the Switching Control Center (SCC) to recover the 5ESS-2000 switch.

In order to activate the ABD feature, the Secured Feature ID must also be activated. The customer is responsible for contacting the Lucent Regional Engineer who in turn will set the Secured Feature ID to ON.

### Prerequisites

The following conditions and requirements must be met before continuing with this procedure.

- The Secured Feature ID must be ON.
- A **bkup:odd,am** is required after the Secured Feature is set to ON.
- The office must be equipped with MHDs 14 and/or 15.
- The office must be equipped with a pair of MTTYC UN597 circuit boards.
- There should be no system update activity taking place when performing this procedure.
- All Administrative Module (AM) hardware should be either active or standby.
- The office must be on TNM release NEI 4.2 or 4.3.
- The office must be on software release 5E13 or later.

### PROCEDURE

#### 14.1.1 Verify Status of Secured Feature ID (SFID)

1. At the MTTY, to display Recent Change/Verify (RC/V) options, enter Poke command **196**

**Response:** RC/V Options menu displayed.

2. Press <CR> key three times.

**Response:** RC/V Class Menu displayed.

3. Type and enter **8.22r**

**Response:** Secured Feature Form displayed. Cursor at Feature ID.

4. Type and enter **284**

**Response:** Cursor at Module Field.

5. Type and enter **193**



**Response:** 8.22 View is populated.

6. Verify value of field 4 **ACTIVE**

- 7.

If **ACTIVE** is **YES**, continue with next Step.

If **ACTIVE** is **NO**, notify Lucent Regional Engineer to turn on SFID in order to activate the feature. This procedure cannot be continued until SFID is activated. Exit RC/V menu and return to Procedure start.

8. At the MCC of STLWS, to backup ODD, type and enter **bkup:odd,am;**

**Response:** BKUP ODD AM COMPLETED

BKUP ODD COMPLETED

(Backup will require several minutes to complete.)

**NOTE:** **bkup:odd, am;** is required to acknowledge that the SFID is on.

9. Exit RC/V menu.

#### 14.1.2 Perform Preliminary Requirements

1. At the MCC (Maintenance Control Center), to inhibit automatic maintenance requests, enter **INH:DMQ:SRC=ALL;**

**Response:** The system displays **OK**

**NOTE:** At the ROP, the following response will periodically appear:  
**REPT DMQ INHIBIT ALL ACTIVE**

**NOTE:** For this procedure, the ECD should be accessed by command mode only.

#### 14.1.3 Test MTTYCs From Both CUs

1. Set both switches on port switch circuit pack UN377 (at EQL 045-186) to **AUTO** position.
2. At the MCC, to display AM, AM PERIPHERALS Page, enter Poke command **111/112**

**Response:** AM, AM PERIPHERALS Page is displayed.

3. At the MCC, verify that CU 0 is active.

If **YES**, go to Step 5.

If **NO**, continue with next Step.

4. At the MCC, to switch to CU 0, enter **SW:CU;**

**Response:** The system displays **SW CU 0 COMPLETED**

5. At the 111/112 Page, verify that the MTTY is connected to MTTYC 1.

If **YES**, go to Step 7

If **NO**, continue with next Step.

6. At the MCC, to switch the MTTY to MTTYC 1, enter

**SW:PORTSW=MTTY;**

**Response:** The system displays **SW PORTSW COMPLETED FOR MTTY**

7. At the 111/112 Page, verify that the ROP is connected to MTTYC 1.

If **YES**, go to Step 9.

If **NO**, continue with next Step.

8. At the MCC, to switch the ROP to MTTYC 1, enter

**SW:PORTSW=ROP;**

**Response:** The system displays **SW PORTSW COMPLETED FOR ROP**

9. At the 111/112 Page, verify that the MTTY and the ROP are connected to MTTYC 1 and that CU 0 is active.

10. At the MCC, to switch to CU 1, enter **SW:CU;**

**Response:** The system displays **SW CU 1 COMPLETED**

11. At the 111/112 Page, verify that the MTTY and the ROP are connected to MTTYC 1 and that CU 1 is active.

12. At the MCC, to switch the ROP and the MTTY to MTTYC 0 with CU 1 active,

enter **SW:PORTSW;**

**Response:** The system displays **SW PORTSW COMPLETED FOR MTTY**  
followed by **SW PORTSW COMPLETED FOR ROP**

13. At the 111/112 Page, verify that the MTTY and the ROP are connected to MTTYC 0 and CU 1 is active.

14. At the MCC, to switch to CU 0, enter  
**SW:CU;**

**Response:** The system displays **SW CU 0 COMPLETED**

#### 14.1.4 Configure MTTYC 1 For ABD Update

1. At the 111/112 Page, verify that the MTTY and the ROP are connected to MTTYC 0 and CU 0 is active.
2. At the MCC, to remove MTTYC 1 from service, enter

**RMV:MTTYC=1;**

**Response:** The system displays **RMV MTTYC 1 COMPLETED**

#### 14.1.4.1 Prepare Transaction Block For ECD MTTYC 1

1. At the MTTY, ensure terminal is in CMD mode, type and enter **199**

**Response:** RCV ECD Parameter Info page is displayed with cursor at  
1. database\_name:

2. Type and enter **incore**

**Response:** Cursor at 2. review\_only.

3. Type and enter **n**

**Response:** Cursor at 3. journaling.

4. Type and enter **\***

**Response:** The system displays **executing . . . FORM EXECUTED**

"RCV = initialization in progress" message is displayed.  
"UNIX\_RTR (ODIN) — Data Entry" page is displayed.

5. To prepare transaction block, enter **trbegin**

**Response:** The system displays the **Transaction Begin** form.  
The cursor moves to the **tr\_name:** attribute.

6. Press the <CR> key.

**Response:** The system displays **Enter Execute, Change, Substitute, Validate, or Print:**

7. Enter **e**

**Response:** The system displays **executing... FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

#### 14.1.4.2 Update MTTYC 1 *ucb* Values

**CAUTION:** Before updating the ucb record, if field 22 is anything but **0x2**, seek technical support before continuing.  
A **0x2** identifies a UN597 without ABD value. This will be changed to **0x3** in the following steps to identify a UN597 with ABD value.

**NOTE:** The equipage field is updated (from 0x2 to 0x3) to reflect a UN597 with ABD value.

1. Enter **ucb**

**Response:** The system displays **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete :**

2. Enter **u**

**Response:** The system displays a blank *ucb* form.  
The cursor moves to the **complex\_name:** attribute.

3. Press the <CR> key.

**Response:** The cursor moves to the **k\_complex\_number:** attribute.

4. Press the <CR> key.

**Response:** The cursor moves to the **k\_unit\_name:** attribute.

5. Enter **MTTYC**

**Response:** The cursor moves to the **k\_unit\_number:** attribute.

6. Enter **1**

**Response:** The system completes the remainder of the form and displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

7. Enter **c**

**Response:** The system displays **Change Field:**

8. Enter **22**

**Response:** The cursor moves to the **equipage:** attribute.

9. Enter **0x3**

**Response:** The system displays **Change Field:**

10. Press the <CR> key.

**Response:** The system displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

11. Enter **u**

**Response:** The system displays **updating... FORM UPDATED**  
The cursor moves to the **k\_complex\_name** attribute.

12. Enter **<**

**Response:** The cursor moves to the **Enter Form Name:** attribute.

13. Enter **trend**

**Response:** The system displays the **Transaction End** form.  
The cursor moves to the **tr\_name:** attribute.

14. Press the <CR> key.

**Response:** The cursor moves to the **dis\_cf\_checks:** attribute.

15. Enter **\***

**Response:** The system displays **executing... FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

16. Enter **<**

**Response:** The ECD RC/V is completed.

#### 14.1.4.3 Restore MTTYC 1 To Service

1. At the MCC, to restore MTTYC 1 to service, enter **RST:MTTYC=1;**

**Response:** The system displays **RST MTTYC 1 COMPLETED**

**NOTE 1: DO NOT STOP DIAGNOSTICS ONCE THEY HAVE STARTED.** If diagnostics are stopped before the MTTYC is diagnosed, update will not occur.

**NOTE 2:** Do **not** continue until this request has successfully completed.

2. At the MCC, to switch the ROP and the MTTY to MTTYC 1, enter **SW:PORTSW;**

**Response:** The system displays **SW PORTSW COMPLETED FOR MTTY** followed by **SW PORTSW COMPLETED FOR ROP**

3. At the MCC, to display AM, AM PERIPHERAL Page, enter poke command **111/112**

**Response:** AM, AM PERIPHERAL Page displayed.

4. Verify that the **EAI** status box is available on AM, AM PERIPHERAL Page.
5. Bring up the **EAI** page and verify that pokes **28** and **29** are available.

**Response:** Pokes **28** and **29** are visible on the **EAI** page.

6. Soak the changes for 15 minutes before performing the remaining steps.

#### 14.1.5 Configure MTTYC 0 For ABD Update

1. At the 111/112 Page, verify that the MTTY and the ROP are connected to MTTYC 1 and CU 0 is active.
2. At the MCC, to remove MTTYC 0 from service, enter **RMV:MTTYC=0;**

**Response:** The system displays **RMV MTTYC 0 COMPLETED**

##### 14.1.5.1 Prepare Transaction Block For ECD MTTYC 0

1. At the MTTY, ensure terminal is in CMD mode, type and enter **199**

**Response:** RCV ECD Parameter Info page is displayed with cursor at 1. database\_name:

2. Type and enter **incore**

**Response:** Cursor at 2. review\_only.

3. Type and enter **n**

**Response:** Cursor at 3. journaling.

4. Type and enter **\***

**Response:** The system displays **executing . . . FORM EXECUTED**

"RCV = initialization in progress" message is displayed

"UNIX\_RTR (ODIN) — Data Entry" page is displayed.

5. To prepare transaction block, enter **trbegin**

**Response:** The system displays the **Transaction Begin** form.

The cursor moves to the **tr\_name:** attribute.

6. Press the <CR> key.

**Response:** The system displays **Enter Execute, Change, Substitute, Validate, or Print:**

7. Enter **e**

**Response:** The system displays **executing... FORM EXECUTED**

The cursor moves to the **Enter Form Name:** attribute.

#### 14.1.5.2 Update MTTYC 0 *ucb* Values

**CAUTION:** Before updating the *ucb* record, if field 22 is anything but **0x2**, *seek technical support before continuing. A 0x2 identifies a UN597 without ABD value. This will be changed to 0x3 in the following steps to identify a UN597 with ABD value.*

**NOTE:** The equipage field is updated (from 0x2 to 0x3) to reflect a UN597 with ABD value.

1. Enter **ucb**

**Response:** The system displays **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete :**

2. Enter **u**

**Response:** The system displays a blank *ucb* form.

The cursor moves to the **complex\_name:** attribute.

3. Press the <CR> key.

**Response:** The cursor moves to the **k\_complex\_number:** attribute.

4. Press the <CR> key.

**Response:** The cursor moves to the **k\_unit\_name:** attribute.

5. Enter **MTTYC**

**Response:** The cursor moves to the **k\_unit\_number:** attribute.

6. Enter **0**

**Response:** The system completes the remainder of the form and displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

7. Enter **c**

**Response:** The system displays **Change Field:**

8. Enter **22**

**Response:** The cursor moves to the **equipage:** attribute.

9. Enter **0x3**

**Response:** The system displays **Change Field:**

10. Press the <CR> key.

**Response:** The system displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

11. Enter **u**

**Response:** The system displays **updating... FORM UPDATED**  
The cursor moves to the **k\_complex\_name** attribute.

12. Enter **<**

**Response:** The cursor moves to the **Enter Form Name:**

13. At the RC/V terminal, enter **trend**

**Response:** The system displays the **Transaction End** form.  
The cursor moves to the **tr\_name:** attribute.

14. Press the <CR> key.

**Response:** The cursor moves to the **dis\_cf\_checks:** attribute.

15. Enter **\***

**Response:** The system displays **executing... FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

16. Enter **<**

**Response:** The ECD RC/V is completed.

#### 14.1.5.3 Restore MTTYC 0 To Service

1. At the MCC, to restore MTTYC 0 to service, enter **RST:MTTYC=0;**

**Response:** The system displays **RST MTTYC 0 COMPLETED**

**NOTE 1: DO NOT STOP DIAGNOSTICS ONCE THEY HAVE STARTED.** If diagnostics are stopped before MTTYC is diagnosed, update will not occur.

**NOTE 2:** Do *not* continue until this request has successfully completed.

2. At the MCC, to switch the ROP and the MTTY to MTTYC 0,

enter **SW:PORTSW;**

**Response:** The system displays **SW PORTSW COMPLETED FOR MTTY** followed by **SW PORTSW COMPLETED FOR ROP**

3. At the MCC, to display AM, AM PERIPHERALS Page, enter Poke command **111/112**

**Response:** AM, AM PERIPHERALS Page is displayed.

4. Verify that the **EAI** status box is available on AM, AM PERIPHERALS Page.
5. Bring up the **EAI** page and verify that pokes **28** and **29** are available.

**Response:** Pokes **28** and **29** are visible on the **EAI** page.

6. Soak the changes for 15 minutes before performing the remaining steps.

**NOTE:** These updates are only being soaked for 15 minutes because no hardware is being changed.

7. At the MCC, to switch the ROP and the MTTY to MTTYC 1, enter **SW:PORTSW;**

**Response:** The system displays **SW PORTSW COMPLETED FOR MTTY** followed by **SW PORTSW COMPLETED FOR ROP**

8. At the MCC, to display AM, AM PERIPHERALS Page, enter Poke command **111/112**

**Response:** AM, AM PERIPHERALS Page is displayed.

9. Verify that the **EAI** status box is available on AM, AM PERIPHERALS Page.
10. Soak another 15 minutes before performing the remaining steps.

11. At the MCC, to switch to CU 1, enter **SW:CU;**

**Response:** The system displays **SW CU 1 COMPLETED**

12. Observe the MTTY and ROP activity.
13. At the AM, AM PERIPHERALS Page, verify that the MTTY and the ROP are connected to MTTYC 1.
14. At the MCC, to switch the ROP and the MTTY to MTTYC 0, enter **SW:PORTSW;**

**Response:** The system displays **SW PORTSW COMPLETED FOR MTTY** followed by **SW PORTSW COMPLETED FOR ROP**

15. At the MCC, to display AM, AM PERIPHERALS Page, enter Poke command **111/112**

**Response:** AM, AM PERIPHERALS Page is displayed.

16. Verify that the **EAI** status box is available on AM, AM PERIPHERALS Page.
17. Soak another 15 minutes before performing the remaining steps.

#### 14.1.6 Copy Incore ECD to Disk



1. At the MTTY, ensure terminal is in CMD mode, type and enter **199**  
**Response:** RCV ECD Parameter Info page is displayed with cursor at 1. database\_name:
2. Type and enter **incore**  
**Response:** Cursor at 2. review\_only.
3. Type and enter **n**  
**Response:** Cursor at 3. journaling.
4. Type and enter **\***  
**Response:** The system displays **executing . . . FORM EXECUTED**  
"RCV initialization in progress" message is displayed.  
"UNIX\_RTR (ODIN)-Data Entry" page is displayed.
5. At the RC/V terminal, type and enter **activate**  
**Response:** Activate form displayed with cursor at 1. copy\_inc\_to\_disk:
6. Type and enter **yes**  
**Response:** Screen prompts for desired action.
7. Type and enter **e**  
**Response:** The system displays **executing . . . FORM EXECUTED**  
"RCV initialization in progress" message is displayed.  
"UNIX\_RTR (ODIN)-Data Entry" page is displayed.
8. Type and enter **<**  
**Response:** RCV MENU RCVECD COMPLETED

#### 14.1.7 Update ECD Data Base

1. At the MTTY, ensure terminal is in CMD mode, type and enter **199**  
**Response:** RCV ECD Parameter Info page is displayed with cursor at 1. database\_name:
2. Type and enter **rootdmly**  
**Response:** Cursor at 2. review\_only.
3. Type and enter **n**  
**Response:** Cursor at 3. journaling.
4. Type and enter **\***  
**Response:** The system displays **executing . . . FORM EXECUTED**

"RCV = initialization in progress" message is displayed.  
"UNIX\_RTR (ODIN) -Data Entry" page is displayed.

#### 14.1.8 Update ROOTDMLY for MTTYC 1

1. To prepare transaction block, type and enter **trbegin**

**Response:** The system displays the **Transaction Begin** form.  
The cursor moves to the **tr\_name:** attribute.

2. Press the <CR> key.

**Response:** The system displays **Enter Execute, Change, Substitute, Validate, or Print:**

3. Enter **e**

**Response:** The system displays **executing . . . FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

4. Enter **ucb**

**Response:** The system displays **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete :**

5. Enter **u**

**Response:** The system displays a blank **ucb** form.  
The cursor moves to the **complex\_name:** attribute.

6. Press the <CR> key.

**Response:** The cursor moves to the **k\_complex\_number:** attribute.

7. Press the <CR> key.

**Response:** The cursor moves to the **k\_unit\_name:** attribute.

8. Enter **MTTYC1**

**Response:** The cursor moves to the **k\_unit\_number:** attribute.

9. Enter **1**

**Response:** The system completes the remainder of the form and displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

10. Enter **c**

**Response:** The system displays **Change Field:**

11. Enter **22**

**Response:** The cursor moves to the **equipage:** attribute.

12. Enter **0x3**

**Response:** The system displays **Change Field:**

13. Press the <CR> key.

**Response:** The system displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

14. Enter **u**

**Response:** The system displays **updating... FORM UPDATED**  
The cursor moves to the **k\_complex\_name** attribute.

15. Enter **<**

**Response:** The cursor moves to the **Enter Form Name:** attribute.

16. Enter **trend**

**Response:** The system displays the **Transaction End** form.  
The cursor moves to the **tr\_name:** attribute.

17. Press the <CR> key.

**Response:** The cursor moves to the **dis\_cf\_checks:** attribute.

18. Enter **\***

**Response:** The system displays **executing... FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

19. Enter **<**

**Response:** The ECD RC/V is completed.

#### 14.1.9 Update ROOTDMLY for MTTYC 0

1. To prepare transaction block, type and enter **trbegin**

**Response:** The system displays the **Transaction Begin** form.  
The cursor moves to the **tr\_name:** attribute.

2. Press the <CR> key.

**Response:** The system displays **Enter Execute, Change, Substitute, Validate, or Print:**

3. Enter **e**

**Response:** The system displays **executing . . . FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

4. Enter **ucb**

**Response:** The system displays **Enter Database Operation**  
**I=Insert R=Review U=Update D=Delete :**

5. Enter **u**

**Response:** The system displays a blank **ucb** form.  
The cursor moves to the **complex\_name:** attribute.

6. Press the <CR> key.

**Response:** The cursor moves to the **k\_complex\_number:** attribute.

7. Press the <CR> key.

**Response:** The cursor moves to the **k\_unit\_name:** attribute.

8. Enter **MTTYC0**

**Response:** The cursor moves to the **k\_unit\_number:** attribute.

9. Enter **0**

**Response:** The system completes the remainder of the form and displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

10. Enter **c**

**Response:** The system displays **Change Field:**

11. Enter **22**

**Response:** The cursor moves to the **equipage:** attribute.

12. Enter **0x3**

**Response:** The system displays **Change Field:**

13. Press the <CR> key.

**Response:** The system displays **Enter Update, Change, Substitute, Validate, screen#, or Print:**

14. Enter **u**

**Response:** The system displays **updating... FORM UPDATED**  
The cursor moves to the **k\_complex\_name** attribute.

15. Enter **<**

**Response:** The cursor moves to the **Enter Form Name:** attribute.

16. Enter **trend**

**Response:** The system displays the **Transaction End** form.  
The cursor moves to the **tr\_name:** attribute.

17. Press the <CR> key.

**Response:** The cursor moves to the **dis\_cf\_checks:** attribute.

18. Enter **\***

**Response:** The system displays **executing... FORM EXECUTED**  
The cursor moves to the **Enter Form Name:** attribute.

19. Enter <

**Response:** The ECD RC/V is completed.

#### 14.1.10 Update Backup Root File System

**NOTE:** To update backup root file system, refer to 235-105-210, *Routine Operations and Maintenance*, **Procedure 6.17**, "Copy Primary Disk Partitions to Backup Disk Partitions."

#### 14.1.11 Restore Maintenance Configuration

1. At the MCC, to allow automatic maintenance requests, enter **ALW:DMQ:SRC=ALL;**

**Response:** The system displays **ALW DMQ ENABLED ALL**

2. Create a full set of office backup tapes at this time. Use existing local procedures for making new backup tape copies. For additional information, refer to 235-105-210, *Routine Operations and Maintenance*, **Procedure 6.23**, "Make Full Office Backup Tape."
3. **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 14.2: GROW GDSF SERVICES - 5E10 AND LATER

### OVERVIEW

The GDSF (global digital services function) unit provides the same service capabilities as those of the ISTF (integrated services test facility) and GDSU-DSC TTF (global digital service unit - digital service circuit transmission test function).

Once the hardware growth has been completed, retain the GRCV (growth recent change and verify) forms. Values from the GRCV forms will be used during service feature growth.

A number of services are provided by each GDSF unit (listed in Procedure 14.2.7) and are defined on the equipment view (GRCV 19.19) by the configuration chosen. To gain access to these services, LTP (logical test ports) need to be defined (one for each service). The LTP must be assigned to the same SM as the associated GDSF unit. The LTPs in general are members of trunk groups, and for the GDSF, one trunk group must be defined for each type of service in the office. Fixed route indexes are used to hunt these trunk groups.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should a GDSF service procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD) should be made to prevent losing the day's recent change activity.

This procedure is a pre-condition to activating the GDSF services identified by the list in Procedure 14.2.7.

### PROCEDURE

1. Grow GDSF Services - 5E10 and Later

#### 14.2.1 Select Recent Change Terminal Use

1. Select and prepare terminal for the RC/V (recent change and verify) activities.

If using **RC/V terminal**, type and enter **exec-0ddrc**, input command.

If using **MCC terminal**, type and enter **196** menu command.

**Response:** The RECENT CHANGE CLASS menu is displayed.

#### 14.2.2 Remove GDSF Unit From Service

1. From the GRCV 19.19 form, obtain the following parameter values:

|    |                       |       |                                     |
|----|-----------------------|-------|-------------------------------------|
| *1 | SM (switching module) | _____ | (Number of associated growth packs) |
| *2 | GDSF PACK NUM         | _____ |                                     |

2. At the MCC, type and enter: **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

- At the MCC, type and enter appropriate message:

MML **RMV:GDSF=a-b**

PDS **RMV:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RMV GDSF a b COMPLETED

### 14.2.3 Safe Stop Point

- This is a safe stop point.

### 14.2.4 Define GDSF Services

- To update the GDSF view, type and enter **19.19u**

**Response:** The EUGDS view is displayed. The cursor is positioned at the SM field.

- Type and enter data for the following fields (use the values obtained from the GRCV form 19.19):

|    |               |       |
|----|---------------|-------|
| *1 | SM            | _____ |
| *2 | GDSF PACK NUM | _____ |

**Response:** The remaining fields are populated by the system.  
Verify EQSTAT is O (operational).

Enter Update, Change, Validate, or Print:

- To start the change mode, type and enter **c**

**Response:** Change Field:

- Type and enter **10**

**Response:** Cursor at CONFIGURATION attribute.

- Type and enter value for CONFIGURATION.

**NOTE:** CONFIGURATION identifies the number of LTPs required for all the services added. Obtain the value from the GRCV form 19.19 or office records. A corresponding number of LTP members must be added depending on the number of services provided.

- Type and enter **<**

**Response:** Enter Update, Change, Validate, or Print

- To update the data, type and enter **u**

**Response:** updating.....FORM UPDATED - GLOBAL DIGITAL SERVICES FUNCTION page displayed.  
Cursor returns to SM attribute.

8. Return to RC/V class menu.

#### 14.2.5 Safe Stop Point

1. This is a safe stop point.

#### 14.2.6 Verify GDSF Data

1. At the RC/V terminal, type and enter **19.19V**

**Response:** GLOBAL DIGITAL SERVICES FUNCTION page displayed. Cursor at SM attribute.

2. Obtain the completed GRCV form 19.19 for the identified GDSF. This form identifies the key attributes that should listed in the following display.
3. From the selected GRCV form 19.19, type and enter the values for key attributes.

|    |               |   |
|----|---------------|---|
| *1 | SM            | — |
| *2 | GDSF PACK NUM | — |

**Response:** System populates remainder of view.

Enter Review, Validate, or Print:

4. Verify data is consistent with GRCV 19.19 form.
5. Is all data correct?

If **NO**, return to Procedure **14.2.4**, and correct errors.  
If **YES**, continue with next step.

6. Is CONFIGURATION value 0 or 1?

If **YES**, no more work is required. Go to Step 8.  
If **NO**, continue with next step.

7. Return to RC/V main menu.
8. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### 14.2.7 Activate GDSF Services

1. Activate the required GDSF services. Refer to the list below for the next go-to GDSF service installation procedure number.
2. **PROCEDURES FOR GDSF SERVICES**



| Service Type                                                  | Procedure<br>Number |
|---------------------------------------------------------------|---------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3      |
| XMIT (transmit) LTP Service                                   | Procedure 14.4      |
| LTD (local test desk) LTP Service                             | Procedure 14.5      |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6      |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7      |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8      |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9      |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10     |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11     |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12     |
| OTO (office to office) LTP Service                            | Procedure 14.13     |

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 14.3: ACTIVATE GDSF LOOPBACK LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) loopback LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the loopback service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF loopback service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the loopback service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Procedure 14.3.15, Step 4) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate GDSF Loopback LTP Service

#### 14.3.1 Define Loopback LTP Trunk Group Data

1. Confirm that the GDSF configuration provides LOOPBACK services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides LOOPBACK services if a number is displayed next to the DIGITAL TEST LOOPBACK field. This is the number of LOOPBACK services the GDSF can provide.

2. Is there a number for DIGITAL TEST LOOPBACK field?

If **YES**, continue with next step.

If **NO**, loopback services are not to be provided, go to Procedure 14.3.17

**NOTE:** LOOPBACK services are also not provided if the fields are not displayed.

3. Does a trunk group exist for the loopback LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure **14.3.3**.

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to RC/V class menu.

### 14.3.2 Safe Stop Point

1. This is a safe stop point.

### 14.3.3 Verify Loopback LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Return to the RC/V class menu.

### 14.3.4 Safe Stop Point

1. This is a safe stop point.

### 14.3.5 Define LOOPBACK LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                 |
|-----|----------|-------------------|-------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure <b>14.3.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                 |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                       |

**Where:**

P = (logical test port equipment number)  
 00mm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each LOOPBACK service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all the fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to RC/V class menu, type and enter **<**

### 14.3.6 Safe Stop Point

1. This is a safe stop point.

### 14.3.7 Verify Loopback LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.3.5** , Step 2)

MEMB NBR \_\_\_\_ (Same as from Procedure **14.3.5** , Step 2)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to RC/V class menu.

### 14.3.8 Safe Stop Point

1. This is a safe stop point.

### 14.3.9 Define Standard Route Index for LOOPBACK Services

**NOTE:** It must be determined if the standard route index for loopback services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.3.13** .

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |                      |                                                 |
|----|----------|----------------------|-------------------------------------------------|
| *1 | RTI      | _____                | (Route Index Number 1-3617)                     |
| #2 | ETYP     | <b>HUNT</b>          | (Route Type)                                    |
| 3  | TGN      | _____                | (Same as from Procedure <b>14.3.5</b> , Step 2) |
| 4  | DIG DLTD | <b>00</b>            | (Number of Digits Deleted)                      |
| 12 | RMK      | <b>ISTF LOOPBACK</b> | (Remarks)                                       |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the LOOPBACK services is already defined. Verify that it points to the same trunk group

defined at Procedure **14.3.5**.

5. Return to RC/V class menu.

#### 14.3.10 Safe Stop Point

1. This is a safe stop point.

#### 14.3.11 Verify Standard Route Index for LOOPBACK Services

1. At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

2. Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.3.9**, Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Once all data is verified, return to RC/V class menu.

#### 14.3.12 Safe Stop Point

1. This is a safe stop point.

#### 14.3.13 Define Fixed Route Index for LOOPBACK Services

**NOTE:** It must be determined if the fixed route index for loopback services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a fixed route index exist for the loopback test?

If **YES**, go to Procedure **14.3.15**.

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

3. Type and enter data for the following fields:

|    |      |        |                                                 |
|----|------|--------|-------------------------------------------------|
| *1 | TRMT | ISTFLB | (ISTF Loop Back Test)                           |
| 2  | TONE | N      |                                                 |
| 4  | RTI  | ____   | (Same as from Procedure <b>14.3.9</b> , Step 3) |
| 5  | CHGI | ____   | (Charging Index from office records)            |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to RC/V class menu.

#### 14.3.14 Safe Stop Point

1. This is a safe stop point.

#### 14.3.15 Verify Fixed Route Index for LOOPBACK Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **ISTFLB**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.3.16** .

If **YES**, go to Procedure **14.3.17** .

#### 14.3.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

#### 14.3.17 Activate Other GDSF Services

1. To activate another GDSF service, refer to list below for the next go-to GDSF service installation procedure number.
2. **PROCEDURES FOR GDSF SERVICES**

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |



## Procedure 14.4: ACTIVATE XMIT LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) XMIT (transmit) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the XMIT service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF XMIT service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the XMIT service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.4.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate XMIT LTP Service

#### 14.4.1 Define XMIT LTP Trunk Group Data

1. Confirm that the GDSF configuration provides XMIT services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides XMIT services if a number is displayed next to the DIGITAL TEST TRANSMIT field. This is the number of XMIT services the GDSF can provide.

2. Is there a number for DIGITAL TEST TRANSMIT field?

If **YES**, continue with next step.

If **NO**, XMIT services are not to be provided, go to Procedure 14.4.17

3. Does a trunk group exist for the XMIT LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure 14.4.3 .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

- Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

- To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

- Once all data is entered, return to RC/V main menu, type and enter **q**

#### 14.4.2 Safe Stop Point

- This is a safe stop point.

#### 14.4.3 Verify XMIT LTP Trunk Group Data

- At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

- Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Return to the RC/V class menu.

#### 14.4.4 Safe Stop Point

1. This is a safe stop point.

#### 14.4.5 Define XMIT LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |            |                                                    |
|-----|----------|------------|----------------------------------------------------|
| *1  | TGN      | _____      | (Same as from Procedure<br><b>14.4.1</b> , Step 5) |
| *2  | MEMB NBR | _____      | (Member Number)                                    |
| #12 | OE       | P 00mmnnnn | (Office Equipment Number)                          |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each XMIT service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all the fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to RC/V class menu, type and enter **<**

#### 14.4.6 Safe Stop Point

1. This is a safe stop point.

#### 14.4.7 Verify XMIT LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.4.5** , Step 2)  
 MEMB NBR \_\_\_\_ (Same as from Procedure **14.4.5** , Step 2)

**Response:** System completes remainder of view.  
 Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

#### 14.4.8 Safe Stop Point

1. This is a safe stop point.

#### 14.4.9 Define Standard Route Index for XMIT Services

**NOTE:** It must be determined if the standard route index for XMIT services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.4.13** .  
 If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |      |                                             |
|----|----------|------|---------------------------------------------|
| *1 | RTI      |      | (Route Index Number 1-3617)                 |
| #2 | ETYP     | HUNT | (Route Type)                                |
| 3  | TGN      |      | (Same as from Procedure<br>14.4.5 , Step 2) |
| 4  | DIG DLTD | 00   | (Number of Digits Deleted)                  |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter i

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the XMIT services is already defined. Verify that it points to the same trunk group defined at Procedure **14.4.5** .

- Return to the RC/V class menu.

#### 14.4.10 Safe Stop Point

- This is a safe stop point.

#### 14.4.11 Verify Standard Route Index for XMIT Services

- At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

- Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.4.9** , Step 3)  
ETYP HUNT

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Once all data is verified, return to RC/V class menu.

#### 14.4.12 Safe Stop Point

- This is a safe stop point.

#### 14.4.13 Define Fixed Route Index for XMIT Services

**NOTE:** It must be determined if the fixed route index for XMIT services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

- Does a fixed route index exist for the XMIT test?

If **YES**, go to Procedure **14.4.15** .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter data for the following fields:

|    |      |          |                                                 |
|----|------|----------|-------------------------------------------------|
| *1 | TRMT | ISTFXMIT | (ISTF XMIT Test)                                |
| 2  | TONE | N        |                                                 |
| 4  | RTI  | ____     | (Same as from Procedure <b>14.4.9</b> , Step 3) |
| 5  | CHGI | ____     | (Charging Index from office records)            |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to the RC/V class menu.

#### 14.4.14 Safe Stop Point

1. This is a safe stop point.

#### 14.4.15 Verify Fixed Route Index for XMIT Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **ISTFXMIT**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to the RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.4.16** .

If **YES**, go to Procedure **14.4.17** .

#### 14.4.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.

b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

#### 14.4.17 Activate Other GDSF Services

1. To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.
2. **PROCEDURES FOR GDSF SERVICES**

| Service Type                                                  | Procedure<br>Number |
|---------------------------------------------------------------|---------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3      |
| XMIT (transmit) LTP Service                                   | Procedure 14.4      |
| LTD (local test desk) LTP Service                             | Procedure 14.5      |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6      |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7      |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8      |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9      |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10     |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11     |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12     |
| OTO (office to office) LTP Service                            | Procedure 14.13     |

## Procedure 14.5: ACTIVATE LTD LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) LTD (local test desk) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the LTD service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF LTD service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the LTD service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.5.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate LTD LTP Service

#### 14.5.1 Define LTD LTP Trunk Group Data

1. Confirm that the GDSF configuration provides LTD services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides LTD services if a number is displayed next to the GDG TONE TRANSCEIVER field. This is the number of LTD services the GDSF can provide.

2. Is there a number for GDG TONE TRANSCEIVER field?

If **YES**, continue with next step.

If **NO**, LTD services are not to be provided, go to Procedure 14.5.17

3. Does a trunk group exist for the LTD LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure 14.5.3 .

If **NO**, continue with next step.



4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to RC/V class menu.

## 14.5.2 Safe Stop Point

1. This is a safe stop point.

## 14.5.3 Verify LTD LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Return to the RC/V class menu.

## 14.5.4 Safe Stop Point

1. This is a safe stop point.

### 14.5.5 Define LTD LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                 |
|-----|----------|-------------------|-------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure <b>14.5.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                 |
| (*) | QTY      | _____             | (1-24, see office records)                      |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                       |

**Where:**

P = (logical test port equipment number)  
 00mm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each LTD service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to RC/V class menu.

### 14.5.6 Safe Stop Point

1. This is a safe stop point.

### 14.5.7 Verify LTD LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.5.5** , Step 2)  
 MEMB NBR \_\_\_\_ (Same as from Procedure **14.5.5** , Step 2)

**Response:** System completes remainder of view.  
 Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to RC/V class menu.

### 14.5.8 Safe Stop Point

1. This is a safe stop point.

### 14.5.9 Define Standard Route Index for LTD Services

**NOTE:** It must be determined if the standard route index for LTD services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.5.11** .  
 If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |                            |                                                    |
|----|----------|----------------------------|----------------------------------------------------|
| *1 | RTI      |                            | (Route Index Number 1-3617)                        |
| #2 | ETYP     | HUNT                       | (Route Type)                                       |
| 3  | TGN      |                            | (Same as from Procedure <b>14.5.5</b> ,<br>Step 2) |
| 4  | DIG DLTD | 0                          | (Number of Digits Deleted)                         |
| 12 | RMK      | SLC_96 LTP trunk (Remarks) |                                                    |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the LTD services is already defined. Verify that it points to the same trunk group defined at Procedure **14.5.5** .

- Return to RC/V class menu.

#### 14.5.10 Safe Stop Point

- This is a safe stop point.

#### 14.5.11 Verify Standard Route Index for LTD Services

- At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

- Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.5.9** , Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Once all data is verified, return to RC/V class menu.

#### 14.5.12 Safe Stop Point

- This is a safe stop point.

#### 14.5.13 Define Fixed Route Index for LTD Services

**NOTE:** It must be determined if the fixed route index for LTD services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

- Does a fixed route index exist for the LTD test?

If **YES**, go to Procedure **14.5.15** .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter data for the following fields:

|    |      |                |                                                 |
|----|------|----------------|-------------------------------------------------|
| *1 | TRMT | <b>S96CTST</b> | (integrated SLC-96 carrier channel test)        |
| 2  | TONE | <b>N</b>       |                                                 |
| 4  | RTI  | _____          | (Same as from Procedure <b>14.5.9</b> , Step 3) |
| 5  | CHGI | _____          | (Charging Index from office records)            |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to RC/V class menu.

#### 14.5.14 Safe Stop Point

1. This is a safe stop point.

#### 14.5.15 Verify Fixed Route Index for LTD Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **S96CTST**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.5.16**.

If **YES**, go to Procedure **14.5.17**.

#### 14.5.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

#### 14.5.17 Activate Other GDSF Services

1. To activate another GDSF service, refer to list below for the next go-to GDSF service installation procedure number.

#### 2. PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |

## Procedure 14.6: ACTIVATE GDSF TTF ICTC LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) TTF ICTC (trunk test facility incoming test call) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index is defined.

Growing the TTF ICTC service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF TTF ICTC service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the TTF ICTC service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.6.11 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate GDSF TTF ICTC LTP Service

#### 14.6.1 Define TTF ICTC LTP Trunk Group Data

1. Confirm that the GDSF configuration provides TTF ICTC services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides TTF ICTC services if a number is displayed next to the TONE TRANSCEIVER and GDG TONE TRANSCEIVER fields. The sum of the numbers is the number of TTF ICTC services the GDSF can provide.

2. Is there a number for either of the two fields (TONE TRANSCEIVER and GDG TONE TRANSCEIVER)?

If **YES**, continue with next step.

If **NO**, TTF ICTC services are not to be provided, go to Procedure 14.6.13

**NOTE:** TTF ICTC services are also not provided if the fields are not displayed.

3. Does a trunk group exist for the TTF ICTC LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure **14.6.3**.

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to RC/V class menu.

## 14.6.2 Safe Stop Point

1. This is a safe stop point.

## 14.6.3 Verify TTF ICTC LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Return to the RC/V class menu.



#### 14.6.4 Safe Stop Point

1. This is a safe stop point.

#### 14.6.5 Define TTF ICTC LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                    |
|-----|----------|-------------------|----------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure <b>14.6.1</b> ,<br>Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                    |
| (*) | QTY      | _____             | (1-24, see office records)                         |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                          |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each TTF ICTC service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to RC/V class menu.

#### 14.6.6 Safe Stop Point

1. This is a safe stop point.

#### 14.6.7 Verify TTF ICTC LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.6.5** , Step 2)

MEMB NBR \_\_\_\_ (Same as from Procedure **14.6.5** , Step 2)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to RC/V class menu.

#### 14.6.8 Safe Stop Point

1. This is a safe stop point.

#### 14.6.9 Define Standard Route Index for TTF ICTC Services

**NOTE:** It must be determined if the standard route index for TTF ICTC services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.6.11** .

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |          |                             |
|----|----------|----------|-----------------------------|
| *1 | RTI      |          | (Route Index Number 1-3617) |
| #2 | ETYP     | HUNT     | (Route Type)                |
| 3  | TGN      |          | (Same as from Procedure     |
|    |          |          | <b>14.6.5</b> , Step 2)     |
| 4  | DIG DLTD | 0        | (Number of Digits Deleted)  |
| 12 | RMK      | TEST L T | (Remarks)                   |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter i

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the TTF ICTC services is already defined. Verify that it points to the same trunk group defined at Procedure **14.6.5**.

5. Return to RC/V class menu.

#### 14.6.10 Safe Stop Point

1. This is a safe stop point.

#### 14.6.11 Verify Standard Route Index for TTF ICTC Services

1. At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

2. Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.6.9**, Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.6.12**.

If **YES**, go to Procedure **14.6.13**.

#### 14.6.12 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.

b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 14.6.13 Activate Other GDSF Services

1. To activate another GDSF service, refer to list below for the next go-to GDSF service installation procedure number.

#### 2. PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |

## Procedure 14.7: ACTIVATE TTF OGTC LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) TTF OGTC (trunk test facility outgoing test call) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the TTF OGTC service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF TTF OGTC service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the TTF OGTC service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.7.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate TTF OGTC LTP Service

#### 14.7.1 Define TTF OGTC LTP Trunk Group Data

1. Confirm that the GDSF configuration provides TTF OGTC services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides TTF OGTC services if a number is displayed next to the TONE TRANSCEIVER and GDG TONE TRANSCEIVER field. The sum of the numbers is the number of TTF OGTC services the GDSF can provide.

2. Is there a number for either of the two fields? (TONE TRANSCEIVER and GDG TONE TRANSCEIVER)?

If **YES**, continue with next step.

If **NO**, TTF OGTC services are not to be provided, go to Procedure 14.7.17

**NOTE:** TTF OGTC services are also not provided if the fields are not displayed.

3. Does a trunk group exist for the TTF OGTC LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure **14.7.3**.

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to the RC/V class menu.

## 14.7.2 Safe Stop Point

1. This is a safe stop point.

## 14.7.3 Verify TTF OGTC LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Return to the RC/V main menu.

#### 14.7.4 Safe Stop Point

1. This is a safe stop point.

#### 14.7.5 Define TTF OGTC LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                    |
|-----|----------|-------------------|----------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure<br><b>14.7.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                    |
| (*) | QTY      | _____             | (1-24, see office records)                         |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                          |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each TTF OGTC service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to the RC/V class menu.

#### 14.7.6 Safe Stop Point

1. This is a safe stop point.

#### 14.7.7 Verify TTF OGTC LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.7.5** , Step 2)

MEMB NBR \_\_\_\_ (Same as from Procedure **14.7.5** , Step 2)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

### 14.7.8 Safe Stop Point

1. This is a safe stop point.

### 14.7.9 Define Standard Route Index for TTF OGTC Services

**NOTE:** It must be determined if the standard route index for TTF OGTC services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.7.11** .

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |                         |                                                    |
|----|----------|-------------------------|----------------------------------------------------|
| *1 | RTI      | _____                   | (Route Index Number 1-3617)                        |
| #2 | ETYP     | HUNT                    | (Route Type)                                       |
| 3  | TGN      | _____                   | (Same as from Procedure<br><b>14.7.5</b> , Step 2) |
| 4  | DIG DLTD | 0                       | (Number of Digits Deleted)                         |
| 12 | RMK      | LTPOGTC trunk (Remarks) |                                                    |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter i

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.



**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the TTF OGTC services is already defined. Verify that it points to the same trunk group defined at Procedure **14.5.5**.

5. Return to the RC/V class menu.

#### 14.7.10 Safe Stop Point

1. This is a safe stop point.

#### 14.7.11 Verify Standard Route Index for TTF OGTC Services

1. At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

2. Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.7.9**, Step 3)  
ETYP HUNT

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Once all data is verified, return to the RC/V class menu.

#### 14.7.12 Safe Stop Point

1. This is a safe stop point.

#### 14.7.13 Define Fixed Route Index for TTF OGTC Services

**NOTE:** It must be determined if the fixed route index for TTF OGTC services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a fixed route index exist for the TTF OGTC test?

If **YES**, go to Procedure **14.7.2.15**.  
If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

3. Type and enter data for the following fields:

|         |         |                              |
|---------|---------|------------------------------|
| *1 TRMT | OGTRANS | (outgoing transmission test) |
|---------|---------|------------------------------|

calls)

2 TONE  
4 RTI  
5 CHGI

N

\_\_\_\_ (Same as from Procedure 14.7.9 , Step 3)  
\_\_\_\_ (Charging Index from office records)

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to the RC/V class menu.

#### 14.7.14 Safe Stop Point

1. This is a safe stop point.

#### 14.7.15 Verify Fixed Route Index for TTF OGTC Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **OGTRANS**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to the RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure 14.7.16 .

If **YES**, go to Procedure 14.7.17 .

#### 14.7.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**  
PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

#### 14.7.17 Activate Other GDSF Services

1. To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.
2. **PROCEDURES FOR GDSF SERVICES**

**Service Type      Procedure Number**

| <b>Service Type</b>                                           | <b>Procedure Number</b> |
|---------------------------------------------------------------|-------------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3          |
| XMIT (transmit) LTP Service                                   | Procedure 14.4          |
| LTD (local test desk) LTP Service                             | Procedure 14.5          |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6          |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7          |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8          |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9          |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10         |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11         |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12         |
| OTO (office to office) LTP Service                            | Procedure 14.13         |

## Procedure 14.8: ACTIVATE GDSF ROTL LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) ROTL (remote office test line) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index is defined.

Growing the ROTL service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF ROTL service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the ROTL service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.8.11 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate GDSF ROTL LTP Service

#### 14.8.1 Define ROTL LTP Trunk Group Data

1. Confirm that the GDSF configuration provides ROTL services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides ROTL services if a number is displayed next to the GDG TONE TRANSCEIVER field. The number is the number of ROTL services the GDSF can provide.

2. Is there a number for the GDG TONE TRANSCEIVER field?

If **YES**, continue with next step.

If **NO**, ROTL services are not to be provided, go to Procedure 14.8.13

3. Does a trunk group exist for the ROTL LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure 14.8.3 .

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to RC/V class menu.

## 14.8.2 Safe Stop Point

1. This is a safe stop point.

## 14.8.3 Verify ROTL LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Return to the RC/V class menu.

#### 14.8.4 Safe Stop Point

1. This is a safe stop point.

#### 14.8.5 Define ROTL LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                 |
|-----|----------|-------------------|-------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure <b>14.8.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                 |
| (*) | QTY      | _____             | (1-24, see office records)                      |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                       |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each ROTL service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to RC/V class menu.

#### 14.8.6 Safe Stop Point

1. This is a safe stop point.

#### 14.8.7 Verify ROTL LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.8.5** , Step 2)  
MEMB NBR \_\_\_\_ (Same as from Procedure **14.8.5** , Step 2)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

### 14.8.8 Safe Stop Point

1. This is a safe stop point.

### 14.8.9 Define Standard Route Index for ROTL Services

**NOTE:** It must be determined if the standard route index for ROTL services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.8.13** .  
If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |         |                                                 |
|----|----------|---------|-------------------------------------------------|
| *1 | RTI      |         | (Route Index Number 1-3617)                     |
| #2 | ETYP     | HUNT    | (Route Type)                                    |
| 3  | TGN      |         | (Same as from Procedure <b>14.8.5</b> , Step 2) |
| 4  | DIG DLTD | 0       | (Number of Digits Deleted)                      |
| 12 | RMK      | LTPROTL | Remarks                                         |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the ROTL

services is already defined. Verify that it points to the same trunk group defined at Procedure **14.8.5**.

5. Return to the RC/V class menu.

#### 14.8.10 Safe Stop Point

1. This is a safe stop point.

#### 14.8.11 Verify Standard Route Index for ROTL Services

1. At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

2. Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.8.9**, Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to the RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.8.12**.

If **YES**, go to Procedure **14.8.13**.

#### 14.8.12 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.



2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 14.8.13 Activate Other GDSF Services

1. To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.

#### 2. PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |

## Procedure 14.9: ACTIVATE TLWS LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) TLWS (trunk line work station) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the TLWS service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF TLWS service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the TLWS service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.9.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate TLWS LTP Service

#### 14.9.1 Define TLWS LTP Trunk Group Data

1. Confirm that the GDSF configuration provides TLWS services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides TLWS services if a number is displayed next to the TONE TRANSCEIVER field. This is the number of TLWS services the GDSF can provide.

2. Is there a number for TONE TRANSCEIVER field?

If **YES**, continue with next step.

If **NO**, TLWS services are not to be provided, go to Procedure 14.9.17

3. Does a trunk group exist for the TLWS LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure 14.9.3 .

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRN  | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRN  | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to the RC/V class menu.

## 14.9.2 Safe Stop Point

1. This is a safe stop point.

## 14.9.3 Verify TLWS LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Return to the RC/V class menu.

## 14.9.4 Safe Stop Point

1. This is a safe stop point.

#### 14.9.5 Define TLWS LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                    |
|-----|----------|-------------------|----------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure<br><b>14.9.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                    |
| (*) | QTY      | _____             | (1-24, see office records)                         |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                          |

**Where:**

P = (logical test port equipment number)  
 00mm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each TLWS service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to the RC/V class menu.

#### 14.9.6 Safe Stop Point

1. This is a safe stop point.

#### 14.9.7 Verify TLWS LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.9.5** , Step 2)  
 MEMB NBR \_\_\_\_ (Same as from Procedure **14.9.5** , Step 2)

**Response:** System completes remainder of view.  
 Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

### 14.9.8 Safe Stop Point

1. This is a safe stop point.

### 14.9.9 Define Standard Route Index for TLWS Services

**NOTE:** It must be determined if the standard route index for TLWS services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.9.11** .  
 If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |          |                             |
|----|----------|----------|-----------------------------|
| *1 | RTI      |          | (Route Index Number 1-3617) |
| #2 | ETYP     | HUNT     | (Route Type)                |
| 3  | TGN      |          | (Same as from Procedure     |
|    |          |          | <b>14.9.5</b> , Step 2)     |
| 4  | DIG DLTD | 0        | (Number of Digits Deleted)  |
| 12 | RMK      | LTPWSTTF | (Remarks)                   |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the TLWS services is already defined. Verify that it points to the same trunk group defined at Procedure **14.9.5** .

- Return to the RC/V class menu.

#### 14.9.10 Safe Stop Point

- This is a safe stop point.

#### 14.9.11 Verify Standard Route Index for TLWS Services

- At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

- Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.9.9** , Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Once all data is verified, return to the RC/V class menu.

#### 14.9.12 Safe Stop Point

- This is a safe stop point.

#### 14.9.13 Define Fixed Route Index for TLWS Services

**NOTE:** It must be determined if the fixed route index for TLWS services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

- Does a fixed route index exist for the TLWS test?

If **YES**, go to Procedure **14.9.2.15**.

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter data for the following fields:

|    |      |       |                                                 |
|----|------|-------|-------------------------------------------------|
| *1 | TRMT | INTTF | (interactive test facility or work station)     |
| 2  | TONE | N     |                                                 |
| 4  | RTI  | ____  | (Same as from Procedure <b>14.9.9</b> , Step 3) |
| 5  | CHGI | ____  | (Charging Index from office records)            |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to the RC/V class menu.

#### 14.9.14 Safe Stop Point

1. This is a safe stop point.

#### 14.9.15 Verify Fixed Route Index for TLWS Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **INTTF**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to the RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.9.2.16**.

If **YES**, go to Procedure **14.9.2.17**.

#### 14.9.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

- At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

- STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 14.9.17 Activate Other GDSF Services

- To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.

#### 2. PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |



## Procedure 14.10: ACTIVATE DG TGEN LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) DG TGEN (diagnostic tone generator) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the DG TGEN service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF DG TGEN service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the DG TGEN service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.10.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate DG TGEN LTP Service

#### 14.10.1 Define DG TGEN LTP Trunk Group Data

1. Confirm that the GDSF configuration provides DG TGEN services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides DG TGEN services if a number is displayed next to the TONE TRANSCEIVER, TONE GENERATOR, and GDG TONE TRANSCEIVER fields. The sum of the numbers is the number of DG TGEN services the GDSF can provide.

2. Is there a number for any one of the three fields? (TONE TRANSCEIVER, TONE GENERATOR, and GDG TONE TRANSCEIVER)?

If **YES**, continue with next step.

If **NO**, DG TGEN services are not to be provided, go to Procedure 14.10.17

**NOTE:** DG TGEN services are also not provided if the fields are not displayed.

3. Does a trunk group exist for the DG TGEN LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure **14.10.3**.

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRN  | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRN  | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to the RC/V class menu.

## 14.10.2 Safe Stop Point

1. This is a safe stop point.

## 14.10.3 Verify DG TGEN LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Return to the RC/V class menu.

#### 14.10.4 Safe Stop Point

- This is a safe stop point.

#### 14.10.5 Define DG TGEN LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

- At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

- Type and enter data for the following fields:

|     |          |            |                                              |
|-----|----------|------------|----------------------------------------------|
| *1  | TGN      | _____      | (Same as from Procedure<br>14.10.1 , Step 5) |
| *2  | MEMB NBR | _____      | (Member Number)                              |
| (*) | QTY      | _____      | (1-24, see office records)                   |
| #12 | OE       | P 00mmnnnn | (Office Equipment Number)                    |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each DG TGEN service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

- To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

- Repeat from Step 2 until all required member numbers have been verified.
- Once all data is entered, return to the RC/V class menu.

#### 14.10.6 Safe Stop Point

- This is a safe stop point.

#### 14.10.7 Verify DG TGEN LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.10.5** , Step 2)

MEMB NBR \_\_\_\_ (Same as from Procedure **14.10.5** , Step 2)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

#### 14.10.8 Safe Stop Point

1. This is a safe stop point.

#### 14.10.9 Define Standard Route Index for DG TGEN Services

**NOTE:** It must be determined if the standard route index for DG TGEN services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.10.11** .

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |          |                                                     |
|----|----------|----------|-----------------------------------------------------|
| *1 | RTI      |          | (Route Index Number 1-3617)                         |
| #2 | ETYP     | HUNT     | (Route Type)                                        |
| 3  | TGN      | _____    | (Same as from Procedure <b>14.10.5</b> ,<br>Step 2) |
| 4  | DIG DLTD | 0        | (Number of Digits Deleted)                          |
| 12 | RMK      | LTPDGTTF | (Remarks)                                           |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter i

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the DG TGEN services is already defined. Verify that it points to the same trunk group defined at Procedure **14.10.5** .

5. Return to the RC/V class menu.

#### 14.10.10 Safe Stop Point

1. This is a safe stop point.

#### 14.10.11 Verify Standard Route Index for DG TGEN Services

1. At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

2. Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.10.9** , Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Once all data is verified, return to the RC/V class menu.

#### 14.10.12 Safe Stop Point

1. This is a safe stop point.

#### 14.10.13 Define Fixed Route Index for DG TGEN Services

**NOTE:** It must be determined if the fixed route index for DG TGEN services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a fixed route index exist for the DG TGEN test?

If **YES**, go to Procedure **14.10.15** .  
If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

3. Type and enter data for the following fields:

|    |      |          |                                                    |
|----|------|----------|----------------------------------------------------|
| *1 | TRMT | DGTGEN   | (TTF tone generator route<br>type for diagnostics) |
| 2  | TONE | <b>N</b> |                                                    |
| 4  | RTI  | _____    | (Same as from Procedure <b>14.10.9</b> , Step 3)   |
| 5  | CHGI | _____    | (Charging Index from office records)               |

**Response:** Enter Insert, Change, Validate, or Print:

- To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

- Return to the RC/V class menu.

#### 14.10.14 Safe Stop Point

- This is a safe stop point.

#### 14.10.15 Verify Fixed Route Index for DG TGEN Services

- At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter **OGTRANS**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

- To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

- Return to the RC/V main menu.
- Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.10.16** .

If **YES**, go to Procedure **14.10.17** .

#### 14.10.16 Restore GDSF Unit To Service

- At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**14.10.17 Activate Other GDSF Services**

1. To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.

**PROCEDURES FOR GDSF SERVICES**

| <b>Service Type</b>                                           | <b>Procedure<br/>Number</b> |
|---------------------------------------------------------------|-----------------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3              |
| XMIT (transmit) LTP Service                                   | Procedure 14.4              |
| LTD (local test desk) LTP Service                             | Procedure 14.5              |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6              |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7              |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8              |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9              |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10             |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11             |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12             |
| OTO (office to office) LTP Service                            | Procedure 14.13             |

## Procedure 14.11: ACTIVATE DG RESP LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) DG RESP (diagnostic responder) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the DG RESP service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF DG RESP service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the DG RESP service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.11.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate DG RESP LTP Service

#### 14.11.1 Define DG RESP LTP Trunk Group Data

1. Confirm that the GDSF configuration provides DG RESP services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides DG RESP services if a number is displayed next to the TONE TRANSCEIVER, TONE GENERATOR, and GDG TONE TRANSCEIVER fields. The sum of the numbers is the number of DG RESP services the GDSF can provide.

2. Is there a number for any one of the three fields? (TONE TRANSCEIVER, TONE GENERATOR, and GDG TONE TRANSCEIVER)?

If **YES**, continue with next step.

If **NO**, DG RESP services are not to be provided, go to Procedure 14.11.17

**NOTE:** DG RESP services are also not provided if the fields are not displayed.

3. Does a trunk group exist for the DG RESP LTP?



**NOTE:** Refer to office records.

If **YES**, go to Procedure **14.11.3**.

If **NO**, continue with next step.

4. At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

5. Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

6. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

7. Once all data is entered, return to the RC/V class menu.

### 14.11.2 Safe Stop Point

1. This is a safe stop point.

### 14.11.3 Verify DG RESP LTP Trunk Group Data

1. At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

2. Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Return to the RC/V class menu.

#### 14.11.4 Safe Stop Point

- This is a safe stop point.

#### 14.11.5 Define DG RESP LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

- At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

- Type and enter data for the following fields:

|     |          |                   |                                              |
|-----|----------|-------------------|----------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure 14.11.1 ,<br>Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                              |
| (*) | QTY      | _____             | (1-24, see office records)                   |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                    |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each DG RESP service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

- To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

- Repeat from Step 2 until all required member numbers have been verified.
- Once all data is entered, return to the RC/V class menu.

#### 14.11.6 Safe Stop Point

- This is a safe stop point.

#### 14.11.7 Verify DG RESP LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.11.5** , Step 2)

MEMB NBR \_\_\_\_ (Same as from Procedure **14.11.5** , Step 2)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to RC/V class menu.

#### 14.11.8 Safe Stop Point

1. This is a safe stop point.

#### 14.11.9 Define Standard Route Index for DG RESP Services

**NOTE:** It must be determined if the standard route index for DG RESP services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.11.11** .

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |          |                                                     |
|----|----------|----------|-----------------------------------------------------|
| *1 | RTI      |          | (Route Index Number 1-3617)                         |
| #2 | ETYP     | HUNT     | (Route Type)                                        |
| 3  | TGN      | _____    | (Same as from Procedure <b>14.11.5</b> ,<br>Step 2) |
| 4  | DIG DLTD | 0        | (Number of Digits Deleted)                          |
| 12 | RMK      | LTPDGTTF | (Remarks)                                           |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter i

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the DG RESP services is already defined. Verify that it points to the same trunk group defined at Procedure **14.11.5** .

5. Return to RC/V class menu.

#### 14.11.10 Safe Stop Point

1. This is a safe stop point.

#### 14.11.11 Verify Standard Route Index for DG RESP Services

1. At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

2. Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.11.9** , Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Once all data is verified, return to the RC/V class menu.

#### 14.11.12 Safe Stop Point

1. This is a safe stop point.

#### 14.11.13 Define Fixed Route Index for DG RESP Services

**NOTE:** It must be determined if the fixed route index for DG RESP services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a fixed route index exist for the DG RESP test?

If **YES**, go to Procedure **14.11.15** .  
If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

3. Type and enter data for the following fields:

|    |      |              |                                                  |
|----|------|--------------|--------------------------------------------------|
| *1 | TRMT | <b>DGRES</b> | (TTF tone generator route type for diagnostics)  |
| 2  | TONE | <b>N</b>     |                                                  |
| 4  | RTI  | _____        | (Same as from Procedure <b>14.11.9</b> , Step 3) |
| 5  | CHGI | _____        | (Charging Index from office records)             |

**Response:** Enter Insert, Change, Validate, or Print:

- To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

- Return to RC/V class menu.

#### 14.11.14 Safe Stop Point

- This is a safe stop point.

#### 14.11.15 Verify Fixed Route Index for DG RESP Services

- At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter **DGRES**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

- To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

- Return to RC/V main menu.
- Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.11.16**.

If **YES**, go to Procedure **14.11.17**.

#### 14.11.16 Restore GDSF Unit To Service

- At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 14.11.17 Activate Other GDSF Services

1. To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.

#### PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |

## Procedure 14.12: ACTIVATE ELS LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) ELS (electronic loop segregation) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the ELS service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF ELS service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the ELS service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.12.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate ELS LTP Service

#### 14.12.1 Define ELS LTP Trunk Group Data

1. Confirm that the GDSF configuration provides ELS services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides ELS services if a number is displayed next to the GDG TONE TRANSCEIVER field. This is the number of ELS services the GDSF can provide.

2. Is there a number for GDG TONE TRANSCEIVER field?

If **YES**, continue with next step.

If **NO**, ELS services are not to be provided, go to Procedure 14.12.17

3. Does a trunk group exist for the ELS LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure 14.12.3 .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

- Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRIN | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

- To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

- Once all data is entered, return to the RC/V class menu.

### 14.12.2 Safe Stop Point

- This is a safe stop point.

### 14.12.3 Verify ELS LTP Trunk Group Data

- At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

- Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Return to the RC/V class menu.

### 14.12.4 Safe Stop Point



1. This is a safe stop point.

#### 14.12.5 Define ELS LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                  |
|-----|----------|-------------------|--------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure <b>14.12.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                  |
| (*) | QTY      | _____             | (1-24, see office records)                       |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                        |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each ELS service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to the RC/V class menu.

#### 14.12.6 Safe Stop Point

1. This is a safe stop point.

#### 14.12.7 Verify ELS LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:

TGN \_\_\_\_ (Same as from Procedure **14.12.5** , Step 2)  
 MEMB NBR \_\_\_\_ (Same as from Procedure **14.12.5** , Step 2)

**Response:** System completes remainder of view.  
 Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

### 14.12.8 Safe Stop Point

1. This is a safe stop point.

### 14.12.9 Define Standard Route Index for ELS Services

**NOTE:** It must be determined if the standard route index for ELS services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.12.11** .

If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |                    |                                                     |
|----|----------|--------------------|-----------------------------------------------------|
| *1 | RTI      | _____              | (Route Index Number 1-3617)                         |
| #2 | ETYP     | HUNT               | (Route Type)                                        |
| 3  | TGN      | _____              | (Same as from Procedure <b>14.12.5</b> ,<br>Step 2) |
| 4  | DIG DLTD | 0                  | (Number of Digits Deleted)                          |
| 12 | RMK      | LTPELTTF (Remarks) |                                                     |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the ELS services is already defined. Verify that it points to the same trunk group defined at Procedure **14.12.5** .

- Return to the RC/V class menu.

#### 14.12.10 Safe Stop Point

- This is a safe stop point.

#### 14.12.11 Verify Standard Route Index for ELS Services

- At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

- Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.12.9** , Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Once all data is verified, return to the RC/V class menu.

#### 14.12.12 Safe Stop Point

- This is a safe stop point.

#### 14.12.13 Define Fixed Route Index for ELS Services

**NOTE:** It must be determined if the fixed route index for ELS services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

- Does a fixed route index exist for the ELS test?

If **YES**, go to Procedure **14.12.15** .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter data for the following fields:

|    |      |         |                                                  |
|----|------|---------|--------------------------------------------------|
| *1 | TRMT | ELSRESP | (TTF responder route type for ELS)               |
| 2  | TONE | N       |                                                  |
| 4  | RTI  | _____   | (Same as from Procedure <b>14.12.9</b> , Step 3) |
| 5  | CHGI | _____   | (Charging Index from office records)             |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to the RC/V class menu.

#### 14.12.14 Safe Stop Point

1. This is a safe stop point.

#### 14.12.15 Verify Fixed Route Index for ELS Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **ELSRESP**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response:** **BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to the RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.12.16** .

If **YES**, go to Procedure **14.12.17** .

#### 14.12.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

2. At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

#### 14.12.17 Activate Other GDSF Services

1. To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.

#### PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |

## Procedure 14.13: ACTIVATE OTO LTP SERVICE

### OVERVIEW

**CAUTION:** This procedure cannot be performed unless preconditioning Procedure 14.2 has been performed first.

The GDSF (global digital services function) OTO (office to office) LTP (logical test port) service requires first growing a trunk group (if required) and then the trunk members. Once these are grown and verified then the standard route index and the fixed route index are defined.

Growing the OTO service requires the use of the MCC (master control center) terminal and the RC/V (recent change and verify) terminal for updating the data bases and verifying the activity. It must be determined if a trunk group already exists for the GDSF OTO service, if not, then the trunk group must be grown.

It is necessary to obtain all the data required to build the OTO service before beginning the process. Refer to Translation Guide TG-5, office records, and GRCV (growth recent change and verify) forms as required.

**Safe Stop Points** are provided where progress in the execution of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Execution of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed. Should this procedure not be completed and required to be carried over to the next day, then a backup of the office dependent data (ODD), (Step 4, Procedure 14.13.15 ) should be made to prevent losing recent change activity.

### PROCEDURE

1. Activate OTO LTP Service

#### 14.13.1 Define OTO LTP Trunk Group Data

1. Confirm that the GDSF configuration provides OTO services. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

**NOTE:** The GDSF provides OTO services if a number is displayed next to the GDG TONE TRANSCEIVER field. This is the number of OTO services the GDSF can provide.

2. Is there a number for GDG TONE TRANSCEIVER field?

If **YES**, continue with next step.

If **NO**, OTO services are not to be provided, go to Procedure 14.13.17

3. Does a trunk group exist for the OTO LTP?

**NOTE:** Refer to office records.

If **YES**, go to Procedure 14.13.3 .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **5.1i**

**Response:** The RC\_TKGP view is displayed. The cursor is positioned at the TGN field.

- Type and enter data for the following fields:

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E10</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 7           | RMK       | ISTF-LOOPBACK |                                          |
| #8          | TRK DIR   | LTP           |                                          |
| #9          | HUNT TYPE | FIFO          |                                          |
| #13         | TRK CLASS | LTPISTFL      |                                          |
| 19          | IAPT      | Y             |                                          |
| 83          | NCD SCRNR | NONE          |                                          |

|             |           |               |                                          |
|-------------|-----------|---------------|------------------------------------------|
| <b>5E11</b> |           |               |                                          |
| (*)1        | TGN       |               | (Trunk Group Number from office records) |
| 6           | RMK       | ISTF-LOOPBACK |                                          |
| #7          | TRK DIR   | LTP           |                                          |
| #8          | HUNT TYPE | FIFO          |                                          |
| #12         | TRK CLASS | LTPISTFL      |                                          |
| 18          | IAPT      | Y             |                                          |
| 83          | NCD SCRNR | NONE          |                                          |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

- To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

- Once all data is entered, return to the RC/V class menu.

### 14.13.2 Safe Stop Point

- This is a safe stop point.

### 14.13.3 Verify OTO LTP Trunk Group Data

- At the RC/V terminal, type and enter **5.1v**

**Response:** TRUNK GROUP page displayed. Cursor at TGN attribute.

- Type and enter appropriate TGN.

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Return to the RC/V class menu.

### 14.13.4 Safe Stop Point

1. This is a safe stop point.

### 14.13.5 Define OTO LTP Trunk Member Data

**NOTE:** It is necessary to assemble all the data required to build a LTP trunk member before beginning. Refer to Translation Guide TG-5 and office records as required.

1. At the RC/V terminal, type and enter **5.5i**

**Response:** The RC\_TRK1 view is displayed. The cursor is positioned at the TGN field.

2. Type and enter data for the following fields:

|     |          |                   |                                                     |
|-----|----------|-------------------|-----------------------------------------------------|
| *1  | TGN      | _____             | (Same as from Procedure<br><b>14.13.1</b> , Step 5) |
| *2  | MEMB NBR | _____             | (Member Number)                                     |
| (*) | QTY      | _____             | (1-24, see office records)                          |
| #12 | OE       | <b>P 00mmnnnn</b> | (Office Equipment Number)                           |

**Where:**

P = (logical test port equipment number)  
 00mmm = (Switch Module number 00001-00192)  
 nnn = (Port 000-255)

**NOTE 1:** A corresponding number of LTP members must be added for each OTO service added.

**NOTE 2:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;). Once all fields are completed the following response will appear:

**Response:** Enter Insert, Change, Validate, or Print:

3. To insert the data, type and enter **i**

**Response:** inserting . . . FORM INSERTED flashes in upper-right corner of screen. The cursor moves to the TGN field.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Once all data is entered, return to the RC/V class menu.

### 14.13.6 Safe Stop Point

1. This is a safe stop point.

### 14.13.7 Verify OTO LTP Trunk Member Data

1. At the RC/V terminal, type and enter **5.5v**

**Response:** TRUNK MEMBER page displayed. Cursor at TGN attribute.

2. Type and enter:



TGN \_\_\_\_ (Same as from Procedure **14.13.5** , Step 2)  
 MEMB NBR \_\_\_\_ (Same as from Procedure **14.13.5** , Step 2)

**Response:** System completes remainder of view.  
 Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

4. Repeat from Step 2 until all required member numbers have been verified.
5. Return to the RC/V class menu.

### 14.13.8 Safe Stop Point

1. This is a safe stop point.

### 14.13.9 Define Standard Route Index for OTO Services

**NOTE:** It must be determined if the standard route index for OTO services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

1. Does a standard route index exist for the trunk group?

If **YES**, go to Procedure **14.13.11** .  
 If **NO**, continue with next step.

2. At the RC/V terminal, type and enter **10.2i**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

3. Type and enter data for the following fields:

|    |          |               |                                                  |
|----|----------|---------------|--------------------------------------------------|
| *1 | RTI      |               | (Route Index Number 1-3617)                      |
| #2 | ETYP     | HUNT          | (Route Type)                                     |
| 3  | TGN      |               | (Same as from Procedure <b>14.13.5</b> , Step 2) |
| 4  | DIG DLTD | 0             | (Number of Digits Deleted)                       |
| 12 | RMK      | OTO (Remarks) |                                                  |

**NOTE:** Each screen is individually inserted. For fields requiring no entry, type and enter an apostrophe (') to blank the field. For default values, type and enter a semicolon (;).

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - ROUTE INDEX (ROUTING) flashes in upper-right corner of screen. The cursor moves to the RTI field.

**NOTE:** If the response is DUPLICATE FORM, then the standard route index for the OTO services is already defined. Verify that it points to the same trunk group defined at Procedure **14.13.5** .

- Return to the RC/V class menu.

#### 14.13.10 Safe Stop Point

- This is a safe stop point.

#### 14.13.11 Verify Standard Route Index for OTO Services

- At the RC/V terminal, type and enter **10.2v**

**Response:** ROUTE INDEX (ROUTING) page displayed. Cursor at RTI attribute.

- Type and enter:

RTI \_\_\_\_ (Same as from Procedure **14.13.9** , Step 3)

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

- Verify data is correct.

**NOTE:** Make error corrections as required using terminal in the update mode.

- Once all data is verified, return to the RC/V class menu.

#### 14.13.12 Safe Stop Point

- This is a safe stop point.

#### 14.13.13 Define Fixed Route Index for OTO Services

**NOTE:** It must be determined if the fixed route index for OTO services has been provided. If not, then a route index has to be built. It is necessary to assemble all the data required to build the route index before beginning. Refer to the office records as required.

- Does a fixed route index exist for the OTO test?

If **YES**, go to Procedure **14.13.15** .

If **NO**, continue with next step.

- At the RC/V terminal, type and enter **10.1i**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

- Type and enter data for the following fields:

|    |      |        |                                                  |
|----|------|--------|--------------------------------------------------|
| *1 | TRMT | OTOTTF | (TTF circuit route index, OTO testing)           |
| 2  | TONE | N      |                                                  |
| 4  | RTI  | _____  | (Same as from Procedure <b>14.13.9</b> , Step 3) |
| 5  | CHGI | _____  | (Charging Index from office records)             |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert data, type and enter **i**

**Response:** inserting . . . FORM INSERTED - FIXED ROUTE (ROUTING) flashes in upper-right corner of screen. The cursor moves to the TRMT field.

5. Return to the RC/V class menu.

#### 14.13.14 Safe Stop Point

1. This is a safe stop point.

#### 14.13.15 Verify Fixed Route Index for OTO Services

1. At the RC/V terminal, type and enter **10.1v**

**Response:** FIXED ROUTE (ROUTING) page displayed. Cursor at TRMT attribute.

2. Type and enter **OTOTTF**

**Response:** System completes remainder of view.  
Enter Review, Validate, or Print:

3. Verify data is correct.

**NOTE:** Correct errors as required using terminal in the update mode.

4. To back up the ODD, at MCC type and enter: **BKUP:ODD**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

5. Return to the RC/V main menu.
6. Are there other GDSF services to be activated?

If **NO**, continue with Procedure **14.13.16** .

If **YES**, go to Procedure **14.13.17** .

#### 14.13.16 Restore GDSF Unit To Service

1. At MCC, type and enter **CMD 1115,a,b**

**Where:**

a = GDSF number.  
b = SM number.

**Response:** GDSF unit page displayed.

- At the MCC, type and enter appropriate message:

MML **RST:GDSF=a-b**

PDS **RST:GDSF(a,b)**

**Where:**

a = SM number (from Step 1).  
b = GDSF number (from Step 1).

**Response:** RST GDSF a b COMPLETED

- STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

### 14.13.17 Activate Other GDSF Services

- To activate another GDSF service, refer to the list below for the next go-to GDSF service installation procedure number.

#### PROCEDURES FOR GDSF SERVICES

| Service Type                                                  | Procedure Number |
|---------------------------------------------------------------|------------------|
| Loopback LTP (logical test point)                             | Procedure 14.3   |
| XMIT (transmit) LTP Service                                   | Procedure 14.4   |
| LTD (local test desk) LTP Service                             | Procedure 14.5   |
| TTF ICTC (trunk test facility incoming test call) LTP Service | Procedure 14.6   |
| TTF OGTC (outgoing test call) LTP Service                     | Procedure 14.7   |
| ROTL (remote office test line) LTP Service                    | Procedure 14.8   |
| TLWS (trunk line work station) LTP Service                    | Procedure 14.9   |
| DG TGEN (diagnostic tone generator) LTP service               | Procedure 14.10  |
| DG RESP (diagnostic responder) LTP Service                    | Procedure 14.11  |
| ELS (electronic loop segregation) LTP Service                 | Procedure 14.12  |
| OTO (office to office) LTP Service                            | Procedure 14.13  |

**Procedure 14.14: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For future use.

## Procedure 14.15: CONVERT CI (UN71B) TO CI2 (UN71C) - 5E11 AND LATER

### OVERVIEW

This procedure supports the replacement and conversion of the control interface (CI) circuit pack, UN71B, to the control interface model 2 (CI2) circuit pack, UN71C. The CI2 provides, through peripheral interface control buses (PICB), communication between the switching module processor (SMP) and peripheral units. The CI2 provides, in addition to CI functionality, the ability to pump peripheral units in parallel. And, because of its improved scanning mechanism, it may slightly enhance switching module (SM) performance.

### PROCEDURE

#### 14.15.1 PREREQUISITES

1. Perform this procedure during low traffic periods.
2. Adhere to Electrostatic Discharge (ESD) protection requirements.
3. Verify the following documents, applicable to the current system, are available prior to beginning this procedure.

|            |                                                                  |
|------------|------------------------------------------------------------------|
| J5D003L-1  | Switching Module Control Cabinet                                 |
| J5D003AY-1 | Single-Shelf Interface Module Processor Unit (SSMPU)             |
| J5D003EC-1 | Module Controller and Time Slot Interchange Unit (MCTU)          |
| J5D003LA-1 | Module Controller and Time Slot Interchange Unit Model 2 (MCTU2) |
| J5D003LB-1 | Module Controller and Time Slot Interchange Unit Model 3 (MCTU3) |
| J5D003NA-1 | Switch Module Processor Unit Model 4 (SMPU4)                     |
| J5D003NG-1 | Switch Module Processor Unit Model 5 (SMPU5)                     |
| SD5D007-01 | 5ESS®-2000 Switching Equipment Assignment Rules                  |
| SD5D012-02 | SM Application Schematic                                         |

4. At the master control center (MCC), verify normal conditions in the SM to determine if system status is acceptable to start the association procedure.

If a NORMAL indication is not obtained, type input message:

**OP:SYSSTAT;**

5. Correct deficiencies as required.

#### 14.15.2 PRECONDITIONING

##### 14.15.2.1 Record and Clear Automatic Office Dependent Data Backup

1. At MCC, type input message: **OP:BKUPSTAT;**

**Response: AM CMP= a TO b NRODD = c TO d RODD=c EVERY= e AT=ff:ff;**  
or  
**NG - NO SCHEDULE REQUEST**

**Where:**

a and b; = range of CMP numbers  
c and d; = range of SM numbers  
e; = Interval in days between scheduled ODD backups

f; = Time of day that the ODD backup is scheduled to occur

2. Is response **NG - NO SCHEDULE REQUEST?**

If **YES**, go to Procedure **14.15.2.2** . (Automatic backups were not previously scheduled.)

If **NO**, continue with next Step.

3. Record and save the schedule information for later reference. This is important since the next command clears the backups scheduled.
4. At MCC, type input message: **CLR:ODDBKUP;**

**Response: CLR ODDBKUP COMPLETED**

#### **14.15.2.2 Back Up Office Dependent Data (ODD)**

1. Step 1 is recommended but not required. Local practices control its use.

At MCC, type input message: **BKUP:ODD;**

**NOTE:** There will be "COMPLETED" responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base backup will take several minutes to complete.

#### **14.15.2.3 Inhibit Routine Exercises**

1. Steps 1 through 15 are recommended but not required. Local practices should control their use. If REX is inhibited, it must be allowed at the conclusion of these procedures.

2. At MCC, type input message: **INH:DMQ,SRC=REX;**

**Response: OK**

3. At MCC, type input message: **OP:DMQ;**

**Response: OP DMQ COMPLETED**

**NOTE:** The above response is for an office with no active or waiting administration module (AM) diagnostic requests in the deferred maintenance queue (DMQ). If requests are waiting or active, they will be displayed in the output instead.

4. Were active or waiting AM diagnostic requests listed?

If **NO**, go to Step 6.

If **YES**, continue with next Step.

5. At MCC, type input message: **STOP:DMQ;**

**Response: STP DMQ COMPLETED**  
AM units are left Out Of Service (OOS).

6. Manually restore any OOS AM units.

**Reference:** *Input/Output Messages Manuals (235-600-700/750)*

7. At MCC, either:

type input message: **INH:REX,CM;**

or

type and enter input command: **617** (110 CMD)

**Response: OK**

8. At MCC, type input message: **OP:DMQ,CM;**

**Response: OP DMQ CM LAST RECORD  
ACTION UNIT OPTION SOURCE STATUS**

or

**OP DMQ CM HAS NO REQUESTS ON THE DMQ**

9. Were active or waiting CM diagnostic requests listed?

If **NO**, go to Step 11.

If **YES**, continue with next Step.

10. At MCC, type input message: **STP:REX,CM;**

**Response: EXC REX CM DGN STOPPED**

**NOTE:** Most CM units will automatically be restored by the REX process.

11. Manually restore any OOS CM units.

**Reference:** *Input/Output Messages Manuals (235-600-700/750)*

12. At MCC, either:

type input message: **INH:REX,SM=a&&b;**

or

type and enter input command: **602** (1800,a CMD)

**Where:**

a and b = Range of SMs

**Response: OK**

13. At MCC, type input message: **OP:DMQ,SM=a&&b;**

**Where:**

a and b = Range of SMs

**Response: OP DMQ SM a LAST RECORD  
ACTION UNIT SOURCE STATUS**  
or



**OP DMQ SM a HAS NO REQUESTS ON THE DMQ**

14. Were active or waiting SM diagnostic requests listed?

If **NO**, go to Procedure **14.15.2.4** .

If **YES**, continue with next Step.

15. At MCC, type input message: **STP:REX,SM=a&&b;**

**Where:**

a and b = Range of SMs

**Response: EX REX SM=a DGN|ELS|FAB STOPPED**

Most SM units will be automatically restored by the REX process.

16. Manually restore any OOS SM units.

**Reference:** *Input/Output Messages Manuals (235-600-700/750)*

**14.15.2.4 Turn On Fault Recovery Reports**

1. At MCC, either:

type input message: **SET:PERPH,SM=a,VERBOSE;**

or

type and enter input command: **412** (1800,a CMD)

**Where:**

a = SM number

**Response: OK**

**14.15.2.5 Save Office Message Class Print Options Message Classes to Print**

1. At MCC, type input message: **CHG:LPS,MSGCLS=ALL,TOBKUP;**

**Response: OK** (with exception)

**14.15.2.6 Allow All Message Classes to Print**

1. At MCC, type input message:

**CHG:LPS,MSGCLS=ALL,PRINT=ON,LOG=ON;**

**Response: OK** (with exception)

**14.15.2.7 Inhibit Brevity Control**

1. **CAUTION:** Brevity control should not be inhibited for more than ten SMs, concurrently. This can cause the loss of receive-only printer (ROP) messages.

At MCC, either:

type input message: **INH:BREVC,SM=a;**  
 or  
 type and enter input command: **609** (1800,a CMD)

**Where:**

a = SM number

**Response: OK**

### 14.15.3 SAFE STOP POINT

1. Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

### 14.15.4 CI TO CI2 CONVERSION

#### 14.15.4.1 Remove Module Controller/Time Slot Interchange (MCTSI) Side 0 from Service

1. At MCC, either:

type input message: **RMV:MCTSI=a-0;**  
 or  
 type and enter input command: **200** (1190,a CMD)

**Where:**

a = SM number

**Response: RMV MCTSI=a-0 COMPLETED**

#### 14.15.4.2 Update Module Controller (MC) Side 0 CI2 Circuit Change Level Indicator (CLI)

1. Obtain the completed growth recent change and verify (GRCV) form **18.2** for the identified CI2. This form should have the KEY(\*) attributes listed for side 0.

Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **18.2U**

**Response: CONTROL INTERFACE (SM & RSM MODULES)** page displayed.  
 Cursor at **SM** attribute.

3. Type and enter the KEY (\*) attribute values from the GRCV form for Side 0:

|     |    |       |
|-----|----|-------|
| *1. | SM | _____ |
| *2. | MC | _____ |
| *3. | CI | _____ |

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Type and enter **C**

**Response:**    **Change field:**

5. Type and enter the number corresponding to the **CLI** attribute.

**Response:**    Cursor at **CLI** attribute.

6. Type and enter the value entered on the GRCV form.

**NOTE:** The CLI value is dynamic.

**Response:**    **Change field:**

7. Hit **CARRIAGE RETURN**

**Response:**    **Enter Update, Change, Validate, or Print:**

8. Type and enter **U**

**Response:**    **updating...FORM UPDATED**  
**CONTROL INTERFACE (SM & RSM MODULES)** page displayed.  
 Cursor at **SM** attribute.

9. Repeat Steps 3 through 8 for each CI to CI2 pack conversion on MC side 0.

10. Type and enter **<**

**Response:**    **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

11. Type and enter **Q**

**Response:**    **RCV-196 COMPLETED**

#### 14.15.4.3 Power Down MCTSI Side 0

1. At the MCTSI cabinet, Side 0, Power and Control Display (PCD) pack, simultaneously depress:

Manual OverRide (**MOR**)  
 and  
**OFF** button.

**Response:**    **REPT PWR OFF MCTSI=a-0**

**Where:**

a =                      SM number

#### 14.15.4.4 Replace CI with CI2 Circuit Pack from MCTSI Side 0

1. Remove the CI(UN71B) circuit pack from MCTSI Side 0, per the equipment drawings.
2. Reinsert the CI2(UN71C) circuit pack into MCTSI Side 0.

#### 14.15.4.5 Power Up MCTSI Side 0

1. At the MCTSI cabinet, Side 0, PCD pack, depress the **ON** button.

**Response:** REPT PWR ON MCTSI=a-0

**Where:**

a = SM number

#### 14.15.4.6 Diagnose MCTSI Side 0

1. At MCC, either:

type input message: **DGN:MCTSI=a-0,PH=71&&74,RAW,TLP;**

or

type and enter input command: **500,PH=71&&74** (1190,a CMD)

**Where:**

a = SM number

**Response:** DGN MCTSI=a-0 COMPLETED ATP

#### 14.15.4.7 Unconditionally Restore MCTSI Side 0

1. At MCC, either:

type input message **RST:MCTSI=a-0,UCL;**

or

type and enter input command: **300,UCL** (1190,a CMD)

**Where:**

a = SM number

**Response:** RST MCTSI=a-0 COMPLETED

#### 14.15.4.8 Remove MCTSI Side 1 from Service

1. At MCC, either:

type input message: **RMV:MCTSI=a-1;**

or

type and enter input command: **201** (1190,a CMD)

**Where:**

a = SM number

**Response:** RMV MCTSI=a-1 COMPLETED

#### 14.15.4.9 Update MC Side 1 CI2 Circuit CLI

1. Obtain the completed GRCV form **18.2** for the identified CI2. This form should have the KEY(\*) attributes listed for Side 1.
2. At the RC/V terminal, type and enter **18.2U**

**Response:** **CONTROL INTERFACE (SM & RSM MODULES)** page displayed.  
Cursor at **SM** attribute.

3. Type and enter the KEY (\*) attribute values from the GRCV form for Side 1:

|     |    |       |
|-----|----|-------|
| *1. | SM | _____ |
| *2. | MC | _____ |
| *3. | CI | _____ |

**Response:** System populates remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Type and enter **C**

**Response:** **Change field:**

5. Type and enter the number corresponding to the **CLI** attribute.

**Response:** Cursor at **CLI** attribute.

6. Type and enter the value entered on the GRCV form.

**NOTE:** The CLI value is dynamic.

**Response:** **Change field:**

7. Hit **CARRIAGE RETURN**

**Response:** **Enter Update, Change, Validate, or Print:**

8. Type and enter **U**

**Response:** **updating...FORM UPDATED**  
**CONTROL INTERFACE (SM & RSM MODULES)** page displayed.  
Cursor at **SM** attribute.

9. Repeat Steps 2 through 7 for each CI to CI2 pack conversion on MC side 1.

10. Type and enter **<**

**Response:** **18.0 SM & REMOTE TERMINALS VIEWS** page displayed.

11. Type and enter **Q**

**Response:** **RCV-196 COMPLETED**

#### 14.15.4.10 Power Down MCTSI Side 1

1. At the MCTSI cabinet, Side 1, PCD pack, simultaneously depress:

Manual OverRide (**MOR**)  
and  
**OFF** button.

**Response:** **REPT PWR OFF MCTSI=a-1**

**Where:**

a = SM number

#### 14.15.4.11 Replace CI with CI2 Circuit Pack from MCTSI Side 1

1. Remove the CI(UN71B) circuit pack from MCTSI Side 1, per the equipment drawings.
2. Reinsert the CI2(UN71C) circuit pack into MCTSI Side 1.

#### 14.15.4.12 Power Up MCTSI Side 1

1. At the MCTSI cabinet, Side 1, PCD pack, depress the **ON** button.

**Response:** REPT PWR ON MCTSI=a-1

**Where:**

a = SM number

#### 14.15.4.13 Diagnose MCTSI Side 1

1. At MCC, either:

type input message: **DGN:MCTSI=a-1,PH=71&&74,RAW,TLP;**

or

type and enter input command: **501,PH=71&&74** (1190,a CMD)

**Where:**

a = SM number

**Response:** DGN MCTSI=a-1 COMPLETED ATP

#### 14.15.4.14 Unconditionally Restore MCTSI Side 1

1. At MCC, either:

type input message **RST:MCTSI=a-1,UCL;**

or

type and enter input command: **301,UCL** (1190,a CMD)

**Where:**

a = SM number

**Response:** RST MCTSI=a-1 COMPLETED

#### 14.15.5 SAFE STOP POINT

1. Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

#### 14.15.6 RESTORE CONTROLS

#### 14.15.6.1 Allow Brevity Control

1. At MCC, either:

type input message: **ALW:BREVC,SM=a;**  
or  
type and enter input command: **709** (1800,a CMD)

**Where:**

a = SM number

**Response: OK**

#### 14.15.6.2 Return Message Classes to Previous Print Status

1. At MCC, type input message: **CHG:LPS,MSGCLS=ALL,FROMBKUP;**

**Response: OK**

#### 14.15.6.3 Turn Off Fault Recovery Reports

1. At MCC, either:

type input message: **CLR:PERPH,SM=a,VERBOSE;**  
or  
type and enter input command: **512** (1800,a CMD)

**Where:**

a = Sm number

**Response: OK**

#### 14.15.6.4 Allow Routine Exercises

1. **CAUTION:** All routine exercises inhibited earlier in the procedure must be allowed. Failure to do this may result in office degradation over time.

At MCC, type input message: **ALW:DMQ,SRC=REX;**

**Response: ALW DMQ ENABLED REX**

2. At MCC, either:

type input message: **ALW:REX,CM;**  
or  
type and enter input command: **717** (110 CMD)

**Response: OK**

3. At MCC, either:

type input message: **ALW:REX,SM=a&&b;**  
or  
type and enter input command: **702** (1800,a CMD)

**Where:**

a and b = Range of SMs

**Response: OK****14.15.6.5 Reorganize Hashed Relations**

1. At MCC, type input message: **EXC:REORG;**

**Response: REPT REORG COMPLETED RELATION = ALL,{AM|SM= c|CM= d}****NOTE:** Wait 5 minutes after each completed message for additional SM responses before continuing.**Where:**

c = SM number  
d = CMP number

**14.15.6.6 Back Up Office Dependent Data**

1. At MCC, type input message: **BKUP:ODD;**

**NOTE:** There will be **COMPLETED** responses for the SM(s), the AM, and the CMP. The last in the series of these messages should be:**Response: BKUP ODD COMPLETED****NOTE:** Data base backup will take several minutes to complete.**14.15.6.7 Reschedule Automatic Office Dependent Data Backup, If Necessary**

1. At MCC, type input message: **BKUP:ODD,EVERY=c,AT=d;**

**Where:**

c = interval in days (0-90) between successive ODD backup runs, Procedure **14.15.2.1** .  
d = Time of day in hours and minutes (0-2359), recorded in Procedure **14.15.2.1** .

**Response: OK****14.15.6.8 Recommended Soak Period**

1. Monitor the ROP output for any peripheral fault recovery error messages. If any such messages occur within a period of 30 minutes take appropriate action to determine the reason; and, correct the reported error(s), if necessary, before continuing.
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 14.16: ACTIVATE/DEACTIVATE BALANCE FEATURE

### OVERVIEW

This procedure activates the ability to provide data for blocked-call identification on analog line units (LU1, LU2, and LU3) in an SM. The data (high CCS users that cause blocking) is delivered to the Administrative Module (AM) by human machine messages. But to collect the data the BALANCE feature must be activated.

The balance data may be directed to either the TTY port or the 3B log files. Activity in the ECD accomplishes this. It is assumed the TTY port has already been defined in the ECD data base.

Once the ECD data base is populated, the BALANCE feature is activated with Recent Change/Verify (RC/V). To deactivate, simply use RC/V. To re-activate use RC/V. The ECD data base update is a one-time effort.

There are variations in the software releases 5E11, 5E12, and 5E13. These differences are noted in the procedure.

### PROCEDURE

1. Activate/Deactivate Balance Feature

#### 14.16.1 Activity Selection

1. What type of activity is to be performed?

|    | Activity                                                                   | Go to . . .     |
|----|----------------------------------------------------------------------------|-----------------|
| 1. | First time activation with data directed to 3B Log File.                   | Section 14.16.2 |
| 2. | First time activation with data directed to non-balance specific TTY Port. | Section 14.16.3 |
| 3. | Activate Balance Session                                                   | Section 14.16.5 |
| 4. | Deactivate Balance Session                                                 | Section 14.16.7 |

#### 14.16.2 Populate Low Level ECD Forms for Log File Retrieval

**NOTE:** The following low level ECD activity allows the Balance output to be redirected to a 3B log file.

1. At the master control center (MCC) terminal, type and enter command **199** to access the equipment configuration data base (ECD).

**Response:** database\_name:

2. Type and enter: **incore**

**Response:** review only:

3. Type and enter: **n**

**Response:** journaling:

4. Type and enter: **\***

**Response:** Enter Form Name (or ?):

5. Type and enter: **trbegin**

**Response:** tr\_name:

6. Type and enter: **<ret> (return key)**

**Response:** Enter Execute, Change....

7. Type and enter: **e**

**Response:** Enter Form Name (or ?):

8. For 5E11 and 5E12 continue with **next Step**.

For 5E13 go to **Step 25**.

9. Type and enter: **device**

**Response:** Enter Database Operation  
I=Insert R=Review U=Update D=Delete

10. Type and enter: **i**

**Response:** logical\_devname

11. Type and enter: **BALANCE**

**Response:** path

12. Type and enter: **/log/log/BALANCELOG**

**Response:** seqn

13. Type and enter: **n**

**Response:** logfile

14. Type and enter: **y**

**Response:** temp

15. Type and enter: **n**

**Response:** priority

16. Type and enter: **n**

**Response:** maxq

17. Type and enter: **50**

**Response:** blksize

18. Type and enter: **512**

**Response:** linelen

19. Type and enter: **0**

**Response:** logflimit

20. Type and enter: **1048576**

**Response:** time\_stamp

21. Type and enter: **dontcare**

**Response:** multiple\_msg

22. Type and enter: **y**

**Response:** msg\_head

23. Type and enter: **\***

**Response:** FORM INSERTED  
logical\_devname

24. Type and enter: **<**

**Response:** Enter Form Name

25. Type and enter: **classdef**

**Response:** Enter Database Operations  
I=Insert R=Review U=Update D=Delete.

26. Type and enter: **u**

**Response:** class\_name

27. Type and enter:

**109** (For 5E11 and 5E12)

or

**196** (For 5E13 and later)

**Response:** Enter Update, Change . . .

28. Type and enter: **c**

**Response:** Change Field

29. Type and enter: **3**

**Response:** row

30. Type and enter:

**1** (if row 1 value is null or value is being replaced)

or

**20** (if additional devices are being added to the current list)

**Response:** 1) or 20)

31. Type and enter: **BALANCE**

**Response:** row

32. Type and enter: **<ret>**

**Response:** Change field

33. Type and enter: **<ret>**

**Response:** Enter Update, Change . . . .

34. Type and enter: **u**

**Response:** class\_name

35. Type and enter: **<**

**Response:** Enter Form Name

36. Type and enter: **trend**

**Response:** tr\_name

37. Type and enter: **<ret>** 4 times

**Response:** Enter Execute, Change . . . .

38. Type and enter: **e**

**Response:** Enter Form Name

39. Type and enter: **<**

**Response:** Transaction ended successfully

40. Go to **Section 14.16.4** .

### 14.16.3 Populate Low Level ECD Forms For TTY Port

**NOTE:** The following low level ECD activity allows the Balance output to be directed to an existing TTY port.

1. If the Balance TTY port (TTY23) has already been equipped in the ECD, skip this section and **go to Section 14.16.5** (since the following changes were already completed during growth of TTY23).
2. If a TTY port other than TTY23 will be used, then **continue with next Step**.
3. At the MCC terminal, type and enter command **199** to access the equipment configuration data base (ECD).

**Response:** database\_name:

4. Type and enter: **incore**

**Response:** review only

5. Type and enter: **n**

**Response:**   journaling

6. Type and enter: \*

**Response:**   Enter Form Name (or ?)

7. Type and enter: **trbegin**

**Response:**   tr\_name

8. Type and enter: **<ret>**

**Response:**   Enter Execute, Change . . .

9. Type and enter: **e**

**Response:**   Enter Form Name (or ?)

10. Type and enter: **classdef**

**Response:**   Enter Database Operation  
I=Insert R=Review U=Update D=Delete

11. Type and enter: **u**

**Response:**   class\_name

12. Type and enter:

**109** (For 5E11 and 5E12)

or

**196** (For 5E13 and later)

**Response:**   Enter Update, Change . . .

13. Type and enter: **c**

**Response:**   Change field

14. Type and enter: **3**

**Response:**   row

15. Type and enter:

**1** (if row 1 value is null or value is being replaced)

or

**20** (if additional devices are being added to the current list)

**Response:**   1) or 20)

16. Type and enter: (logical device port assignment, e.g., rop0)

**NOTE 1:** To redirect Balance output to the ROP, the logical device port assignment would be **rop0**.

**NOTE 2:** To determine the logical device for other existing TTY ports, refer to **235-600-3XX**, ECD Data Base Manual, where XX = the manual number associated with the applicable software release.

**NOTE 3:** If the BALANCE TTY port (TTY23) has been equipped in the ECD, the logical device port assignment would be displayed as tty8.

**Response:** row

17. Type and enter: <ret>

**Response:** Change field

18. Type and enter: <ret>

**Response:** Enter Update, Change . . . .

19. Type and enter: u

**Response:** class\_name

20. Type and enter: <

**Response:** Enter Form Name

21. Type and enter: trend

**Response:** tr\_name

22. Type and enter: <ret> 4 times

**Response:** Enter Execute, Change . . . .

23. Type and enter: e

**Response:** Enter Form Name

24. Type and enter: <

**Response:** Transaction ended successfully

25. Continue with next **Section**.

#### 14.16.4 Back Up Incore ECD to Disk

1. At the MCC terminal, to access the ECD, type and enter command **199**

**Response:** database\_name:

2. Type and enter: **incore**

**Response:** review only:

3. Type and enter: **n**

**Response:** journaling:

4. Type and enter: \*

**Response:** Enter Form Name (or ?):

5. Type and enter: **activate**

**Response:** 1.copy\_inc\_to\_disk:

6. Type and enter: **CARRIAGE RETURN**

**Response:** ODIN requests action desired

7. Type and enter: **e**

**Response:** ODIN returns to the DATA ENTRY page.

8. Type and enter: **<**

**Response:** Transaction ended successfully

9. Continue with next **Section**.

#### 14.16.5 Activate Balance Feature

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference:** Procedure 11.1

2. At the RC/V terminal, type and enter **8.31U**

**Response:** **OPTIONED FEATURES** page displayed. Cursor at FEATURE ID attribute.

3. To activate BALANCE, type and enter the values for each KEY attribute.

---

OPTIONED FEATURES 8.31

```
*1. FEATURE ID    723
*2. MODULE       OFC
 3. ACTIVE       ____
   FEATURE NAME  _____
   RELEASE      _____
```

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Type and enter **C**

**Response:** Change Field:

5. Type and enter **ACTIVE** or field number 3.

**Response:** Cursor at ACTIVE attribute.

6. Type and enter **Y**

**Response:** Change Field:

7. Enter CARRIAGE RETURN.

**Response:** Enter Update, Change, Validate, or Print:

8. Type and enter **U**

**Response:** updating ....FORM UPDATED

9. Exit recent change.

#### 14.16.6 Backup Office Dependent Data

1. **Note 1:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP NRODD COMPLETED**

**Note 2:** Data base back up will take several minutes to complete.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

#### 14.16.7 Deactivate Balance Feature

1. Select and prepare terminal for recent change and verify (RC/V) activities.

**Reference: Procedure 11.1**

2. At the RC/V terminal, type and enter **8.31U**

**Response: OPTIONED FEATURES** page displayed. Cursor at FEATURE ID attribute.

3. To deactivate BALANCE, type and enter the values for each KEY attribute.

---

OPTIONED FEATURES 8.31

```
*1. FEATURE ID    723
*2. MODULE       OFC
 3. ACTIVE
   FEATURE NAME
   RELEASE
```

**Response:** System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

4. Type and enter **C**



**Response:** Change Field:

5. Type and enter **ACTIVE** or field number 3.

**Response:** Cursor at ACTIVE attribute.

6. Type and enter **N**

**Response:** Change Field:

7. Enter CARRIAGE RETURN.

**Response:** Enter Update, Change, Validate, or Print:

8. Type and enter **U**

**Response:** updating ....FORM UPDATED

9. Exit recent change.

#### 14.16.8 Backup Office Dependent Data

1. **Note 1:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP NRODD COMPLETED**

**Note 2:** Data base back up will take several minutes to complete.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 14.17: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For future use.

**Procedure 14.18: RESERVED — FOR FUTURE USE  
PROCEDURE**

1. Reserved — For future use.

## Procedure 14.19: UPDATE SAS CUSTOM ANNOUNCEMENTS — BRCS

### OVERVIEW

This document gives the instructions for updating or changing an existing Service Announcement Function (RAF) custom announcement data base. This document is not for growth: refer to **235-105-231** for growth.

**NOTE:** This update is Software Release sensitive and not office dependent. Insure that the office and the update are the same software release.

It is assumed that those who are using this document are experienced in the use of recent change, Office Dependent Data (ODD) activities, trunk line work station, and Master Control Center (MCC) activities or have access to technical support in these areas. It is also assumed that the Telco engineering group has provided completed Growth Recent Change and Verify (GRCV) forms that are applicable to this update process.

This procedure installs new SAS custom announcements in an office with an existing operational SAS environment for Business and Residence Customer Services (BRCS) application. **This procedure is not to be used for ASP (PVN), and AIN applications.** If this update is for another application refer to other procedure, "Update SAS Customer Announcements — ASP (PVN) And AIN".

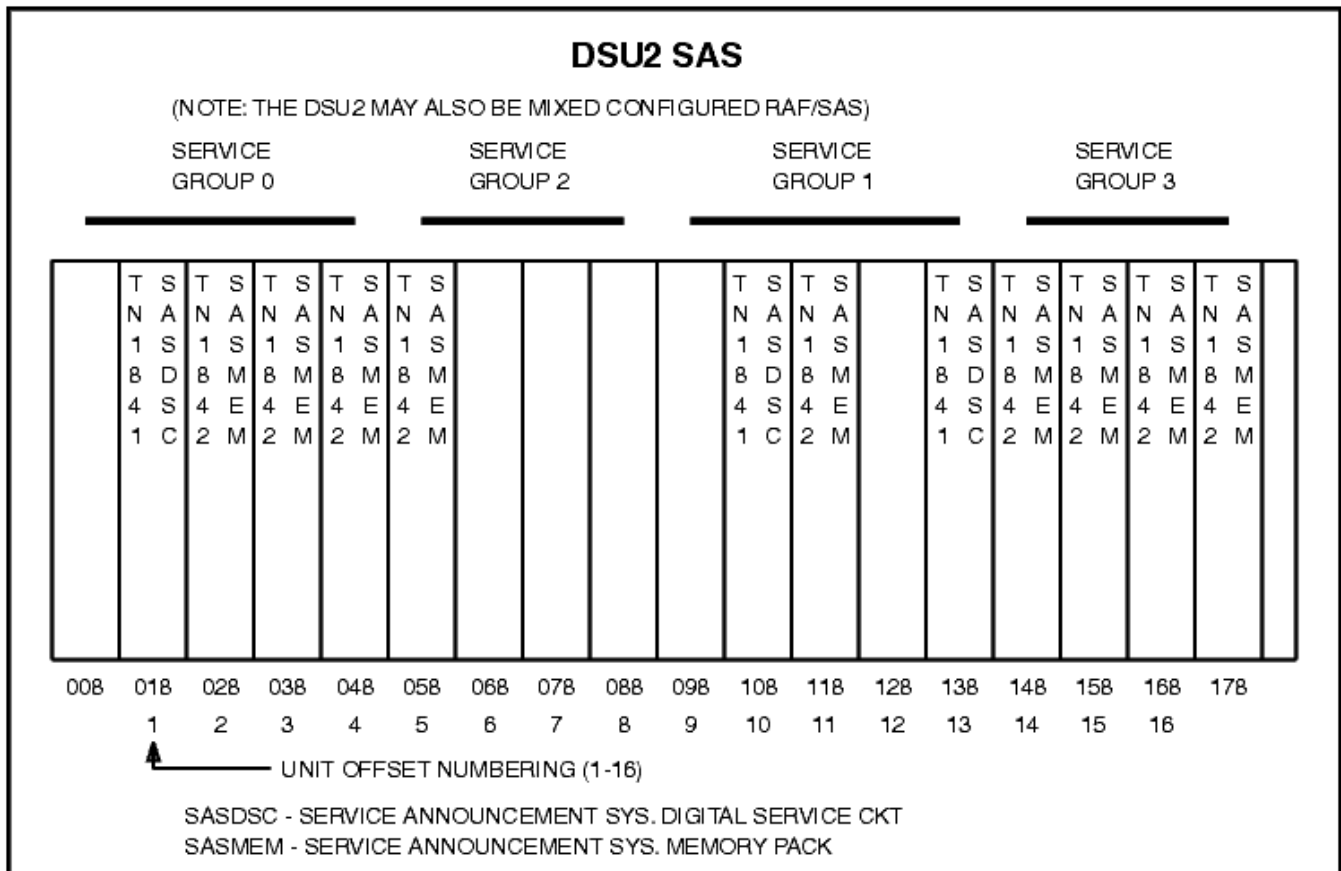
- (a) Install new SAS memory board and flash memory cards.
- (b) Install new flash memory cards in an existing memory board.
- (c) Replace existing flash memory card in an existing memory board.

**Hardware Configuration** — The SAS unit can be located in either a DSU2 (digital services unit 2) or a CSU (combined service unit). The DSU2-SAS unit consists of a maximum of four service groups numbered 0,2,1,3 from left to right as viewed from the front of the unit. Refer to **Figure 14.19-1**. There is no redundancy in the configuration. Although service interruption can be minimized if replacement/update is performed in segmented service groups, i.e. 0,2 and 1,3.

Service is distributed equally among the service groups. When a service group is removed from service then the traffic is routed to the remaining operational service groups. During heavy traffic periods service could be effected due to reduced service groups.

The TN1842 SASMEM boards provide the SAS announcement storage memory. A minimum of one and a maximum of four SASMEM boards are allowed. The SASMEM boards must be contiguous from board 1 to board 4. Each SASMEM board can accommodate up to 8 flash cards. These cards do not have to be in any order and board 1 does not have to be full before board 2 is populated.

The CSU-SAS unit contains only one service group and that group has only one TN1842 SASMEM board and one TN1841 digital service circuit.



**Figure 14.19-1 DSU2-SAS Service Group**

The update configuration package includes the following that is provided by Lucent Technologies:

- SAS Memory (SASMEM) Pack (TN1842) if expansion is required.
- Flash memory card(s) with the CIN bar code labels attached.
- 1 9-track 6250 BPI magnetic tape and/or 1 DAT tape containing the recent change scripts (per Engineered Ordered).
- 1 printed copy of custom phrases.

The update process contains 4 major elements:

- Install and equip flash card.
  - (1) TN1842 memory pack required.
  - (2) Use existing TN1842 memory pack.
- Perform recent change script update.
- Verify custom announcements.

- Update data base.

The update might require: only a single flash card, or multiple flash cards to be installed on an existing memory board; or a new memory board for expansion with flash card(s).

Completed growth recent change and verify (GRCV) forms should be provided by the Telco regional engineering.

The update should be performed during low traffic time periods since some announcements will not be available during the update.

Safe Stop Points are provided in the procedure set where progress in the performance of a procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

For technical assistance call NARTAC (North American Regional Technical Assistance Center), at 800-225-7822.

## PROCEDURE

### 14.19.1 Prerequisites

1. The existing SAS must pass diagnostics, this includes the controller (TN1841) and the memory boards (TN1842).

At the MCC, type and enter **DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = SAS number.

**Response: DGN SAS COMPLETED ATP PH1 — PH5**

Action Required: If STF exists, resolve problem before continuing.

**NOTE:** Phases 1-4 diagnose the TN1841 (controller) and the TN1842 (memory board).

Phase 5 diagnoses the installed SAS memory flash cards and TN1842. Refer to **Table 14.19-1**.

2. Pre-Conditioning — the following activities should be performed at the MCC:

- Inhibit routine exercises

**INH:REX,SM=a;**

- Inhibit automatic reorganization

**INH:REORG;**

- Allow additional fault recovery messages to be printed.

**CHG:LPS:MSGCLS=ASRTMON,PRINT=ON;**

- Set peripheral verbose

**SET:PERPH,SM=a,VERBOSE;**

- Inhibit brevity control.

**INH:BREVC,SM=a;**

**Where:**

a = SM number

3. Are new SAS Memory Boards (TN1842) to installed?

If **YES**, then continue with Section **14.19.2** .

If **NO**, then go to Section **14.19.3** .

### 14.19.2 Install New SAS Memory Board (TN1842)

**WARNING 1:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

**WARNING 2:** The programmed flash cards are factory set for **Write Protect** and should not be changed.

1. Remove CIN bar code label from flash card and place on TN1842 face plate in the corresponding location "0".
2. Record the barcode 9-digit CIN number for later use with recent change activity.
3. Identify and record the flash card memory size for later use. The memory size is printed on the flash card label (not the CIN bar code label).
4. Install memory flash card into position "0" of TN1842.
5. Remove the SAS unit from service, at the MCC type and enter

**RMV SAS=a-b;**

**Where:**

a = SM number  
b = SAS number

**Response: RMV SAS=a-b COMPLETED**  
On MCC page 1090 SAS 0 is shown **OOS**

6. Insert new TN1842 into the front of the CSU or DSU2 unit.

#### 14.19.2.1 Equip Flash Card

1. To populate the new flash card data, select and prepare terminal for recent change and verify activities.
2. Obtain the prepared GRCV form 20.26.
3. To insert data for view 20.26, type and enter **20.26i**
4. Type and enter data for the following fields:

|        |       |                          |
|--------|-------|--------------------------|
| *1. SM | _____ | SM number containing SAS |
|--------|-------|--------------------------|

|                                                                         |          |                                                                          |
|-------------------------------------------------------------------------|----------|--------------------------------------------------------------------------|
| *2. UNIT NUMBER                                                         | _____    | SAS unit number                                                          |
| *3. PACK NUMBER                                                         | _____    | New TN1842 position number                                               |
| 4. EQSTAT                                                               | <b>G</b> | Growth                                                                   |
| 5. CLI                                                                  | _____    | Change level indicator must be the same as that for the existing TN1842. |
| 6. APPLICATION                                                          | _____    | Must be the same as that for the existing TN1842.                        |
| 7. CARDS EQUIP                                                          | _____    | Number of new flash cards inserted in TN1842.                            |
| 8. MEMORY CARD LIST                                                     |          |                                                                          |
| ROW _____ CARD _____ SIZE _____ CODE _____                              |          |                                                                          |
| ROW 1-8                                                                 |          |                                                                          |
| CARD 0-7                                                                |          |                                                                          |
| SIZE FR _____ (FR + flash card memory size from Section 14.19.2 Step 3) |          |                                                                          |
| CODE _____ (9-digit CIN code from Section 14.19.2 Step 2).              |          |                                                                          |

**Response:** Enter Insert, Validate, or Print:

5. Insert the data.
6. Verify the SAS memory card data, type and enter **20.26v**
7. Correct any discrepancies and exit the view.
8. Diagnose the SAS memory unit, type and enter **DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number,  
b = SAS unit number

**Response:** **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
**Diagnostic is completed and all 5 phases are ATP.**

9. Do not continue unless diagnostic is ATP phase 1 through 5. Refer to **Table 14.19-1**.

#### 14.19.2.2 Make SAS Memory Operational

1. Update view 20.26, type and enter: **20.26u**
2. Type and enter data for the following fields (use the data from GRCV form):

SM \_\_\_\_\_  
UNIT NUMBER \_\_\_\_\_  
PACK NUMBER \_\_\_\_\_

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

3. Change EQSTAT field value from G to **O**
4. Update the data.
5. Return to class menu.
6. Verify SAS memory data, type and enter **20.26v**
7. Type and enter data for the following fields:

SM \_\_\_\_\_



UNIT NUMBER \_\_\_\_  
 PACK NUMBER \_\_\_\_

**Response:** All the other fields are populated.

8. Verify that data is consistent with GRCV form 20.26.
9. Correct any errors using terminal in the update mode.
10. Back up ODD, at the MCC, type and enter the following command:

**BKUP:ODD,NRODD =xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE 1:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

**NOTE 2:** Data base back up will take several minutes to complete.

11. To restore SAS memory unit to service type and enter,

**RST:SAS=a-b;**

**Where:**

a = SM number  
 b = SAS unit number

Response 1: **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
 Diagnostic is completed and all 5 phases are ATP.

Response 2: MCC page 1090 identifies new SAS memory unit in service.

12. Go to Section **14.19.4**.

### **14.19.3 Install New Flash Memory Card(s) In Existing Memory Board**

**WARNING 1:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

**WARNING 2:** The programmed flash cards are factory set for **Write Protect** and should not be changed.

1. Record flash card barcode 9-digit CIN number for later use with recent change activity.
2. Identify and record the flash card memory size for later use. The memory size is printed on the flash card label (not the CIN bar code label).
3. Remove the SAS unit from service, at the MCC type and enter

**RMV SAS=a-b;**

**Where:**

a = SM number  
b = SAS number

**Response: RMV SAS=a-b COMPLETED**

On MCC page 1090 SAS 0 is shown **OOS**

4. Remove SAS memory board (TN1842) from CSU or DSU2 unit.
5. Remove CIN bar code label from flash card and place on TN1842 face plate in the corresponding numeric location "0".
6. Install memory flash card into next available numeric position of TN1842.
7. Re-install SAS memory board into CSU or DSU2 unit.

**14.19.3.1 Equip Flash Card**

1. To populate the new flash card data, select and prepare terminal for recent change and verify activities.
2. Obtain the prepared GRCV form 20.26.
3. Update view 20.26, type and enter **20.26u**
4. Type and enter data for the following fields:

|                 |       |                            |
|-----------------|-------|----------------------------|
| *1. SM          | _____ | (SM number containing SAS) |
| *2. UNIT NUMBER | _____ | (SAS unit number)          |
| *3. PACK NUMBER | _____ | (TN1842 position number)   |

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

5. Type and enter **C**
6. Change CARDS EQUIP field to:  
  
Increment by number of new card(s) installed.
7. Move cursor to MEMORY CARD LIST field and insert values for new card(s):  
  
ROW \_\_\_\_\_  
CARD \_\_\_\_\_  
  
SIZE FR\_\_\_\_\_ (FR + flash card memory size from Section **14.19.3** Step 2 )  
CODE \_\_\_\_\_ (9-digit CIN code from Section **14.19.3** Step 1)

8. Type and enter **<**

**Response: Enter Update, Change, Validate, or Print:**

9. Update the data.
10. Return to class menu.
11. Verify the SAS memory card data, type and enter **20.26v**

12. Correct any discrepancies and exit the view.
13. Diagnose the SAS memory unit, type and enter

**DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = SAS unit number

**Response: DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
**Diagnostic is completed and all 5 phases are ATP.**

14. Do not continue unless diagnostic is ATP phase 1 through 5. Resolve STF problem. Refer to **Table 14.19-1**.
15. To restore SAS memory unit to service type and enter,

**RST:SAS=a-b;**

**Where:**

a = SM number  
b = SAS unit number

Response 1: **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
Diagnostic is completed and all 5 phases are ATP.

Response 2: MCC page 1090 identifies new SAS memory unit in service.

### 14.19.3.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD =xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**Note:** Data base back up will take several minutes to complete.

2. Go to Section **14.19.4**.

### 14.19.3.3 Replace Flash Memory Card(s) In Existing Memory Board

**WARNING 1:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

**WARNING 2:** The programmed flash cards are factory set for **Write Protect** and should not be changed.

1. Record flash card barcode 9-digit CIN number for later use with recent change activity.
2. Identify and record the flash card memory size for later use. The memory size is printed on the flash card label (not the CIN bar code label).
3. Remove the SAS unit from service, at the MCC type and enter

**RMV SAS=a-b;**

**Where:**

a = SM number  
b = SAS number

**Response: RMV SAS=a-b COMPLETED**  
On MCC page 1090 SAS 0 is shown **OOS**

4. Remove SAS memory board (TN1842) from CSU or DSU2 unit.
5. Remove CIN bar code label from flash card and place on TN1842 face plate in the corresponding numeric location.

**NOTE:** The flash card location will vary depending on customer's existing requirements.

6. Remove memory flash card.
7. Install new memory flash card in vacated slot in preceding step.
8. Re-install SAS memory board into CSU or DSU2 unit.

#### 14.19.3.4 Equip Flash Card

1. To populate the new flash card data, select and prepare terminal for recent change and verify activities.
2. Obtain the prepared GRCV form 20.26.
3. Update view 20.26, type and enter **20.26u**
4. Type and enter data for the following fields:

|                 |       |                            |
|-----------------|-------|----------------------------|
| *1. SM          | _____ | (SM number containing SAS) |
| *2. UNIT NUMBER | _____ | (SAS unit number)          |
| *3. PACK NUMBER | _____ | (TN1842 position number)   |

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

5. Type and enter **C**
6. Move cursor to MEMORY CARD LIST field and update value for new card:

ROW \_\_\_\_\_  
CARD \_\_\_\_\_  
SIZE FR \_\_\_\_\_ (FR + flash card memory size from Section **14.19.3.3** Step 2)  
CODE \_\_\_\_\_ (9-digit CIN code from Section **14.19.3.3** Step 1)

7. Type and enter **<**

**Response: Enter Update, Change, Validate, or Print:**

8. Update the data.
9. Return to class menu.
10. Verify the SAS memory card data, type and enter **20.26v**
11. Correct any discrepancies and exit the view.
12. Diagnose the SAS memory unit, type and enter

**DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = SAS unit number

**Response: DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
**Diagnostic is completed and all 5 phases are ATP.**

13. Do not continue unless diagnostic is ATP phase 1 through 5. Resolve STF problem. Refer to **Table 14.19-1**.
14. To restore SAS memory unit to service type and enter,

**RST:SAS=a-b;**

**Where:**

a = SM number  
b = SAS unit number

Response 1: **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
Diagnostic is completed and all 5 phases are ATP.

Response 2: MCC page 1090 identifies new SAS memory unit in service.

#### 14.19.3.5 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD =xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**Note:** Data base back up will take several minutes to complete.

#### 14.19.4 Safe Stop Point

1. This is a safe stop point.

## 14.19.5 Perform Recent Change Script Update

### 14.19.5.1 Overview

1. A recent change script update tape has been provided. The tape may be either a 9-track tape or a DAT cartridge tape. The recent change tape contains keystroke files, which when loaded into the switch, are executed by the script.

**NOTE:** The script tape is "SOFTWARE RELEASE" sensitive, and not office dependent. The tape should not be used to apply unnecessary data.

To insure that data is applied properly, it is important that the required script tape be executed as indicated. In some cases data may already have been entered by Office Data Administration (ODA), if that has occurred, recent change insertion data will show up as failures but should not affect functionality. The order of script execution MUST be strictly followed.

Script progress can be monitored on the ROP by entering the following at the MCC or STLWS:

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

For more output increase opl(el) by 1 for each additional 20 lines of output desired. opl=2 generates 40 lines, opl=3 60 lines, etc. Default is 200 lines. **Possible Error Conditions:**

- If the logfile (**annc\_log**) indicates recent change failures, then these errors should be investigated and corrected before executing any other scripts.
- An **error 28** identifies a bad tape or dirty heads. Rewind tape, clean heads and restart tape. If problem persists then a new tape should be requested.

Use manual recent change procedures to correct failing recent change by entering the proper view and applying key data from information provided in the logfile **annc\_log**. Also refer to ROP printout of the recent change attempts. If an excessive number of errors have occurred, the script execution can be repeated if the reasons for the failing recent change have been corrected.

The recent change insertions that were successful on the original script execution attempt will appear as failures on succeeding attempts, a normal condition. Remove all error files before repeating any script execution.

To abort script execution, type and enter:

**stp:exc:data,any,fn="/updump/annc/<fn>",ucl;**

**Where:**

<fn> = name of file script to be terminated, i.e. rc-cst-hdr

After each script completes, the Office Dependent Data (ODD) log space should be checked to determine if a backup is necessary. This can be verified by entering the following:

**op:rcstat,am,sm=x,cmp=0;** x= SM number containing SAS unit.

If any of the logs are more than 75% full the ODD should be backed up before proceeding to the next script.

### 14.19.5.2 Tape Loading

**NOTE:** Tape loading is required only once, even if several memory packs (on the same SAS unit) are being updated at different intervals. The recent change data is transferred to a temporary directory/file for later update of the recent change view.

1. Mount tape on drive.

2. At the MCC or STLWS, type and enter:

**exc:envir:uproc,fn="/bin/mkdir",args="/updtmp/annc";**

**Response:** Wait for a completion message before continuing.

3. Type and enter:

**copy:tape:in,td="/dev/mt00",bsdir="/updtmp/annc";**

**Response: COPY TAPE IN COMPLETED:**

4. To list files copied to the switch from tape, type and enter:

**exc:envir:uproc,fn="/bin/ls",args="/updtmp/annc";**

**Response:** A list of files will be printed, most will have the format:

**rc-xxx-xxx**

Print and save this list for later reference.

### 14.19.5.3 Apply Standard Inflection Data (RC View 8.60)

**NOTE:** Custom inflections are not applicable.

1. Review recent change view 8.60.

2. Is the view populated?

If **YES**, no action is required, go to Section 3.8.4 .

If **NO**, continue with next Step.

3. To apply standard inflections, type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rc-std-infl";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

4. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

5. Correct any errors before continuing.

6. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing SAS unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

7. Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section 14.19.6 ), then continue with next Section.

If **NO**, continue with next Section.

#### 14.19.5.4 Apply Custom Phrase Data (RC View 8.63)

**NOTE:** Standard phrases are not applicable.

1. To apply custom phrases, type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rc-cst-phr";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

2. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

3. Correct any errors before continuing.
4. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing SAS unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

5. Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section 14.19.6 ), then continue with next Section.

If **NO**, continue with next Section.

#### 14.19.5.5 Apply Custom/Standard Header Data (RC View 8.61)

1. To apply custom/standard headers, type and enter one of the following:

For custom headers: **exc:envir:uproc,fn="/updtmp/annc/rc-cst-hdr";**



For standard headers: **exc:envir:uproc,fn="/updtmp/annc/rc-std-hdr";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

2. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

3. Correct any errors before continuing.
4. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing SAS unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

5. Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section 14.19.6), then continue with next Section.

If **NO**, continue with next Section.

#### 14.19.5.6 Apply Custom/Standard Trailer Data (RC View 8.62)

1. To apply custom/standard trailers, type and enter one of the following:

For custom headers: **exc:envir:uproc,fn="/updtmp/annc/rc-cst-trl";**

For standard headers: **exc:envir:uproc,fn="/updtmp/annc/rc-std-trl";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

2. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

3. Correct any errors before continuing.
4. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing SAS unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

- Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section **14.19.6**), then continue with next Section.

If **NO**, continue with next Section.

#### 14.19.5.7 Apply Custom Display Data (RC View 8.65)

- To apply custom/standard displays, type and enter one of the following:

For custom headers: **exc:envir:uproc,fn="/updtmp/annc/rc-cst-disp";**

For standard headers: **exc:envir:uproc,fn="/updtmp/annc/rc-std-disp";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

- Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

- Correct any errors before continuing.

#### 14.19.6 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

- At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**Note:** Data base back up will take several minutes to complete.

#### 14.19.7 Reset Peripheral Recovery Messages and Brevity Control

- Perform this step only if these messages were previously set for growth purposes and no additional growth activity is required on this SM.

At the MCC, type and enter:

**CLR:PERPH,SM=a,VERBOSE;  
CHG:LPS:MSGCLS=HW\_MON,PRINT=OFF;  
CHG:LPS:MSGLS=ASRTMON,PRINT=OFF;  
ALW:BREVC,SM=a;**

**Where:**

a = SM number

### 14.19.8 Verify Announcements Script Update

1. The new announcements are verified by using a TLWS monitor telephone to test the DSU-2 SAS announcements and phrases. Use RC view 14.3 to configure TLWS. Refer to the phrase list that was provided with the memory flash cards and tape.
2. Configure RC view 14.3 as required.
3. At TLWS terminal, select page **160**
4. Select a test position **16x**

**Where:**

x = test position 1 to 9

5. To select "SEIZE LINE/TRUNK/INCOMING CALL", type and enter **4000,2**
6. To select "SEIZE RAF/SAS TRK", type and enter **4107,sm,sas,mem**

**Where:**

sm = SM number  
 sas = SAS number  
 mem = Trunk group member to seize

7. To select "SUPERVISION", type and enter **5200,3**
8. Use the following selections to monitor the announcements as required:

5207,a = Command for Phrase No.  
 5208,b,c,d = Command for announcements

**Where:**

a = phrase or message number  
 b = header ID  
 c = trailer ID  
 d = digit inflection ID

Examples: **5207,14003** (Phrase)  
**5208,186,27,45** (Announcement)

9. To release SAS trunk, enter **4999**
10. To stop test, enter **5999**
11. To release test position, at Page 160 type **20X**

### 14.19.9 Remove Script Files

1. To remove script files, at the MCC type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rmfiles";**

**Response:** Wait for a completion message before continuing.

2. At the MCC type and enter:

**exc:envir:uproc,fn="/bin/rmdir",args="/updtmp/annc";**

**Response:** Wait for a completion message

3. Remove tape from drive.

**Table 14.19-1 SAS Phase 5 STF Analysis**

| SEGMENT NO.                                   | DESCRIPTION                                 | ACTION TO BE TAKEN                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000                                          | Tests SASDSC (TN1841) and PICB interface.   | Refer to technical support.                                                                                                                             |
| 2000                                          | Verifies equipage of SASMEM (TN1842) board. | (1) ODD backup (include AM) not performed. (2) Bad TN1842. (3) Error in data assignment RC 20.26.                                                       |
| 3000-3003<br>3000<br>3001<br>3002<br>3003     | Tests SASMEM (TN1842) board equipage.       | Review RC 20.26, error in data assignments.<br>SASMEM board 0<br>SASMEM board 1<br>SASMEM board 2<br>SASMEM board 3                                     |
| 4000-4003<br><br>4000<br>4001<br>4002<br>4003 | Tests for duplicated phrase data.           | Replace existing (old) flash card with new flash card.<br>Both cannot co-exist.<br>SASMEM board 0<br>SASMEM board 1<br>SASMEM board 2<br>SASMEM board 3 |
| 4100-4103<br>4100<br>4101<br>4102<br>4103     | Tests phrase attribute table data           | Replace existing (old) flash card with new flash card.<br>SASMEM board 0<br>SASMEM board 1<br>SASMEM board 2<br>SASMEM board 3                          |
| 5000-5003<br>5000<br>5001<br>5002<br>5003     | Tests flash card data.                      | Replace corrupted flash card.<br>SASMEM board 0<br>SASMEM board 1<br>SASMEM board 2<br>SASMEM board 3                                                   |

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 14.20: UPDATE SAS CUSTOM ANNOUNCEMENTS — ASP (PVN) AND AIN ONLY

### OVERVIEW

This document gives the instructions for updating or changing an existing Service Announcement System (SAS) custom announcement data base. This document is not for growth: refer to **235-105-231** for growth.

**NOTE:** This update is Software Release sensitive and not office dependent. Insure that the office and the update are the same software release.

It is assumed that those who are using this document are experienced in the use of recent change, Office Dependent Data (ODD) activities, trunk line work station, and Master Control Center (MCC) activities or have access to technical support in these areas. It is also assumed that the telephone company/switch owner engineering group has provided completed Growth Recent Change and Verify (GRCV) forms that are applicable to this update process.

### General Description

This procedure installs new SAS custom announcements for ASP (PVN), and AIN application only in an office with an existing operational SAS environment.

**NOTE 1:** The noted applications are Advanced Service Platform (ASP) which was previously known as Private Virtual Network (PVN), and Advanced Intelligent Network (AIN).

**NOTE 2:** The ASP application might apply to only a few new phrases (less than eight) and these would be updated manually with recent change rather than with magnetic tape script. This information should be provided by the telephone company/switch owner engineering group.

If this update is for another application other than those mentioned above then refer to Procedure **14.19**, "Update SAS Custom Announcements — BRCS."

There are three possible office configurations:

- (a) Install new SAS memory board and flash memory cards.
- (b) Install new flash memory cards in an existing memory board.
- (c) Replace existing flash memory card in an existing memory board.

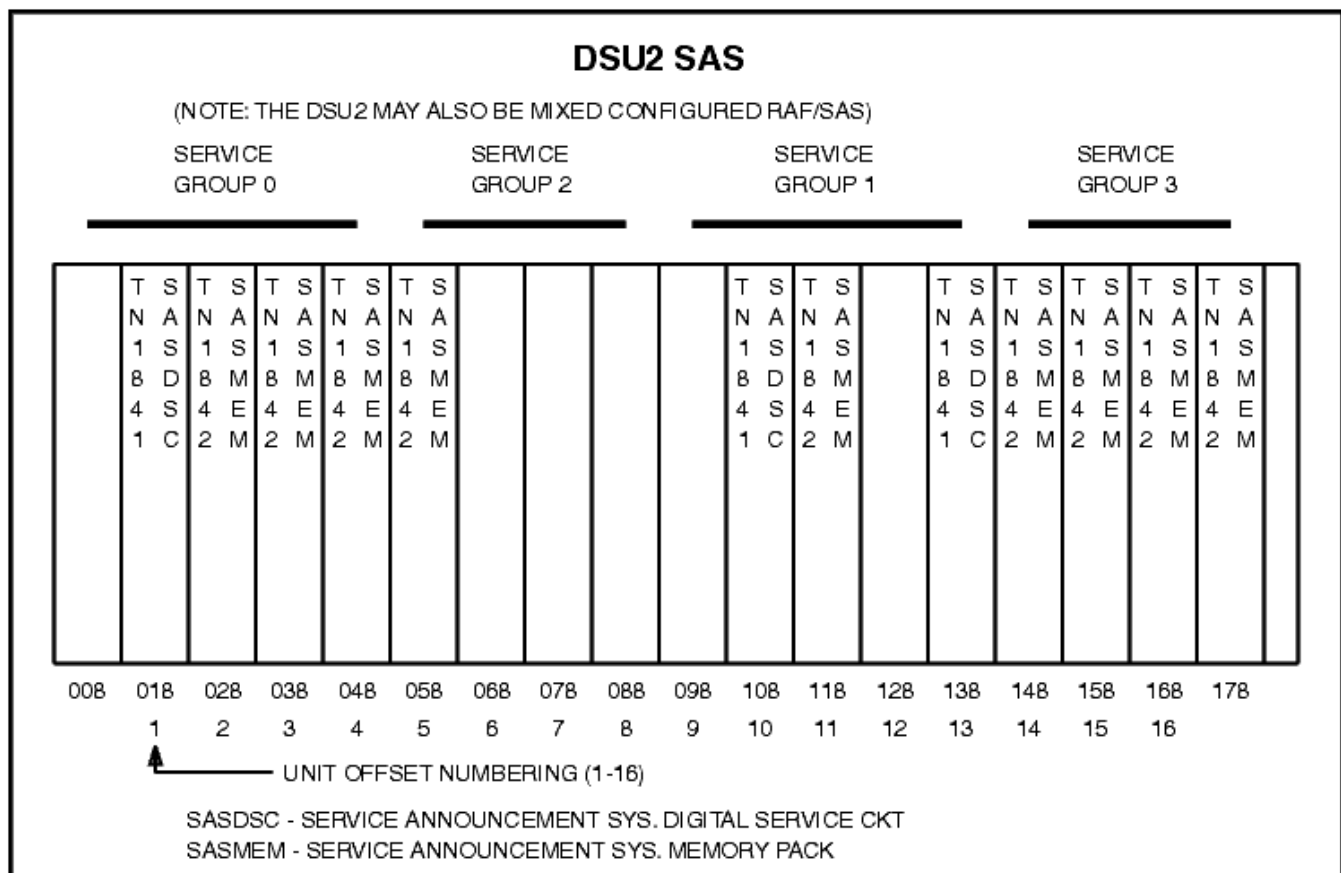
**Hardware Description** — The SAS unit can be located in either a DSU2 (digital services unit 2) or a CSU (combined service unit). The DSU2-SAS unit consists of a maximum of four service groups numbered 0, 2, 1, 3 from left to right as viewed from the front of the unit. Refer to **Figure 14.20-1**. There is no redundancy in the configuration, although service interruption can be minimized if replacement/update is performed in segmented service groups, i.e. 0,2 and 1,3.

Service is distributed equally among the service groups. When a service group is removed from service then the traffic is routed to the remaining operational service groups. During heavy traffic periods service could be effected due to reduced service groups.

The TN1842 SYSTEM boards provide the SAS announcement storage memory. A minimum of one and a maximum of four SASMEM boards are allowed. The SASMEM boards must be contiguous from board 1 to board 4. Each SASMEM board can accommodate up to 8 flash cards. These cards do not have to be in any order and board 1

does not have to be full before board 2 is populated.

The CSU-SAS unit contains only one service group and that group has only one TN1842 SASMEM board and one TN1841 digital service circuit.



**Figure 14.20-1 DSU2/SAS Service Group**

The update configuration package includes the following that is provided by Lucent Technologies:

- SAS memory (SASMEM) pack (TN1842) if expansion is required.
- Flash memory card(s) with the CIN bar code labels attached.
- 1 9-track 6250 BPI magnetic tape and/or 1 DAT tape containing the recent change scripts (if Engineered Ordered).
- 1 printed copy of custom phrases.

The update process contains 4 major elements:

- Install and equip flash card.
  - (1) TN1842 memory pack required.
  - (2) Use existing TN1842 memory pack.

- Perform recent change script update.
- Verify custom announcements.
- Update data base.

Completed growth recent change and verify (GRCV) forms should be provided by the telephone company/switch owner regional engineering.

The update should be performed during low traffic time periods since some announcements may not be available during the update.

Safe Stop Points are provided in the procedure set where progress in the performance of the procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

For technical assistance call NARTAC (North American Regional Technical Assistance Center), at 800-225-7822.

## PROCEDURE

### 14.20.1 Prerequisites

1. The existing SAS must pass diagnostics, this includes the controller (TN1841) and the memory board (TN1842).

At the MCC, type and enter **DGN:SAS=a-b,RAW,TLP;**

**Where:**

|     |             |
|-----|-------------|
| a = | SM number   |
| b = | SAS number. |

**Response: DGN SAS COMPLETED ATP PH1 — PH5**

Action Required: If STF exists, resolve problem before continuing.

**NOTE:** Phases 1-4 diagnose the TN1841 (controller) and the TN1842 (memory board).

Phase 5 diagnose the installed SAS memory flash card and the TN1842. Refer to **Table 14.20-1**

2. Pre-Conditioning — the following activities should be performed at the MCC:

- Inhibit routine exercises

**INH:REX,SM=a;**

- Inhibit automatic reorganization

**INH:REORG;**

- Allow additional fault recovery messages to be printed.

**CHG:LPS:MSGCLS=ASRTMON,PRINT=ON;**

- Set peripheral verbose

**SET:PERPH,SM=a,VERBOSE;**

- Inhibit brevity control.

**INH:BREVC,SM=a;**

**Where:**

a = SM number

3. Bring up MCC page 1090 for monitoring which identifies SAS configuration.
4. What configuration is being used?

If installing new SAS Memory Board (TN1842), go to Section **14.20.2**.

If installing new Flash Memory Card in existing Memory Board, go to Section **14.20.3**

If replacing existing Flash Memory Card in existing Memory Board, go to Section **14.20.4**

### **14.20.2 Install New SAS Memory Board (TN1842)**

**WARNING 1:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

**WARNING 2:** The programmed flash cards are factory set for **Write Protect** and should not be changed.

1. Remove CIN bar code label from flash card and place on TN1842 face plate in the corresponding location "0".
2. Record the barcode 9-digit CIN number for later use with recent change activity.
3. Identify and record the flash card memory size for later use. The memory size is printed on the flash card label (not the CIN bar code label).
4. Install memory flash card into position "0" of TN1842.
5. Remove the SAS unit from service, at the MCC type and enter

**RMV SAS=a-b;**

**Where:**

a = SM number  
b = SAS number

**Response: RMV SAS=a-b COMPLETED**  
On MCC page 1090 SAS 0 is shown **OOS**

6. Insert new TN1842 into the front of the CSU or DSU2 unit.

#### **14.20.2.1 Equip Flash Card**

1. To populate the new flash card data, select and prepare terminal for recent change and verify activities.



2. Obtain the prepared GRCV form 20.26.
3. To insert data for view 20.26, type and enter **20.26i**
4. Type and enter data for the following fields:

|                                                                         |          |                                                                          |
|-------------------------------------------------------------------------|----------|--------------------------------------------------------------------------|
| *1. SM                                                                  | _____    | SM number containing SAS                                                 |
| *2. UNIT NUMBER                                                         | _____    | SAS unit number                                                          |
| *3. PACK NUMBER                                                         | _____    | New TN1842 position number                                               |
| 4. EQSTAT                                                               | <b>G</b> | Growth                                                                   |
| 5. CLI                                                                  | _____    | Change level indicator must be the same as that for the existing TN1842. |
| 6. APPLICATION                                                          | _____    | Must be the same as that for the existing TN1842.                        |
| 7. CARDS EQUIP                                                          | _____    | Number of new flash cards inserted in TN1842.                            |
| 8. MEMORY CARD LIST                                                     |          |                                                                          |
| ROW _____ CARD _____ SIZE _____ CODE _____                              |          |                                                                          |
| ROW 1-8                                                                 |          |                                                                          |
| CARD 0-7                                                                |          |                                                                          |
| SIZE FR _____ (FR + flash card memory size from Section 14.20.2 Step 3) |          |                                                                          |
| CODE _____ (9-digit CIN code from Section 14.20.2 Step 2)               |          |                                                                          |

**Response:** Enter Insert, Validate, or Print:

5. Insert the data.
6. Verify the SAS memory card data, type and enter **20.26v**
7. Correct any discrepancies and exit the view.
8. Diagnose the SAS memory unit, type and enter **DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number,  
b = SAS unit number

**Response:** **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
**Diagnostic is completed and all 5 phases are ATP.**

Do not continue unless diagnostic is ATP phase 1 through 5. Refer to **Table 14.20-1**.

#### 14.20.2.2 Make SAS Memory Operational

1. Update view 20.26, type and enter: **20.26u**
2. Type and enter data for the following fields (use the data from GRCV form):

SM \_\_\_\_\_  
UNIT NUMBER \_\_\_\_\_  
PACK NUMBER \_\_\_\_\_

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

3. Change EQSTAT field value from G to **O**
4. Update the data.
5. Return to class menu.

6. Verify SAS memory data, type and enter **20.26v**
7. Type and enter data for the following fields:

SM \_\_\_\_  
 UNIT NUMBER \_\_\_\_  
 PACK NUMBER \_\_\_\_

**Response:** All the other fields are populated.

8. Verify that data is consistent with GRCV form 20.26.
9. Correct any errors using terminal in the update mode.
10. Back up ODD, at the MCC, type and enter the following command:

**BKUP:ODD,NRODD =xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE 1:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

**NOTE 2:** Data base back up will take several minutes to complete.

11. To restore SAS memory unit to service type and enter,

**RST:SAS=a-b;**

**Where:**

a = SM number  
 b = SAS unit number

Response 1: **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
 Diagnostic is completed and all 5 phases are ATP.

Response 2: MCC page 1090 identifies new SAS memory unit in service.

12. Go to Section **14.20.5**.

### 14.20.3 Install New Flash Memory Card(s) In Existing Memory Board

**WARNING 1:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

**WARNING 2:** The programmed flash cards are factory set for **Write Protect** and should not be changed.

1. Record flash card barcode 9-digit CIN number for later use with recent change activity.
2. Identify and record the flash card memory size for later use. The memory size is printed on the flash card label (not the CIN bar code label).

- Remove the SAS unit from service, at the MCC type and enter

**RMV SAS=a-b;**

**Where:**

a = SM number  
b = SAS number

**Response: RMV SAS=a-b COMPLETED**  
On MCC page 1090 SAS 0 is shown **OOS**

- Remove SAS memory board (TN1842) from CSU or DSU2 unit.
- Remove CIN bar code label from flash card and place on TN1842 face plate in the corresponding numeric location "0".
- Install memory flash card into next available numeric position of TN1842.
- Re-install SAS memory board into CSU or DSU2 unit.

#### 14.20.3.1 Equip Flash Card

- To populate the new flash card data, select and prepare terminal for recent change and verify activities.
- Obtain the prepared GRCV form 20.26.
- Update view 20.26, type and enter **20.26u**
- Type and enter data for the following fields:

|                 |       |                            |
|-----------------|-------|----------------------------|
| *1. SM          | _____ | (SM number containing SAS) |
| *2. UNIT NUMBER | _____ | (SAS unit number)          |
| *3. PACK NUMBER | _____ | (TN1842 position number)   |

**Response:** All the other fields are populated. .br Enter Update, Change, Validate, or Print:

- Type and enter **C**
- Change CARDS EQUIP field to:  
Increment by number of new card(s) installed.
- Move cursor to MEMORY CARD LIST field and insert values for new card(s):  
ROW \_\_\_\_\_  
CARD \_\_\_\_\_  
SIZE FR\_\_\_\_\_ (FR + flash card memory size from Section **14.20.3** Step 2)  
CODE \_\_\_\_\_ (9-digit CIN code from Section **14.20.3** Step 1)

- Type and enter **<**

**Response: Enter Update, Change, Validate, or Print:**

- Update the data.
- Return to class menu.

11. Verify the SAS memory card data, type and enter **20.26v**
12. Correct any discrepancies and exit the view.
13. Diagnose the SAS memory unit, type and enter

**DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = SAS unit number

**Response: DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
**Diagnostic is completed and all 5 phases are ATP.**

14. Do not continue unless diagnostic is ATP phase 1 through 5. Resolve STF problem. Refer to **Table 14.20-1**.
15. To restore SAS memory unit to service type and enter,

**RST:SAS=a-b;**

**Where:**

a = SM number  
b = SAS unit number

Response 1: **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
Diagnostic is completed and all 5 phases are ATP.

Response 2: MCC page 1090 identifies new SAS memory unit in service.

### 14.20.3.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD = xx,RODD,AM,CMP=0;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

2. Go to Section **14.20.5**.

### 14.20.4 Replace Flash Memory Card(s) In Existing Memory Board

**WARNING 1:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

**WARNING 2:** The programmed flash cards are factory set for **Write Protect** and should not be changed.

1. Record flash card barcode 9-digit CIN number for later use with recent change activity.

2. Identify and record the flash card memory size for later use. The memory size is printed on the flash card label (not the CIN bar code label).
3. Remove the SAS unit from service, at the MCC type and enter

**RMV SAS=a-b;**

**Where:**

a = SM number  
b = SAS number

**Response: RMV SAS=a-b COMPLETED**

On MCC page 1090 SAS 0 is shown **OOS**

4. Remove SAS memory board (TN1842) from CSU or DSU2 unit.
5. Remove CIN bar code label from flash card and place on TN1842 face plate in the corresponding numeric location.

**NOTE:** The flash card location will vary depending on customer's existing requirements.

6. Remove memory flash card.
7. Install new memory flash card in vacated slot in preceding step.
8. Re-install SAS memory board into CSU or DSU2 unit.

#### 14.20.4.1 Equip Flash Card

1. To populate the new flash card data, select and prepare terminal for recent change and verify activities.
2. Obtain the prepared GRCV form 20.26.
3. Update view 20.26, type and enter **20.26u**
4. Type and enter data for the following fields:

|                 |       |                            |
|-----------------|-------|----------------------------|
| *1. SM          | _____ | (SM number containing SAS) |
| *2. UNIT NUMBER | _____ | (SAS unit number)          |
| *3. PACK NUMBER | _____ | (TN1842 position number)   |

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

5. Type and enter **C**
6. Move cursor to MEMORY CARD LIST field and update value for new card:

ROW \_\_\_\_\_  
CARD \_\_\_\_\_

SIZE FR\_\_\_\_\_ (FR + flash card memory size from Section **14.20.4** Step 2)  
CODE \_\_\_\_\_ (9-digit CIN code from Section **14.20.4** Step 1)

7. Type and enter **<**

**Response: Enter Update, Change, Validate, or Print:**

8. Update the data.
9. Return to class menu.
10. Verify the SAS memory card data, type and enter **20.26v**
11. Correct any discrepancies and exit the view.
12. Diagnose the SAS memory unit, type and enter

**DGN:SAS=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = SAS unit number

**Response: DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
**Diagnostic is completed and all 5 phases are ATP.**

13. Do not continue unless diagnostic is ATP phase 1 through 5. Resolve STF problem. Refer to **Table 14.20-1**.
14. To restore SAS memory unit to service type and enter,

**RST:SAS=a-b;**

**Where:**

a = SM number  
b = SAS unit number

Response 1: **DGN SAS=a-b COMPLETED ATP PH 1 - 5**  
Diagnostic is completed and all 5 phases are ATP.

Response 2: MCC page 1090 identifies new SAS memory unit in service.

#### 14.20.4.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD = xx,RODD,AM,CMP=0;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.20.5 Safe Stop Point

1. This is a safe stop point.

#### 14.20.6 Phrase Data Update

1. Is the phrase data update to be performed with script tape or with manual recent change?

If **Script Tape**, continue to Section **14.20.7** .

If **Manual**, then go to Section **14.20.8** .

## 14.20.7 Perform Recent Change Script Update

### 14.20.7.1 Overview

1. A recent change script update tape has been provided. The tape may be either a 9-track tape or a DAT cartridge tape. The recent change tape contains keystroke files, which when loaded into the switch, are executed by the script.

**NOTE:** The script tape is "SOFTWARE RELEASE" sensitive, and not office dependent. The tape should not be used to apply unnecessary data.

To insure that data is applied properly, it is important that the required script tape be executed as indicated. Since ASP (PVN), AIN has only phrase data there is only one script. In some cases data may already have been entered by Office Data Administration (ODA), if that has occurred , recent change insertion data will show up as failures but should not affect functionality.

Because there is only one script applicable, errors will be generated since the software is expecting scripts for header, trailer, and display data. The errors are to be ignored.

Script progress can be monitored on the ROP by entering the following at the MCC or STLWS:  
**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

For more output, increase opl(ei) by 1 for each additional 20 lines of output desired. opl=2 generates 40 lines, opl=3 60 lines, etc. Default is 200 lines.

To abort script execution, type and enter:

**stp:exc:data,any,fn="/updtmp/annc/<fn>",ucl;**  
where: <fn> = name of file script to be terminated, i.e. rc-cst-hdr

### 14.20.7.2 Tape Loading

**NOTE:** Tape loading is required only once, even if several memory packs (on the same SAS unit) are being updated at different intervals. The recent change data is transferred to a temporary directory/file for later update of the recent change view.

1. Mount tape on drive.
2. At the MCC or STLWS, type and enter:

**exc:envir:uproc,fn="/bin/mkdir",args="/updtmp/annc";**

**Response:** Wait for a completion message before continuing.

3. Type and enter:

**copy:tape:in,td="/dev/mt00",bsdir="/updtmp/annc";**

**Response:** Wait for a completion message before continuing.

4. To list files copied to the switch from tape, type and enter:

**exc:envir:uproc,fn="/bin/ls",args="/updtmp/annc";**

**Response:** A list of files will be printed, most will have the format:

**rc-xxx-xxx**

Print and save this list for later reference.

### 14.20.7.3 Apply Custom Phrase Data (RC View 8.63)

1. To apply custom phrases, type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rc-cst-phr";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE 1:** The script execution may take several minutes depending on the number of recent change and office activity.

**NOTE 2:** Because there is only one script applicable, errors will be generated since the software is expecting scripts for header, trailer, and display data.  
The following reports are to be ignored.

**EXC ENVIR UPROC /updtmp/annc/rc-cst-phr STOPPED**  
**/updtmp/annc/rc-cst-phr: xxxxxxxxx killed**

2. Go to Section **14.20.9**.

### 14.20.8 Perform Manual Recent Change Update

1. Obtain completed GRCV form 8.63.
2. To insert the new phrase list, at the RC/V terminal type and enter **8.63i**
3. Type and enter data (from GRCV 8.63) for the following fields:

|                 |           |                                          |
|-----------------|-----------|------------------------------------------|
| *1. PHRASE ID   | _____     | (locally determined phrase ID number)    |
| *2. APPLICATION | <b>AS</b> | (ASP, PVN application)                   |
| #3. DURATION    | _____     | (duration of phrase in seconds)          |
| #4. PHRASE TEXT | _____     | (maximum of 65 alphanumeric characters.) |

**Response:** Enter Insert, Change, Validate, or Print:

4. To insert the data, type and enter **i**

**Response:** Data is inserted.

5. Are there more phrases to be inserted?

If **YES**, repeat from Step 2.

If **NO**, then continue with next Step.

6. Return to RC/V class menu.

### 14.20.9 Verify New Phrase Data



1. Verify data in view 8.63, type and enter **8.63v**
2. Type and enter data for the following fields (use the data from the GRCV form):

\*1. PHRASE ID \_\_\_\_\_

\*2. APPLICATION \_\_\_\_\_

**Response:** The other fields are populated.

3. Using the "Phrase Number" print out that was provided with the flash cards, verify that PHRASE TEXT and DURATION correspond with print out.
4. Repeat Step 1 for other random phrase numbers until satisfied that new phrases are complete.
5. Exit RC/V.

#### 14.20.10 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP if applicable.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD = xx,RODD,AM,CMP=0;**

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.20.11 Reset Peripheral Recovery Messages and Brevity Control

1. Perform this step only if these messages were previously set for growth purposes and no additional growth activity is required on this SM.
2. At the MCC, type and enter:

**ALW:BREVC,SM=a;**

**ALW:REX,SM=a;**

**ALW:REORG;**

**CLR:PERPH,SM=a,VERBOSE;**

**CHG:LPS:MSGCLS=ASRTMON,PRINT=OFF;**

**Where:**

a = SM number

#### 14.20.12 Verify Custom Announcements Script Update

**NOTE:** The new announcements are verified by using a TLWS monitor telephone to test the DSU-2 SAS announcements and phrases. Configure TLWS as required. Refer to the phrase list that was provided with the memory flash cards and tape.

1. Configure TLWS as required.
2. At TLWS terminal, select page **160**

3. Select a test position **16x**

**Where:**

x = test position 1 to 9

4. To select "SEIZE LINE/TRUNK/INCOMING CALL", type and enter **4000,2**
5. To select "SEIZE RAF/SAS TRK" , type and enter **4107,sm,sas,mem**

**Where:**

sm = SM number  
 sas = SAS number  
 mem = Trunk group member to seize

6. To select "SUPERVISION", type and enter **5200,3**
7. Use the following selections to monitor the announcements as required:

5207,a = Command for Phrase No.

5208,b,c,d = Command for announcements

**Where:**

a = phrase or message number  
 b = header ID  
 c = trailer ID  
 d = digit inflection ID

Examples: **5207,14003** (phase)  
**5208,186,27,45** (announcement)

8. To release SAS trunk, enter 4999
9. To release test position, at Page 160 type **20X**

**14.20.13 Remove Script Files**

1. Was the phrase data update performed with script tape or with manual recent change?

If **SCRIPT TAPE**, continue with next Step.

If **MANUAL**, then **STOP: YOU HAVE COMPLETED THIS PROCEDURE.**

2. To remove script files, at the MCC type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rmfiles";**

**Response:** Wait for a completion message before continuing.

3. To remove directory, at the MCC type and enter:

**exc:envir:uproc,fn="/bin/rmdir",args="/updtmp/annc";**

**Response:** Wait for a completion message

4. Remove tape from drive.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Table 14.20-1 SAS Phase 5 STF Analysis**

| SEGMENT NO. | DESCRIPTION                                 | ACTION TO BE TAKEN                                                                                |
|-------------|---------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1000        | Tests SASDSC (TN1841) and PICB interface.   | Refer to technical support.                                                                       |
| 2000        | Verifies equipage of SASMEM (TN1842) board. | (1) ODD backup (include AM) not performed. (2) Bad TN1842. (3) Error in data assignment RC 20.26. |
| 3000-3003   | Tests SASMEM (TN1842) board equipage.       | Review RC 20.26, error in data assignments.                                                       |
| 3000        | SASMEM board 0                              | Replace existing (old) flash card with new flash card. Both cannot co-exist.                      |
| 3001        | SASMEM board 1                              |                                                                                                   |
| 3002        | SASMEM board 2                              |                                                                                                   |
| 3003        | SASMEM board 3                              |                                                                                                   |
| 4000-4003   | Tests for duplicated phrase data.           | Replace existing (old) flash card with new flash card. Both cannot co-exist.                      |
| 4000        | SASMEM board 0                              |                                                                                                   |
| 4001        | SASMEM board 1                              |                                                                                                   |
| 4002        | SASMEM board 2                              |                                                                                                   |
| 4003        | SASMEM board 3                              |                                                                                                   |
| 4100-4103   | Tests phrase attribute table data           | Replace existing (old) flash card with new flash card.                                            |
| 4100        | SASMEM board 0                              |                                                                                                   |
| 4101        | SASMEM board 1                              |                                                                                                   |
| 4102        | SASMEM board 2                              |                                                                                                   |
| 4103        | SASMEM board 3                              |                                                                                                   |
| 5000-5003   | Tests flash card data.                      | Replace corrupted flash card.                                                                     |
| 5000        | SASMEM board 0                              |                                                                                                   |
| 5001        | SASMEM board 1                              |                                                                                                   |
| 5002        | SASMEM board 2                              |                                                                                                   |
| 5003        | SASMEM board 3                              |                                                                                                   |

## Procedure 14.21: UPDATE RAF CUSTOM ANNOUNCEMENTS — BRCS

### OVERVIEW

This document gives the instructions for updating or changing an existing Recorded Announcement Function (RAF) custom announcement data base. This document is not for growth: refer to **235-105-231** for growth.

**NOTE:** This update is Software Release sensitive and not office dependent. Insure that the office and the update are the same software release.

It is assumed that those who are using this document are experienced in the use of recent change, Office Dependent Data (ODD) activities, trunk line work station, and Master Control Center (MCC) activities or have access to technical support in these areas. It is also assumed that the telephone company/switch owner engineering group has provided completed Growth Recent Change and Verify (GRCV) forms that are applicable to this update process.

### General Description

This procedure installs new RAF custom announcements in an office with an existing operational RAF environment for Business and Residence Customer Services (BRCS) application. **This procedure is not to be used for ASP (PVN), and AIN applications.** If this update is for another application refer to Procedure **14.22** , "Update RAF Custom Announcements — ASP (PVN) And AIN".

**Hardware Description** —The DSU2-RAF unit consists of a maximum of four service groups numbered 0, 2, 1, 3 from left to right as viewed from the unit. Refer to **Figure 14.21-1** . There is no redundancy in the configuration. Although service interruption can be minimized if replacement/update is performed in segmented service groups, i.e. 0,2 and 1,3.

Service is distributed equally among the service groups. When a service group is removed from service then the traffic is routed to the remaining operational service groups. During heavy traffic periods service could be effected due to reduced service groups.

A RAF service group consists of one RAF Digital Service Circuit (DSC) pack (TN833), two Announcement Storage Circuit (ASC) packs (TN1053) for announcement storage and one optional RAF Expansion pack (TN1054).

| DSU2-RAF                                                                                                                            |                            |                                           |                                           |                                                     |                                 |                                           |                                           |                                                     |     |                                 |                                           |                                                     |                                 |                                 |                                           |                                           |                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------------|---------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------------|-----|---------------------------------|-------------------------------------------|-----------------------------------------------------|---------------------------------|---------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------------------------|
| SERVICE GROUP 0                                                                                                                     |                            |                                           |                                           | SERVICE GROUP 2                                     |                                 |                                           |                                           | SERVICE GROUP 1                                     |     |                                 |                                           | SERVICE GROUP 3                                     |                                 |                                 |                                           |                                           |                                                     |
| T<br>N<br>8<br>3<br>3                                                                                                               | R<br>A<br>F<br>0<br>5<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>R<br>N<br>A<br>1<br>F<br>0<br>E<br>5<br>P<br>4 | T<br>R<br>N<br>A<br>8<br>F<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>R<br>N<br>A<br>1<br>F<br>0<br>E<br>5<br>P<br>4 |     | T<br>R<br>N<br>A<br>8<br>F<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>E<br>5<br>P<br>4 | T<br>R<br>N<br>A<br>8<br>F<br>3 | T<br>R<br>N<br>A<br>8<br>F<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>A<br>N<br>S<br>1<br>C<br>0<br>5<br>3 | T<br>R<br>N<br>A<br>1<br>F<br>0<br>E<br>5<br>P<br>4 |
| 018                                                                                                                                 | 028                        | 038                                       | 048                                       | 058                                                 | 068                             | 078                                       | 088                                       |                                                     | 108 | 118                             | 128                                       | 138                                                 | 148                             | 158                             | 168                                       | 178                                       |                                                     |
| RAF - RECORDED ANNOUNCEMENT FUNCTION<br>ASC - ANNOUNCEMENT STORAGE CIRCUIT<br>RAFEP - RECORDED ANNOUNCEMENT FUNCTION EXPANSION PACK |                            |                                           |                                           |                                                     |                                 |                                           |                                           |                                                     |     |                                 |                                           |                                                     |                                 |                                 |                                           |                                           |                                                     |

**Figure 14.21-1 DSU2/RAF Service Group**

The update configuration package includes the following that is provided by Lucent Technologies:

- RAF memory expansion pack(s) (TN1054)

**NOTE:** There is one memory expansion pack position. The update may not require a new memory expansion pack but only a replacement of the existing pack.

- 1 9-track 6250 BPI magnetic tape and/or 1 DAT tape containing the recent change scripts.
- 1 printed copy of custom phrases.

The update process contains 4 major elements:

- Insert and install new memory pack (TN1054).
- Perform recent change script update.
- Verify custom announcements.
- Update data base.

Completed growth recent change and verify (GRCV) forms should be provided by the telephone company/switch owner regional engineering.

The update should be performed during low traffic time periods since some announcements may not be available

during the update.

Safe Stop Points are provided in the procedure set where progress in the performance of the procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

For technical assistance call NARTAC (North American Regional Technical Assistance Center), at 800-225-7822.

## PROCEDURE

### 14.21.1 Prerequisites

1. The existing RAF must pass diagnostics.

At the MCC, type and enter **DGN:RAF=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = RAF number.

**Response: DGN RAF COMPLETED ATP PH1 — PH5**

Action Required: If STF exists, resolve problem before continuing.

2. Pre-Conditioning — the following activities should be performed at the MCC:

- Inhibit routine exercises

**INH:REX,SM=a;**

- Inhibit automatic reorganization

**INH:REORG;**

- Allow additional fault recovery messages to be printed.

**CHG:LPS:MSGCLS=ASRTMON,PRINT=ON;**

- Set peripheral verbose

**SET:PERPH,SM=a,VERBOSE;**

- Inhibit brevity control.

**INH:BREVC,SM=a;**

**Where:**

a = SM number

3. Bring up MCC page 1090 for monitoring which identifies RAF configuration.
4. Does the update require a new memory expansion pack (TN1054) position or replacing an existing one?

If **NEW TN1054 POSITION**, continue with next Section.

If **UPDATE EXISTING TN1054**, go to Section **14.21.3**

### 14.21.2 Build New Custom Announcement Pack (TN1054) in Data Base

1. From the TN1054 pack, record the 3-digit CIN number for later use with recent change activities.
2. Obtain the prepared GRCV form 20.10.
3. Select and prepare terminal for recent change and verify activities.
4. To build the new data, type and enter **20.10i**
5. Type and enter data for the following fields (refer to GRCV):

|                |                 |                                                                    |
|----------------|-----------------|--------------------------------------------------------------------|
| *1. SM         | _____           | (SM number containing RAF)                                         |
| *2. RAF        | _____           | (RAF service group, 0-3)                                           |
| *3. PACK NUM   | _____           | (TN1054 position number<br>2 = 1st TN1054 expansion pack position) |
| 4. EQSTAT      | <b>G</b>        | (Grow state)                                                       |
| #6. MICRO CODE | <b>5D155xxx</b> | (3-digit xxx CIN code from Step 1)                                 |
| 7. APPLICATION |                 | (per GRCV)                                                         |

**Response:** Enter Insert, Change, Validate, or Print:

6. Type and enter **I**

**Response:** Data inserted.

7. Return to the class menu
8. Verify the RAF data, type and enter **20.10v**
9. Correct any discrepancies and exit the view.

#### 14.21.2.1 Install TN1054 Pack

**WARNING:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

1. Install TN1054 pack in its appropriate service group position.

Diagnose the TN1054 pack, at MCC type and enter:

**DGN:RAF=a-b,TLP;**

**Where:**

a = SM number  
b = RAF number

**Response:** **DGN RAF=a-b COMPLETED ATP PH 1 - 7**  
**Diagnostic is completed and all phases are ATP.**

**NOTE 1:** Phase 7 checks the DSU2 RAF ASC packs (TN1053) and the Expansion pack (TN1054).

**NOTE 2:** MCC page 1090 should show the pack as "out of service" in grow state which should be a green

display but may be red in some offices.

2. Do not continue unless diagnostic is ATP for all phases. Resolve STF problem.
3. To update the memory pack to operational, at the RC/V terminal type and enter **20.10u**
4. Type and enter data for the following fields (use the data from Section **14.21.2** , Step 5):

|              |       |
|--------------|-------|
| *1. SM       | _____ |
| *2. RAF      | _____ |
| *3. PACK NUM | _____ |

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

5. Type and enter **U**
6. Change EQSTAT change value to **O** (operational).
7. Type and enter **<**

**Response:** Enter Update, Change, Validate, or Print:

Type and enter **U**

**Response:** Data is updated.

8. Return to class menu.

#### 14.21.2.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.21.2.3 Restore RAF To Service

1. To restore the RAF memory unit to service, type and enter:

**RST:RAF=a-b;**

**Where:**

a = SM number

b = RAF unit

**Response: DGN RAF=a-b COMPLETED ATP**



Go to Section **14.21.4**

### 14.21.3 Update Existing Custom Announcement Replacement Pack (TN1054) Data Base

**NOTE:** A replacement TN1054 with a new CIN number is provided for the update. The pack will later be installed to replace the existing pack.

1. From the new TN1054 pack, record the 3-digit CIN number for later use.
2. Remove the RAF unit from service, at the MCC type and enter

**RMV RAF=a-b;**

**Where:**

a = SM number  
b = RAF unit number

**Response: RMV RAF=a-b COMPLETED**  
On MCC page 1090 RAF 0 is shown **OOS**

3. Obtain the prepared GRCV form 20.10.
4. Select and prepare terminal for recent change and verify activities.
5. To update the new data, type and enter **20.10u**
6. Type and enter data for the following fields (refer to GRCV):

|              |       |                                                                      |
|--------------|-------|----------------------------------------------------------------------|
| *1. SM       | _____ | (SM number containing RAF)                                           |
| *2. RAF      | _____ | (RAF service group, 0-3)                                             |
| *3. PACK NUM | _____ | (TN1054 position number<br>2 = 1st TN1054 expansion pack position) . |

**Response:** All other fields are populated.  
Enter Update, Change, Validate, or Print:

7. Type and enter **C**.
8. Change EQSTAT value to **G** (grow).
9. Change MICRO CODE value to **5D155** plus new 3-digit CIN code recorded in Step 1.
10. Update data and return to the class menu.
11. Verify the RAF data, type and enter **20.10v**
12. Correct any discrepancies and exit the view.

#### 14.21.3.1 Replace TN1054 Pack

**WARNING:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

1. Replace existing TN1054 pack with new TN1054.
2. Diagnose the TN1054 pack, at MCC type and enter:

**DGN:RAF=a-b,GROW,TLP;**

**Where:**

a = SM number  
b = RAF number

**Response: DGN RAF=a-b COMPLETED ATP PH 1 - 7**  
**Diagnostic is completed and all phases are ATP.**

**NOTE 1:** Phase 7 checks the DSU2 RAF ASC packs (TN1053) and the Expansion pack (TN1054).

**NOTE 2:** MCC page 1090 should show the pack as "out of service" in grow state which should be a green display but may be red in some offices.

3. Do not continue unless diagnostic is ATP for all phases. Resolve STF problem.
4. At the RC/V terminal, to change state to operational, type and enter **20.10u**
5. Type and enter data for the following fields (refer to GRCV):

|              |       |                                         |
|--------------|-------|-----------------------------------------|
| *1. SM       | _____ | (SM number containing RAF)              |
| *2. RAF      | _____ | (RAF service group, 0-3)                |
| *3. PACK NUM | _____ | (TN1054 position number)                |
|              |       | 2 = 1st TN1054 expansion pack position) |

**Response:** All other fields are populated.  
Enter Update, Change, Validate, or Print:

6. Type and enter **C**
7. Change EQSTAT value to **O** (operational).
8. Update data and return to the class menu.

#### 14.21.3.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.21.3.3 Restore RAF To Service

1. To restore the RAF memory unit to service, type and enter:

**RST:RAF=a-b;**

**Where:**

a = SM number  
b = RAF unit

**Response: DGN RAF=a-b COMPLETED ATP**

2. Have all TN1054 expansion packs been replaced or installed?

If **YES**, then continue with next Section.

If **NO**, then return to Section **14.21.3**.

#### 14.21.4 Safe Stop Point

1. This is a safe stop point.

#### 14.21.5 Perform Recent Change Script Update

##### 14.21.5.1 Overview

1. A recent change script update tape has been provided. The tape may be either a 9-track tape or a DAT cartridge tape. The recent change tape contains keystroke files, which when loaded into the switch, are executed by the scripts.

**NOTE:** The script tape is "SOFTWARE RELEASE" sensitive, and not office dependent. The tape should not be used to apply unnecessary data.

To insure that data is applied properly, it is important that the required script tape be executed as indicated. In some cases data may already have been entered by Office Data Administration (ODA), if that has occurred, recent change insertion data will show up as failures but should not affect functionality. The order of script execution **MUST** be strictly followed.

Script progress can be monitored on the ROP by entering the following at the MCC or STLWS:

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

For more output increase opl(el) by 1 for each additional 20 lines of output desired. opl=2 generates 40 lines, opl=3 60 lines, etc. Default is 200 lines.

##### Possible Error Conditions:

- If the logfile (**annc\_log**) indicates recent change failures, then these errors should be investigated and corrected before executing any other scripts.
- An **error 28** identifies a bad tape or dirty heads. Rewind tape, clean heads and restart tape. If problem persists then a new tape should be requested.

Use manual recent change procedures to correct failing recent change by entering the proper view and applying key data from information provided in the logfile **annc\_log**. Also refer to ROP printout of the recent change attempts. If an excessive number of errors have occurred, the script execution can be repeated if the reasons for the failing recent change have been corrected.

The recent change insertions that were successful on the original script execution attempt will appear as failures on succeeding attempts, a normal condition. Remove all error files before repeating any script execution.

To abort script execution, type and enter:

**stp:exc:data,any,fn="/updump/annc/<fn>",ucl;**

**Where:**

<fn> = name of file script to be terminated, i.e. rc-cst-hdr (header file).

After each script completes, the Office Dependent Data (ODD) log space should be checked to determine if a backup is necessary. This can be verified by entering the following:

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing RAF unit.

If any of the logs are more than 75% full the ODD should be backed up before proceeding to the next script.

#### 14.21.5.2 Tape Loading

**NOTE:** Tape loading is required only once, even if several memory packs (on the same RAF) are being updated at different intervals. The recent change data is transferred to a temporary directory/file for later update of the recent change view.

1. Mount tape on drive.
2. At the MCC or STLWS, type and enter:

**exc:envir:uproc,fn="/bin/mkdir",args="/updtmp/annc";**

**Response:** Wait for a completion message before continuing.

3. Type and enter:

**copy:tape:in,td="/dev/mt00",bsdir="/updtmp/annc";**

**Response: COPY TAPE IN COMPLETED:**

4. To list files copied to the switch from tape, type and enter:

**exc:envir:uproc,fn="/bin/ls",args="/updtmp/annc";**

**Response:** A list of files will be printed, most will have the format:

**rc-xxx-xxx**

Print and save this list for later reference.

#### 14.21.5.3 Apply Standard Inflection Data (RC View 8.60)

**NOTE:** Custom inflections are not applicable.

1. Review recent change view 8.60.
2. Is the view populated?

If **YES**, no action is required, go to Section **14.21.5.4**.

If **NO**, continue with next Step.

3. To apply standard inflections, type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rc-std-infl";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

4. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

5. Correct any errors before continuing.

6. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing RAF unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

7. Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section **14.21.6**), then continue with next Section.

If **NO**, continue with next Section.

#### **14.21.5.4 Apply Custom Phrase Data (RC View 8.63)**

**NOTE:** Standard phrases are not applicable.

1. To apply custom phrases, type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rc-cst-phr";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

2. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

3. Correct any errors before continuing.

4. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing RAF unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

5. Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section 14.21.6 ), then continue with next Section.

If **NO**, continue with next Section.

#### 14.21.5.5 Apply Custom Or Standard Header Data (RC View 8.61)

1. To apply custom or standard headers, type and enter one of the following:

For custom headers: **exc:envir:uproc,fn="/updtmp/annc/rc-cst-hdr";**

For standard headers: **exc:envir:uproc,fn="/updtmp/annc/rc-std-hdr";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

2. Observe the **annc\_log** file, type and enter

**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

3. Correct any errors before continuing.

4. Check ODD log space, type and enter

**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing RAF unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

5. Is LOG PERCENT greater than 75%?

If **YES**, do ODD backup (Section 14.21.6 ), then continue with next Section.

If **NO**, continue with next Section.

#### 14.21.5.6 Apply Custom Or Standard Trailer Data (RC View 8.62)

1. To apply custom or standard trailers, type and enter one of the following:

For custom headers: **exc:envir:uproc,fn="/updtmp/annc/rc-cst-trl";**

For standard headers: **exc:envir:uproc,fn="/updtmp/annc/rc-std-trl";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office

activity.

2. Observe the **annc\_log** file, type and enter  
**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**
3. Correct any errors before continuing.
4. Check ODD log space, type and enter  
**op:rcstat,am,sm=x,cmp=0;**

**Where:**

x = SM number containing RAF unit.

**Response: OP RCSTAT LOG PERCENT FULL = x**

5. Is LOG PERCENT greater than 75%?  
If **YES**, do ODD backup (Section **14.21.6** ), then continue with next Section.  
If **NO**, continue with next Section.

#### 14.21.5.7 Apply Custom Or Standard Display Data (RC View 8.65)

1. To apply custom or standard displays, type and enter one of the following:  
For custom headers: **exc:envir:uproc,fn="/updtmp/annc/rc-cst-disp";**  
For standard headers: **exc:envir:uproc,fn="/updtmp/annc/rc-std-disp";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE:** The script execution may take several minutes depending on the number of recent change and office activity.

2. Observe the **annc\_log** file, type and enter  
**dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**
3. Correct any errors before continuing.

#### 14.21.6 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP.

1. At the MCC, type and enter the following command:  
**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.21.7 Reset Prerequisite Pre-Conditioning Control

1. Perform this step only if these messages were previously set for growth purposes and no additional growth activity is required on this SM.

At the MCC, type and enter:

```
ALW:REX,SM=a;
ALW:BREVC,SM=a;
CLR:PERPH,SM=a,VERBOSE;
CHG:LPS:MSGCLS=ASRTMON,PRINT=OFF;
ALW:REORG;
```

**Where:**

a = SM number

#### 14.21.8 Verify Announcement Update

**NOTE:** The new RAF announcements are verified by using a TLWS monitor telephone to test the DSU-2 RAF announcements and phrases. Configure TLWS as required. Refer to the phrase list that was provided with the memory packs and tape.

1. Configure TLWS as required.
2. At TLWS terminal, select page **160**
3. Select a test position **16x**

**Where:**

x = test position 1 to 9

4. To select "SEIZE LINE/TRUNK/INCOMING CALL", type and enter **4000,2**
5. To select "SEIZE RAF/SAS TRK", type and enter **4106,sm,raf,mem**

**Where:**

sm = SM number  
 raf = RAF number  
 mem = Trunk group member to seize

6. To select "SUPERVISION", type and enter **5200,3**
7. Use the following selections to monitor the announcements as required:

5207,a = Command for Phrase No.

5208,b,c,d = Command for announcements

**Where:**

a = phrase or message number  
 b = header ID  
 c = trailer ID



d = digit inflection ID

Examples:     **5207,14003** (phase)  
              **5208,186,27,45** (announcement)

8. To release RAF trunk, enter **4999**
9. To stop test, enter **5999**
10. To release test position, at Page 160 type **20X**

#### 14.21.9 Remove Script Files

1. Was the phrase data update performed with script tape or with manual recent change?

If **SCRIPT TAPE**, continue with next Step.

If **MANUAL**, then **STOP: YOU HAVE COMPLETED THIS PROCEDURE.**

2. To remove script files, at the MCC type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rmfiles";**

**Response:** Wait for a completion message before continuing.

3. At the MCC type and enter:

**exc:envir:uproc,fn="/bin/rmdir",args="/updtmp/annc";**

**Response:** Wait for a completion message

4. Remove tape from drive.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 14.22: UPDATE RAF CUSTOM ANNOUNCEMENTS — ASP (PVN) AND AIN ONLY

### OVERVIEW

This document gives the instructions for updating or changing an existing Recorded Announcement Function (RAF) custom announcement data base. This document is not for growth: refer to **235-105-231** for growth.

**NOTE:** This update is Software Release sensitive and not office dependent. Insure that the office and the update are the same software release.

It is assumed that those who are using this document are experienced in the use of recent change, Office Dependent Data (ODD) activities, trunk line work station, and Master Control Center (MCC) activities or have access to technical support in these areas. It is also assumed that the telephone company/switch owner engineering group has provided completed Growth Recent Change and Verify (GRCV) forms that are applicable to this update process.

### General Description

This procedure installs new RAF custom announcements for ASP (PVN) and AIN application only in an office with an existing operation RAF environment.

**NOTE 1:** The noted applications are Advanced Service Platform (ASP) which was previously known as Private Virtual Network (PVN), and Advanced Intelligent Network (AIN).

**NOTE 2:** Normally ASP application applies to only a few new phrases (less than eight) and these would be updated manually with recent change rather than with magnetic tape script. This information should be provided by the telephone company/switch owner engineering group.

If this update is for an application other than those mentioned above then refer to other procedure, "Update RAF Custom Announcements — BRCS."

**Hardware Description** — The DSU2-RAF unit consists of a maximum of four service groups numbered 0, 2, 1, 3 from left to right as viewed from the unit. Refer to **Figure 14.22-1**. There is no redundancy in the configuration. Although service interruption can be minimized if replacement/update is performed in segmented service groups, i.e. 0,2 and 1,3.

Service is distributed equally among the service groups. When a service group is removed from service then the traffic is routed to the remaining operational service groups. During heavy traffic periods service could be effected due to reduced service groups.

A RAF service group consists of one RAF Digital Service Circuit (DSC) pack (TN833), two Announcement Storage Circuit (ASC) packs (TN1053) for announcement storage and one optional RAF Expansion pack (TN1054).

| DSU2-RAF                                                                                                                            |     |     |     |     |                 |     |     |     |     |                 |     |     |     |     |                 |     |     |  |
|-------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----------------|-----|-----|--|
| SERVICE GROUP 0                                                                                                                     |     |     |     |     | SERVICE GROUP 2 |     |     |     |     | SERVICE GROUP 1 |     |     |     |     | SERVICE GROUP 3 |     |     |  |
|                                                                                                                                     | T R | T A | T R | T R | T R             | T A | T R | T R |     | T R             | T A | T R | T R | T R | T A             | T R | T R |  |
|                                                                                                                                     | N A | N S | N A | N A | N A             | N S | N A | N A |     | N A             | N S | N A | N A | N A | N S             | N A | N A |  |
|                                                                                                                                     | 8 F | 1 C | 1 F | 1 F | 8 F             | 1 C | 1 F | 1 F |     | 8 F             | 1 C | 1 F | 1 F | 8 F | 1 C             | 1 F | 1 F |  |
|                                                                                                                                     | 3   | 0   | 0 E | 0 E | 3               | 0   | 0 E | 0 E |     | 3               | 0   | 0 E | 0 E | 3   | 0               | 0 E | 0 E |  |
|                                                                                                                                     | 3   | 5   | 5 P | 5 P | 3               | 5   | 5 P | 5 P |     | 3               | 5   | 5 P | 5 P | 3   | 5               | 5 P | 5 P |  |
|                                                                                                                                     |     | 3   | 4   | 4   |                 | 3   | 4   | 4   |     |                 | 3   | 4   | 4   |     | 3               | 4   | 4   |  |
| 008                                                                                                                                 | 018 | 028 | 038 | 048 | 058             | 068 | 078 | 088 | 098 | 108             | 118 | 128 | 138 | 148 | 158             | 168 | 178 |  |
| RAF - RECORDED ANNOUNCEMENT FUNCTION<br>ASC - ANNOUNCEMENT STORAGE CIRCUIT<br>RAFEP - RECORDED ANNOUNCEMENT FUNCTION EXPANSION PACK |     |     |     |     |                 |     |     |     |     |                 |     |     |     |     |                 |     |     |  |

**Figure 14.22-1 DSU2-RAF Service Group**

The update configuration package includes the following that is provided by Lucent Technologies:

- RAF memory expansion pack (TN1054).

**NOTE:** There are two memory expansion pack positions. The update may not require a new memory expansion pack but only a replacement of the existing pack.

- 1 9-track 6250 BPI magnetic tape and/or 1 DAT tape containing the recent change scripts (if Engineered Ordered).
- 1 printed copy of custom phrases.

The update process contains 4 major elements:

- Insert and install new memory pack (TN1054).
- Perform recent change script update.
- Verify custom announcements.
- Update data base.

Completed growth recent change and verify (GRCV) forms should be provided by the telephone company/switch owner regional engineering group.

The update should be performed during low traffic time periods since some announcements may not be available during the update.

Safe Stop Points are provided in the procedure set where progress in the performance of the procedure may be suspended temporarily without causing degradation in the operation of the equipment. Performance of the procedure can be halted at one of these points only if all prior steps within the procedure have been successfully completed.

For technical assistance call NARTAC (North American Regional Technical Assistance Center), at 800-225-7822.

## PROCEDURE

### 14.22.1 Prerequisites

1. The existing RAF must pass diagnostics.

At the MCC, type and enter **DGN:RAF=a-b,RAW,TLP;**

**Where:**

a = SM number  
b = RAF number.

**Response: DGN RAF COMPLETED ATP PH1 — PH5**

Action Required: If STF exists, resolve problem before continuing.

2. Pre-Conditioning — the following activities should be performed at the MCC:

- Inhibit routine exercises

**INH:REX,SM=a;**

- Inhibit automatic reorganization

**INH:REORG;**

- Allow additional fault recovery messages to be printed.

**CHG:LPS:MSGCLS=ASRTMON,PRINT=ON;**

- Set peripheral verbose

**SET:PERPH,SM=a,VERBOSE;**

- Inhibit brevity control.

**INH:BREVC,SM=a;**

**Where:**

a = SM number

3. Bring up MCC page 1090 for monitoring which identifies RAF configuration.

- Does the update require a new memory expansion pack (TN1054) position or replacing an existing one?

If **NEW TN1054 POSITION**, continue with next Section.

If **UPDATE EXISTING TN1054**, continue with Section **14.22.3**

### 14.22.2 Build New Custom Announcement Pack (TN1054) in Data Base

- From the TN1054 pack, record the 3-digit CIN number for later use with recent change activities.
- Obtain the prepared GRCV form 20.10.
- Select and prepare terminal for recent change and verify activities.
- To build the new data, type and enter **20.10i**
- Type and enter data for the following fields (refer to GRCV):

|                |                 |                                         |
|----------------|-----------------|-----------------------------------------|
| *1. SM         | _____           | (SM number containing RAF)              |
| *2. RAF        | _____           | (RAF service group, 0-3)                |
| *3. PACK NUM   | _____           | (TN1054 position number)                |
|                |                 | 2 = 1st TN1054 expansion pack position  |
|                |                 | 3 = 2nd TN1054 expansion pack position) |
| 4. EQSTAT      | <b>G</b>        | (Grow state)                            |
| #6. MICRO CODE | <b>5D155xxx</b> | (3-digit xxx CIN code from Step 1)      |
| 7. APPLICATION | _____           | (per GRCV)                              |

**Response:** Enter Insert, Change, Validate, or Print:

- Type and enter **I**

**Response:** Data inserted.

- Return to the class menu
- Verify the RAF data, type and enter **20.10v**
- Correct any discrepancies and exit the view.

#### 14.22.2.1 Install TN1054 Pack

**WARNING:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

- Install TN1054 pack in its appropriate service group position.
- Diagnose the TN1054 pack, at MCC type and enter:

**DGN:RAF=a-b,TLP;**

**Where:**

a = SM number  
b = RAF number

**Response:** **DGN RAF=a-b COMPLETED ATP PH 1 - 7**  
**Diagnostic is completed and all phases are ATP.**

**NOTE 1:** Phase 7 checks the DSU2 RAF ASC packs (TN1053) and the Expansion pack (TN1054).

**NOTE 2:** MCC page 1090 should show the pack as "out of service" in grow state which should be a green display but may be red in some offices.

3. Do not continue unless diagnostic is ATP for all phases. Resolve STF problem.
4. To update the memory pack to operational, at the RC/V terminal type and enter **20.10u**
5. Type and enter data for the following fields (use the data from Section **14.22.2** , Step 5):

|              |       |
|--------------|-------|
| *1. SM       | _____ |
| *2. RAF      | _____ |
| *3. PACK NUM | _____ |

**Response:** All the other fields are populated.  
Enter Update, Change, Validate, or Print:

6. Type and enter **U**
7. Change EQSTAT change value to **O** (operational).
8. Type and enter **<**

**Response:** Enter Update, Change, Validate, or Print:

9. Type and enter **U**

**Response:** Data is updated.

10. Return to class menu.

#### 14.22.2.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.22.2.3 Restore RAF To Service

1. To restore the RAF memory unit to service, type and enter:

**RST:RAF=a-b;**

**Where:**

a = SM number  
b = RAF unit

**Response: DGN RAF=a-b COMPLETED ATP**

2. Go to Section **14.22.4**

### 14.22.3 Update Existing Custom Announcement Replacement Pack(s) (TN1054) Data Base

**NOTE:** A replacement TN1054 with a new CIN number is provided for the update. The pack will later be installed to replace the existing pack.

1. From the new TN1054 pack, record the 3-digit CIN number for later use.
2. Remove the RAF unit from service, at the MCC type and enter

**RMV RAF=a-b;**

**Where:**

a = SM number  
b = RAF unit number

**Response: RMV RAF=a-b COMPLETED**  
On MCC page 1090 RAF 0 is shown **OOS**

3. Obtain the prepared GRCV form 20.10.
4. Select and prepare terminal for recent change and verify activities.
5. To update the new data, type and enter **20.10u**
6. Type and enter data for the following fields (refer to GRCV):

|              |       |                                         |
|--------------|-------|-----------------------------------------|
| *1. SM       | _____ | (SM number containing RAF)              |
| *2. RAF      | _____ | (RAF service group, 0-3)                |
| *3. PACK NUM | _____ | (TN1054 position numb, 2 or 3)          |
|              |       | 2 = 1st TN1054 expansion pack position  |
|              |       | 3 = 2nd TN1054 expansion pack position) |

**Response:** All other fields are populated.  
Enter Update, Change, Validate, or Print:

7. Type and enter **C**.
8. Change EQSTAT value to **G** (grow).
9. Change MICRO CODE value to **5D155** plus new 3-digit CIN code recorded in Step 1.
10. Update data and return to the class menu.
11. Verify the RAF data, type and enter **20.10v**
12. Correct any discrepancies and exit the view.

#### 14.22.3.1 Replace TN1054 Pack

**WARNING:** An antistatic wrist strap must be worn while handling circuit packs to prevent damage to components by static electricity.

1. Replace existing TN1054 pack with new TN1054.
2. Diagnose the TN1054 pack, at MCC type and enter:

**DGN:RAF=a-b,GROW,TLP;**

**Where:**

a = SM number  
b = RAF number

**Response: DGN RAF=a-b COMPLETED ATP PH 1 - 7**  
**Diagnostic is completed and all phases are ATP.**

**NOTE 1:** Phase 7 checks the DSU2 RAF ASC packs (TN1053) and the Expansion pack (TN1054).

**NOTE 2:** MCC page 1090 should show the pack as "out of service" in grow state which should be a green display but may be red in some offices.

3. Do not continue unless diagnostic is ATP for all phases. Resolve STF problem.
4. At the RC/V terminal, to change state to operational, type and enter **20.10u**
5. Type and enter data for the following fields (refer to GRCV):

|              |       |                                         |
|--------------|-------|-----------------------------------------|
| *1. SM       | _____ | (SM number containing RAF)              |
| *2. RAF      | _____ | (RAF service group, 0-3)                |
| *3. PACK NUM | _____ | (TN1054 position number, 2 or 3)        |
|              |       | 2 = 1st TN1054 expansion pack position  |
|              |       | 3 = 2nd TN1054 expansion pack position) |

**Response:** All other fields are populated.  
Enter Update, Change, Validate, or Print:

6. Type and enter **C**
7. Change EQSTAT value to **O** (operational).
8. Update data and return to the class menu.

#### 14.22.3.2 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for the SM/SM-2000, the AM, and the CMP.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.22.3.3 Restore RAF To Service



1. To restore the RAF memory unit to service, type and enter:

**RST:RAF=a-b;**

**Where:**

a = SM number  
b = RAF unit

**Response: DGN RAF=a-b COMPLETED ATP**

2. Have all TN1054 expansion packs been replaced or installed?

If **YES**, then continue with next Section.

If **NO**, then return to Section **14.22.3**.

#### 14.22.4 Safe Stop Point

1. This is a safe stop point.

#### 14.22.5 Phrase Data Update

1. Is the phrase data update to be performed with script tape or with manual recent change?

If **Script Tape**, then go to Section **14.22.6**

If **Manual**, then go to Section **14.22.7**

#### 14.22.6 Perform Recent Change Script Update

##### 14.22.6.1 Overview

1. A recent change script update tape has been provided. The tape may be either a 9-track tape or a DAT cartridge tape. The recent change tape contains keystroke files, which when loaded into the switch, are executed by the script.

**NOTE:** The script tape is "SOFTWARE RELEASE" sensitive, and not office dependent. The tape should not be used to apply unnecessary data.

To insure that data is applied properly, it is important that the required script tape be executed as indicated. Since ASP (PVN, AIN) has only phrase data there is only one script. In some cases data may already have been entered by Office Data Administration (ODA), if that has occurred, recent change insertion data will show up as failures but should not affect functionality.

Because there is only one script applicable, errors will be generated since the software is expecting scripts for header, trailer, and display data. The errors are to be ignored. Script progress can be monitored on the ROP by entering the following at the MCC or STLWS: **dump:file:all,fn="/updtmp/annc/annc\_log",opl=2;**

For more output, increase opl(e) by 1 for each additional 20 lines of output desired. opl=2 generates 40 lines, opl=3 60 lines, etc. Default is 200 lines.

To abort script execution, type and enter:

**stp:exc:data,any,fn="/updump/annc/<fn>",ucl;**

where: <fn> = name of file script to be terminated, i.e. rc-cst-hdr (header file).

### 14.22.6.2 Tape Loading

**NOTE:** Tape loading is required only once, even if several memory packs (on the same RAF unit) are being updated at different intervals. The recent change data is transferred to a temporary directory/file for later update of the recent change view.

1. Mount tape on drive.

2. At the MCC or STLWS, type and enter:

**exc:envir:uproc,fn="/bin/mkdir",args="/updtmp/annc";**

**Response:** Wait for a completion message before continuing.

3. Type and enter:

**copy:tape:in,td="/dev/mt00",bsdir="/updtmp/annc";**

**Response:** Wait for a completion message before continuing.

4. To list files copied to the switch from tape, type and enter:

**exc:envir:uproc,fn="/bin/ls",args="/updtmp/annc";**

**Response:** A list of files will be printed, most will have the format:

**rc-xxx-xxx**

Print and save this list for later reference.

### 14.22.6.3 Apply Custom Phrase Data (RC View 8.63)

1. To apply custom phrases, type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rc-cst-phr";**

**Response: RC SCRIPT xxxxxxxxx COMPLETED**

**NOTE 1:** The script execution may take several minutes depending on the number of recent change and office activity.

**NOTE 2:** Because there is only one script applicable, errors will be generated since the software is expecting scripts for header, trailer, and display data.

The following reports are to be ignored.

**EXC ENVIR UPROC /updtmp/annc/rc-cst-phr STOPPED**  
**/updtmp/annc/rc-cst-phr: xxxxxxxx killed**

2. Go to Section **14.22.8**

### 14.22.7 Perform Manual Recent Change Update

1. Obtain completed GRCV form 8.63.
2. To insert the new phrase list, at the RC/V terminal type and enter **8.63i**
3. Type and enter data (from GRCV 8.63) for the following fields:

|     |             |           |                                          |
|-----|-------------|-----------|------------------------------------------|
| *1. | PHRASE ID   | _____     | (locally determined phrase ID number)    |
| *2. | APPLICATION | <b>AS</b> | (ASP, PVN application)                   |
| #3. | DURATION    | _____     | (duration of Phrase in seconds)          |
| #4. | PHRASE TEXT | _____     | (maximum of 65 alphanumeric characters.) |

4. To insert the data, type and enter **i**

**Response:** Data is inserted.

5. Are there more phrases to be inserted?

If **YES**, repeat from Step 2.

If **NO**, then continue with next Step.

6. Return to RC/V class menu.

#### 14.22.8 Verify New Phrase Data

1. Verify data in view 8.63, type and enter **8.63v**
2. Type and enter data for the following fields (use the data from the GRCV form):

\*1. PHRASE ID \_\_\_\_\_

\*2. APPLICATION \_\_\_\_\_

**Response:** The other fields are populated.

Using the "Phrase Number" print out that was provided with the memory pack, verify that PHRASE TEXT and DURATION correspond with print out.

3. Repeat Step 1 for other phrase numbers until satisfied that new phrases are complete.
4. Exit RC/V.

#### 14.22.9 Backup Office Dependent Data

**NOTE:** Prior to the response, there will be completed responses for each SM/SM-2000, the AM, and the CMP.

1. At the MCC, type and enter the following command:

**BKUP:ODD,NRODD=xx,RODD,AM,CMP=0;**

**Where:**

xx = SM number

**Response: BKUP ODD COMPLETED**

**NOTE:** Data base back up will take several minutes to complete.

#### 14.22.10 Reset Prerequisite Pre-Conditioning Control

1. Perform this step only if these messages were previously set for growth purposes and no additional growth activity is required on this SM.

At the MCC, type and enter:

ALW:REX,SM=a;  
 ALW:BREVC,SM=a;  
 CLR:PERPH,SM=a,VERBOSE;  
 CHG:LPS:MSGCLS=ASRTMON,PRINT=OFF;  
 ALW:REORG;

**Where:**

a = SM number

**14.22.11 Verify Custom Announcement Update**

1. The new announcements are verified by using a TLWS monitor telephone to test the DSU-2 RAF announcements and phrases. Configure TLWS as required. Refer to the phrase list that was provided with the memory pack.

Configure TLWS as required.

2. At TLWS terminal, select page **160**
3. Select a test position **16x**

**Where:**

x = test position 1 to 9

4. To select "SEIZE LINE/TRUNK/INCOMING CALL", type and enter **4000,2**
5. To select "SEIZE RAF/SAS TRK", type and enter **4106,sm,raf,mem**

**Where:**

sm = SM number  
 raf = RAF number  
 mem = Trunk group member to seize

6. To select "SUPERVISION", type and enter **5200,3**
7. Use the following selections to monitor the announcements as required:

5207,a = Command to play phrase.

5208,b,c,d = Command to play announcements

**Where:**

a = phrase or message number  
 b = header ID  
 c = trailer ID  
 d = digit inflection ID

Examples: **5207,14003** (phrase)  
**5208,186,27,45** (announcement)

8. To release RAF trunk, enter **4999**

9. To stop test, enter **5999**
10. To release test position, at Page 160 type **20X**

#### **14.22.12 Remove Script Files**

1. Was the phrase data update performed with script tape or with manual recent change?

If **SCRIPT TAPE**, continue with next Step.

If **MANUAL**, then **STOP: YOU HAVE COMPLETED THIS PROCEDURE..**

2. To remove script files, at the MCC type and enter:

**exc:envir:uproc,fn="/updtmp/annc/rmfiles";**

**Response:** Wait for a completion message before continuing.

3. To remove script directory, type and enter:

**exc:envir:uproc,fn="/bin/rmdir",args="/updtmp/annc";**

**Response:** Wait for a completion message

4. Remove tape from drive.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## 15. OPERATIONS SUPPORT SYSTEM ACTIVATION PROCEDURES

### GENERAL

This section contains detailed level procedures to bring up the 5ESS<sup>®</sup>-2000 switch operations support systems (OSS). The following OSSs are discussed in this section:

- Integrated Mechanized Loop Testing (IMLT2)
- Automated Message Accounting Teleprocessing System (AMATPS)
- Central Trunk Test Unit (CTTU)
- Engineering Administration Data Acquisition System (EADAS)
- Remote Memory Administration System (RMAS)
- Switching Control Center System (SCCS)
- Service Evaluation System II (SES II)
- Software Change Administration and Notification System II (SCANS II) data link
- Software Change Administration and Notification System III (SCANS III) data link
- Testing, Operations, Provisioning, Administration System (TOPAS).

## Procedure 15.1: BRING UP IMLT2

### OVERVIEW

The following steps are to be followed when adding the integrated mechanized loop testing 2 (IMLT 2) to the office.

### PROCEDURE

1. Does the office already have a directly connected test unit (DCTU)?

If **YES**, do Step 5.

If **NO**, continue with the next step.

2. Perform DCTU hardware growth.

Reference: 235-105-231

3. Perform precision measurement unit (PMU) hardware growth.

Reference: 235-105-231

4. Grow DCTU port trunk group (TG), TG members, route index (RTI), and fixed route index (FRTI).

Reference: **Procedure 15.11**

**NOTE:** The FRTI is assigned to SDLC 0.

5. Grow SDL 2 (verify on MCC Page **113**).

Reference: 235-105-231

6. Set and verify data set options.

Reference: **Procedure 15.12**

7. Perform IMLT 2 callback phone trunk group (TG), TG members, route index (RTI), and FRTI.

Reference: 235-105-231

8. Perform IMLT office option.

Reference: 235-105-231

9. Perform distributing frame test access circuit (DFTAC) recent changes.

Reference: 235-105-231

10. Grow integrated subscriber line carrier (ISLC) channel test (S96CTST).

Reference:     **Procedure 15.13**

11. Add pair gain test controller (PGTC) circuit for IMLT 2.

Reference:     235-105-231

12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 15.2: BRING UP AMATPS

### PROCEDURE

1. **NOTE:** In order to set up the Automatic Message Accounting Teleprocessing System (AMATPS) data link, the AMATPS link must be equipped in Lucent Technologies 3B20D/21D computer recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for AMATPS data link from UNEQIP to GROW state.

Reference: **Procedure 15.18**

2. Diagnose SDLC.

Reference: **Procedure 15.44**

3. Change the status of SDLC and SDL for AMATPS data link from GROW to OOS state.

Reference: **Procedure 15.14**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B20D/21D computer recent change.

Reference: **Procedure 15.46**

6. Review the AMAOPTION value.

Reference: **Procedure 15.58**

**NOTE:** If the AMAOPTION value is **NONE**, then set the AMAOPTION to **AMATPS**.

Reference: **Procedure 15.58**

**NOTE:** If the AMAOPTION is **AMATPS**, then (1) set up the AMA control file and (2) allow an AMA session.

Reference: **Procedure 15.53**  
**Procedure 15.54**

7. If equipped with 2048A *DATAPHONE*® II data set, proceed with Step 8.  
If equipped with *PARADYNE*® 3810 modem, go to Step 10.

8. Check AMATPS hardware configuration.

Reference: **Procedure 15.17**

9. If 153A adapter and hotline feature is to be used, then replace 43A single-number dialer with 153A adapter and hotline feature.

Reference: **Procedure 15.16**

10. Install options on 2048A DATAPHONE II data set. The data set options are as follows:

- A2
- B1
- C5
- D1
- D7
- E7.

Reference: **Procedure 15.52**

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

11. Install options on PARADYNE 3810 modem. The options are given in Table 15.2-1 .

**Table 15.2-1 AMATPS PARADYNE® 3810 Data Set Options**

| CONFIGURATION GROUP | OPTION             | OPTION SETTING          |
|---------------------|--------------------|-------------------------|
| DTE Interface       | Async/Sync         | Sync                    |
|                     | DTR Action         | Standard RS232          |
|                     | DSR Control        | Standard RS232          |
|                     | RTS Action         | Standard RS232          |
|                     | LSD Control        | Forced On               |
| DTE Dialer          | DTE Dialer Type    | Disable                 |
| Line Dialer         | No Data Disconnect | Disable                 |
| Dial Line           | Dial Line Rate     | Select Appropriate Data |
|                     | V.32 Autorate      | Disable                 |

Reference: **Procedure 15.15**

12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.3: BRING UP CTTU

### PROCEDURE

1. **NOTE:** In order to set up the central trunk test unit (CTTU) data link, the CTTU link must be equipped in Lucent Technologies 3B20D/21D Computer recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for CTTU data link from UNEQIP to GROW state.

Reference: **Procedure 15.27**

2. Change the status of SDLC and SDL for CTTU data link from GROW to OOS state.

Reference: **Procedure 15.28**

3. Diagnose synchronous data link controller (SDLC).

Reference: **Procedure 15.44**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B20D/21D recent change.

Reference: **Procedure 15.46**

6. Define global parameters for logical test port (LTP).

Reference: **Procedure 15.20**

7. Define central trunk test unit (CTTU) logical test port group.

Reference: **Procedure 15.21**

8. Define a new LTP trunk group for each of the CTTU data link users.

Reference: **Procedure 15.22**

9. Enable CTTU to be recipient of the 101 test line.

Reference: **Procedure 15.23**

10. Define attributes necessary to add CTTU interface.

Reference: **Procedure 15.24**

11. Start data link reader and writer processes.

Reference:     **Procedure 15.25**

12. Check CTTU hardware.

Reference:     **Procedure 15.55**

13. Set DIP switches on 212 data set.

Reference:     **Procedure 15.68**

14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.4: BRING UP RMAS

### PROCEDURE

1. **NOTE:** In order to set up the Remote Memory Administration System (RMAS) data link, the RMAS link must be equipped in Lucent Technologies 3B20D/21D computer recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for RMAS data link from UNEQIP to GROW state.

Reference: **Procedure 15.30**

2. Change the status of SDLC and SDL for RMAS data link from GROW to out-of-service (OOS) state.

Reference: **Procedure 15.31**

3. Diagnose SDLC.

Reference: **Procedure 15.44**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B20D/21D computer recent change.

Reference: **Procedure 15.46**

6. Set RC/V access for all channels.

Reference: **Procedure 15.29**

7. If equipped with 2024 data set, proceed with Step 8.

If equipped with *PARADYNE*® 3810 modem, go to Step 11.

8. Check RMAS hardware configuration.

Reference: **Procedure 15.55**

9. Install options on 2024 series data set. The data set options should be as follows:

- A1
- B2
- C5
- D7.

Reference: **Procedure 15.52**

10. Proceed to Step 12.
11. Install options on PARADYNE 3810 modem. The options are given in Table 15.4-1 .

**Table 15.4-1 RMAS PARADYNE® 3810 Data Set Options**

| CONFIGURATION GROUP          | OPTION             | OPTION SETTING          |
|------------------------------|--------------------|-------------------------|
| SYNC LEASED<br>DTE Interface | Choose Mode        | Answer                  |
|                              | CTS Action         | Forced On               |
|                              | LSD Control        | Forced On               |
| Line Dialer                  | No Data Disconnect | Disable                 |
| Leased Line                  | Leased Line Rate   | Select Appropriate Data |
|                              | V.32 Autorate      | Disable                 |

Reference: **Procedure 15.56**

12. An operational test can be performed by having the RMAS center attempt to make recent changes on a customer's line in the 5ESS®-2000 switch.
13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.5: BRING UP NO. 2 SCCS

### PROCEDURE

1. If equipped with 2024 series data set, go to Step 2.  
If equipped with *PARADYNE*® 3810 data set, go to Step 3.
2. Install options on 2024 series data set. The data set options should be:
  - A2
  - B2
  - C5
  - D1
  - D7.

Reference: **Procedure 15.52**

3. Install options on *PARADYNE*® 3810 modem. The options are given in Table 15.5-1 .

**Table 15.5-1 SCCS *PARADYNE*® 3810 Data Set Options**

| CONFIGURATION GROUP | OPTION             | OPTION SETTING          |
|---------------------|--------------------|-------------------------|
| SYNC LEASED         | Choose Mode        | Answer                  |
| DTE Interface       | CTS Action         | Forced On               |
|                     | LSD Control        | Forced On               |
| Line Dialer         | No Data Disconnect | Disable                 |
| Leased Line         | Leased Line Rate   | Select Appropriate Data |
|                     | V.32 Autorate      | Disable                 |

Reference: **Procedure 15.56**

4. Operational tests can be performed by requesting the switching control center system (SCCS) to get into each mode and input messages and commands.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.6: BRING UP EADAS

### PROCEDURE

1. **NOTE:** In order to set up the Engineering Administration Data Acquisition System (EADAS) data link, the EADAS link must be equipped in Lucent Technologies 3B20D/21D recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for EADAS data link from UNEQIP to GROW state.

Reference: **Procedure 15.33**

2. Change the status of SDLC and SDL for EADAS data link from GROW to OOS state.

Reference: **Procedure 15.34**

3. Diagnose SDLC.

Reference: **Procedure 15.44**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B20D/21D Computer recent change.

Reference: **Procedure 15.46**

6. Set EADASOPT attribute to Y.

Reference: **Procedure 15.32**

7. If equipped with 2024 series data set, proceed with Step 8.  
If equipped with *PARADYNE*® 3810 modem, go to Step 10.

8. Install options on 2024 series data set. The data set options should be:

- A2
- B1
- C5
- D7.

Reference: **Procedure 15.52**

9. Check EADAS hardware.



Reference:     **Procedure 15.55**

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

10. Install options on PARADYNE 3810 modem. The options are given in Table 15.6-1 .

**Table 15.6-1   EADAS *PARADYNE*® 3810 Data Set Options**

| CONFIGURATION GROUP | OPTION             | OPTION SETTING          |
|---------------------|--------------------|-------------------------|
| SYNC LEASED         | Choose Mode        | Answer                  |
| DTE Interface       | CTS Action         | Forced On               |
|                     | LSD Control        | Forced On               |
| Line Dialer         | No Data Disconnect | Disable                 |
| Leased Line         | Leased Line Rate   | Select Appropriate Data |
|                     | V.32 Autorate      | Disable                 |

Reference:     **Procedure 15.56**

11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.7: BRING UP SES II

### PROCEDURE

1. **NOTE:** In order to set up the Service Evaluation System II (SES II) data link, the SES II link must be equipped in Lucent Technologies 3B20D/21D Computer recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for SES II data link from UNEQIP to GROW state.

Reference: **Procedure 15.38**

2. Change the status of SDLC and SDL for SES II data link from GROW to OOS state.

Reference: **Procedure 15.39**

3. Diagnose SDLC.

Reference: **Procedure 15.44**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B20D/21D Computer recent change.

Reference: **Procedure 15.46**

6. Update SES attribute for trunk group number.

Reference: **Procedure 15.35**

7. If equipped with 2024 series data set, proceed with Step 8.  
If equipped with *PARADYNE*® 3810 modem, go to Step 10.

8. Install options on 2024 series data set. The data set options should be:

- A2
- B2
- C5
- D1
- D7.

Reference: **Procedure 15.52**

9. Check SES II hardware.

Reference: **Procedure 15.55**

10. Install options on *PARADYNE*® 3810 modem. The options are given in Table 15.7-1 .

**Table 15.7-1 SES *PARADYNE*® 3810 Data Set Options**

| CONFIGURATION GROUP | OPTION             | OPTION SETTING          |
|---------------------|--------------------|-------------------------|
| SYNC LEASED         | Choose Mode        | Answer                  |
| DTE Interface       | CTS Action         | Forced On               |
|                     | LSD Control        | Forced On               |
| Line Dialer         | No Data Disconnect | Disable                 |
| Leased Line         | Leased Line Rate   | Select Appropriate Data |
|                     | V.32 Autorate      | Disable                 |

Reference: **Procedure 15.56**

11. Define SES II trunk group.

Reference: **Procedure 15.36**

12. Define SES II trunk member.

Reference: **Procedure 15.37**

13. For operational testing, request the SES II system request a connection to different type of calls in the *5ESS*®-2000 switch. The bridged connection should be made, and the contact at the SES II center should be able to monitor the connection over the SES II trunk.
14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.8: BRING UP SCANS II DATA LINK

### PROCEDURE

1. **NOTE:** In order to set up the Software Change Administration and Notification System (SCANS) data link, the SCANS II link must be equipped in Lucent Technologies 3B20D/21D Computer recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for SCANS II data link from UNEQIP to GROW state.

Reference: **Procedure 15.42**

2. Change the status of SDLC and SDL for SCANS II data link from GROW to OOS state.

Reference: **Procedure 15.43**

3. Diagnose SDLC.

Reference: **Procedure 15.44**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B20D/21D Computer recent change.

Reference: **Procedure 15.46**

6. Verify that components for SCANS II dial-up data link are installed properly.

Reference: **Procedure 15.40**

7. Install options on 2048A series data set. The options should be:

- A2
- B1
- C5
- D7
- E2
- E3
- E4
- Rise time switches (1, 2, 3, and 4) - closed.

Reference:     **Procedure 15.52**

8.   Manually test the 48FR1 backup unit.

Reference:     **Procedure 15.41**

9.   **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.9: BRING UP SCANS III DATA LINK

### PROCEDURE

1. **NOTE:** In order to set up the Software Change Administration and Notification System (SCANS) data link, the SCANS III link must be equipped in Lucent Technologies 3B20D/21D Computer recent change and verify (RC/V) as shown in Steps 1 through 4 of this procedure.

Change the status of synchronous data link controller (SDLC) and synchronous data link (SDL) for SCANS III data link from UNEQIP to GROW state.

Reference: **Procedure 15.42**

2. Change the status of SDLC and SDL for SCANS III data link from GROW to OOS state.

Reference: **Procedure 15.43**

3. Diagnose SDLC.

Reference: **Procedure 15.44**

4. Restore SDLC to service.

Reference: **Procedure 15.45**

5. Update data base using 3B Computer recent change.

Reference: **Procedure 15.46**

6. Verify that components for SCANS III dial-up data link are installed properly.

Reference: **Procedure 15.47**

7. Install options on *PARADYNE*® 3810 modem as shown in Steps 8 through 43.

**NOTE:** Options are changed using the Diagnostic Control Panel (DCP) on the modem. The DCP contains a 2-line liquid crystal display (LCD) which displays modem status, control functions and configuration options. The DCP also contains several keys which allow the user to access and change the options.

Refer to Figure 15.9-1 for an illustration of the DCP.

8. On the DCP, press the > key until **Configure** comes into view.

Response: **Idle:14.4 <=>**  
**Test Configure**

9. Press the **F3** key to select the **Configure** mode.

Response:     **Ld EditArea frm >  
                  Activ(Operating)**

10. Press the > key until **Factory** comes into view.

Response:     **Ld EditArea frm<  
                  Factory**

11. Press the **F1** key to display the factory preset configurations.

Response:     **Ld Fact Preset: >  
                  Async\_Dial**

12. Press the **F1** key to display the **Choose Function** options.

Response:     **Choose Function  
                  Edit Save**

13. Press the **F1** key to select the **Edit** function.

Response:     **Edit StrapGroup >  
                  DTE\_Interface**

14. Press the **F1** key to select the **DTE\_Interface** group of options.

Response:     **Async/Sync Mode >  
                  Nxt Async**

15. Press the > key to access the **Sync** option.

Response:     **Async/Sync Mode >  
                  Sync**

16. Press the **F2** key to select the **Sync** mode.

Response:     **Async/Sync Mode >  
                  Nxt Sync**

17. Press the **F1** key to select the **DTR Action** group of options.

Response:     **DTR Action >  
                  Nxt Ignore**

18. Press the > key to access the **Stndrd\_RS232** option.

Response:     **DTR Action <  
                  Stndrd\_RS232**

19. Press the **F2** key to select the **Stndrd\_RS232** option.

Response:     **DTR Action >**  
              **Nxt Stndrd\_RS232**

20. Press the **F1** key to select the **DSR Control** group of options.

Response:     **DSR Control >**  
              **Nxt Forced\_On**

21. Press the **>** key to access the **Stndrd\_RS232** option.

Response:     **DSR Control <=>**  
              **Stndrd\_RS232**

22. Press the **F2** key to select the **Stndrd\_RS232** option.

Response:     **DSR Control >**  
              **Nxt Stndrd\_RS232**

23. Press the **F1** key to select the **RTS Action** group of options.

Response:     **RTS Action >**  
              **Nxt Ignore**

24. Press the **>** key to access the **Stndrd\_RS232** option.

Response:     **RTS Action <=>**  
              **Stndrd\_RS232**

25. Press the **F2** key to select the **Stndrd\_RS232** option.

Response:     **RTS Action >**  
              **Nxt Stndrd\_RS232**

26. Press the **F1** key to select the **LSD Control** group of options.

Response:     **LSD Control >**  
              **Nxt Stndrd\_RS232**

27. Press the **>** key to access the **Forced\_On** option.

Response:     **LSD Control <=>**  
              **Forced\_On**

28. Press the **F2** key to select the **Forced\_On** option.

Response:     **LSD Control >**



**Nxt Forced\_On**

29. Repeatedly press the **F1** key until the display appears as follows:

Response:     **Edit StrapGroup >**  
              **DTE\_Interface**

30. Press the **>** key to access the **DTE\_Dialer** option.

Response:     **Edit StrapGroup <=>**  
              **DTE\_Dialer**

31. Press the **F1** key to access the **DTE\_Dialer** group of options.

Response:     **DTE Dialer Type >**  
              **Nxt AT**

32. Press the **>** key to access the **Disable** option.

Response:     **DTE Dialer Type <=>**  
              **Disable**

33. Press the **F2** key to select the **Disable** option.

Response:     **DTE Dialer Type >**  
              **End Disable**

34. Press the **F1** key to select the **Edit StrapGroup** options.

Response:     **Edit StrapGroup <=>**  
              **DTE\_Dialer**

35. Press the **>** key to access the **Dial\_Line** option.

Response:     **Edit StrapGroup <=>**  
              **Dial\_Line Test**

36. Press the **F1** key to access the **Dial Line** group of options.

Response:     **Dial Line Rate >**  
              **Nxt 14400 (V32b)**

37. Press the **>** key to access the **9600 (V32b)** option.

Response:     **Dial Line Rate <=>**  
              **9600 (V32b)**

38. Press the **F2** key to select the **9600 (V32b)** option.

Response:     **Dial Line Rate >**  
                  **Nxt 9600 (V32b)**

39. Repeatedly press the ^ key (located to the left of the LCD) until the display appears as follows:

Response:     **Choose Function**  
                  **Edit Save**

40. Press the **F3** key to save the option settings.

Response:     **Sav EditArea to >**  
                  **Active (Saved)**

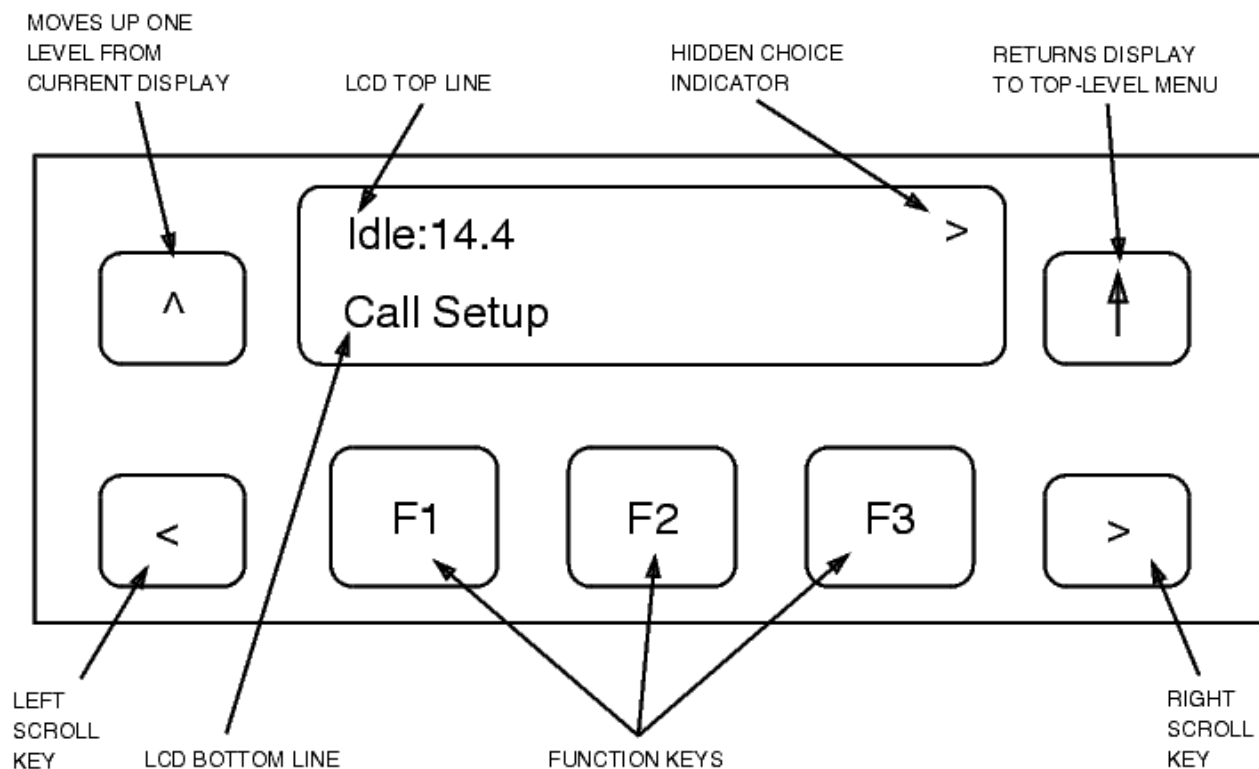
41. Press the **F1** key to save the option selections to the Active configuration area.

Response:     **Sav EditArea to >**  
                  **Command Complete**

42. Press the ↑ key (located to the right of the LCD) until the display appears as follows:

Response:     **Idle:9600 >**  
                  **Call\_Setup**

43. To verify that the options were saved properly, power cycle the Paradyne 3810 modem (OFF then ON) and verify that the power-on self-test passes, and the LCD displays **Idle:9600** and **Call\_Setup**, as previously shown.



**Figure 15.9-1 PARADYNE Paradyne Corporation 3810 Modem Diagnostic Control Panel**

44. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.10: BRING UP TOPAS

### PROCEDURE

1. Grow Testing, Operations, Provisioning, Administration System (TOPAS) data link ports and Remote Measurement System — Digital 3 (RMS-D3) data link port.

Reference: 235-105-231

2. Grow RMS-D3 Digital Facility Interface (DFI), RMS-D3 Test Access Trunks (TATs), and TOPAS TAT DFI.

Reference: 235-105-231

**NOTE:** There can be TOPAS Test Access Trunks terminating on the 5ESS®-2000 switch used for the TOPAS feature. These trunks are grown in the following three steps and left out of service.

3. For the TOPAS TAT trunk group assigned previously, install the ODD for these TATs using the ODA RC/V tool. Insert the **TRUNK GROUP** form for this group (tgno) with the TRK CLASS field equal to **TOPAS**.
4. Insert TRUNK MEMBER form for each of the TAT members. Note that a range of up to 10 trunks can be used to expedite the insertions.
5. Verify the above steps by entering message: **OP:LIST,TGt**

Where: t = trunk group number

Response: Each TAT should be OOS.

**NOTE:** Additional required software digit timers for TOPAS and RMS-D3 TATs are grown into the ODD in the following three steps.

6. Bring up the RC/V ODD view for TIMING (MISCELLANEOUS) form.
7. Insert an additional view for TOPAS timers using ``TOPAS" in the **ORIG** field.
8. Insert an additional view for RMS-D3 timers using ``RMS-D3" in the **ORIG** field.

**NOTE:** The following steps make the TOPAS feature operational by restoring the TOPAS data links and TATs to service, allowing testing of the feature.

9. Restore the two TOPAS data links (TOPAS0 and TOPAS1) to service with the following commands:

Enter: **RST:SDLCaa**

Where: aa = SDLC number for TOPAS0

Enter: **RST:SDLCbb**

Where: bb = SDLC number for TOPAS1

10. Access MCC Page **113**

Response: The display of the TOPAS0 and TOPAS1 data links should indicate that the SDLs and SDLCs are in the **ACTIVE** state.

11. Restore the TOPAS TATs to service.

Enter: **RST:DFId**

Where: d = DFI number

Repeat for each DFI installed for TOPAS TATs.

Enter: **RST:TRK,TGt**

Where: t = trunk group number

12. Verify the operational status of the DFI(s) as follows:

Access MCC Page **1120**,sm

Where: sm = Switching Module number where the TOPAS TAT DFI is installed.

Response: Each DFI status should indicate **ACTIVE**.

13. Verify the operational status of the TAT(s) as follows:

Enter: **OP:LIST,TG#**

Where: # = TAT trunk group number

Response: Each trunk status should indicate **IS** (In Service).

14. Set up the **RCV:TEXT** access permission for the TOPAS data link interface as follows:

Enter: **SET:RCACCESS,TTY"ttyB",ACCESS X'10**

15. The TOPAS data links are now operational from TOPAS OS. The TOPAS TATs can now be used to place test calls.

16. If problems occur, back out using **RMV: . . .** commands for the above **RST: . . .** commands.

**NOTE:** The following steps make the RMS-D3 feature operational by restoring the RMS-D3 data link and TATs to service, allowing testing of the feature.

17. Was an IOP PC installed for RMS-D3 data link?

If **YES**, restore it by entering message: **RST:SDLCs**

Where: s = SDLC number assigned

If **NO**, continue with next step.

18. If PC was already available, restore data link to active service.

Enter: **RST:SDL20**

Where: 20 = SDL number

19. Verify operational status of data link:

Access MCC Page **113**

Response: RMS-D3 data link should show **ACTIVE**.

20. Restore DIFs for RMS-D3 DTUs by entering message: **RST:DFI#**

Where: # = DFI number

Repeat for each RMS-D3 DFI installed.

21. Verify operational status of DFIs:

Access MCC Page **1120,sm**

Where: sm = switching module where DFIs are assigned

Response: Each DFI status should be **ACTIVE**.

22. Verify operational status of TATs:

Enter: **OP:LIST,TG#**

Where: # = trunk group number

Response: Trunk status should be **IS** (In Service).

23. Using RC/V ODD, bring up a LOCAL DIGIT (OFFICE DIALING) form. There will be a TEMPORARY LOCAL DIGIT (OFFICE DIALING) form instance for each of the special RMS-D3 test lines (for example, NNX101). These TEMPORARY views will be removed later during transition from TLWS to TOPAS operation.

24. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX101 test line. Set the CALL TYPE field to **101R**.

25. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX101xx test line.

Where: xx = 2-digit number representing an equipped TOPAS test position (for example, ``00")

Set the CALL TYPE field to **101TP**.

26. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX101xxy test line.

Where: xx = 2-digit TP number

y = 1-digit TAT number

Set the CALL TYPE field to **101TAT**.

27. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX104 test line. Set the CALL TYPE field to **104R**.
28. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX105 test line. Set the CALL TYPE field to **105R**.
29. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX109 test line. Set the CALL TYPE field to **109R**.
30. Insert a LOCAL DIGIT (OFFICE DIALING) form instance for the directory number for the RMS-D3 NNX606 test line. Set the CALL TYPE field to **606R**.
31. If problems occur, back out using **RMV: . . .** commands for the above **RST: . . .** commands and removing the LOCAL DIGIT (OFFICE DIALING) form instances.

**NOTE:** The RMS-D3 feature is enabled with the following steps. The feature is controlled by the RMSOPT field in the OFFICE PARAMETERS (MISCELLANEOUS) RC/V form. Setting the RMSOPT field to ``Y" equips the feature; ``N" unequips the feature.

32. Using the ODA RC/V tool, bring up the OFFICE PARAMETERS (MISCELLANEOUS) form. Set the RMSOPT field to **Y** (equipped).
33. Activate the RMS-D3 link handlers and control processes:

At MCC, enter message: **INIT:ULARP**

34. Verify that the control process (TMrmsrd1 and TMrmswr1) are executing by checking the ROP printout:

Response:     **REPT ULARPLOG ATTEMPTING TO RESTART TMRMSRD1** process\_no  
                   **REPT ULARPLOG ATTEMPTING TO RESTART TMRMSWR1** process\_no

The RMS-D3 data link is now operational from the RMS-D3 system controller. The RMS-D3 TATs are now operational to originate calls and terminate test calls if the incoming calls use the special test DN=NNX10x, NNX606 numbers. Incoming ``10x" calls are still being routed to the TLWS. Particular tests will be conducted during regression testing to confirm this status.

If problems occur, the equipage flag ``RMSOPT" can be set to ``N" to unequip the feature.

35. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.11: GROW DCTU PORT TG, TG MEMBERS, AND ROUTE INDEX BEFORE IMLT2 GROWTH

### OVERVIEW

Before integrated mechanized loop testing 2 (IMLT2) growth is completed, this procedure should be used to grow directly connected test unit (DCTU) port trunk group (TG), TG members, and route index (RI).

### PROCEDURE

1. **NOTE:** If the office already has a DCTU, then it is not necessary to perform this procedure.
2. Define logical test port trunk group for DCTU.  
Reference: **Procedure 15.48**
3. Define logical test port group member for DCTU.  
Reference: **Procedure 15.49**
4. Grow DCTU route index.  
Reference: **Procedure 15.50**
5. Update directly connected test unit route index (DCTURTI) on each switching module (SM).  
Reference: **Procedure 15.51**
6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



**Procedure 15.12: SET AND VERIFY DATA SET OPTIONS AFTER IMLT GROWTH****PROCEDURE**

1. **NOTE 1:** See the examples given below for setting options on 2024, 829A, and 48FR1 data sets.

**NOTE 2:** In this step, use the index in the referenced practice to locate instructions to set the data set options.

Which data set is to have options set?

If **DATA SET 201**, then refer to **592-xxx-xxx**.

If **DATA AUXILIARY SET 829**, then refer to **598-xxx-xxx**.

If **DATA SET 2024**, then refer to **592-xxx-xxx**.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**EXAMPLES**

The following are examples of options on the 2024, 829A, and 48FR1 data sets.

Example of how to install options on 2024 series data set. The typical data set options are as follows:

- A2
- B1
- C6
- E2.

Reference: **592-xxx-xxx** and **Procedure 15.52** in this section.

Example of how to install options on 829A data set. The typical data set options are as follows:

- XMT switch
- 1.0 in.
- 2.0 in.
- 4.0 in.
- 8.0 out.
- REC switch
- 1.0 in.
- 2.0 in.
- 4.0 in.

- 8.0 out.

Reference: **598-xxx-xxx**

Example of how to install options on 48FR1 data unit. The typical data set options are as follows:

- XMT switch
- 1 on.
- 2 on.
- 3 off.
- 4 off.
- REC switch
- 1 on.
- 2 on.
- 3 off.
- 4 off.

## Procedure 15.13: GROW ISLC CHANNEL TEST (S96CTST) AFTER IMLT2 GROWTH

### OVERVIEW

This procedure should be run when adding the intergrated subscriber line carrier (ISLC) channel test circuit. This circuit is used by integrated mechanized loop testing 2 (IMLT2) to test the transmission and noise level and the digital channel from the remote terminal (RT) to the directly connected test unit (DCTU).

### PROCEDURE

1. Using R/C View 5.1, insert the S96CTST LTP trunk group.

Reference: **Procedure 15.48**

2. **NOTE:** The LTP trunk group members must be assigned to the SM where the transmission test facility (TTF) is located. The TTF is part of the global digital service unit (GDSU).

Using R/C View 5.5, insert the S96CTST LTP trunk group members.

Reference: **Procedure 15.49**

3. Using R/C View 10.2, insert the route index for the S96CTST LTP trunk group.

Reference: **Procedure 15.50**

4. Using R/C View 10.1, insert the fixed route for S96CTST.

Reference: **Procedure 15.69**

5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.14: CHANGE THE STATUS OF SDLC AND SDL FOR AMATPS DATA LINK FROM GROW TO OOS

### PROCEDURE

1. At master control center (MCC), do Steps 2 through 30.
2. Access Lucent Technologies 3B20D/21D computer recent change.  
Reference: **Procedure 15.70**
3. Type and enter **trbegin**  
Response: **tr\_name:TRBEGIN** is displayed.
4. Hit **CARRIAGE RETURN**  
Response: **Enter Execute, Change, Substitute, Validate, or Print:**
5. Type and enter **e**  
Response: **FORM EXECUTED** flashes at upper right of screen  
Recent change process returns to **forms selection page**.
6. Type and enter **ucb**
7. To enter update mode, type and enter **u**  
Response: Cursor at **k\_complex\_name:**
8. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_complex\_number:**
9. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_unit\_name:**
10. Type and enter **SDLC**  
Response: Cursor at **k\_unit\_number:**
11. Type and enter **7**  
Response: **Enter Update, Change, Validate, screen#, or Print:**
12. Type and enter **c**

Response:     **change field:**

13. Type and enter **21**

Response:     **major\_status: GROW**

14. Type and enter **oos**

Response:     **change field:**

15. Hit **CARRIAGE RETURN.**

Response:     **Enter Update, Change, Validate, screen#, or Print:**

16. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

17. Hit **CARRIAGE RETURN.**

Response:     Cursor at **k\_complex\_number:**

18. Hit **CARRIAGE RETURN.**

Response:     Cursor at **k\_unit\_name:**

19. Type and enter **SDL**

Response:     Cursor at **k\_unit\_number:**

20. Type and enter **13** (or selected SDL)

Response:     **Enter Update, Change, Validate, screen#, or Print:**

21. Type and enter **c**

Response:     **change field:**

22. Type and enter **21**

Response:     **major\_status: GROW**

23. Type and enter **oos**

Response:     **change field:**

24. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

25. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

26. Type and enter **<**

Response: **Enter Form Name:**

27. Type and enter **trend**

Response: **tr\_name: TREND**

28. Hit **CARRIAGE RETURN**

Response: **dis\_cf\_checks:**

29. Type and enter **\***

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name**.

30. Type and enter **<**

31. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.15: INSTALL AMATPS OPTIONS ON *PARADYNE*® 3810 MODEM

### OVERVIEW

Options are changed using the Diagnostic Control Panel (DCP) on the modem. The DCP contains a 2-line liquid crystal display (LCD) which displays modem status, control functions, and configuration options. The DCP also contains several keys which allow the user to access and change the options. Refer to Figure 15.15-1 for an illustration of the DCP.

### PROCEDURE

1. Press the > key on the DCP until **Configure** comes into view.

Response:     **Idle:14.4 <=>**  
                  **Test Configure**

2. Press the **F3** key to select the **Configure** mode.

Response:     **Ld EditArea frm >**  
                  **Activ(Operating)**

3. Press the > key until **Factory** comes into view.

Response:     **Ld EditArea frm<**  
                  **Factory**

4. Press the **F1** key to display the factory preset configurations.

Response:     **Ld Fact Preset: >**  
                  **Async\_Dial**

5. Press the **F1** key to display the **Choose Function** options.

Response:     **Choose Function**  
                  **Edit Save**

6. Press the **F1** key to select the **Edit** function.

Response:     **Edit StrapGroup >**  
                  **DTE\_Interface**

7. Press the **F1** key to select the **DTE\_Interface** group of options.

Response:     **Async/Sync Mode >**  
                  **Nxt Async**

8. Press the > key to access the **Sync** option.

Response:     **Async/Sync Mode >**  
                 **Sync**

9. Press the **F2** key to select the **Sync** mode.

Response:     **Async/Sync Mode >**  
                 **Nxt Sync**

10. Press the **F1** key to select the **DTR Action** group of options.

Response:     **DTR Action >**  
                 **Nxt Ignore**

11. Press the **>** key to access the **Stndrd\_RS232** option.

Response:     **DTR Action <**  
                 **Stndrd\_RS232**

12. Press the **F2** key to select the **Stndrd\_RS232** option.

Response:     **DTR Action >**  
                 **Nxt Stndrd\_RS232**

13. Press the **F1** key to select the **DSR Control** group of options.

Response:     **DSR Control >**  
                 **Nxt Forced\_On**

14. Press the **>** key to access the **Stndrd\_RS232** option.

Response:     **DSR Control <=>**  
                 **Stndrd\_RS232**

15. Press the **F2** key to select the **Stndrd\_RS232** option.

Response:     **DSR Control >**  
                 **Nxt Stndrd\_RS232**

16. Press the **F1** key to select the **RTS Action** group of options.

Response:     **RTS Action >**  
                 **Nxt Ignore**

17. Press the **>** key to access the **Stndrd\_RS232** option.

Response:     **RTS Action <=>**  
                 **Stndrd\_RS232**



18. Press the **F2** key to select the **Stndrd\_RS232** option.

Response:     **RTS Action >**  
              **Nxt Stndrd\_RS232**

19. Press the **F1** key to select the **LSD Control** group of options.

Response:     **LSD Control >**  
              **Nxt Stndrd\_RS232**

20. Press the **>** key to access the **Forced\_On** option.

Response:     **LSD Control <=>**  
              **Forced\_On**

21. Press the **F2** key to select the **Forced\_On** option.

Response:     **LSD Control >**  
              **Nxt Forced\_On**

22. Repeatedly press the **F1** key until the display appears as follows:

Response:     **Edit StrapGroup >**  
              **DTE\_Interface**

23. Press the **>** key to access the **DTE\_Dialer** option.

Response:     **Edit StrapGroup <=>**  
              **DTE\_Dialer**

24. Press the **F1** key to access the **DTE\_Dialer** group of options.

Response:     **DTE Dialer Type >**  
              **Nxt AT**

25. Press the **>** key to access the **Disable** option.

Response:     **DTE Dialer Type <=>**  
              **Disable**

26. Press the **F2** key to select the **Disable** option.

Response:     **DTE Dialer Type >**  
              **End Disable**

27. Press the **F1** key to select the **Edit StrapGroup** options.

Response:     **Edit StrapGroup <=>**

**DTE\_Dialer**

28. Press the > key to access the **Line Dialer** option.

Response:     **Edit StrapGroup <=>**  
              **Line Dialer**

29. Press the **F1** key to access the **No Data Disconnect** group of options.

Response:     **No Data Disconnect >**  
              **Nxt Disable**

30. Press the > key to access the **Disable** option.

Response:     **Line Dialer <=>**  
              **Disable**

31. Press the **F2** key to select the **Disable** option.

Response:     **Line Dialer >**  
              **Nxt Disable**

32. Press the **F1** key to select the **Edit StrapGroup** options.

Response:     **Edit StrapGroup <=>**  
              **DTE\_Dialer**

33. Press the > key to access the **Dial\_Line** group of options.

Response:     **Edit StrapGroup <=>**  
              **Dial\_Line Test**

34. Press the **F1** key to access the **Dial Line Rate** option.

Response:     **Dial Line Rate >**  
              **Nxt 14400 (V32b)**

35. Press the > key to access the appropriate selected rate option.

Response:     **Dial Line Rate <=>**  
              **Nxt Selected Rate**

36. Press the **F2** key to select the appropriate rate option.

Response:     **Dial Line Rate >**  
              **Nxt Selected Rate**

37. Press the **F1** key to select the **V.32 Autorate** group of options.

Response:     **V.32 Autorate >**  
                  **Nxt Disable**

38. Press the > key to access the **Disable** option.

Response:     **V.32 Autorate <=>**  
                  **Disable**

39. Press the **F2** key to select the **Disable** option.

Response:     **RTS Action >**  
                  **Nxt Disable**

40. Repeatedly press the ^ key (located to the left of the LCD) until the display appears as follows:

Response:     **Choose Function**  
                  **Edit Save**

41. Press the **F3** key to save the option settings.

Response:     **Sav EditArea to >**  
                  **Active (Saved)**

42. Press the **F1** key to save the option selections to the Active configuration area.

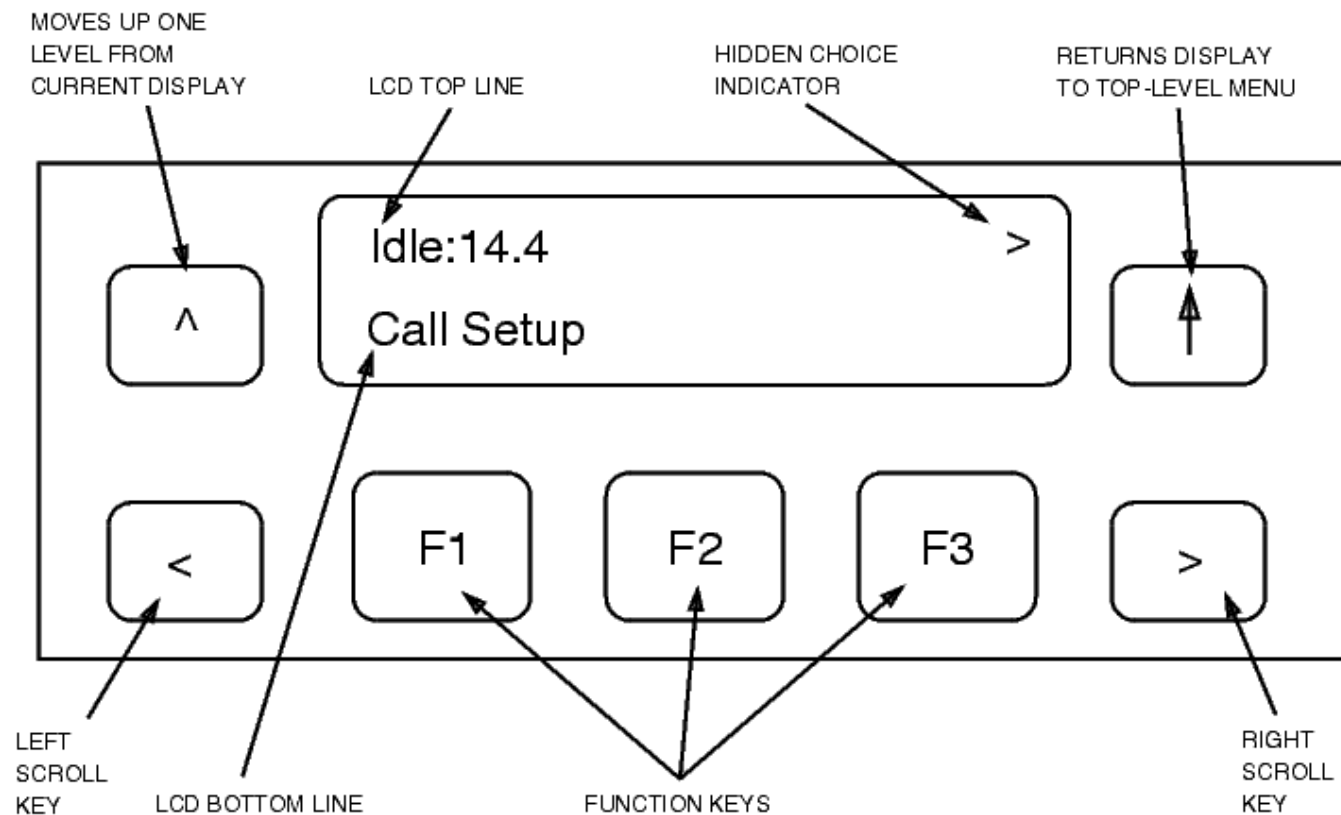
Response:     **Sav EditArea to >**  
                  **Command Complete**

43. Press the ↑ key (located to the right of the LCD) until the display appears as follows:

Response:     **Idle:Selected Rate >**  
                  **Call\_Setup**

44. To verify that the options were saved properly, power cycle the *PARADYNE*® 3810 modem (OFF then ON) and verify that the power-on self-test passes, and the LCD displays **Idle:Selected Rate** and **Call\_Setup**, as previously shown.

45. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



**Figure 15.15-1 PARADYNE Paradyne Corporation 3810 Modem Diagnostic Control Panel**

## Procedure 15.16: REPLACE 43A SINGLE-NUMBER DIALER WITH 153A ADAPTER AND HOT-LINE FEATURE

### OVERVIEW

The 43A dialer has been manufacture discontinued (MD'd). Using the 153A adapter and hot-line feature eliminates the need for the 43A single number dialer. The 43A dialer is used to help establish a 4-wire data link between the 5ESS®-2000 switch and automatic message accounting teleprocessing system (AMATPS). The 153A adapter is used to put a seizure on the outgoing line through the 48ER1 dial interface data unit. The hot line is this seized telephone line which is software controlled with a preset directory number.

### PROCEDURE

1. Connect 153A adapter as shown in Figure 15.16-1 . Refer to Figure 15.16-2 for 5ESS-2000 switch AMATPS block diagram.
2. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

3. At RC/V terminal, type and enter **1.6**

Response: **I=Insert, R=Review, U=Update, D=Delete.**

4. Type and enter **I**

Response: **COMPOSITE LINE (LINE ASSIGNMENT)** page displayed with cursor at **TN** attribute.

5. At selected terminal, type and enter the attributes listed in the following screens:

---

|               |         |                                  |           |
|---------------|---------|----------------------------------|-----------|
| SCREEN 1 OF 3 |         | 5ESS SWITCH                      |           |
| (5109,5111)   |         | RECENT CHANGE 1.6                |           |
|               |         | COMPOSITE LINE (LINE ASSIGNMENT) |           |
| (*) 1. TN     | _____   | 19. CIDIAL                       | _____     |
| (*) 2. OE     | L _____ | 20. BTN (NOT=TN)                 | _____     |
| (*) 5. PTY    | I _____ | MULTIDN                          | N _____   |
| (*) 6. MLHG   | _____   | DEPENDN                          | _____     |
| (*) 7. MEMB   | _____   | 23. PIC                          | _____     |
| 9. CHNG TN    | _____   | 24. RAX                          | _____     |
| 10. CHNG OE   | - _____ | 25. LCC                          | _____     |
| 13. CHNG PTY  | - _____ | 26. COIN                         | N _____   |
| 14. CHNG MLHG | _____   | 27. GST                          | N _____   |
| 15. CHNG MEMB | _____   | 28. EL                           | N _____   |
| 16. NEW TN    | _____   | 29. TTC                          | N _____   |
| 18. MFRI      | N _____ | 30. BRCS                         | N _____   |
|               |         | 31. BAUTO                        | N _____   |
|               |         | 32. SHARED                       | N _____   |
|               |         | 33. SAUTO                        | N _____   |
|               |         | 34. FLS                          | N _____   |
|               |         | 35. SUSO                         | N _____   |
|               |         | 36. SUST                         | N _____   |
|               |         | 37. ICP                          | N _____   |
|               |         | 38. RTI                          | _____     |
|               |         | HRI                              | _____     |
|               |         | 40. SERHLN                       | _____     |
|               |         | 41. BCK LNK                      | N _____   |
|               |         | 42. NODL                         | HOT _____ |

---

SCREEN 2 OF 3  
(5109,5111)

5ESS SWITCH  
RECENT CHANGE 1.6  
COMPOSITE LINE (LINE ASSIGNMENT)

|             |          |              |   |              |       |
|-------------|----------|--------------|---|--------------|-------|
| 43. HTN     | XXX-XXXX | 55. TSTCODE  |   | 67. RANGEX   | N     |
| 44. MSGREG  |          | 56. SLUS     | N | 68. CRFTLOCK | N     |
| 45. SLLC    |          | 57. RMK      |   | 69. LNEQ     | STDEQ |
| 46. RMB     |          | 58. TRC      | N | 70. LNLOCK   | N     |
| 47. RNDMKB  |          | 59. COMPL    | N | 71. AMEMRNM  | N     |
| 48. STH     |          | 60. RINGBACK | N |              |       |
| 49. DNY ROH | N        | 61. STATMON  | N |              |       |
| 50. PLIT    | N        | 62. TONDET   | N | BAL NTWK     | 1     |
| 51. DNY BV  | N        | 63. TSTLINE  | N | SPEC TRN     | NONE  |
| 52. DTLBILL | N        | 64. ELS LOSS | N | COMP LOSS    | +0.0  |
| 53. TRAFFIC | N        | 65. FGA      | N |              |       |
| 54. GNDREF  | N        | 66. LOADED   | N |              |       |

SCREEN 3 OF 3  
(5109,5111)

5ESS SWITCH  
RECENT CHANGE 1.6  
COMPOSITE LINE (LINE ASSIGNMENT)

|                  |      |                |                |      |
|------------------|------|----------------|----------------|------|
| 77. RTNRNG       |      | LASS FEATURES  | 101. PVN ALW   | N    |
| 78. PRITYRNG     |      | 92. AC ALW     |                |      |
| 79. AUDRNG       | N    | 93. AR ALW     |                |      |
| 80. INSTRSIG     | NONE | 94. COT ALW    |                |      |
| 81. CONFBRG      | N    | 95. PCP ALW    |                |      |
| 86. NONHUNT      | N    | 96. SCA GA ALW |                |      |
| 87. PRIVACY      |      | 97. SCF GA ALW |                |      |
| 88. BUSY MONITOR | N    | 98. SCR GA ALW |                |      |
| 89. ATT MLHG     |      | 99. SDA GA ALW |                |      |
| 90. ANI7         | N    | 100. UCR       | N              |      |
|                  |      |                | 111. BLK 1PLUS | NONE |

Response: **I=Insert, R=Review, U=Update, D=Delete:**

6. Type and enter **I**

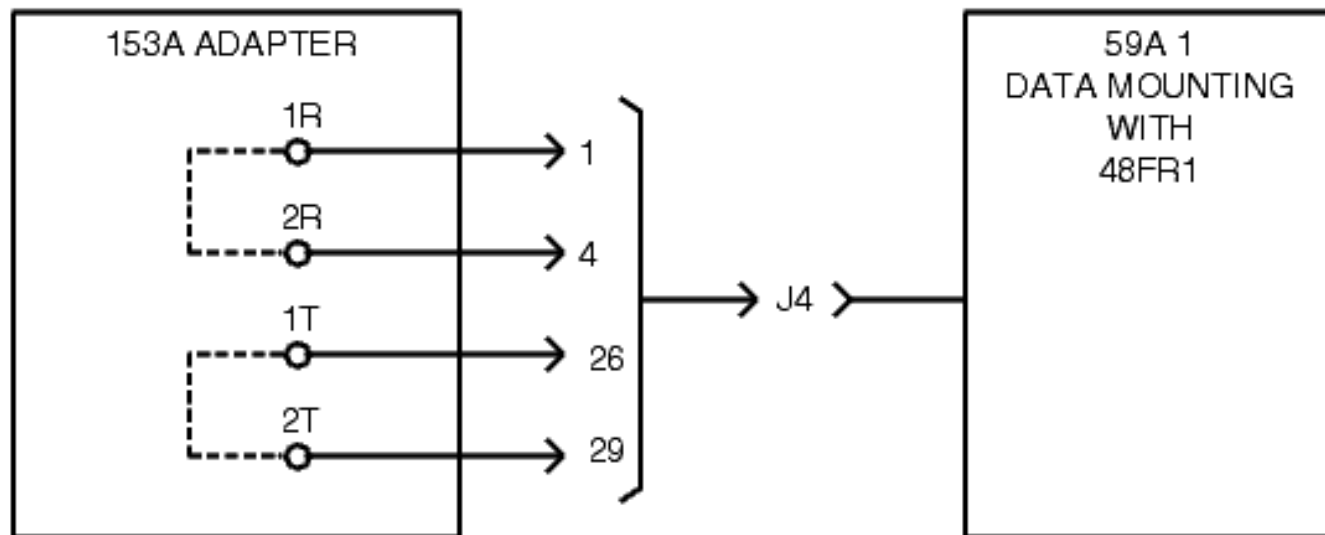
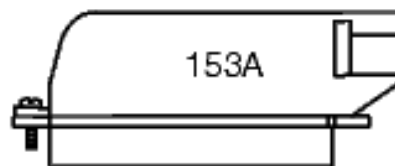
Response: **Inserting . . . FORM INSERTED**  
**COMPOSITE LINE (LINE ASSIGNMENT)** page is displayed. Cursor at **TN** attribute.

7. Type and enter **<**

Response: **1.0 LINES VIEWS** page is displayed.

8. Type and enter **q**

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



NOTE 1:

THE 153A CONSISTS OF A KS-16680 L8 PLUG AND TERMINAL BLOCK HAVING EIGHT TERMINALS ARRANGED FOR SCREW CONNECTIONS.

Figure 15.16-1 153A Adapter Connection

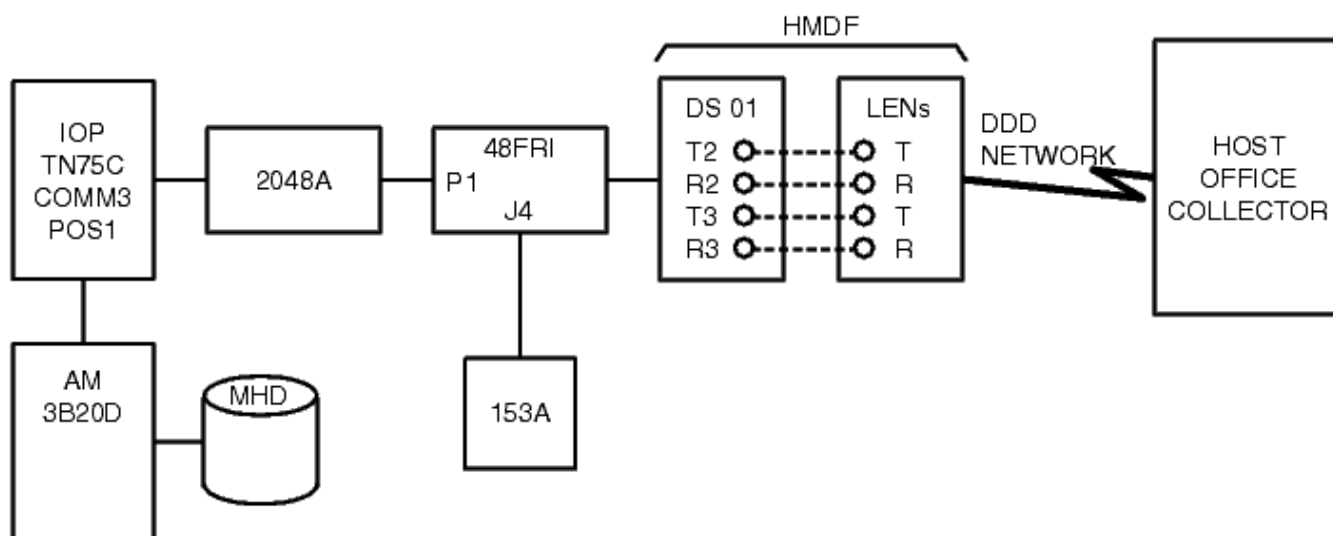


Figure 15.16-2 AMATPS Block Diagram

## Procedure 15.17: VALIDATE AMATPS HARDWARE CONFIGURATION

### PROCEDURE

1. **NOTE:** The AMATPS data link on the 5ESS®-2000 switch equipment end consists of a 2048A DATAPHONE® II data set, a 48FR1 Dial Backup Unit, and a modified 43A auto dialer.

Validate and/or troubleshoot the hardware setup for the AMATPS data link. See Figures 15.17-1 , 15.17-2 , 15.17-3 , 15.17-4 , 15.17-5 , 15.17-6 , 15.17-7 , and 15.17-8 .

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

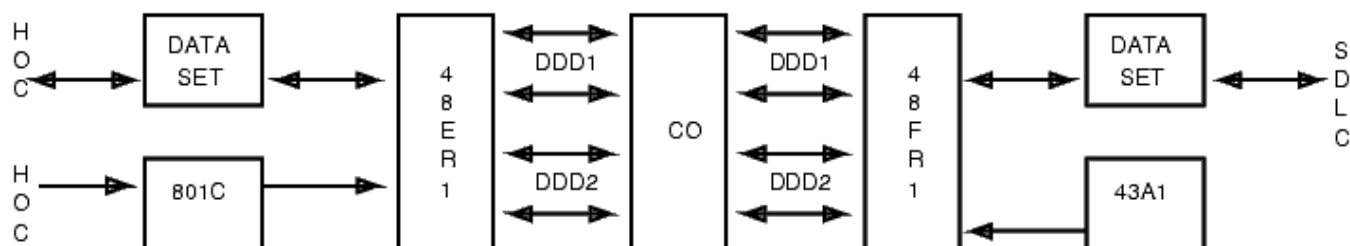


Figure 15.17-1 Hardware Setup for AMATPS Data Link



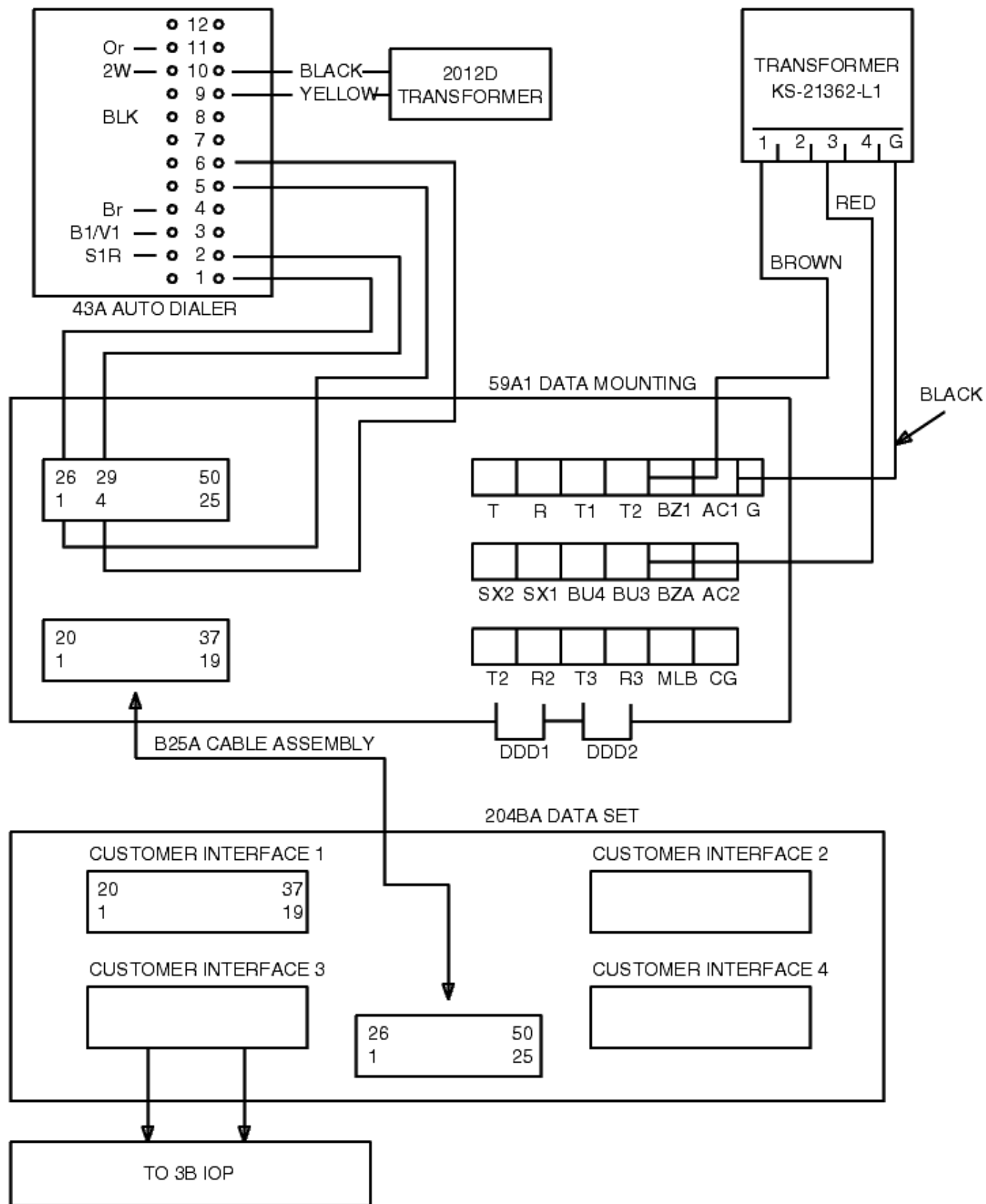


Figure 15.17-2 AMATPS Data Link

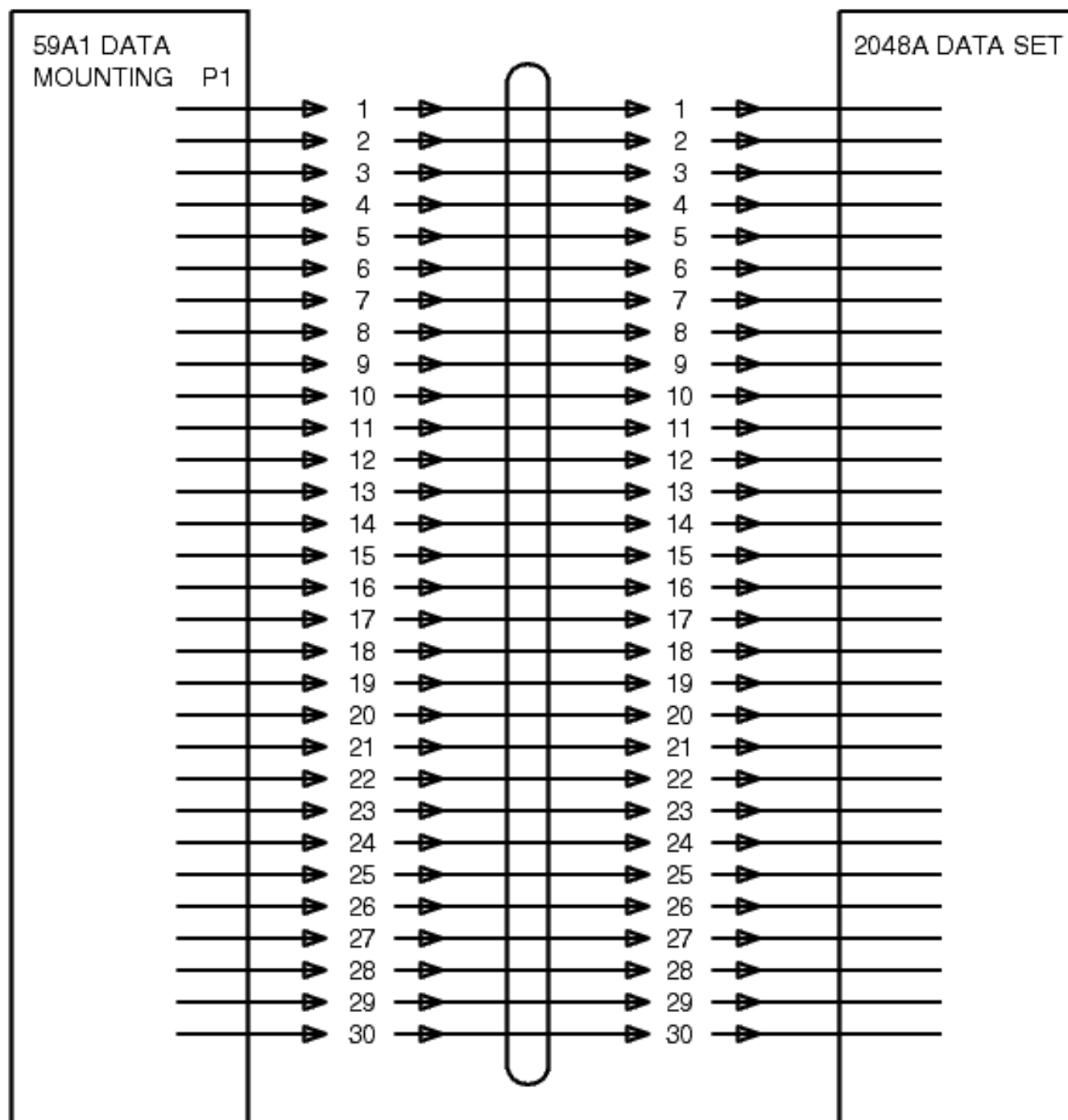


Figure 15.17-3 Single Housing B25A Cable Assembly

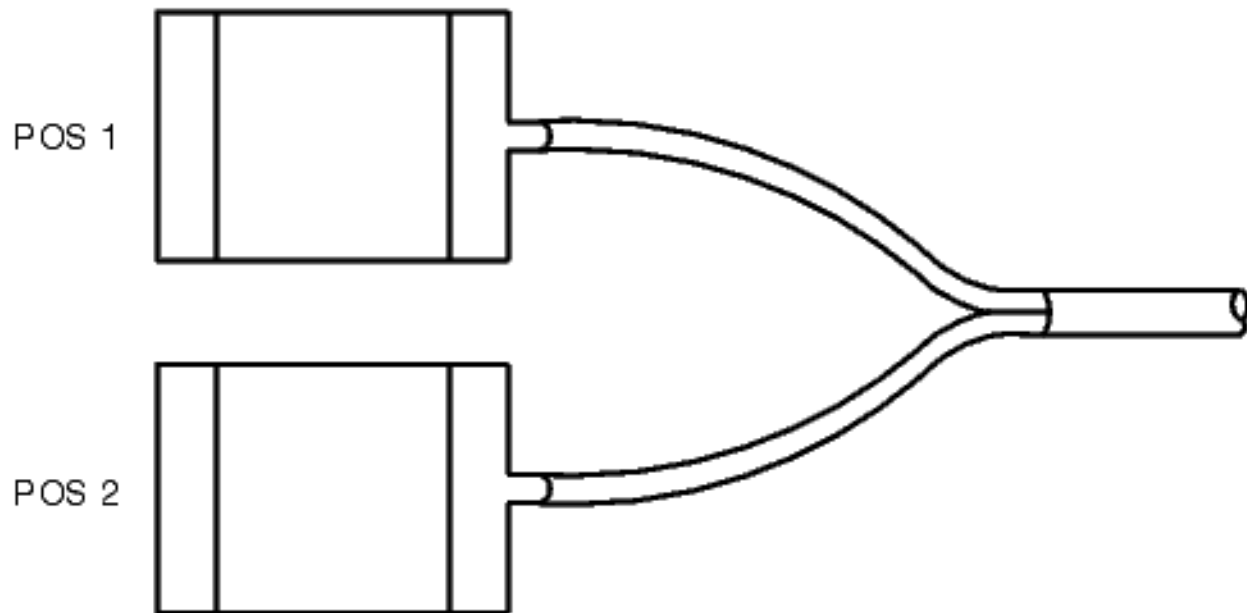


Figure 15.17-4 IOP End of Cable Assembly

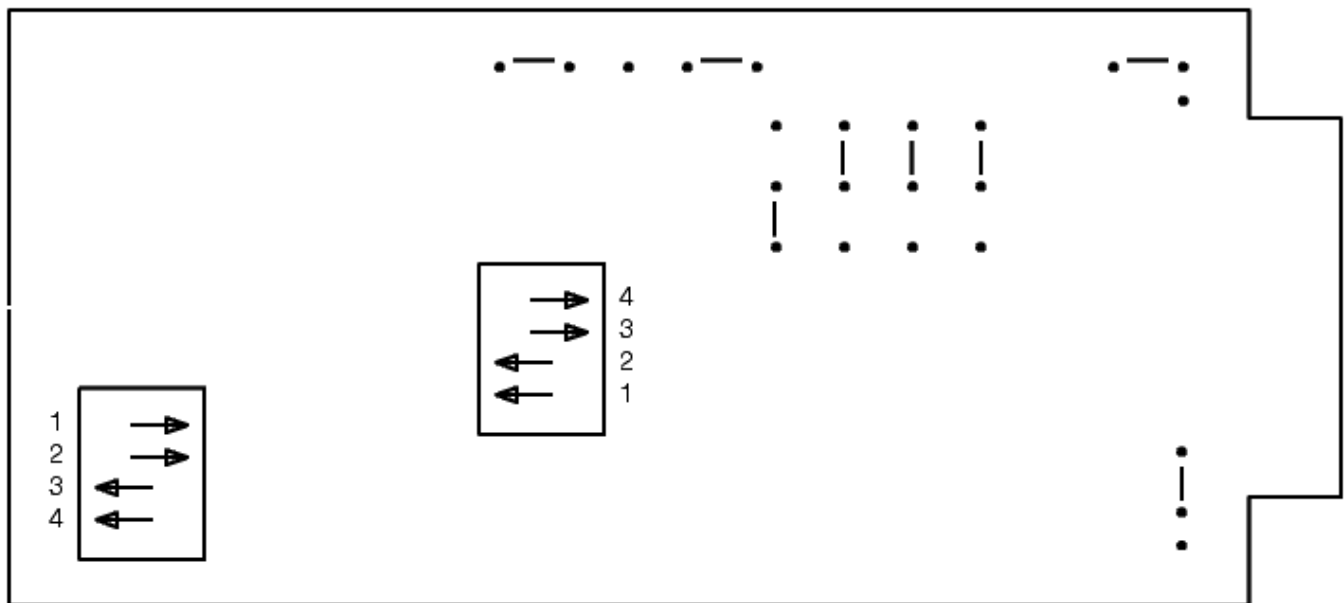


Figure 15.17-5 48FR1 Strap and DIP Switch Settings for AMATPS

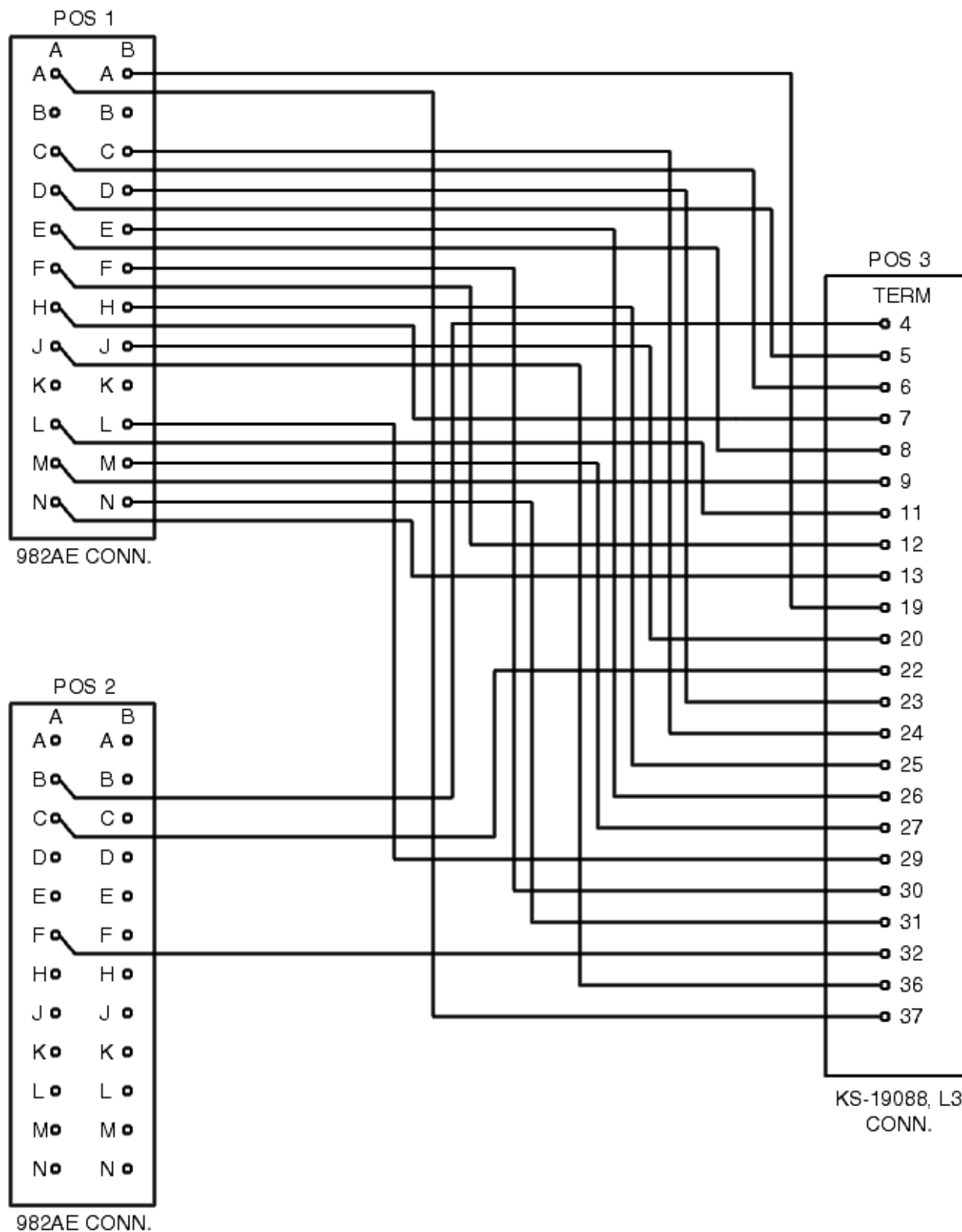


Figure 15.17-6 2024A, 2048A to TN75C Data Set Cable Drawing

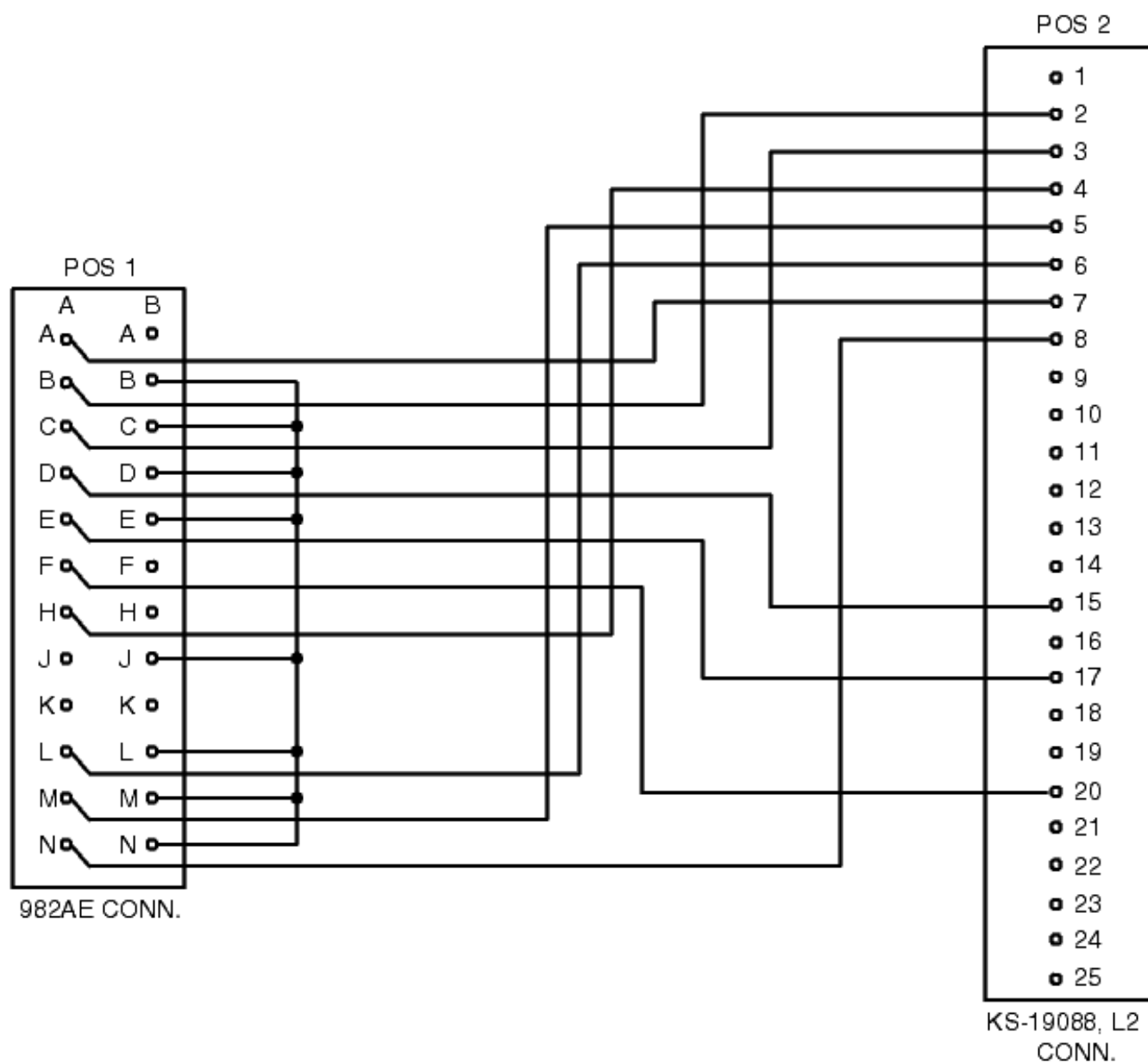


Figure 15.17-7 201C to TN75C Data Set Cable Drawing

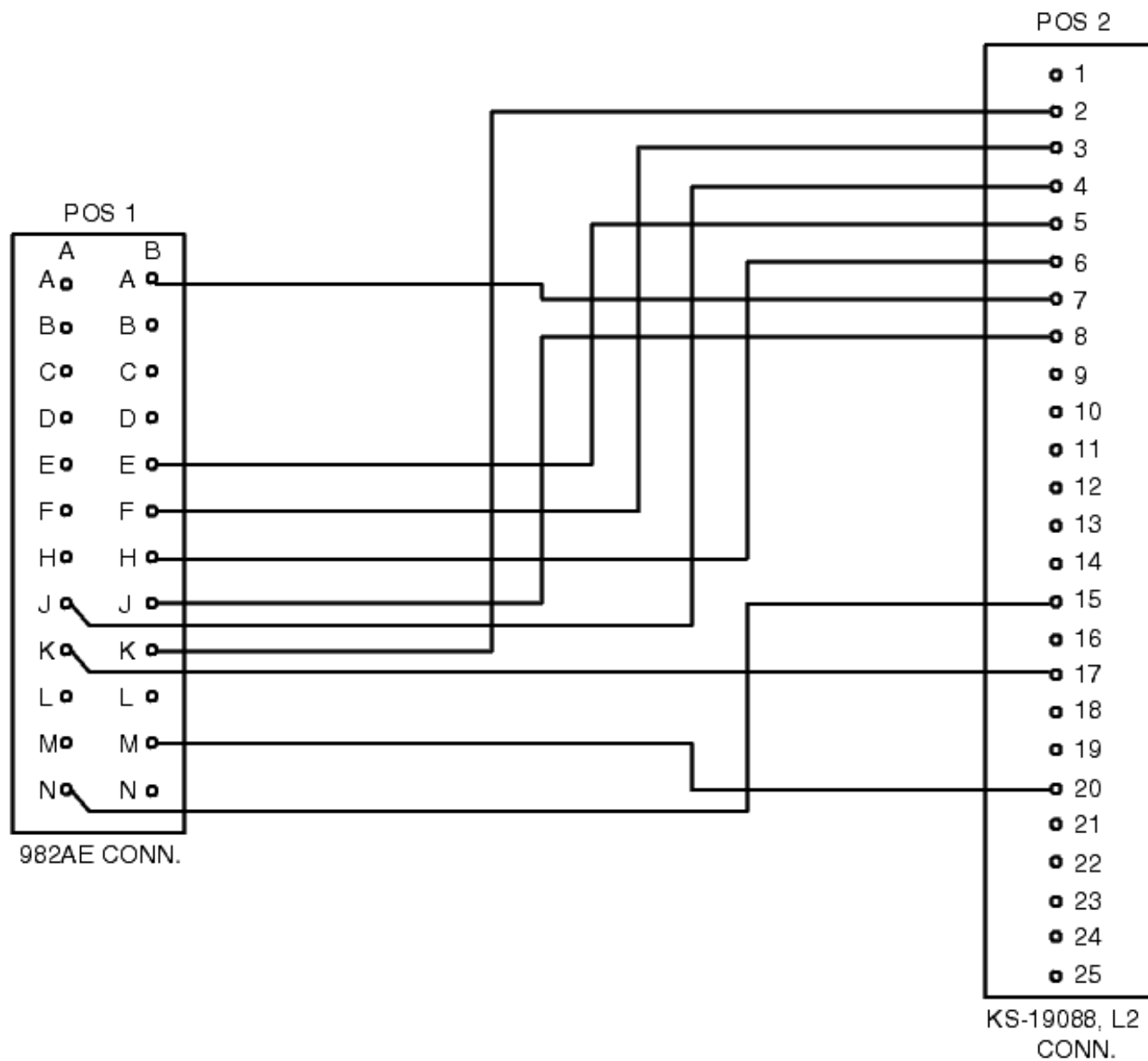


Figure 15.17-8 201C to TN82 Data Set Cable Drawing

## Procedure 15.18: CHANGE STATUS OF SDLC AND SDL FOR AMATPS DATA LINK FROM UNEQIP TO GROW

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. If 5E6 or later software release, hit **CARRIAGE RETURN**.

Response: **Enter Execute, Change, Substitute, Validate, or Print: \_**

4. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.

5. Type and enter **ucb**

6. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

8. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

9. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

10. Type and enter **7** (or selected SDLC)

Response: **Enter Update, Change, Validate, Screen#, or Print: \_**

11. Type and enter **c**

Response:     **Change field:**

12. Type and enter **21**.

Response:     **major\_status: UNEQIP**

13. Type and enter **grow**

Response:     **Change field:**

14. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print: \_**

15. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

16. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_complex\_number:**

17. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_unit\_name:**

18. Type and enter **SDL**

Response:     Cursor at **k\_unit\_number:**

19. Type and enter **13** (or selected SDL)

Response:     **Enter Update, Change, Validate, Screen#, or Print: \_**

20. Type and enter **c**

Response:     **Change field:**

21. Type and enter **21**.

Response:     **major\_status: UNEQIP**



22. Type and enter **grow**

Response:     **Change field:**

23. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print:\_**

24. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

25. Type and enter **<**

Response:     **Enter Form Name:**

26. Type and enter **trend**

Response:     **tr\_name: TREND**

27. Hit **CARRIAGE RETURN**

Response:     **dis\_cf\_checks:**

28. Type and enter **\***

29. Type and enter **<**

30. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.19: REVIEW AMAOPTION ATTRIBUTE****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At selected terminal, do Steps 3 through 12.

3. Type and enter **8.1**

Response: **I=Insert, R=Review, U=Update, D=Delete**

4. Type and enter **R**

5. Type and enter appropriate data for key attribute:

**ATTRIBUTE**

**1. OFFICE ID \_\_\_\_\_**

Response: System completes remainder of view.

6. Type and enter **2**

Response: Page 2 of the view is displayed.

7. Review and record the AMAOPTION attribute value (field 48).

8. Type and enter **q**

Response: **8.1 OFFICE PARAMETERS (MISCELLANEOUS) VIEW** displayed.

9. Type and enter **<**

Response: **8.0 OFFICE MISC & ALARM VIEWS** displayed.

10. Type and enter **q**

Response: **RCV MENU APPRC COMPL**

11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.20: DEFINE GLOBAL PARAMETERS FOR LTP—5E8 AND LATER****PROCEDURE**

1. **NOTE:** If remote office test line (ROTL) is already set up, the global parameters for the logical test ports (LTP) will already be set up.

Have global parameters for the LTPs been set up?

If **YES**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, continue with Step 2.

2. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

3. At the RC/V terminal, type and enter **8.1**

Response: **I=Insert, R=Review, U=Update, D=Delete.**

4. Type and enter **u**

Response: **OFFICE PARAMETERS (MISCELLANEOUS) - 8.1** is displayed.

5. Type and enter appropriate data for following key attribute:

**ATTRIBUTE****1. OFFICE ID \_\_\_\_**

Response: System completes remainder of view.  
Cursor at **C = Change, U = Update.**

---

**ATTRIBUTE****1. OFFICE ID \_\_\_\_**

---

6. Type and enter **c**

Response: **CHANGE FIELD:\_\_\_\_.**

7. Type and enter **35**

Response: Cursor at **SCR** attribute.

8. Using office records to obtain SCR attribute for POTS line, type and enter appropriate data for SCR attribute.

Response: **CHANGE FIELD:\_\_\_\_.**

9. Type and enter **36**

Response: Cursor at **DAS** attribute.

10. Using office records to obtain DAS attribute for POTS line, type and enter appropriate data for DAS attribute.

Response: **CHANGE FIELD:\_\_\_**.

11. Hit **CARRIAGE RETURN**.

Response: Cursor at **C = Change, U = Update**.

12. Type and enter **u**

Response: **Updating... FORM UPDATED**.

13. Type and enter **<**

Response: **VIEW\_MENU 8** page is displayed.

14. Type and enter **q**

Response: **RCV MENU APPRC COMPL**.

15. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.21: DEFINE CENTRAL TRUNK TEST UNIT (CTTU) LOGICAL TEST PORT GROUP

### PROCEDURE

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal, type and enter **5.1**

Response: **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **i**

Response: **TRUNK GROUPS -- TRUNK GROUP** page displayed with cursor at **TGN** attribute.

4. Using the completed GRCV form 5.1 for the LTP group, type and enter appropriate data for following key attribute:

#### ATTRIBUTE

##### 1. TGN \_\_\_\_

5. Using the selected GRCV form 5.1 as a guide, type and enter the indicated values for each attribute.

Response: **I=Insert, R=Review, U=Update, D=Delete:**

6. Type and enter **i**

Response: **inserting...FORM INSERTED**  
**TRUNK GROUPS - TRUNK GROUP** view page displayed.  
Cursor at **TGN** attribute.

7. Type and enter **<**

Response: **VIEW\_MENU** page displayed.

8. Type and enter **q**

Response: **RCV MENU APPRC COMPL**

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.22: DEFINE LOGICAL TEST PORT (LTP) TRUNK GROUP MEMBER

### OVERVIEW

A new member of the LTP trunk group must be defined for each of the central trunk test unit (CTTU) data link users. Logical test ports can be in any switching module (SM). The format for an LTP is: 1001, where the first 1 is the SM and 001 is the LTP. A total of 255 LTPs can be assigned for each SM. If possible, assign the LTPs in an SM where there is no transmission test function (TTF), modular metallic service unit (MMSU), or directly connected test unit (DCTU). These units require a number of LTPs for operation.

### PROCEDURE

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal, type and enter **5.5**

Response: **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **i**

Response: **TRUNK MEMBER** page displayed with cursor at **TGN** attribute.

4. Using the completed GRCV form 5.5 for the LTP group member, type and enter appropriate data for following key attributes:

#### ATTRIBUTE

**1. TGN \_\_\_\_**

**2. MEMB NBR \_\_\_\_**

5. Using the completed GRCV form 5.5 as a guide, type and enter the indicated values for each attribute.

Response: **I=Insert, R=Review, U=Update, D=Delete:**

6. Type and enter **i**

Response: **inserting...FORM INSERTED**  
**TRUNK MEMBER** view page displayed.  
Cursor at **TGN** attribute.

7. Type and enter **<**

Response: **VIEW\_MENU** page displayed.

8. Type and enter **q**

Response: **RCV MENU APPRC COMPL**

9. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

**Procedure 15.23: ENABLE CTTU AS RECIPIENT OF 101 TEST LINE****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. Type and enter **8.1**

Response: **I=Insert, R=Review, U=Update, D=Delete.**

3. Type and enter **u**

Response: **OFFICE PARAMETERS (MISCELLANEOUS) - View 8.1** is displayed.

4. Type and enter appropriate data for following key attribute:

**ATTRIBUTE****1. OFFICE ID \_\_\_\_**

Response: System completes remainder of view.  
Cursor at **C = Change, U = Update.**

5. Locate the attribute for the trunk line work station 101 test line per the following illustration:

---

**TWS FOR 101TL**

---

**nnn. FIRST**  
**nnn. SECOND**  
**nnn. THIRD**

---

**NOTE:** The nnn represents the attribute number. The location of the attributes on View 8.1 and the attribute number are different for every software release.

6. Type and enter **c**

Response: **CHANGE FIELD:\_\_\_\_.**

7. Type and enter the number for the **SECOND** attribute.

Response: Cursor at **SECOND** attribute.

8. Type and enter **cttu**

Response: Cursor at **THIRD** attribute.



9. Hit **CARRIAGE RETURN**.

Response: Cursor at **C = Change, U = Update**.

10. Type and enter **u**

Response: **Updating... FORM UPDATED.**

11. Type and enter **<**

Response: **VIEW\_MENU 8** page is displayed.

12. Type and enter **q**

Response: **RCV MENU APPRC COMPL.**

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.24: DEFINE ATTRIBUTES FOR ADDING CCTU INTERFACE****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At RC/V terminal, type and enter **14.4**

Response: **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **i**

Response: **CENTRAL TRUNK TEST UNIT (RC\_CTTU) - VIEW 14.4** page displayed with cursor at **USERNO** attribute.

4. Using the selected GRCV form 14.4, type and enter appropriate data for following key attribute:

**ATTRIBUTE**

**31. USERNO \_\_\_\_**

5. Using the selected GRCV form 14.4 as a guide, type and enter the indicated values for each attribute.

Response: **I=Insert, R=Review, U=Update, D=Delete:**

6. Type and enter **i**

Response: **inserting...FORM INSERTED**  
**CENTRAL TRUNK TEST UNIT (RC\_CTTU)** view displayed.  
Cursor at **USERNO** attribute.

7. Type and enter **<**

Response: **VIEW\_MENU** page displayed.

8. Type and enter **q**

Response: **RCV MENU APPRC COMPL**

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.25: START DATA LINK READER AND WRITER PROCESSES****PROCEDURE**

1. **NOTE:** The **INIT:ULARP** message initializes the user level automatic restart process. It will also start any user level process that has been added to the file and is not yet executing.

At master control center (MCC), type in message:

**INIT:ULARP;**

Response: **OK** is printed in response message.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.26: CONFIRM CTTU SPECIAL CABLE REQUIREMENT

### OVERVIEW

The dial-up data link used for the centralized trunk testing unit (CTTU) interface uses a 1200-baud auto answer 212-L1A/2A data set which is terminated at the Lucent Technologies 3B20D/21D Computer in IOP 0, community 2, PC slot 23, channel 0. Since the 3B20D/21D Computer does not support an RS-232C interface for dial-up data links that use the TN75C, a special cable is required between the 212 data set and the TN75C.

### PROCEDURE

1. Refer to Figure 15.26-1 to verify the special cable requirement between the 212 data set and the TN75C.
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

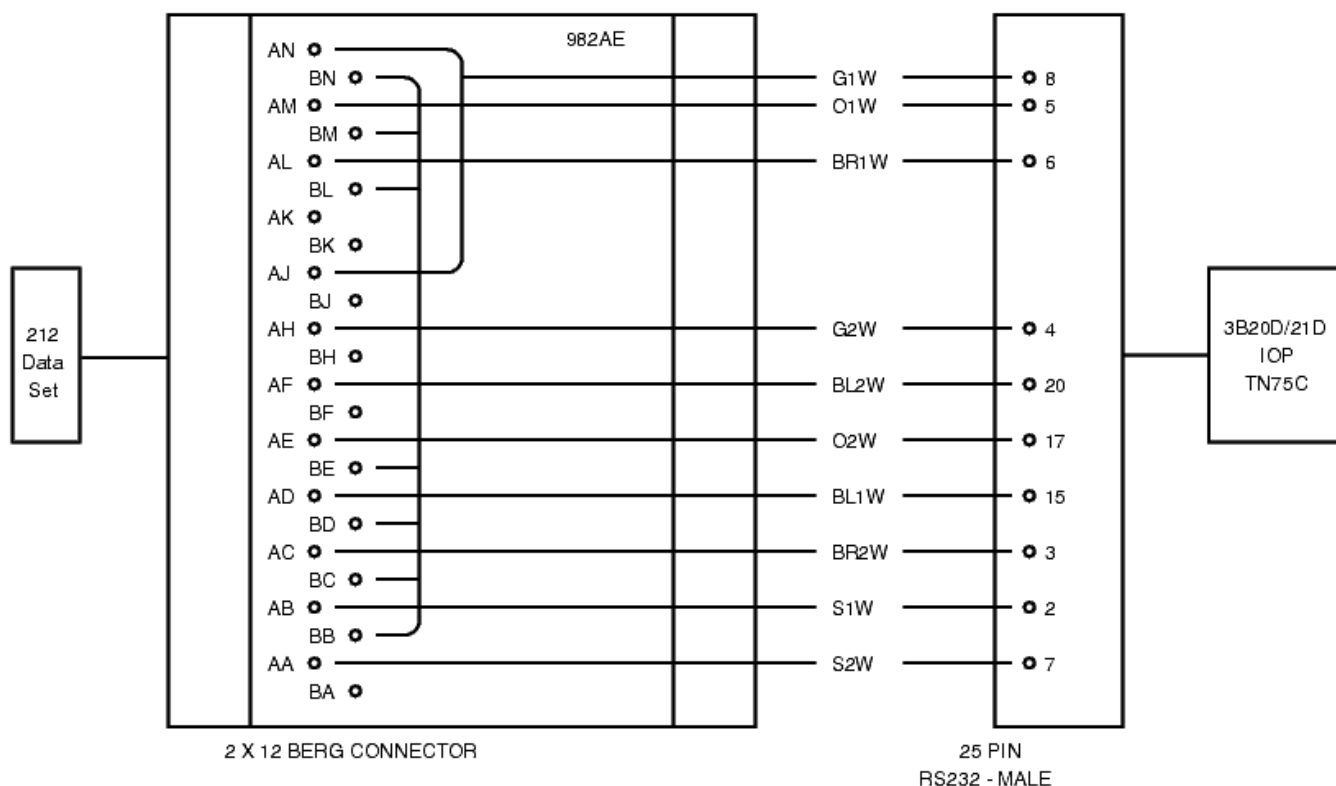


Figure 15.26-1 Cable for CTTU Data Link Interface

## Procedure 15.27: CHANGE STATUS OF SDLC AND SDL FOR CTTU DATA LINK FROM UNEQIP TO GROW

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen  
Recent change process returns to **forms selection page**.

4. Type and enter **ucb**

5. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

6. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

8. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

9. Type and enter **2**

Response: **Enter Update, Change, Validate, screen number, or Print:**

10. Type and enter **c**

Response: **field:**

11. Type and enter **21**.

Response: **major\_status:**

12. Type and enter **grow**

Response: **field:**

13. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

14. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

15. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

16. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

17. Type and enter **SDL**

Response: Cursor at **k\_unit\_number:**

18. Type and enter **4**

Response: **Enter Update, Change, Validate, screen number, or Print:**

19. Type and enter **c**

Response: **field:**

20. Type and enter **21**.

Response: **major\_status:**

21. Type and enter **grow**

Response: **field:**

22. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

23. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name**:

24. Type and enter <

Response:     **Enter Form Name**:

25. Type and enter **trend**

Response:     **tr\_name**:

26. Type and enter **trend**

Response:     **dis\_cf\_checks**:

27. Hit **CARRIAGE RETURN**.

Response:     **apply\_tr**:

28. Hit **CARRIAGE RETURN**.

Response:     **o\_missing\_links**:

29. Hit **CARRIAGE RETURN**.

30. Type and enter **e**

Response:     **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection** page  
Cursor at **enter form name**.

31. Type and enter <

32. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.28: CHANGE STATUS OF SDLC AND SDL FOR CTTU DATA LINK FROM GROW TO OOS

### PROCEDURE

1. At master control center (MCC), do Steps 2 through 32.
2. Access Lucent Technologies 3B20D/21D computer recent change.  
Reference: **Procedure 15.70**
3. Type and enter **trbegin**  
Response: **tr\_name: TRBEBIN** is displayed.
4. Type and enter **e**  
Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.
5. Type and enter **ucb**
6. To enter update mode, type and enter **u**  
Response: Cursor at **k\_complex\_name:**
7. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_complex\_number:**
8. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_unit\_name:**
9. Type and enter **SDLC**  
Response: Cursor at **k\_unit\_number:**
10. Type and enter **2**  
Response: **Enter Update, Change, Validate, screen number, or Print:**
11. Type and enter **c**  
Response: **field:**
12. Type and enter **21**



Response:     **major\_status:**

13. Type and enter **oos**

Response:     **field:**

14. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, screen number, or Print:**

15. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

16. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_complex\_number:**

17. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_unit\_name:**

18. Type and enter **SDL**

Response:     Cursor at **k\_unit\_number:**

19. Type and enter **4**

Response:     **Enter Update, Change, Validate, screen number, or Print:**

20. Type and enter **c**

Response:     **field:**

21. Type and enter **21**

Response:     **major\_status:**

22. Type and enter **oos**

Response:     **field:**

23. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, screen number, or Print:**

24. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

25. Type and enter **<**

Response: **Enter Form Name:**

26. Type and enter **trend**

Response: **tr\_name:**

27. Type and enter **trend**

Response: **dis\_cf\_checks:**

28. Hit **CARRIAGE RETURN**.

Response: **apply\_tr:**

29. Hit **CARRIAGE RETURN**.

Response: **o\_missing\_links:**

30. Hit **CARRIAGE RETURN**.

31. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name**.

32. Type and enter **<**

33. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.29: SET RECENT CHANGE AND VERIFY (RC/V) ACCESS FOR ALL CHANNELS

### OVERVIEW

In order for the remote memory administration system (RMAS) to be able to make recent changes in the 5ESS®-2000 switch data base, permission must be set for the RMAS link. Permission information is stored in UNIX® system files names **rcsc.[devicename]**.

### PROCEDURE

1. At the master control center (MCC), type and enter:

**SET:RCACCESS,TTY="RCOS7",ACCESS=H'ffffff;**

Response: **OK** is printed in response message.

2. For 5E7 and later, to check the access code, type in:

**OP:RCACCESS,TTY "a"!**

Where: a = RCOS7.

Response: **OP RACCESS TTY "a" ACCESS H""b"**

Where: a = RCOS7.

b = A hexadecimal number representing a set of RC abilities is assigned to a specific TTY. The bits are numbered for reference from right to left. When translated to binary, a binary ``1" indicates that a representative set of recent change abilities is allowed from the associated terminal. See Table 15.29-1 .

**Table 15.29-1 Possible Recent Change Assignments for TTY**

| BIT<br>LOCATION | RC ABILITY                                                           |
|-----------------|----------------------------------------------------------------------|
| 0               | Lines -- Telephone number (TN) views.                                |
| 1               | Lines -- Originating equipment number (OE) views.                    |
| 2               | Lines -- Multiline hunt group (MLHG) views.                          |
| 3               | Lines -- Miscellaneous views.                                        |
| 4               | Trunks -- Trunk group number (TGN) member views.                     |
| 5               | Trunks -- Equipment number views.                                    |
| 6               | Trunks -- Miscellaneous views.                                       |
| 7               | Office miscellaneous and alarm views.                                |
| 8               | Digit analysis views.                                                |
| 9               | Routing charging views.                                              |
| 10              | Cutover status views.                                                |
| 11              | Business/residence customer service (BRCS) feature definition views. |
| 12              | Traffic measurement views.                                           |
| 13              | Line trunk test views.                                               |
| 14              | Common network interface (CCS).                                      |
| 15              | Reserved for future use.                                             |
| 16              | Communication module (CM) views.                                     |
| 17              | Switching module (SM) and SLC® 96 carrier module views.              |
| 18              | SM unit views.                                                       |
| 19              | SM pack subpack views.                                               |
| 20              | Operator Services Position System (OSPS) views.                      |

|    |                                                        |
|----|--------------------------------------------------------|
| 21 | Integrated services digital networks (ISDN) equipment. |
| 22 | ISDN basic rate interface.                             |
| 23 | Applications processor.                                |
| 24 | Large data movement.                                   |
| 25 | OSPS toll and assistance.                              |
| 26 | OSPS toll and assistance part II.                      |

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.30: CHANGE STATUS OF SDLC AND SDL FOR RMAS DATA LINK FROM UNEQIP TO GROW

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen  
Recent change process returns to **forms selection page**.

4. Type and enter **ucb**

5. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

6. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

8. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

9. Type and enter **5**

Response: **Enter Update, Change, Validate, screen number, or Print:**

10. Type and enter **c**

Response: **field:**

11. Type and enter **21**.

Response: **major\_status:**

12. Type and enter **grow**

Response: **field:**

13. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

14. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

15. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

16. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

17. Type and enter **SDL**

Response: Cursor at **k\_unit\_number:**

18. Type and enter **9**

Response: **Enter Update, Change, Validate, screen number, or Print:**

19. Type and enter **c**

Response: **field:**

20. Type and enter **21**.

Response: **major\_status:**

21. Type and enter **grow**

Response: **field:**

22. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

23. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name**:

24. Type and enter <

Response:     **Enter Form Name**:

25. Type and enter **trend**

Response:     **tr\_name**:

26. Type and enter **trend**

Response:     **dis\_cf\_checks**:

27. Hit **CARRIAGE RETURN**.

Response:     **apply\_tr**:

28. Hit **CARRIAGE RETURN**.

Response:     **o\_missing\_links**:

29. Hit **CARRIAGE RETURN**.

30. Type and enter **e**.

Response:     **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name**.

31. Type and enter <

32. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.31: CHANGE STATUS OF SDLC AND SDL FOR RMAS DATA LINK FROM GROW TO OOS

### PROCEDURE

1. At master control center (MCC), do Steps 2 through 32.
2. Access Lucent Technologies 3B20D/21D computer recent change.  
Reference: **Procedure 15.70**
3. Type and enter **trbegin**  
Response: **tr\_name: TRBEGIN** is displayed.
4. Type and enter **e**  
Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.
5. Type and enter **ucb**
6. To enter update mode, type and enter **u**  
Response: Cursor at **k\_complex\_name:**
7. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_complex\_number:**
8. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_unit\_name:**
9. Type and enter **SDLC**  
Response: Cursor at **k\_unit\_number:**
10. Type and enter **5**  
Response: **Enter Update, Change, Validate, screen number, or Print:**
11. Type and enter **c**  
Response: **field:**
12. Type and enter **21**.



Response:     **major\_status:**

13. Type and enter **oos**

Response:     **field:**

14. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, screen number, or Print:**

15. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

16. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_complex\_number:**

17. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_unit\_name:**

18. Type and enter **SDL**

Response:     Cursor at **k\_unit\_number:**

19. Type and enter **9**

Response:     **Enter Update, Change, Validate, screen number, or Print:**

20. Type and enter **c**

Response:     **field:**

21. Type and enter **21**.

Response:     **major\_status:**

22. Type and enter **oos**

Response:     **field:**

23. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, screen number, or Print:**

24. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

25. Type and enter **<**

Response: **Enter Form Name:**

26. Type and enter **trend**

Response: **tr\_name:**

27. Type and enter **trend**

Response: **dis\_cf\_checks:**

28. Hit **CARRIAGE RETURN**.

Response **apply\_tr:**

29. Hit **CARRIAGE RETURN**.

Response: **o\_missing\_links:**

30. Hit **CARRIAGE RETURN**.

31. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name**.

32. Type and enter **<**

33. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.32: SET EADASOPT ATTRIBUTE TO Y — 5E8****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal, type and enter **8.1**

Response: **R=Review, U=Update:**

3. Type and enter **u**

Response: **OFFICE PARAMETERS (MISCELLANEOUS) - 8.1** is displayed.

4. Type and enter appropriate data for following key attribute:

**ATTRIBUTE****1. OFFICE ID \_\_\_\_**

Response: System completes remainder of view.  
Cursor at **Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **c**

Response: **CHANGE FIELD:\_\_\_\_.**

6. Type and enter **55**

Response: Cursor at **EADASOPT** attribute.

7. Type and enter **y**

Response: **CHANGE FIELD:\_\_\_\_.**

8. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **u**

Response: **Updating... FORM UPDATED.**

10. Type and enter **<**

Response: **8.0 OFFICE MISC. & ALARM VIEWS** are displayed.

11. Type and enter **q**
12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.33: CHANGE STATUS OF SDLC AND SDL FOR EADAS DATA LINK FROM UNEQIP TO GROW

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen  
Recent change process returns to **forms selection page**.

4. Type and enter **ucb**

5. To enter update mode, type and enter **u**

Response: cursor at **k\_complex\_name:**

6. Hit **CARRIAGE RETURN**.

Response: cursor at **k\_complex\_number:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

8. Type and enter **SDLC**

Response: cursor at **k\_unit\_number:**

9. Type and enter **1**

Response: **Enter Update, Change, Validate, screen number, or Print:**

10. Type and enter **c**

Response: **field:**

11. Type and enter **21**.

Response: **major\_status:**

12. Type and enter **grow**

Response: **field:**

13. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

14. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

15. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

16. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

17. Type and enter **SDL**

Response: Cursor at **k\_unit\_number:**

18. Type and enter **3**

Response: **Enter Update, Change, Validate, screen number, or Print:**

19. Type and enter **c**

Response: **field:**

20. Type and enter **21**.

Response: **major\_status:**

21. Type and enter **grow**

Response: **field:**

22. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

23. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name**:

24. Type and enter <

Response:     **Enter Form Name**:

25. Type and enter **trend**

Response:     **tr\_name**:

26. Type and enter **trend**

Response:     **dis\_cf\_checks**:

27. Hit **CARRIAGE RETURN**.

Response     **apply\_tr**:

28. Hit **CARRIAGE RETURN**.

Response:     **o\_missing\_links**:

29. Hit **CARRIAGE RETURN**.

30. Type and enter **e**

Response:     **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection** page.  
Cursor at **enter form name**.

31. Type and enter <

32. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.34: CHANGE STATUS OF SDLC AND SDL FOR EADAS DATA LINK FROM GROW TO OOS

### PROCEDURE

1. At master control center (MCC), do Steps 2 through 32.
2. Access Lucent Technologies 3B20D/21D computer recent change.  
Reference: **Procedure 15.70**
3. Type and enter **trbegin**  
Response: **tr\_name: TRBEGIN** is displayed.
4. Type and enter **e**  
Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.
5. Type and enter **ucb**
6. To enter update mode, type and enter **u**  
Response: Cursor at **k\_complex\_name:**
7. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_complex\_number:**
8. Hit **CARRIAGE RETURN**.  
Response: Cursor at **k\_unit\_name:**
9. Type and enter **SDLC**  
Response: Cursor at **k\_unit\_number:**
10. Type and enter **1**  
Response: **Enter Update, Change, Validate, screen number, or Print:**
11. Type and enter **c**  
Response: **field:**
12. Type and enter **21**.



Response:     **major\_status:**

13. Type and enter **oos**

Response:     **field:**

14. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, screen number, or Print:**

15. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

16. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_complex\_number:**

17. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_unit\_name:**

18. Type and enter **SDL**

Response:     Cursor at **k\_unit\_number:**

19. Type and enter **3**

Response:     **Enter Update, Change, Validate, screen number, or Print:**

20. Type and enter **c**

Response:     **field:**

21. Type and enter **21**.

Response:     **major\_status:**

22. Type and enter **oos**

Response:     **field:**

23. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, screen number, or Print:**

24. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

25. Type and enter **<**

Response: **Enter Form Name:**

26. Type and enter **trend.**

Response: **tr\_name:**

27. Type and enter **trend.**

Response: **dis\_cf\_checks:**

28. Hit **CARRIAGE RETURN.**

Response **apply\_tr:**

29. Hit **CARRIAGE RETURN.**

Response: **o\_missing\_links:**

30. Hit **CARRIAGE RETURN.**

31. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name.**

32. Type and enter **<**

33. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.35: UPDATE SES ATTRIBUTE FOR TRUNK GROUP NUMBER****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal, type and enter **8.1**

Response: **I=Insert, R=Review, U=Update, D=Delete.**

3. Type and enter **u**

Response: **OFFICE PARAMETERS (MISCELLANEOUS) - 8.1** is displayed.

4. Type and enter appropriate data for following key attribute:

**ATTRIBUTE****1. OFFICE ID \_\_\_\_**

Response: System completes remainder of view.  
Cursor at **C = Change, U = Update.**

5. Type and enter **c**

Response: **CHANGE FIELD #\_\_\_\_.**

6. Type and enter **10**

Response: Cursor at **SES** attribute.

7. Type and enter appropriate trunk group number.

Response: **CHANGE FIELD #\_\_\_\_.**

8. Hit **CARRIAGE RETURN.**

Response: Cursor at **C = Change, U = Update.**

9. Type and enter **u**

Response: **Updating... FORM UPDATED.**

10. Type and enter **<**

Response: **VIEW\_MENU 8** page is displayed.

11. Type and enter **q**

Response: **RCV MENU APPRC COMPL.**

12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.36: DEFINE SES II TRUNK GROUP****PROCEDURE**

1. Select and prepare terminal for RC/V (recent change and verify) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal, type and enter **5.1**

Response: **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **i**

Response: **TRUNK GROUPS -- TRUNK GROUP** page displayed with cursor at **TGN** attribute.

4. Using the completed GRCV form 5.1, type and enter data for following key attribute:

**ATTRIBUTE****1. TGN \_\_\_\_**

5. Using the completed GRCV form 5.1 as a guide, type and enter the indicated values for each attribute.

Response: **I=Insert, R=Review, U=Update, D=Delete:**

6. Type and enter **i**

Response: **inserting...FORM INSERTED**  
**TRUNK GROUPS - TRUNK GROUP** view page displayed.  
Cursor at **TGN** attribute.

7. Type and enter **<**

Response: **VIEW\_MENU** page displayed.

8. Type and enter **q**

Response: **RCV MENU APPRC COMPL**

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.37: DEFINE SES II TRUNK MEMBER****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal, type and enter **5.5**

Response: **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **i**

Response: **TRUNK MEMBER** page displayed with cursor at **TGN** attribute.

4. Using the completed GRCV form 5.5 for the SES II trunk member, type and enter appropriate data for following key attributes:

**ATTRIBUTE**

**1. TGN \_\_\_\_**

**2. MEMB NBR \_\_\_\_**

5. Using the selected GRCV form 5.5 as a guide, type and enter the indicated values for each attribute.

Response: **I=Insert, R=Review, U=Update, D=Delete:**

6. Type and enter **i**

Response: **inserting...FORM INSERTED**  
**TRUNK MEMBER** view page displayed.  
Cursor at **TGN** attribute.

7. Type and enter **<**

Response: **VIEW\_MENU** page displayed.

8. Type and enter **q**

Response: **RCV MENU APPRC COMPL**

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.38: CHANGE STATUS OF SDLC AND SDL FOR SES II DATA LINK FROM UNEQIP TO GROW

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.

4. Type and enter **ucb**

5. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

6. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

8. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

9. Type and enter **5**

Response: **Enter Update, Change, Validate, screen number, or Print:**

10. Type and enter **c**

Response: **field:**

11. Type and enter **21**.

Response: **major\_status:**

12. Type and enter **grow**

Response: **field:**

13. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

14. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

15. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

16. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

17. Type and enter **SDL**

Response: Cursor at **k\_unit\_number:**

18. Type and enter **11**

Response: **Enter Update, Change, Validate, screen number, or Print:**

19. Type and enter **c**

Response: **field:**

20. Type and enter **21**.

Response: **major\_status:**

21. Type and enter **grow**

Response: **field:**

22. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

23. Type and enter **u**



Response:     **ucb** form displayed with cursor at **k\_complex\_name**:

24. Type and enter <

Response:     **Enter Form Name**:

25. Type and enter **trend**

Response:     **tr\_name**:

26. Type and enter **trend**

Response:     **dis\_cf\_checks**:

27. Hit **CARRIAGE RETURN**.

Response     **apply\_tr**:

28. Hit **CARRIAGE RETURN**.

Response:     **o\_missing\_links**:

29. Hit **CARRIAGE RETURN**.

30. Type and enter **e**

Response:     **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name**.

31. Type and enter <

32. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.39: CHANGE STATUS OF SDLC AND SDL FOR SES II DATA LINK FROM GROW TO OOS

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.

4. Type and enter **ucb**

5. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

6. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

8. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

9. Type and enter **5**

Response: **Enter Update, Change, Validate, screen number, or Print:**

10. Type and enter **c**

Response: **field:**

11. Type and enter **21**.

Response: **major\_status:**

12. Type and enter **oos**

Response: **field:**

13. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

14. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

15. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

16. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

17. Type and enter **SDL**

Response: Cursor at **k\_unit\_number:**

18. Type and enter **11**

Response: **Enter Update, Change, Validate, screen number, or Print:**

19. Type and enter **c**

Response: **field:**

20. Type and enter **21**.

Response: **major\_status:**

21. Type and enter **oos**

Response: **field:**

22. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen number, or Print:**

23. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name**:

24. Type and enter <

Response:     **Enter Form Name**:

25. Type and enter **trend**

Response:     **tr\_name**:

26. Type and enter **trend**

Response:     **dis\_cf\_checks**:

27. Hit **CARRIAGE RETURN**.

Response     **apply\_tr**:

28. Hit **CARRIAGE RETURN**.

Response:     **o\_missing\_links**:

29. Hit **CARRIAGE RETURN**.

30. Type and enter **e**

Response:     **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page** with cursor at **enter form name**.

31. Type and enter <

32. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.40: VERIFY CORRECT INSTALLATION OF SCANS II DIAL-UP DATA LINK****PROCEDURE**

1. Verify that the following equipment is installed:

- 2048A Data Set
- 59A1 Data Mounting
- KS-21362-L1 Transformer (Power for 59A1 Data Mounting)
- 48FR1 Dial Backup Unit
- B25A cable
- Group 38 cable assembly shown in ED-4C208-35
- TN 75C Circuit Pack (Located in IOP 0, COMM 2, PC Slot 21)
- Two foreign exchange (FX) lines run to data cabinet. (Two consecutive telephone numbers should be used if possible.)

2. Verify that the 48FR1 is placed in the J3 slot.

**CAUTION:** The 48FR1 should only be placed in the J3 slot. Placing it in any other slot could cause damage to the unit.

3. Verify that the above components are installed as shown in Figures 15.40-1 , 15.40-2 , 15.40-3 , 15.40-4 , 15.40-5 , 15.40-6 , through 15.40-7 .

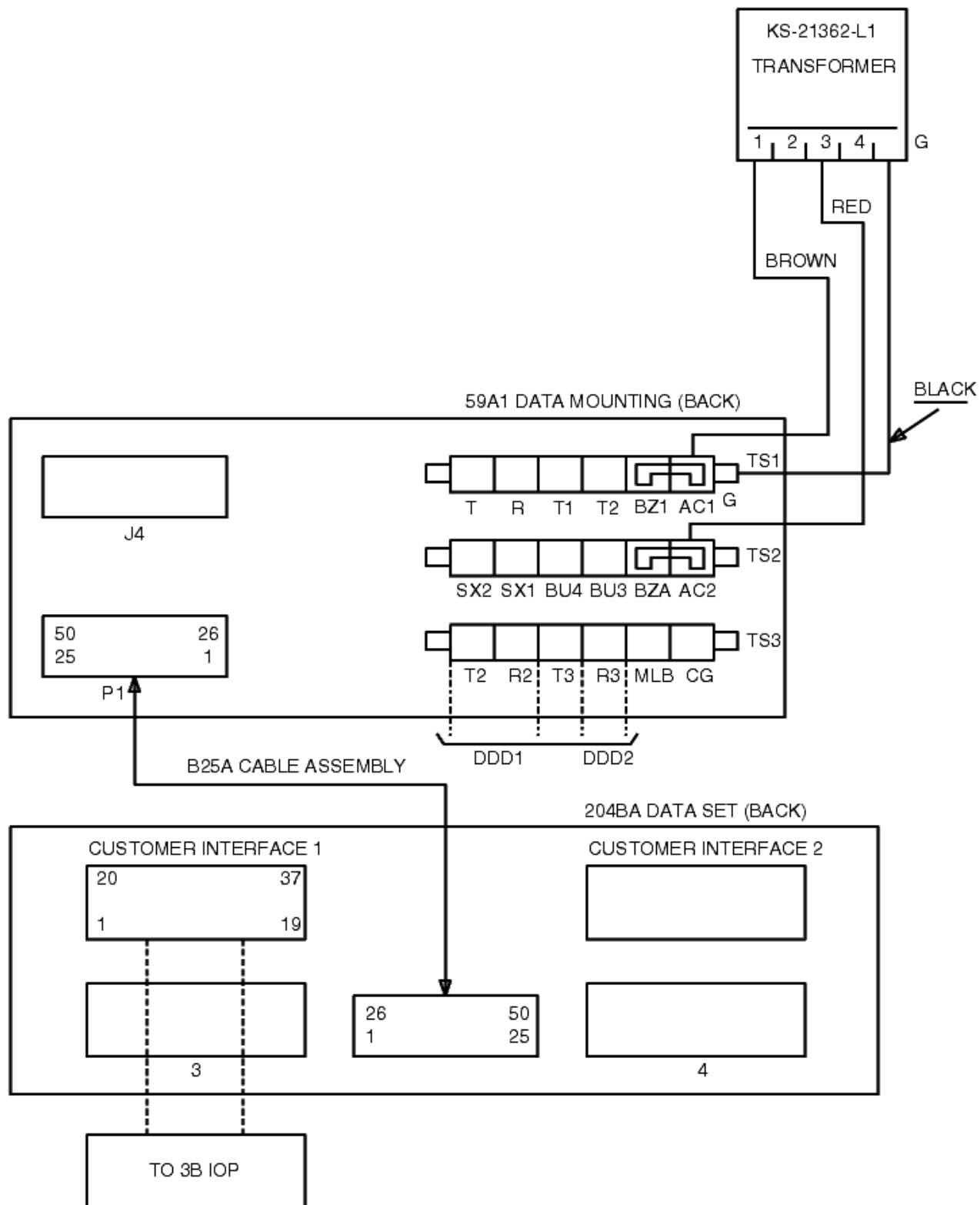


Figure 15.40-1 SCANS II Dial-Up Data Set Installation Diagram

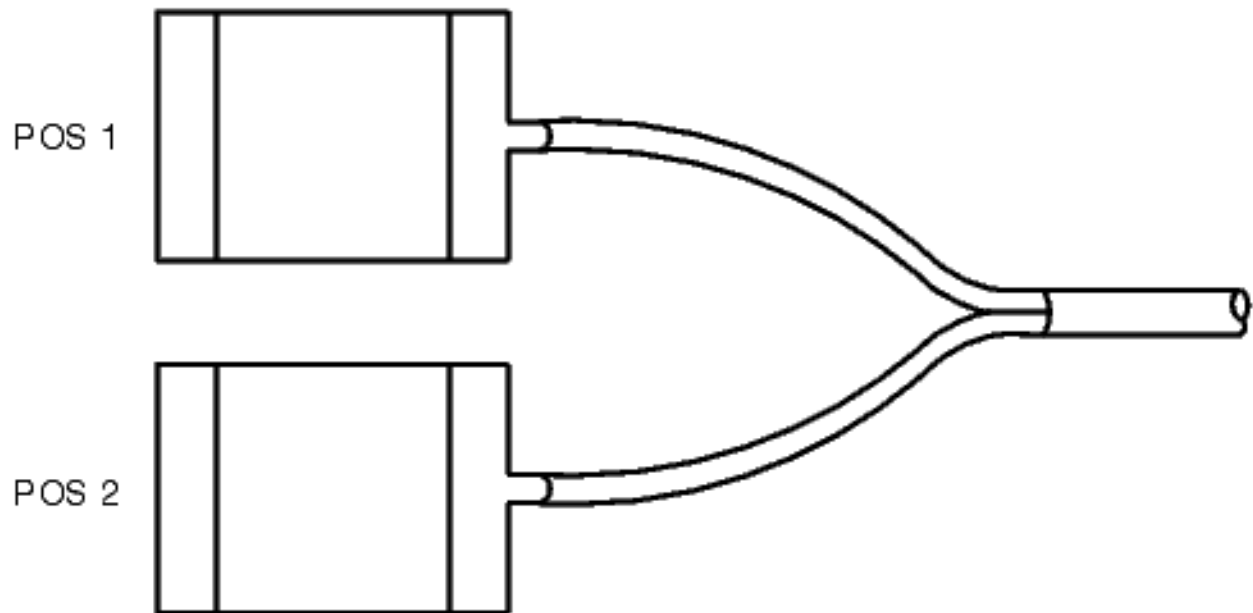


Figure 15.40-2 IOP End of Group 38 Cable Assembly

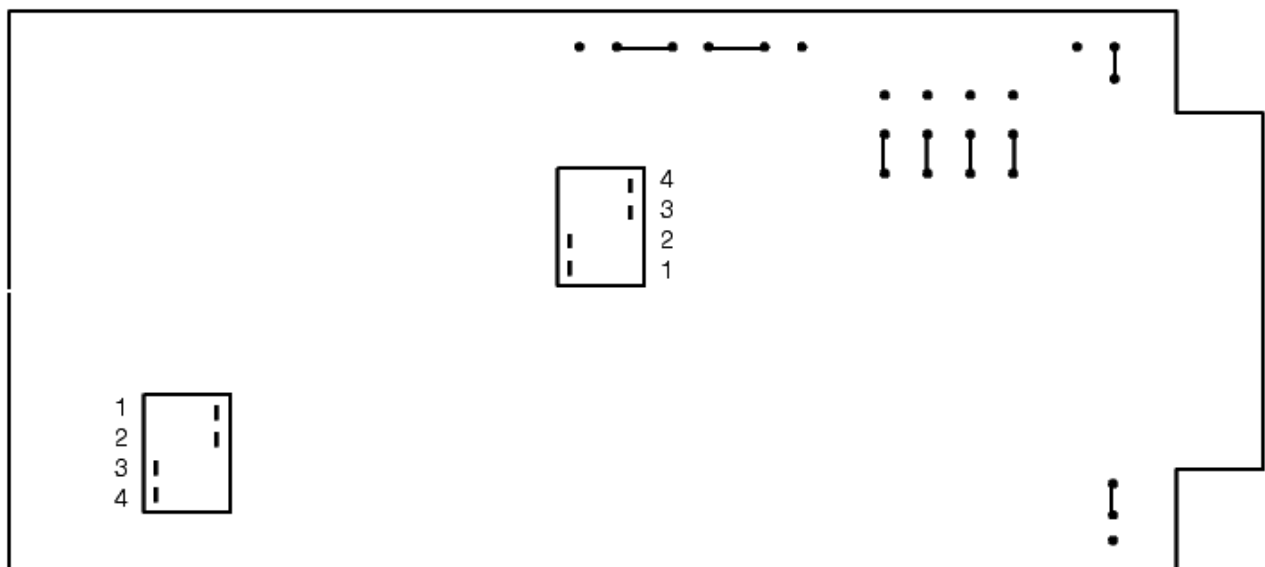


Figure 15.40-3 48FR1 Strap Settings for SCANS II

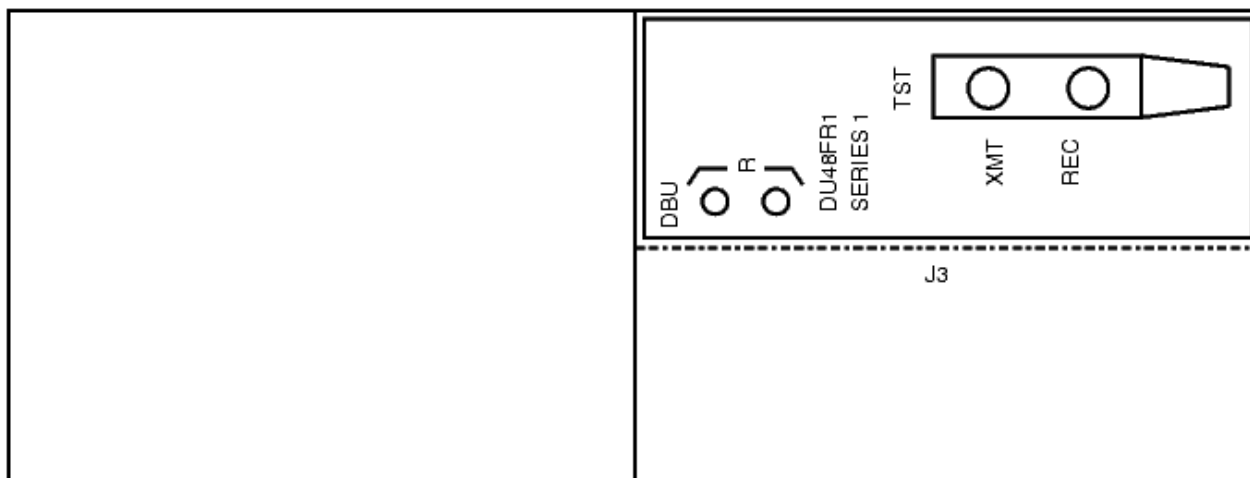


Figure 15.40-4 59A1 Mounting (Front) in Slot J3

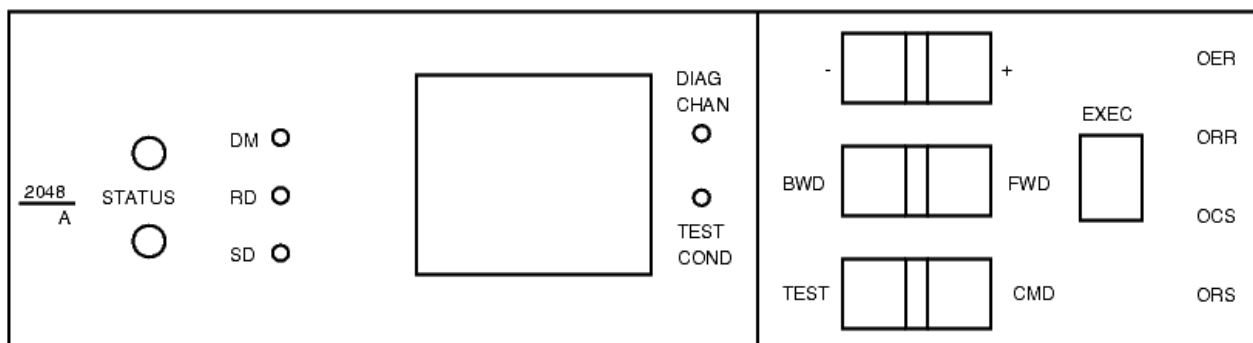
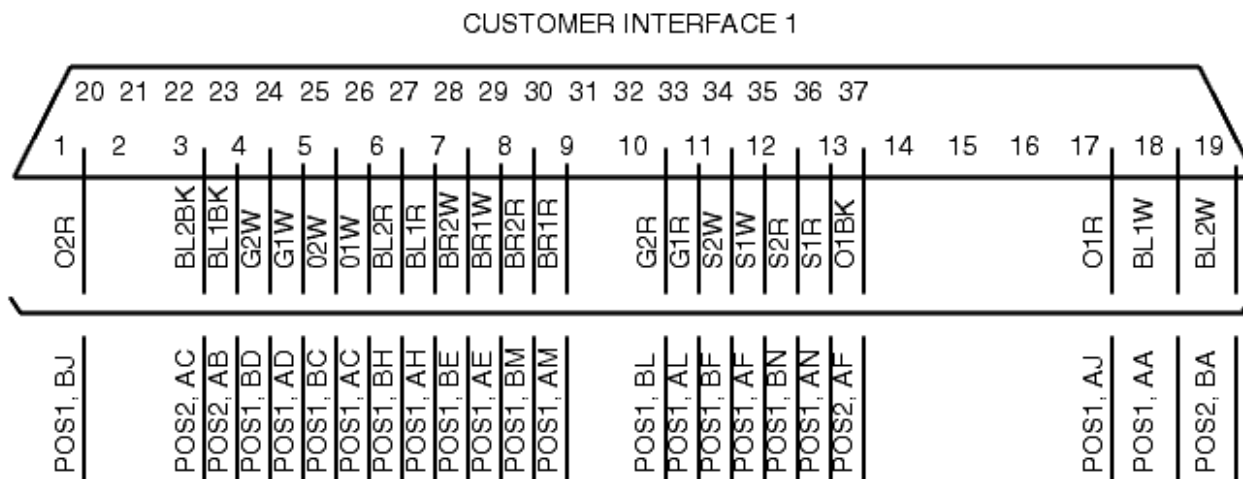


Figure 15.40-5 2048A Data Set (Front)





## BERG CONNECTOR TERMINATIONS

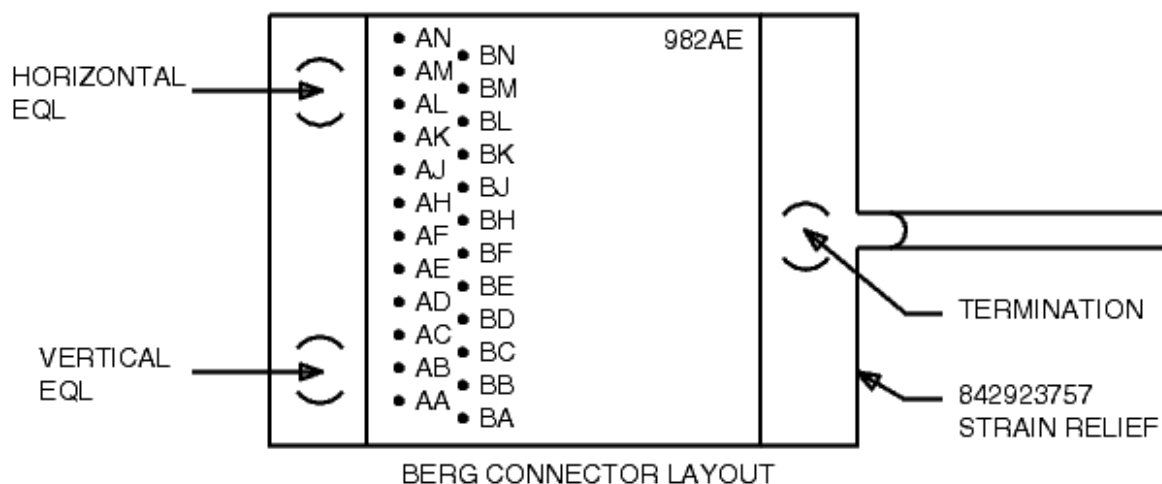


Figure 15.40-6 Berg Connector Terminations and Layout

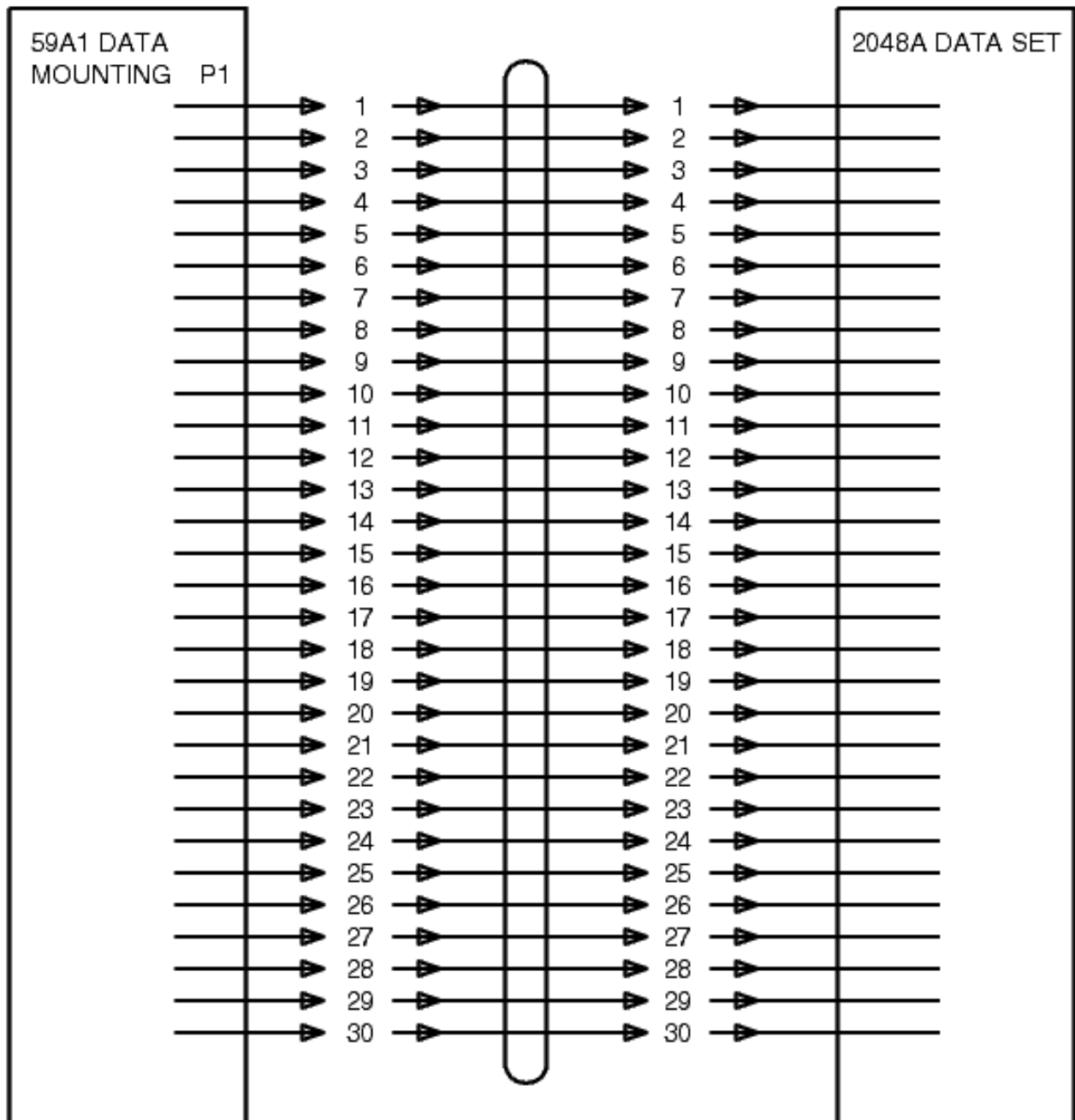


Figure 15.40-7 B25A Cable

4. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

**Procedure 15.41: MANUALLY TEST THE 48FR1 BACKUP UNIT****PROCEDURE**

1. At master control center (MCC), display Page **113**.
2. Observing MCC display Page **113**, verify that SDL 0 is in service **ACT**.
3. At any available telephone associated with the 5ESS<sup>®</sup>-2000 switch office, dial the telephone number for DDD2.

Response: Audible ring but no answer is heard.

4. Using three way calling, a key set, or two telephones, while the call to DDD2 is ringing, place a second call to DDD1.

Response: When DDD1 trips, DDD2 should also trip.

5. With DDD1 on hold, simultaneously press the **"#"** and **"0"** keys several times for a few seconds each time.

Response:

- (a) A single tone should be heard from the touch-tone pad. (Newer pads may not generate a single tone when two keys are pressed simultaneously).
- (b) The red BU lamp on the 48FR1 comes on.
- (c) Data (noise) is heard on the DDD1 connection.
- (d) The **RD** lamp on the 2048A data set comes on each time the two touch-tone keys are pressed.
- (e) The **SD** lamp on the 2048A data set should be on steady.

6. Release the DDD1 and DDD2 connections.
7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.42: CHANGE STATUS OF SDLC AND SDL FOR SCANS II DATA LINK FROM UNEQIP TO GROW

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name: TRBEGIN** is displayed.

3. Hit **CARRIAGE RETURN**.

Response: **Enter Execute, Change, Substitute, Validate, or Print: \_**

4. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection page**.

5. Type and enter **ucb**

6. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

8. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

9. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

10. Type and enter **0** (or selected SDLC)

Response: **Enter Update, Change, Validate, Screen#, or Print: \_**

11. Type and enter **c**

Response: **Change field:**

12. Type and enter **21**.

Response:     **major\_status: UNEQIP**

13. Type and enter **grow**

Response:     **Change field:**

14. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print: \_**

15. Type and enter **u**

Response:     **ucb form displayed with cursor at k\_complex\_name:**

16. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_complex\_number:**

17. Hit **CARRIAGE RETURN**.

Response:     Cursor at **k\_unit\_name:**

18. Type and enter **SDL**

Response:     Cursor at **k\_unit\_number:**

19. Type and enter **0** (or selected SDL)

Response:     **Enter Update, Change, Validate, Screen#, or Print: \_**

20. Type and enter **c**

Response:     **Change field:**

21. Type and enter **21**.

Response:     **major\_status: UNEQIP**

22. Type and enter **grow**

Response:     **Change field:**

23. Hit **CARRIAGE RETURN**.

Response:     **Enter Update, Change, Validate, Screen#, or Print:\_**

24. Type and enter **u**

Response:     **ucb** form displayed with cursor at **k\_complex\_name:**

25. Type and enter **<**

Response:     **Enter Form Name:**

26. Type and enter **trend**

Response:     **tr\_name: TREND**

27. Hit **CARRIAGE RETURN**

Response:     **dis\_cf\_checks:**

28. Type and enter **\***

29. Type and enter **<**

30. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.43: CHANGE THE STATUS OF SDLC AND SDL FOR SCANS DATA LINK FROM GROW TO OOS

### PROCEDURE

1. At master control center (MCC), access Lucent Technologies 3B20D/21D computer recent change.

Reference: **Procedure 15.70**

2. Type and enter **trbegin**

Response: **tr\_name:TRBEGIN** is displayed.

3. Hit **CARRIAGE RETURN**

Response: **Enter Execute, Change, Substitute, Validate, or Print:**

4. Type and enter **e**

Response: **FORM EXECUTED** flashes at upper right of screen  
Recent change process returns to **forms selection page**.

5. Type and enter **ucb**

6. To enter update mode, type and enter **u**

Response: Cursor at **k\_complex\_name:**

7. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_complex\_number:**

8. Hit **CARRIAGE RETURN**.

Response: Cursor at **k\_unit\_name:**

9. Type and enter **SDLC**

Response: Cursor at **k\_unit\_number:**

10. Type and enter **0**

Response: **Enter Update, Change, Validate, screen#, or Print:**

11. Type and enter **c**

Response: **change field:**

12. Type and enter **21**.

Response: **major\_status: GROW**

13. Type and enter **oos**

Response: **change field:**

14. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

15. Type and enter **u**

Response: **ucb form displayed with cursor at k\_complex\_name:**

16. Hit **CARRIAGE RETURN**.

Response: **Cursor at k\_complex\_number:**

17. Hit **CARRIAGE RETURN**.

Response: **Cursor at k\_unit\_name:**

18. Type and enter **SDL**

Response: **Cursor at k\_unit\_number:**

19. Type and enter **0** (or selected SDL)

Response: **Enter Update, Change, Validate, screen#, or Print:**

20. Type and enter **c**

Response: **change field:**

21. Type and enter **21**.

Response: **major\_status: GROW**

22. Type and enter **oos**

Response: **change field:**



23. Hit **CARRIAGE RETURN**.

Response: **Enter Update, Change, Validate, screen#, or Print:**

24. Type and enter **u**

Response: **ucb** form displayed with cursor at **k\_complex\_name:**

25. Type and enter **<**

Response: **Enter Form Name:**

26. Type and enter **trend**

Response: **tr\_name: TREND**

27. Hit **CARRIAGE RETURN**

Response: **dis\_cf\_checks:**

28. Type and enter **\***

Response: **FORM EXECUTED** flashes at upper right of screen.  
Recent change process returns to **forms selection** page with cursor at **enter form name**.

29. Type and enter **<**

30. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.44: DIAGNOSE SYNCHRONOUS DATA LINK CONTROLLER (SDLC)****PROCEDURE**

1. At master control center (MCC), type in:

**DGN:SDLC=a;**

Where: a = SDLC number.

Response: **ATP** is printed in response message.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.45: RESTORE SDLC TO SERVICE****PROCEDURE**

1. At master control center (MCC), restore synchronous data link controller (SDLC) to service by typing:

**RST:SDLC=a;**

Where: a = member number (0 - 255)

Response: (1) **RST SDLC a COMPLETED** is printed in response message  
(2) **RST SDL b COMPLETED** is printed in response message  
(3) Diagnostic messages are printed.

Where: a = member number (0 - 255)  
b = member number (0 - 255)

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.46: UPDATE INCORE DATA BASE IN 3B20D/21D COMPUTER****PROCEDURE**

1. At master control center (MCC), access MCC Page **199**.

Response:     **Recent Change and Verify**  
                  Cursor positioned at **database\_name**:

2. To update the incore data base, type and enter **incore**

Response:     Cursor moves to **reviewonly**:

3. Type and enter **n**

Response:     Cursor moves to **journaling**:

4. Type and enter **\***.

Response:     Cursor moves to **Enter Form Name**:

5. Enter **activate**

Response:     Cursor moves to **1.copy\_in\_to\_disk: YES**

6. Hit **CARRIAGE RETURN**

Response:     Cursor moves to **Enter Execute, Change, Validate, or Print**:

7. To execute form, enter **e**

Response:     At top right-hand corner of screen:  
                  - **executing...** displayed  
                  - **FORM EXECUTED** displayed  
                  Cursor at **Enter Form Name**:

8. To exit **UNIX**® RTR system RC/V (ODIN), enter **<**

9. Access MCC Page **199**.

Response:     **Recent Change and Verify**  
                  Cursor positioned at **database\_name**:

10. Enter **rootdmly**

Response:     Cursor moves to **reviewonly**.

11. Enter **n**

Response: Cursor moves to **journaling**:

12. Enter **n**

Response: Cursor moves to **print\_file**:

13. Enter **/tmp/x**

Where: x = form name being changed or deleted

Response: Cursor moves to **echo\_file**

14. To bypass other options, enter **\***

Response: At top right-hand corner of screen:  
- **executing...** displayed  
- **FORM EXECUTED** displayed  
Cursor at **Enter Form Name**:

15. Enter **trbegin**

Response: Cursor at **1.tr\_name:TRBEGIN**.

16. Depress carriage return 1 time.

17. Enter **e**

Response: At top right-hand corner of screen:  
- **executing...** displayed.  
- **FORM EXECUTED** displayed  
Cursor at **Enter Form Name**:

18. Enter **trend**

Response: Cursor at **1.tr\_name:TREND**

19. Depress carriage return 4 times.

Response: Cursor at **Enter Execute, Change, Validate, or Print**:

20. Enter **e**

Response: At top right-hand corner of screen:  
**executing...** displayed

**FORM EXECUTED** displayed  
Cursor at **Enter Form Name:**

21. To exit UNIX RTR system RC/V (ODIN), enter <
22. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.47: VERIFY SCANS III DIAL-UP DATA LINK IS INSTALLED PROPERLY

### PROCEDURE

1. Verify that the following equipment is installed:
  - TN 75C Circuit Pack
  - *PARADYNE*® 3810 Modem
  - AC Power Transformer
  - Ferrite Choke
  - ED-5D500-21 Group 43B Cable
  - 625AS4 Connecting Block (or equivalent)
  - One 6-position, 4-wire Modular Cord
  - One telephone line run to data set cabinet.
2. Verify that the above components are installed as shown in Figures 15.47-1 through 15.47-3 .

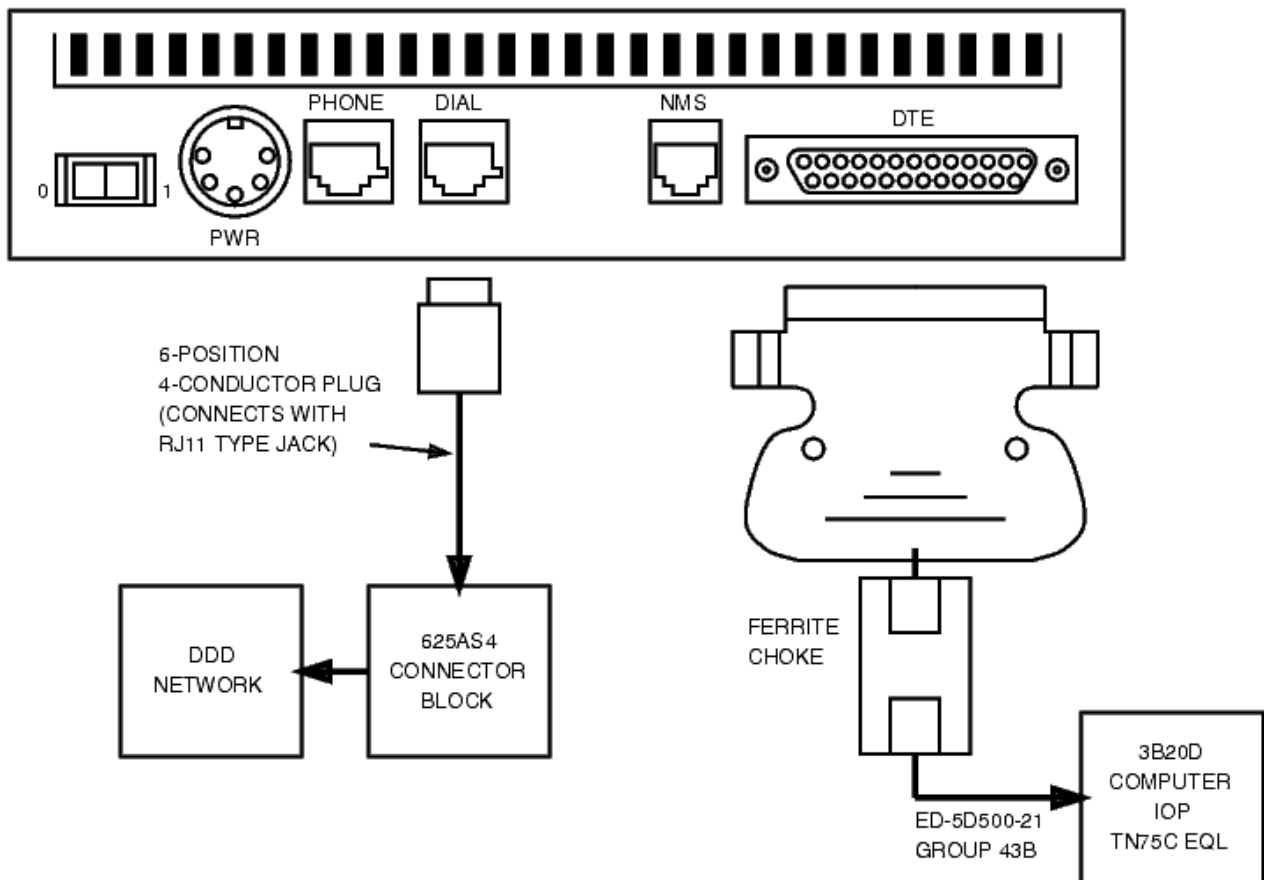


Figure 15.47-1 PARADYNE Paradyne Corporation 3810 Modem Connections

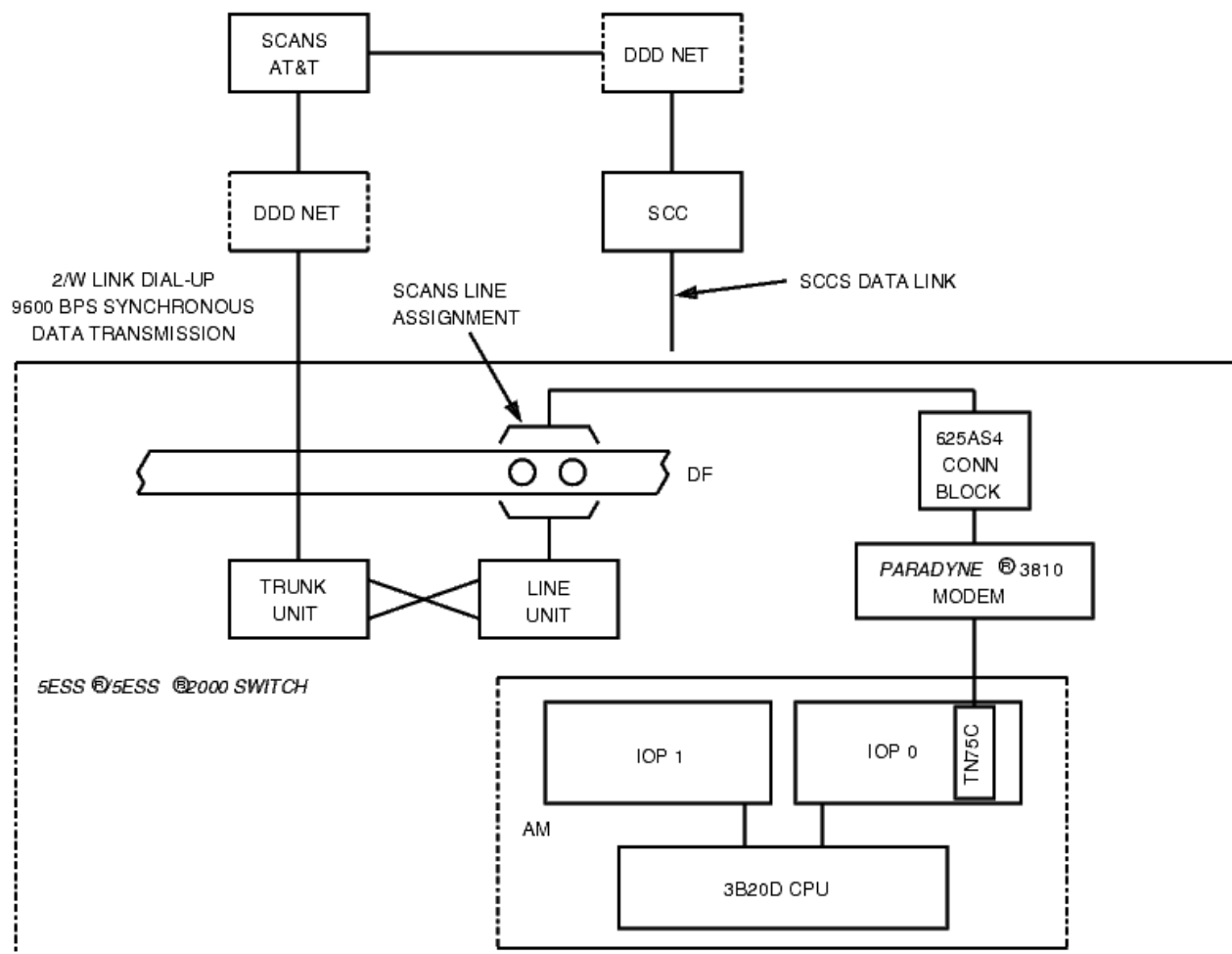


Figure 15.47-2 Typical SCANS III Link Diagram



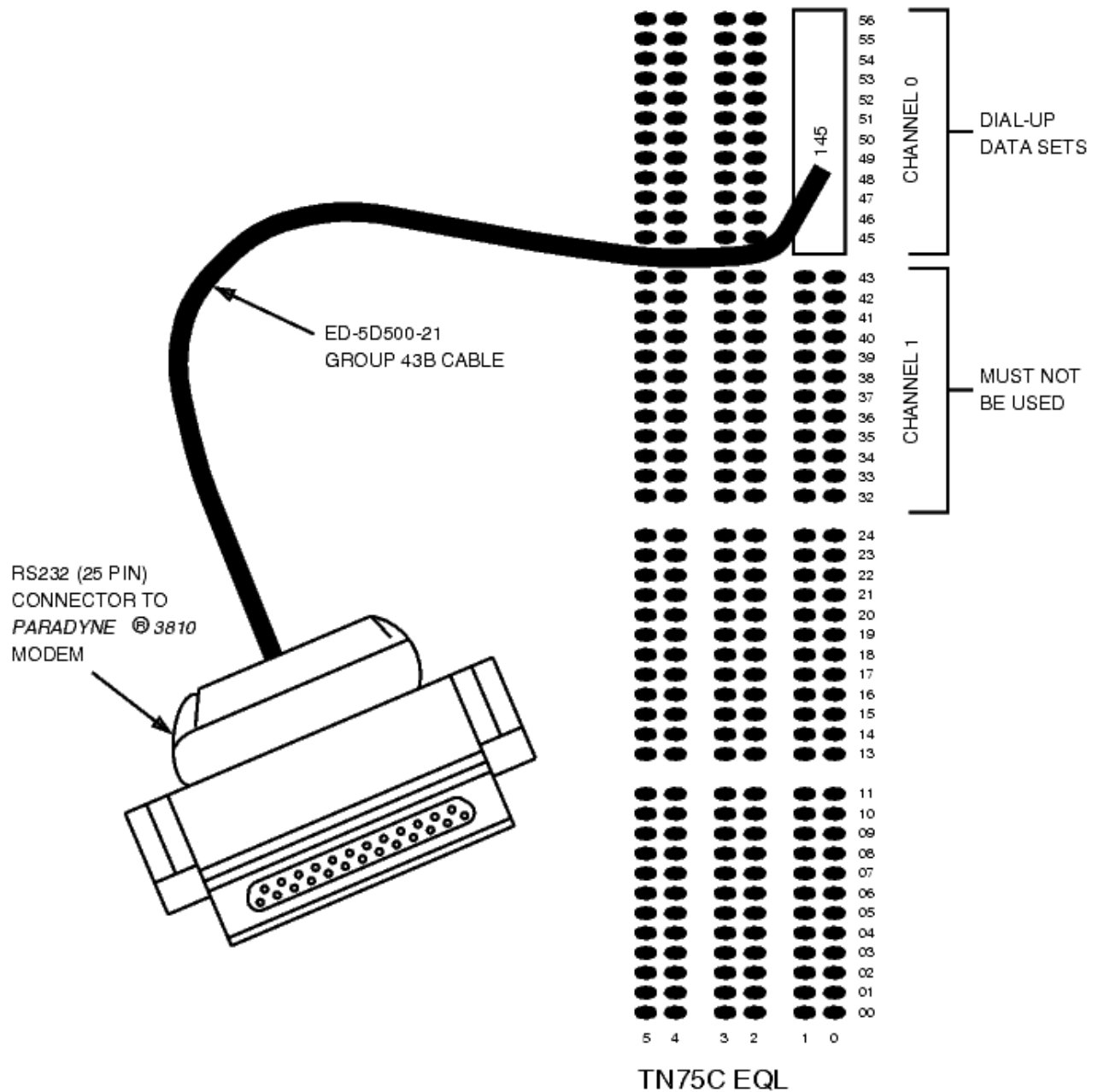


Figure 15.47-3 Typical Scans III Cable IOP Backplane Connection

3. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

**Procedure 15.48: DEFINE LOGICAL TEST PORT TRUNK GROUP FOR DCTU****PROCEDURE**

1. **NOTE:** One trunk group is required per directly connected trunk unit (DCTU) [that is, host, remote switching module (RSM) or multimod RSM location, optically remote module (ORM), or two-mile remote module (TRM)].

Does this office need to define a new logical test port (LTP) group to support this growth procedure (Consult Office Records and Translation Guide TG-5)?

If **YES**, continue with Step 2.

If **NO**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE**

2. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 15.57**

3. At selected terminal, type and enter **5.1**

Response: **Enter Data Base Operation  
I=Insert, R=Review, U=Update, D=Delete:**

4. Type and enter **I**

Response: **TRUNK GROUP** page displayed. Cursor at TGN attribute.

5. Using the Translation Guide TG-5 and Office Records, select and enter a TGN and characteristics for an LTP trunk group.

Response: **Enter Insert, Change, Validate, or Print:**

6. Type and enter **I**

Response: **inserting....FORM INSERTED  
TRUNK GROUP** page displayed.

7. Type and enter **<**

Response: **5.0 TRUNKS -- TGN & MEMBERS VIEWS** page displayed.

8. Return to the procedure that directed you here.

**Procedure 15.49: DEFINE LOGICAL TEST PORT GROUP MEMBER FOR DCTU****PROCEDURE**

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 15.57**

2. At selected terminal, type and enter **5.5**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **I**

Response: **TRUNK MEMBER** page displayed. Cursor at TGN attribute.

4. Using the Translation Guide TG-5 and Office Records, select and enter a TGN, MEMB NBR and LTP.

Response: **Enter Insert, Change, Validate, or Print:**

5. Type and enter **I**

Response: **inserting.....FORM INSERTED**  
**TRUNKS MEMBER** page displayed.  
Cursor at TGN attribute.

Repeat Steps **4** and **5** for each directly connected test unit (DCTU) port being added.

6. Type and enter **<**

Response: **5.0 TRUNKS -- TGN & MEMBER VIEWS** page displayed.

7. Type and enter **q**

Response: **RCV-196 COMPLETED**

8. Return to the procedure that directed you here.

**Procedure 15.50: ASSIGN ROUTE INDEX TO DCTU LOGICAL TEST PORT (LTP)****PROCEDURE**

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 15.57**

2. At selected terminal, type and enter **10.2**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **I**

Response: **ROUTE INDEX (ROUTING)** page displayed. Cursor at RTI attribute.

4. Using the Translation Guide TG-5 and Office Records, select and enter the appropriate data.

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

5. Type and enter **I**

Response: **inserting....FORM INSERTED**  
**ROUTE INDEX (ROUTING)** page displayed.

6. Type and enter **<**

Response: **10.0 ROUTING & CHARGING VIEWS** page displayed.

7. Return to the procedure that directed you here.

**Procedure 15.51: UPDATE DCTURTI ON SM****PROCEDURE**

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 15.57**

2. At selected terminal, type and enter **18.1**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **U**

Response: **SWITCHING MODULE (SM & RSM MODULES)** page displayed.  
Cursor at SM attribute.

4. Type and enter appropriate data for following key attribute:

**ATTRIBUTE**  
**1. SM \_\_\_\_**

Response: System completes remainder of view.  
**Enter Update, Change, Validate, or Print:**

5. Type and enter **C**

Response: **Change Field:**

6. Type and enter **DCTURTI** or field number.

Response: Cursor at DCTURTI attribute.

7. Type and enter appropriate data.

Response: **Change Field:**

8. Press CARRIAGE RETURN.

Response: **Enter Update, Change, Validate, or Print:**

9. Type and enter **U**

Response: **updating.....FORM UPDATED**

10. Type and enter **<**

Response:     **18.0 SM & SLC96 MODULES VIEWS** page displayed.

11. Type and enter **q**

Response:     **RCV-196 COMPLETED**

12. Return to the procedure that directed you here.

**Procedure 15.52: INSTALL OPTIONS ON 2024, 2048, OR 2096 SERIES DATA SET****PROCEDURE**

1. At 2000 series data set, do Steps 2 through 9.
2. Set **TEST/CMD** switch to the **CMD** (command) position.
3. Using the **BWD/FWD** switch, scroll to the **MTCE** command.
4. Momentarily, push the **EXEC** button.  
Response: **MC/O** appears.
5. Momentarily, push the **EXEC** button again.  
Response: **MC/I** appears.
6. Using the **BWD/FWD** switch, scroll to the **CHOP** (change option) command.
7. Momentarily, push the **EXEC** button.  
Response: **CH\*\*** with the asterisks flashing appears.
8. Using the **+/-** switch, scroll to the appropriate data set option.
9. To apply the option, push the **EXEC** button.  
Response: A check mark appears.
10. Have all data set options been applied?  
If **YES**, do Step 12.  
If **NO**, continue with Step 11.
11. Select next option and repeat from Step 8.
12. At 2000 series data set, do Steps 13 through 16.
13. Using the **BWD/FWD** switch, scroll to the **MTCE** command.
14. Momentarily, press the **EXEC** button.  
Response: **MC/I** appears.
15. Momentarily, press the **EXEC** button again.  
Response: **MC/O** appears.
16. Place the **TEST/CMD** switch back to the middle position.

Response: **FA** or **OK** appears.

17. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



## Procedure 15.53: SET UP AMA CONTROL FILE

### OVERVIEW

**NOTE 1:** No more than two control file parameters can be set with a single command.

**NOTE 2:** If AMAOPTION is **AMATPS** or **AMATPS1**, use ST1. If AMAOPTION is **AMATPS2**, use ST2. If the AMAOPTION is **AMADUAL**, a control file must be specified for each stream.

### PROCEDURE

1. At master control center (MCC), type and enter

```
SET:AMA:CONTROL:x,OFFICEID=a,EXPDATE=b,
START=c-d,STOP=e-f,MT=g,OPTION=h,HOCPSWD=i,
BACKUPSWD=j,TAPEID=k;
```

Where:

- a = Office identification number
- b = Number of days (1-99) until AMA tape expires
- c = Hour of start time
- d = Minute of start time
- e = Hour of stop time
- f = Minute of stop time
- g = Default tape drive number for automatic tape writing process
- h = Option (TP = teleprocessing option), (TAPE = tape option)
- i = HOC (host collector) password
- j = Backup HOC password
- k = Tape ID (seventeen characters or fewer).
- x = ST1 if AMAOPTION is AMATPS or AMATPS1
- ST2 if AMAOPTION is AMATPS2

**Note:** When Option is **TAPE**, the OFFICEID, MT, and TAPEID must be specified.  
When Option is **TP**, the OFFICEID and HOCPSWD must be specified.

Response: If **NG** - No good. Data stream checks failed.

If **PF** - Printout follows. Request accepted. The option(s) selected are being updated. When the request is completed, the contents of the AMA control file will be output via the **REPT:AMA:CONTL** output message. If less than 17 characters are supplied, trailing blanks will be used.

If **RL** - Retry later. A tape or teleprocessing session is currently in progress. Try again after the session terminates.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.54: ALLOW AN AMA SESSION

### OVERVIEW

**NOTE:** If AMAOPTION is **AMATPS** or **AMATPS1**, use ST1. If AMAOPTION is **AMATPS2**, use ST2. If AMAOPTION is **AMADUAL**, the following must be completed for both ST1 and ST2.

### PROCEDURE

1. At master control center (MCC), type and enter

**ALW:AMA:SESSION,[ST1|ST2];**

Response: If **IP** - In progress. Request accepted. The AMA monitor process has been called to allow AMA teleprocessing or tape writing sessions that were inhibited via the **INH:AMA-SESSION** message. When the request is complete, the contents of the AMA control file will be output. See the REPT:AMA-CONTL output message.

If **NG** - No Good. Data stream checks failed.

If **RL** - Retry later. A message could not be sent to the AMA monitor process.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.55: CHECK OPERATIONAL SUPPORT SYSTEM (OSS) HARDWARE****PROCEDURE**

1. Check and/or troubleshoot the OSS cables. See Figures 15.55-1 , 15.55-2 , 15.55-3 , 15.55-4 , 15.55-5 , and 15.55-6 .
2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

| COMM 1     |               | IOP 0         |                         | COMM 0            |                     |
|------------|---------------|---------------|-------------------------|-------------------|---------------------|
|            | AR(2)<br>UN33 | AR(2)<br>UN33 | AR<br>UN52              | AR<br>UN33        | AR<br>TN83B         |
| UNASSIGNED | M I S C       | S E S S       | T C A O P N E R         | 3 5 B E 2 S 0 S   | B P U O I W L E D R |
|            | A L A R M S   | A L A R M S   | A A L L A A R R M M S S | I N A G L A R M S | A N D M C C         |
| 13         |               |               |                         |                   |                     |
| 12         |               |               |                         |                   |                     |
| 11         |               |               |                         |                   |                     |
| 10         |               |               |                         |                   |                     |
| 03         |               |               |                         |                   |                     |
| 02         |               |               |                         |                   |                     |
| 01         |               |               |                         |                   |                     |
| 00         |               |               |                         |                   |                     |

| COMM 1     |               | IOP 1         |                         | COMM 0            |                     |
|------------|---------------|---------------|-------------------------|-------------------|---------------------|
|            | AR(2)<br>UN33 | AR(2)<br>UN33 | AR<br>TN75C             | AR<br>UN33        | AR<br>TN83B         |
| UNASSIGNED | M I S C       | S E S S       | T C A O P N E R         | 3 5 B E 2 S 0 S   | B P U O I W L E D R |
|            | A L A R M S   | A L A R M S   | A A L L A A R R M M S S | I N A G L A R M S | A N D M C C         |
| 13         |               |               | 1 0                     |                   |                     |
| 12         |               |               |                         |                   |                     |
| 11         |               |               |                         |                   |                     |
| 10         |               |               |                         |                   |                     |
| 03         |               |               |                         |                   |                     |
| 02         |               |               |                         |                   |                     |
| 01         |               |               |                         |                   |                     |
| 00         |               |               |                         |                   |                     |

CHANNEL  
PC SLOT

| COMM 3     |              | COMM 2            |               |
|------------|--------------|-------------------|---------------|
|            | OPT<br>TN74B | OPT<br>TN74B      | OPT<br>TN75C  |
| UNASSIGNED | 6 T H H      | 3 R D S           | E A D T U     |
|            | S T H H      | R E S E E R V E D | C L I T R S B |
| 13         |              |                   |               |
| 12         |              |                   |               |
| 11         |              |                   |               |
| 10         |              |                   |               |
| 03         |              |                   |               |
| 02         |              |                   |               |
| 01         |              |                   |               |
| 00         |              |                   |               |

| COMM 3     |                   | COMM 2         |             |
|------------|-------------------|----------------|-------------|
|            | OPT<br>TN74B      | AR(2)<br>TN75C | AR<br>TN74B |
| UNASSIGNED | O F C R E C P R T | A M A A T P S  | 2 N D 9 I   |
|            |                   | S E S S        | 1 S T S     |
| 13         |                   |                |             |
| 12         |                   |                |             |
| 11         |                   |                |             |
| 10         |                   |                |             |
| 03         |                   |                |             |
| 02         |                   |                |             |
| 01         |                   |                |             |
| 00         |                   |                |             |

CHANNEL  
PC SLOT

AR = ALWAYS REQUIRED  
OPT = OPTIONAL

Figure 15.55-1 5ESS -2000 Switch IOP Peripheral Controller Assignments (Typical)

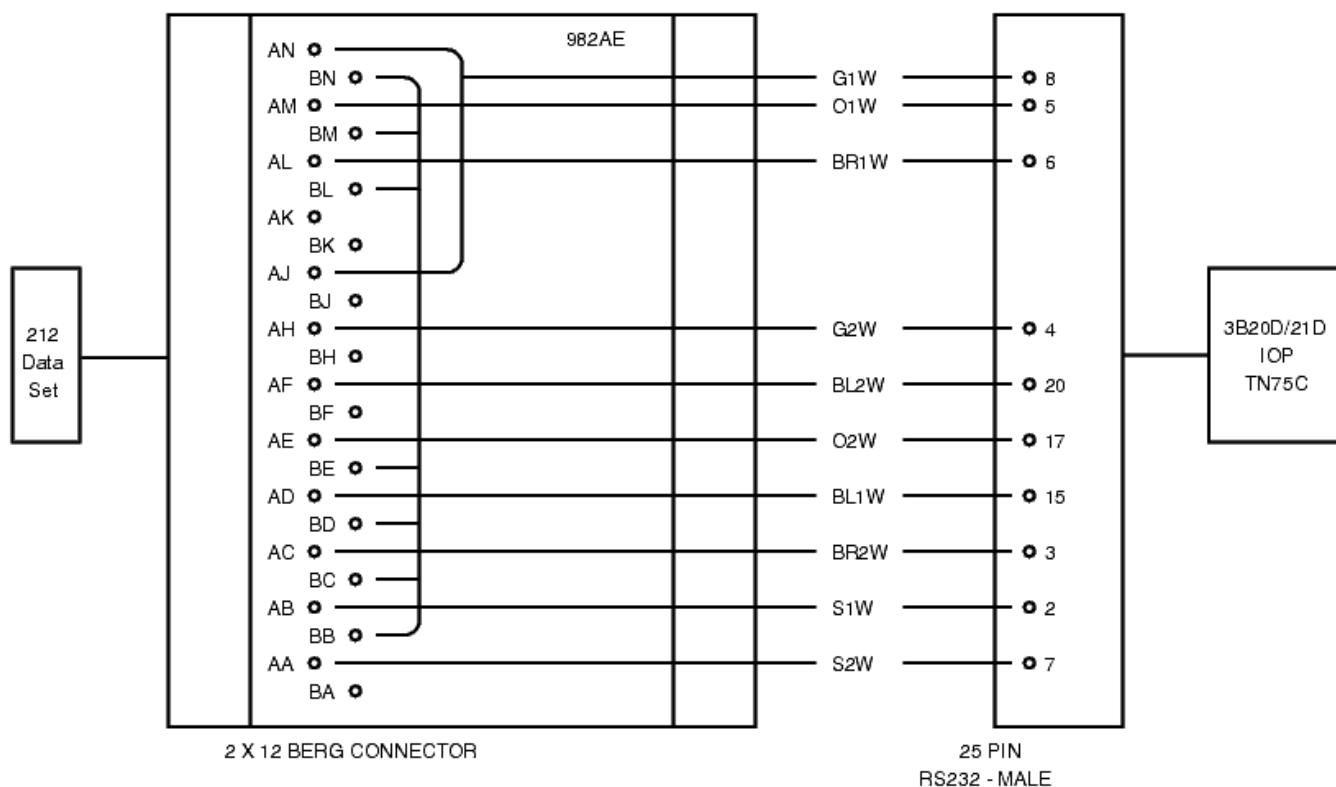


Figure 15.55-2 Cable for CTTU Data Link

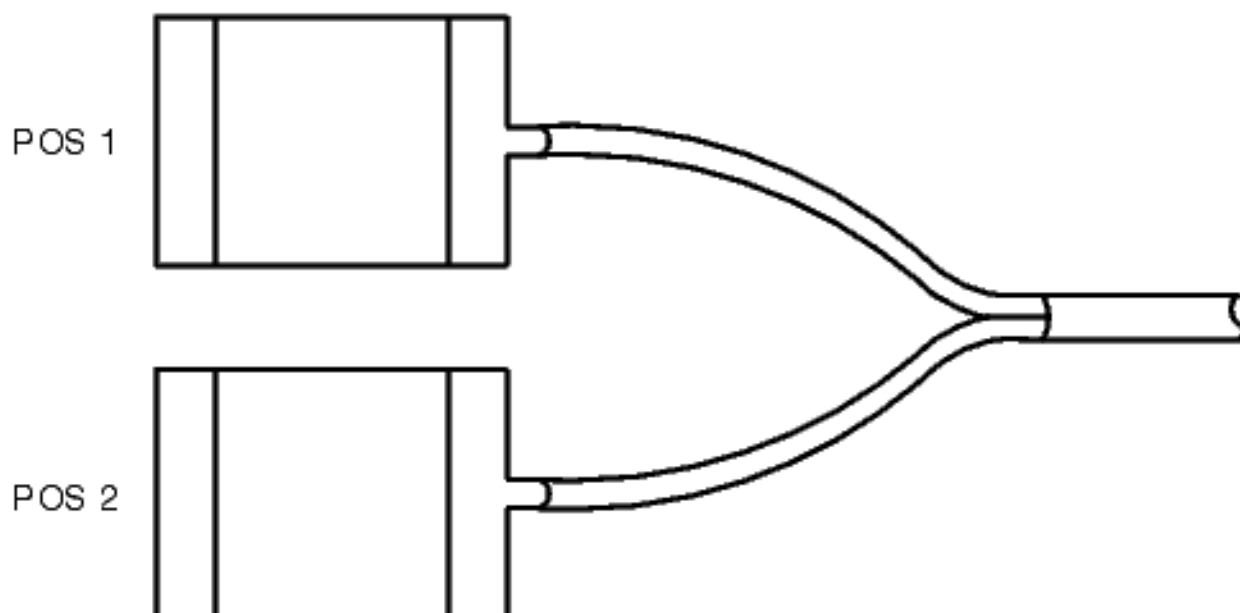


Figure 15.55-3 IOP End of Cable Assembly

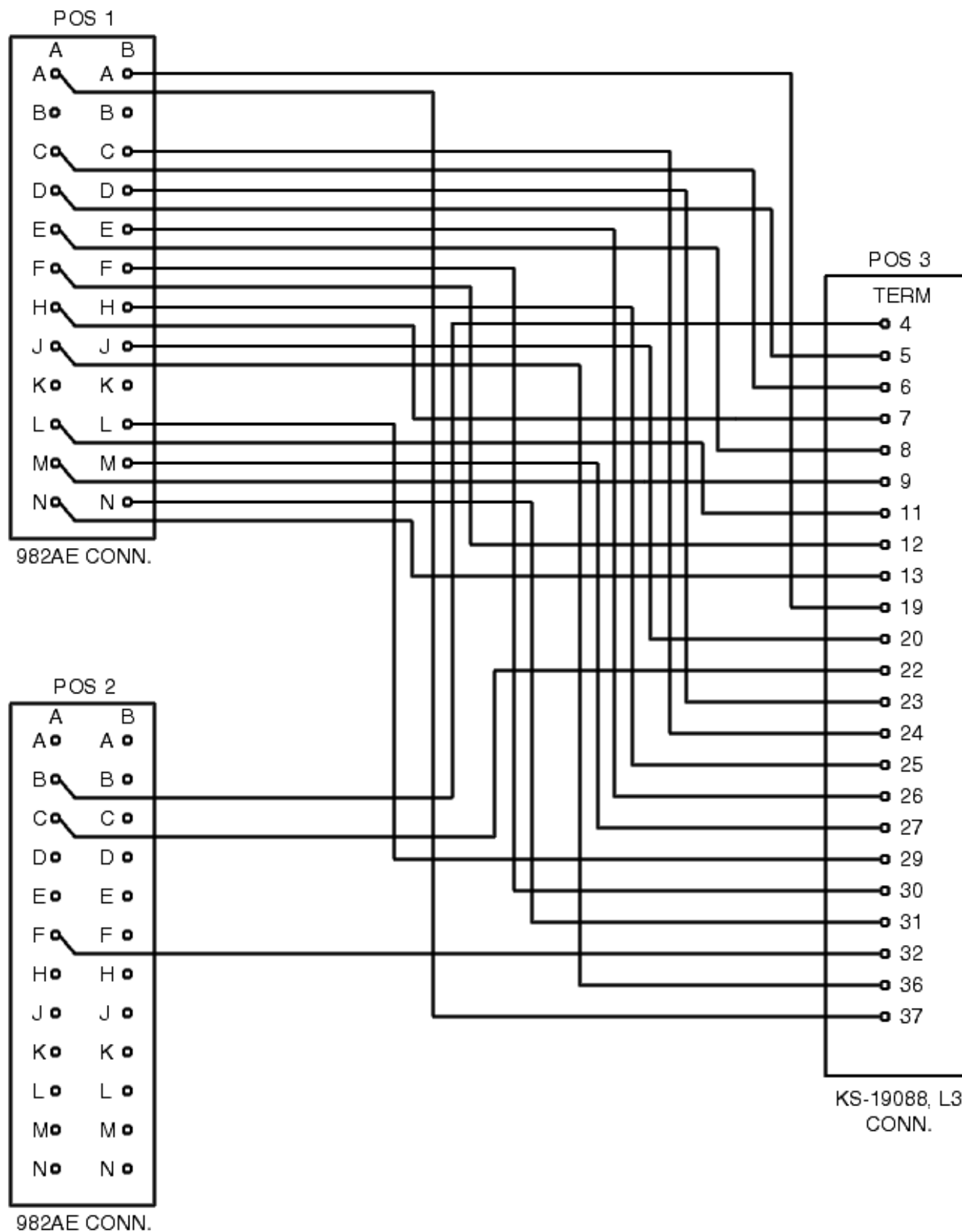


Figure 15.55-4 2024A, 2048A to TN75C Data Set Cable Drawing

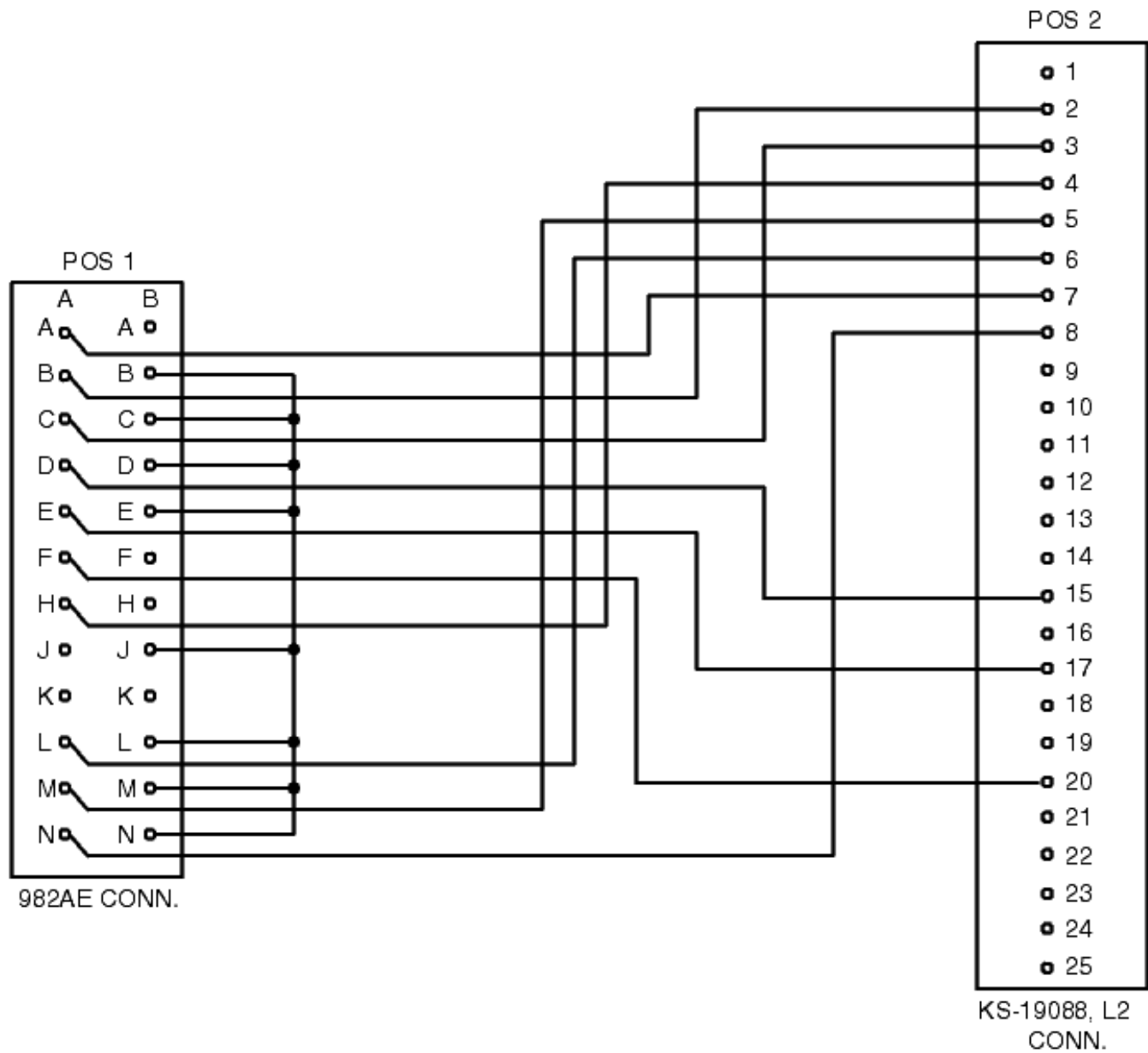


Figure 15.55-5 201C to TN75C Data Set Cable Drawing

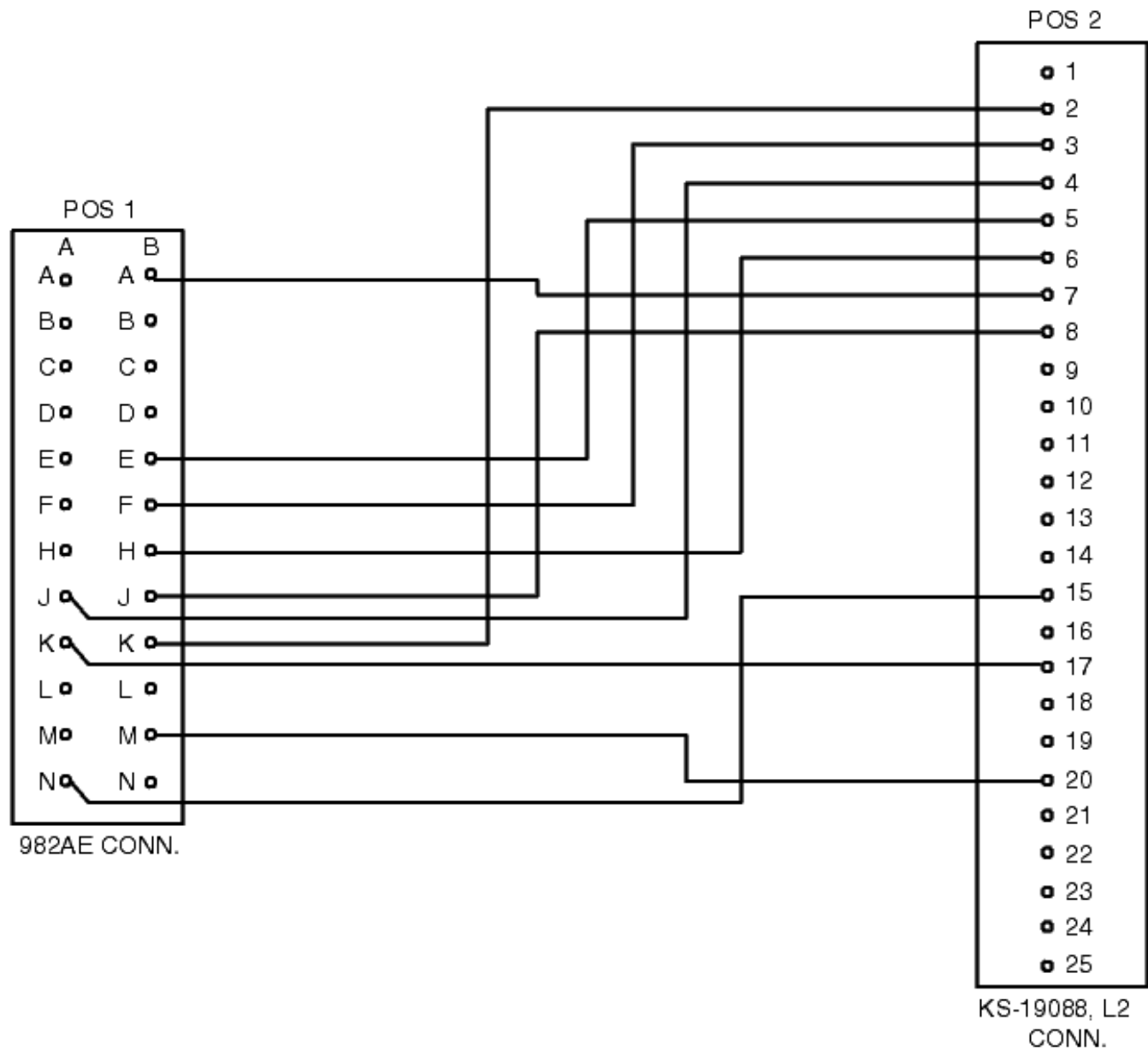


Figure 15.55-6 201C to TN83 Data Set Cable Drawing



## Procedure 15.56: INSTALL OPTIONS ON *PARADYNE*® 3810 DATA SET

### OVERVIEW

Options are changed using the Diagnostic Control Panel (DCP) on the modem. The DCP contains a 2-line liquid crystal display (LCD) which displays modem status, control functions, and configuration options. The DCP also contains several keys which allow the user to access and change the options. Refer to Figure 15.56-1 for an illustration of the DCP.

### PROCEDURE

1. Press the > key on the DCP until **Configure** comes into view.

Response:     **Idle:14.4 <=>**  
                  **Test Configure**

2. Press the **F3** key to select the **Configure** mode.

Response:     **Ld EditArea frm >**  
                  **Activ(Operating)**

3. Press the > key until **Factory** comes into view.

Response:     **Ld EditArea frm<**  
                  **Factory**

4. Press the **F1** key to display the factory preset configurations.

Response:     **Ld Fact Preset: >**  
                  **Async\_Dial**

5. Press the > key until **Sync\_Leased** comes into view.

Response:     **Ld Fact Preset: >**  
                  **Sync\_Leased**

6. Press the **F1** key to display the factory preset configurations.

Response:     **Choose Mode**  
                  **Nxt Answer**

7. Press the **F2** key to select the **Answer** mode.

Response:     **Sync\_Leased Mode >**  
                  **Answer**

8. Press the > key until **Factory** comes into view.

Response:     **Ld EditArea frm<  
Factory**

9. Press the **F1** key to display the factory preset configurations.

Response:     **Ld Fact Preset: >  
Async\_Dial**

10. Press the **F1** key to display the **Choose Function** options.

Response:     **Choose Function  
Edit Save**

11. Press the **F1** key to select the **Edit** function.

Response:     **Edit StrapGroup >  
DTE\_Interface**

12. Press the **F1** key to select the **DTE\_Interface** group of options.

Response:     **Async/Sync Mode >  
Nxt Async**

13. Press the **F1** key to select the **CTS Action** group of options.

Response:     **CTS Action >  
Nxt Ignore**

14. Press the **>** key to access the **Forced On** option.

Response:     **CTS Action >  
Forced On**

15. Press the **F2** key to select the **Forced On** option.

Response:     **CTS Action >  
Nxt Forced On**

16. Press the **F1** key to select the **LSD Control** group of options.

Response:     **LSD Control >  
Nxt Stndrd\_RS232**

17. Press the **>** key to access the **Forced\_On** option.

Response:     **LSD Control >  
Forced\_On**

18. Press the **F2** key to select the **Forced\_On** option.  
Response:     **LSD Control >**  
              **Nxt Forced\_On**
19. Repeatedly press the **F1** key until the display appears as follows:  
Response:     **Edit StrapGroup >**  
              **DTE\_Interface**
20. Press the **>** key to access the **Line\_Dialer** group of options.  
Response:     **Edit StrapGroup <=>**  
              **Line\_Dialer**
21. Press the **F1** key to access the **Line\_Dialer** group of options.  
Response:     **Auto Answer Ring Count >**  
              **Nxt AT**
22. Press the **>** key to access the **No Data Disconnect** option.  
Response:     **No Data Disconnect >**  
              **Disable**
23. Press the **F2** key to select the **Disable** option.  
Response:     **No Data Disconnect >**  
              **End Disable**
24. Press the **F1** key to select the **Edit StrapGroup** options.  
Response:     **Edit StrapGroup <=>**  
              **Leased Line**
25. Press the **>** key to access the **Leased Line Rate** option.  
Response:     **Edit StrapGroup <=>**  
              **Leased Line Rate**
26. Press the **F1** key to access the **Leased Line Rate** group of options.  
Response:     **Leased Line Rate >**  
              **Nxt 14400 (V32b)**
27. Press the **>** key to access the **appropriate rate** option.  
Response:     **Leased Line Rate <=>**

## Selected Appropriate Rate

28. Press the **F2** key to select the appropriate rate option.

Response:     **Leased Line Rate >**  
              **Nxt Selected Appropriate Rate**

29. Press the **F1** key to access the **V.32 Autorate** group of options.

Response:     **V.32 Autorate >**  
              **Nxt 14400 (V32b)**

30. Press the **>** key to access the **Disable** option.

Response:     **Disable <=>**

31. Press the **F2** key to select the **Disable** option.

Response:     **V.32 Autorate >**  
              **Disable**

32. Repeatedly press the **^** key (located to the left of the LCD) until the display appears as follows:

Response:     **Choose Function**  
              **Edit Save**

33. Press the **F3** key to save the option settings.

Response:     **Sav EditArea to >**  
              **Active (Saved)**

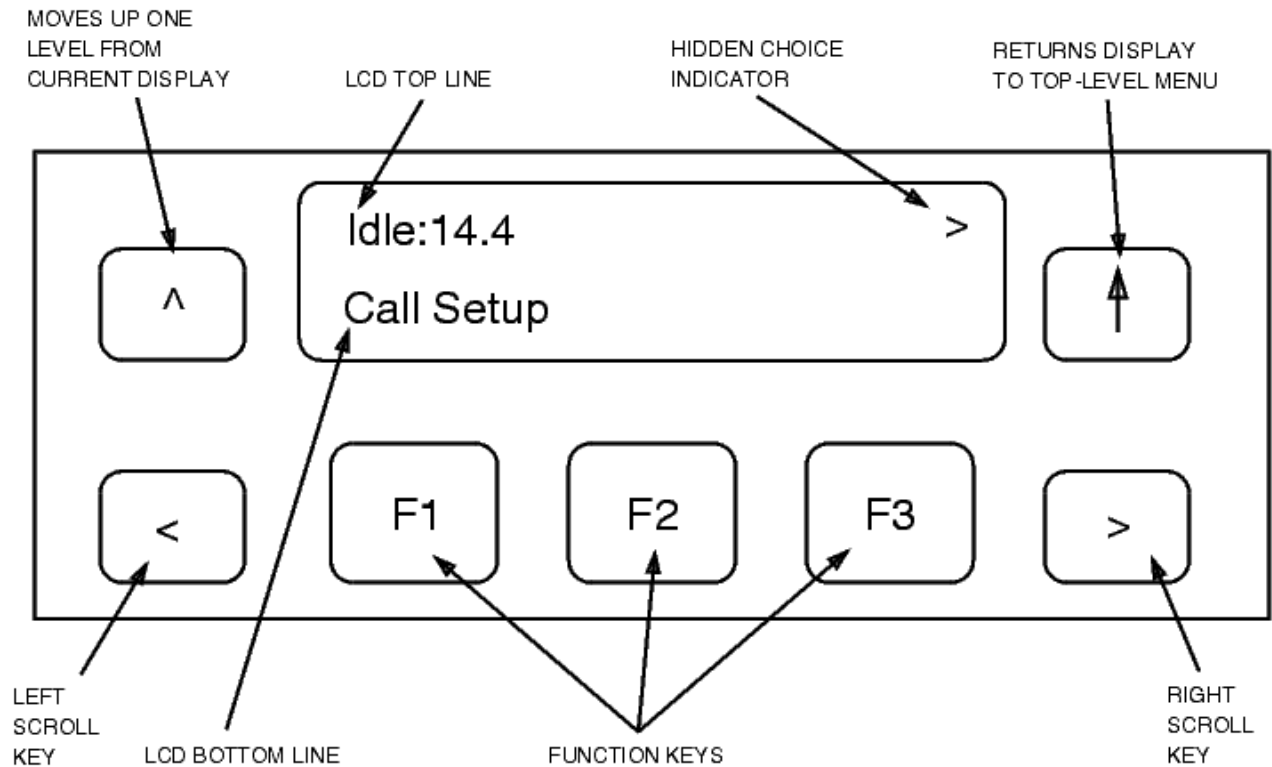
34. Press the **F1** key to save the option selections to the Active configuration area.

Response:     **Sav EditArea to >**  
              **Command Complete**

35. Press the **↑** key (located to the right of the LCD) until the display appears as follows:

Response:     **Idle:9600 >**  
              **Call\_Setup**

36. To verify that the options were saved properly, power cycle the *PARADYNE*® 3810 modem (OFF then ON) and verify that the power-on self-test passes, and the LCD displays **Idle:9600** and **Call\_Setup**, as previously shown.



**Figure 15.56-1 PARADYNE Paradyne Corporation 3810 Modem Diagnostic Control Panel**

37. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.57: SELECT AND PREPARE TERMINAL FOR RC/V ACTIVITIES****PROCEDURE**

1. Is master control center (MCC) or recent change and verify (RC/V) terminal to be used?

If **MCC**, continue with Step 2.

If **RC/V**, proceed to Step 9.

2. At MCC, place terminal into command mode.

3. Is RC/V view displayed?

If **YES**, go to Step 5.

If **NO**, continue with next Step.

4. Type and enter command **196**.

Response: RC/V view is displayed with cursor at **PRINT OPTION**.

5. Type and enter **n**

Response: Cursor at **DETAIL OPTION**.

6. Type and enter **n**

Response: Cursor at **VERBOSE OPTION**.

7. Type and enter **y**

Response: **RECENT CHANGE AND VERIFY CLASSES** page is displayed.

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

8. At RC/V terminal, type and enter:

**RCV:MENU:DATA,APPRC**

Response: **RECENT CHANGE AND VERIFY CLASSES** page is displayed.

9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.58: CHANGE AMAOPTION ATTRIBUTE

### OVERVIEW

**NOTE:** For more information about automatic message accounting (AMA), refer to 235-190-300, *Billing Features and Specifications*, feature document.

**NOTE:** The AMAOPTION attribute has the following valid values:

|                |                                             |
|----------------|---------------------------------------------|
| <b>NONE</b>    | No AMA recording                            |
| <b>AMATPS</b>  | Stream 1 billing (ST1)                      |
| <b>AMATPS1</b> | Stream 1 billing (ST1)                      |
| <b>AMATPS2</b> | Stream 2 billing (ST2)                      |
| <b>AMADUAL</b> | Stream 1 and Stream 2 billing (ST1 and ST2) |

### PROCEDURE

1. Review the AMAOPTION attribute.

Reference: **Procedure 15.19**

2. Is the AMAOPTION attribute **NONE** or **AMATPS**, **AMATPS1**, **AMATPS2**, or **AMADUAL**?

If **NONE**, continue with Step 3.

If **AMATPS**, **AMATPS1**, **AMATPS2**, or **AMADUAL**, go to Step 14.

3. Update the AMAOPTION attribute.

Reference: **Procedure 15.59**

4. Initialize the User Level Automatic Restart Process (ULARP).

Reference: **Procedure 15.60**

5. Initialize the AMA system process (AMCP) in the AM.

Reference: **Procedure 15.61**

6. Set AMA stream value.

Reference: **Procedure 15.62**

7. Clear configuration information.

Reference: **Procedure 15.63**

8. Equip AMA disk partitions.

Reference:     **Procedure 15.64**

9. Initialize the Disk Writer.

Reference:     **Procedure 15.65**

10. Set AMA stream value for each SM.

**NOTE:** This procedure must be completed for each SM in the office.

Reference:     **Procedure 15.66**

11. Set Up AMA control file.

Reference:     **Procedure 15.53**

12. Allow an AMA session.

Reference:     **Procedure 15.54**

13. Initialize the AMA system process (AMDC) in each SM.

Reference:     **Procedure 15.67**

**STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

14.             **CAUTION:** If the AMAOPTION is AMATPS, AMATPS1, AMATPS2, or AMADUAL, all Automatic Message Accounting (AMA) data must be teleprocessed or written to tape, as per local practices. Failure to complete the above will result in lost revenue.

**Reference:**     **Procedure 4.2**

15. Update the AMAOPTION attribute.

Reference:     **Procedure 15.59**

16. Set AMA stream value.

Reference:     **Procedure 15.62**

17. Clear configuration information.

Reference:     **Procedure 15.63**

18. Equip AMA disk partitions.



Reference:     **Procedure 15.64**

19. Initialize the Disk Writer.

Reference:     **Procedure 15.65**

20. Set AMA stream value for each SM.

**NOTE:** This procedure must be completed for each SM in the office.

Reference:     **Procedure 15.66**

21. Set up AMA control file.

Reference:     **Procedure 15.53**

22. Allow an AMA session.

Reference:     **Procedure 15.54**

23. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.59: SET AMAOPTION ATTRIBUTE FOR AMATPS—5E8 AND LATER****PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At the RC/V terminal type and enter **8.1**

Response: **I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **u**

Response: **OFFICE PARAMETERS (MISCELLANEOUS) - 8.1** is displayed.

4. Type and enter appropriate data for following key attribute:

**ATTRIBUTE****1. OFFICE ID \_\_\_\_**

Response: System completes remainder of view.  
Cursor at **Enter Update, Change, Validate, Screen#, or Print:**

5. Type and enter **c**

Response: **CHANGE FIELD:\_\_\_\_.**

6. Type and enter **48.**

Response: Cursor at AMAOPTION attribute.

7. Type and enter **amatps, amatps1, amatps2, or amadual.**

Response: **CHANGE FIELD:\_\_\_\_.**

8. Hit **CARRIAGE RETURN.**

Response: Cursor at **Enter Update, Change, Validate, Screen#, or Print:**

9. Type and enter **u**

Response: **Updating... FORM UPDATED.**

10. Type and enter **<**

Response:     **8.0 OFFICE MISC. & ALARM VIEWS** displayed.

11.   Type and enter **q**

Response:     **REPT: RCV - 196 COMPLETED**

12.   **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.60: INITIALIZE USER LEVEL AUTOMATIC RESTART PROCESS (ULARP)****PROCEDURE**

1. At master control center (MCC), type in message:

**INIT:ULARP;**

Response: If **OK** - Good. Indicates an attempt to initialize ULARP. Error information is output in the form of processor recovery messages and **REPT:ULARP** output messages. See 235-600-750, *Output Message Manual* page for **REPT:ULARP**.

If **PF** - Printout follows. Followed by an **INIT:ULARP** output message. See 235-600-750, *Output Message Manual* page for **INIT:ULARP**.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.61: INITIALIZE THE AMA SYSTEM PROCESS (AMCP) IN THE AM PROCEDURE

1. **CAUTION:** This message will purge the requested process. Any activity currently in progress will be killed. This may result in other asserts or audits as the system cleans up.

At master control center (MCC), type in message:

**INIT:AM:OKP,SPP,PID=22;**

Response: If **NG** - No good. The message was not accepted because an illegal *UNIX*® RTR operating system application process (DAP) or PID was specified. Contact your technical assistance organization.

If **PF** - Printout follows. The initialization request was accepted. Wait for an **INIT AM LVL=SPP OKP MANUAL-REQ COMPLETED** response message before continuing.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.62: SET AMA STREAM VALUE****PROCEDURE**

1. At master control center (MCC), type in message:

**SET:AMA:STREAM,[ST1|ST2|DUAL];**

**NOTE:** If AMAOPTION is **AMATPS** or **AMATPS1**, use ST1. If AMAOPTION is **AMATPS2**, use ST2. If AMAOPTION is **AMADUAL**, use DUAL.

Response: If **?I** - Invalid data stream value was specified in the input message.

If **OK** - Good. Data stream indicator was successfully set up.

If **RL** - Retry later. Process could not attach to a protected application segment, or a disk copy of the data stream indicator could not be opened or written.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.63: CLEAR AMA CONFIGURATION INFORMATION****PROCEDURE**

1. Clear automatic message accounting (AMA) configuration information.

At the master control center (MCC), type and enter the following messages:

```
EXC:ENVIR,UPROC,FN="/bin/sh",ARGS="-c"-  
"/no5text/prc/amnullcf > /database/amafiles/config.oc";
```

```
EXC:ENVIR,UPROC,FN="/bin/sh",ARGS="-c"-  
"/no5text/prc/amnullcf > /database/amafiles/config.ic";
```

Response: If **PF** — Printout follows. Followed by **EXC:ENVIR-UPROC** output message.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Procedure 15.64: EQUIP AMA DISK PARTITIONS

### PROCEDURE

1. **NOTE:** If the AMAOPTION is **AMATPS** or **AMATPS1**, partitions must be equipped for stream 1 (ST1). If the AMAOPTION is **AMATPS2**, partitions must be equipped for stream 2 (ST2). If the AMAOPTION is **AMADUAL**, partitions must be equipped for both stream 1 (ST1) and stream 2 (ST2).

**NOTE:** Using the following command without the **NOINIT** option removes the existing AMA data on the partition by clearing all pointers to the data.

At master control center (MCC), type and enter:

**SET:AMA:CONFIG:[ST1|ST2],PART=x,EQUIP[,NOINIT];**

Where: x = the number of the AMA partition you wish to equip.

Response: If **IP** - In progress. No errors or inconsistencies were found in the input data.

If **NG** - An error or inconsistency was found in the input data. Contact your technical assistance organization.

If **PF** - Printout follows.

If **RL** - Retry later. Either the process could not attach to a protected application segment, or another SET:AMA-CONFIG process is in progress.

**NOTE:** Repeat the above procedure for each AMA partition you wish to equip. It is suggested that there should be as many AMA partitions equipped as there are moving head disks (MHDs) in the office. For dual stream, it is suggested that the partitions be split even/odd between the two billing streams.

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**



**Procedure 15.65: INITIALIZE THE DISK WRITER****PROCEDURE**

1. **NOTE:** If the AMAOPTION is **AMATPS** or **AMATPS1**, the disk writer for stream 1 (AMDW1) must be initialized. If the AMAOPTION is **AMATPS2**, the disk writer for stream 2 (AMDW2) must be initialized. If the AMAOTPION is **AMADUAL**, the disk writer for stream 1 (AMDW1) and the disk writer for stream 2 (AMDW2) must be initialized.

At master control center (MCC), type in message:

**INIT:AM:[AMDW1|AMDW2],FPI;**

Response: If **NG** - No good. The message was not accepted because an illegal initialization level or DAP was specified. Contact your technical assistance organization.

If **IP** - In progress. The message was accepted and the request is in progress.

**CAUTION:** At least one partition must be equipped in order to successfully bring up the Disk Writer.

Reference: **Procedure 15.64**

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.66: SET AMA STREAM VALUE FOR EACH SM****OVERVIEW**

**NOTE:** If the AMAOPTION is **AMATPS** or **AMATPS1**, all SM(s) must be set up to use ST1. If the AMAOPTION is **AMATPS2**, all SM(s) must be set up to use ST2. If the AMAOPTION is **AMADUAL**, the office must have SM(s) set up to use ST1 and have SM(s) set up to use ST2. It is suggested that the SM(s) be split evenly between the two billing streams.

**PROCEDURE**

1. Select and prepare terminal for recent change and verify (RC/V) activities.

Reference: **Procedure 15.57**

2. At selected terminal, do Steps 3 through 12.

3. Type and enter **18.1**

Response: **I=Insert, R=Review, U=Update, D=Delete**

4. Type and enter **u**

5. Type and enter appropriate data for key attribute:

**ATTRIBUTE****1. SM \_\_\_\_**

Response: < System completes remainder of view >  
Cursor at **C = Change, U = Update**.

6. Type and enter **c**

Response: **CHANGE FIELD #\_\_\_\_**

7. Type and enter **33**

Response: Cursor at **BILLING STREAM** attribute.

8. Type and enter **ST1** or **ST2**.

Response: **CHANGE FIELD #\_\_\_\_**

9. Hit Carriage return

Response: Cursor at **C = Change, U = Update**.

10. Type and enter **u**

Response:     **Updating... FORM UPDATED**

11. Type and enter <

Response:     **18.0 SM & SLC + MODULE VIEWS** displayed.

12. Type and enter q

Response:     **RCV MENU APPRC COMPL**

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.67: INITIALIZE THE AMA SYSTEM PROCESS (AMDC) IN EACH SM****PROCEDURE**

1. **CAUTION:** This message will purge the requested process. Any activity currently in progress will be killed. This may result in other asserts or audits as the system cleans up.

2. Verify the switching modules (SM) in your office.

At master control center (MCC), type and enter

**OP:SYSSTAT,UCL;**

Response: If **NG** - No good. The message was not accepted because an illegal SM or CMP number or invalid range/type combinations was specified.

If **PF** - Printout follows. The message was accepted and the **OP:SYSSTAT-SUM** output message follows which specifies the current off-normal conditions for the specified modules.

**NOTE:** The SMs from the output message not in growth will be used in the following step. If the SM is in standalone, the following procedure will need to be completed upon the SM returning from stand-alone operation.

3. For each SM in your office, initialize its AMA system process, AMDC.

At master control center (MCC), type and enter

**INIT:SM=x,SPP,PID=34;**

Where: x = SM number whose AMA process you wish to initialize.

Response: If **NG** - No good. The message was not accepted for one of the following reasons:  
- An illegal SM number was specified.  
- An illegal initialization level or process identification (PID) was specified.

If **IP** - In progress. The message was accepted, and the request is in progress. Wait for an **INIT SM=x LVL=SPP COMPLETED** response message before continuing.

Where: x = SM number whose AMA process was initialized.

4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.68: SET DIP SWITCHES ON 212 DATA SET****PROCEDURE**

1. Set DIP switches on 212 data set as shown in Table 15.68-1 .

**Table 15.68-1 Set DIP Switches on 212 Data Set**

| <b>SWITCH</b>                                                                 | <b>DIP SWITCH<br/>LOCATION</b> | <b>DIP SWITCH SETTING <sup>a</sup></b> |
|-------------------------------------------------------------------------------|--------------------------------|----------------------------------------|
| S1                                                                            | 1                              | Down                                   |
| S1                                                                            | 2                              | not used                               |
| S1                                                                            | 3                              | Up                                     |
| S2                                                                            | 1                              | Down                                   |
| S2                                                                            | 2                              | Down                                   |
| S2                                                                            | 3                              | Up                                     |
| S2                                                                            | 4                              | Down                                   |
| S2                                                                            | 5                              | Down                                   |
| S2                                                                            | 6                              | Down                                   |
| S2                                                                            | 7                              | Up                                     |
| S2                                                                            | 8                              | Up                                     |
| S2                                                                            | 9                              | Up                                     |
| S3                                                                            | 1                              | Down                                   |
| S3                                                                            | 2                              | Down                                   |
| S3                                                                            | 3                              | Down                                   |
| S3                                                                            | 4                              | Down                                   |
| S3                                                                            | 5                              | Up                                     |
| S3                                                                            | 6                              | Up                                     |
| S3                                                                            | 7                              | Up                                     |
| S3                                                                            | 8                              | Up                                     |
| S5                                                                            | 1                              | Down                                   |
| S5                                                                            | 2                              | Down                                   |
| <b>Notes:</b>                                                                 |                                |                                        |
| a. Down is toward number on DIP switch. Up is away from number on DIP switch. |                                |                                        |

2. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

**Procedure 15.69: DEFINE TREATMENT AND ROUTE INDEX FOR FIXED ROUTE****PROCEDURE**

1. Select and prepare terminal for recent change and verify activities.

Reference: **Procedure 15.57**

2. At selected terminal, type and enter **10.1**

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

3. Type and enter **I**

Response: **FIXED ROUTE (ROUTING)** page displayed.  
Cursor at TRMT attribute.

4. Using the Translation Guide TG-5 and Office Records, select and enter the appropriate data.

Response: **Enter Data Base Operation**  
**I=Insert, R=Review, U=Update, D=Delete:**

5. Type and enter **I**

Response: **inserting....FORM INSERTED**  
**FIXED ROUTE (ROUTING)** page displayed.

6. Type and enter **<**

Response: **10.0 ROUTING & CHARGING VIEWS** page displayed.

7. Return to the procedure that directed you here.

**Procedure 15.70: ACCESS 3B20D/21D COMPUTER RECENT CHANGE****PROCEDURE**

1. Is master control center (MCC) Page **199** to be used to access Lucent Technologies 3B20D/21D computer recent change?

If **YES**, go to Step 4.

If **NO**, continue with Step 2.

2. At the MCC, type and enter:

**RCV:MENU:DATA,RCVECD,DB=INCORE,NREVIEW;PRINT="/tmp/x";**

3. Is forms selection page displayed?

If **YES**, **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, **seek technical assistance.**

4. At the MCC, access MCC Page **199**.

Response: **Recent Change and Verify** cursor positioned at **database\_name**:

5. Type and enter **incore**

Response: Cursor moves to **reviewonly**:

6. Type and enter **n**

Response: Cursor moves to **journaling**:

7. Type and enter **n**

Response: Cursor moves to **print\_file**:

8. Hit **CARRIAGE RETURN**.

9. To bypass other options, type and enter **\***

Response: At top right-hand corner of screen:  
**executing...** displayed  
**- FORM EXECUTED** displayed  
Cursor at **Enter Form Name**:

10. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

## Appendix 1: O&M CHECKLIST ALL SOFTWARE RELEASES

### 1.1 PURPOSE

Table 1-1 provides a ``**quick access**'' reference for the **O&M Checks** that should be performed on the 5ESS®-2000 switch. If the **O&M Checks** are accurately performed, the service provided by the 5ESS-2000 switch will be of the highest performance and quality.

**Table 1-1 O&M Checklist**

| CHK #                                                    | ITEM(s) FOR CHECK                  | ``HOW TO CHECK''                                                                                                                                                                                                                                                                            | ``HOW TO CLEAR''                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. CONTINUOUS CHECKS/MONITORING</b>                   |                                    |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1                                                        | Critical or major alarm            | Audible and visual alarm present. At top of MCC display, check STATUS area.                                                                                                                                                                                                                 | If system recovery action is in progress, give it time to complete. If manual intervention is required, use 235-105-250, <i>System Recovery Manual</i> . If unable to resolve with 235-105-250, attempt resolution with 235-105-220, <i>Corrective Maintenance Procedures</i> . Critical alarms require immediate attention. Problems causing major alarms (for example, MCTSI diagnostic) need craft intervention within an hour. |
| 2                                                        | Minor alarms                       | Audible alarm Present. At top of MCC display, check STATUS area.                                                                                                                                                                                                                            | Problems causing minor alarms may be deferred several hours, but should be resolved at least on a daily basis. Use 235-105-220, <i>Corrective Maintenance Procedures</i> .                                                                                                                                                                                                                                                         |
| <b>B. DAILY CHECKS — LISTED BY PRIORITY <sup>a</sup></b> |                                    |                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1                                                        | Excessive AM or SM Initializations | Use OMS5 Daily Report or scan ROP printouts for ``INIT AM...'', ``INIT CNI...'', or ``INIT SM...'' output messages. Also look for ``HWLVL=''. 8 or above is an SM initialization. This message gives the reason for the initialization. For AM inits: check for any failing/asserting PRMs. | Use 235-600-750, 5ESS®-2000 Switch Output Messages Manual, and 235-600-500, <i>Asserts Manual</i> , to analyze the ``INIT'' and associated messages (for example, ``PMSLOT...'', ``INITIALIZATION TRIGGER...'', ``AUD....'', etc.). Determine the cause of the initializations and correct it (if it has not already been done). If necessary, seek technical assistance.                                                          |
| 2                                                        | Excessive Interrupts               | Use OMS5 Daily Report or scan ROP printouts for ``REPT...'' output messages. Check for ``INTERRUPT'', ``TRBL'', etc.                                                                                                                                                                        | Analyze the interrupt reports and try to correlate them to a specific hardware (unit/circuit) and remove it from service (if this has not already been done). If the interrupts persist or the suspect unit cannot be repaired in a timely manner, seek technical assistance.                                                                                                                                                      |
| 3                                                        | Grid fabric failures               | Use OMS5 Daily Report or scan ROP printouts for ``TST GRID ...STF'' or ``TST GRIDBD...STF'' output messages.                                                                                                                                                                                | Use 235-105-220, <i>Corrective Maintenance Procedures</i> .                                                                                                                                                                                                                                                                                                                                                                        |
| 4                                                        | Equipment, out-of-service (OOS)    | Use OMS5 Daily Report or enter the appropriate input messages and check resulting output message. Examples: OP:cfgstat:OOS, OP:cfgstat:OOS,SM=x                                                                                                                                             | For each OOS unit or circuit, scan ROP printouts for related DGN output messages. Use 235-105-220, <i>Corrective Maintenance Procedures</i> .                                                                                                                                                                                                                                                                                      |
| 5                                                        | Lines, OOS                         | Use OMS5 Daily Report or enter OP:LIST,LINES; OOS and check resulting                                                                                                                                                                                                                       | For each OOS line, use 235-105-220, <i>Corrective Maintenance Procedures</i> .                                                                                                                                                                                                                                                                                                                                                     |



|                                                                                                                   |                                                                             |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                   |                                                                             | output message.                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 6                                                                                                                 | Trunks, OOS                                                                 | Use OMS5 Daily Report or enter OP:LIST,TRUNKS; OOS and check resulting output message.                                                                          | For each OOS trunk, use 235-105-220, <i>Corrective Maintenance Procedures</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7                                                                                                                 |                                                                             | Use OMS5 Daily Report, the RC/V view, or scan the ROP printouts for ``REPT: MDII..." output messages.                                                           | Use ROP printouts to identify a specific trunk or TU equipment. For trunk testing, use 235-105-220 or MLT facilities (as appropriate).                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 8                                                                                                                 | Excessive call failure reports (operational, per-call test, or call cutoff) | Use OMS5 Daily Report or scan the ROP printouts for ``REPT..." output messages. Look for ``PCTF", ``SWITCH CUTOFF" if switch cutoff call facility is turned on. | Use 235-600-750, 5ESS-2000 Switch Output Messages Manual, to correlate the reports for specific circuits that are to be removed and repaired (if this has not already been done). For ``REPT ALINK (or BLINK, LUCHAN, LEN, or PCTF)..." problems, use 235-105-220, <i>Corrective Maintenance Procedures</i> . For call cutoffs, the input message ``ALW:SCORPT, TRC..." may be helpful.                                                                                                                                                                              |
| 9                                                                                                                 | Data base relation REORG failures                                           | Use OMS5 Daily Report or scan the ROP printouts for ``REORG NEEDED (or CANCELLED)..." output messages.                                                          | Use 235-105-220, <i>Corrective Maintenance Procedures</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10                                                                                                                | Excessive defensive check failures (DCF's)                                  | Use OMS5 Daily Report or scan the ROP printouts for ``REPT ...DCF..." output messages. Or, scan for ``DEF-CHK" or ``RTA DCF".                                   | Use 235-600-500, <i>Asserts Manual</i> , and 235-600-750, 5ESS-2000 Switch Output Messages Manual, to resolve any ``REPT RTA DCFs ...". Attempt resolution promptly; DCFs may be serious service effects.                                                                                                                                                                                                                                                                                                                                                            |
| 11                                                                                                                | Excessive audit reports                                                     | Use OMS5 Daily Report or scan the ROP printouts for ``AUD..." output messages.                                                                                  | Use 235-600-400, <i>Audits Manual</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 12                                                                                                                | ODD Backup failures                                                         | Use OMS5 Daily Report or scan the ROP printouts for ``BKUP ODD, ABORTED" output messages.                                                                       | <p>Try to do the backup again. Switch the foundation peripheral controller (FPC) via SW:FPC= and try again; or INH:RC and keep everyone out while performing the BKUP:ODD and try again; or INH:RC get everyone out CLR:TRN (wait for completion) and try again.</p> <p><b>Note:</b> CLR:TRN will fire any data base audits needed such as OPNDNC, TRNDNC, MEMMAN. Also, look for an assert message (in DAYLOG file) associated with the failure using the 235-600-500, <i>Asserts Manual</i>.</p> <p>Otherwise, seek next higher level of technical assistance.</p> |
| 13                                                                                                                | Manual inhibits of automatic checks and functions                           | Use ``OP: INH" and ``OP: REXINH" input messages and check resulting output messages.                                                                            | Remove each inhibit using the appropriate ``ALW:..." input message unless there is a valid reason for the inhibit. Unless otherwise directed, there should be no inhibits.                                                                                                                                                                                                                                                                                                                                                                                           |
| C. SCHEDULED TASKS                                                                                                |                                                                             |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| —                                                                                                                 | All scheduled routine maintenance tasks                                     | Per procedures located in Section 2 — Equipment Test List, 235-105-210, <i>Routine Operations and Maintenance Procedures</i> .                                  | Each 5ESS-2000 switch may have variations of the ETL due to specific hardware and software configurations.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Notes:</b>                                                                                                     |                                                                             |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| a. Use of the OMS5 program on the switching control center system (SCCS) is highly recommended as a time-saver in |                                                                             |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

doing the daily checks. When interpreting the OMS5 Daily Reports, refer to the 235-105-119, *5ESS-2000 Switch Maintenance Guide Utilizing OMS5*, and the 235-600-750 *5ESS-2000 Switch Output Message Manual*.

## GLOSSARY

The following acronyms and abbreviations are used in this manual:

**ABD**

Alternate Boot Disk

**ACT**

Active Grid State

**AIU**

Access Interface Unit

**ALIT**

Automatic Line-Insulation Test

**AM**

Administrative Module

**AMA**

Automatic Message Accounting

**AMAT**

AMA Teleprocessing

**AMATPS**

Automatic Message Accounting Teleprocessing System

**AML**

Automatic Maintenance Limit

**APT**

Automatic Progression Testing

**ASCII**

American Standard Code for Information Interchange

**ASM**

Administrative Services Module

**ASW**

All Seems Well

**ATM**

Asynchronous Transfer Mode

**ATP**

All Tests Passed

**BITS**

Building Integrated Timing Source/Service

**BOLO**

Backout Last Overwrite

**BOW**

Binary Overwrite Command

**BTR**

Bus Terminating Resistor

**BWM**

Broadcast Warning Message (now called Software Update)

**CAROT**

Centralized Automatic Reporting on Trunks

**CATL**

Code Answer Test Line

**CATP**

Conditional All Tests Passed

**CCS**

Common Channel Signaling

**CDNY**

Customer Deny

**CFT**

Craft

**CGA**

Carrier Group Alarm

**CI**

Critical Information

**CIP**

Critical Indicator Panel

**CIRF**

Craft Interface Recovery Feature

**CLID**

Calling Line Identification List

**CLINK**

Communication Link

**CM**

Communication Module

**CM1**

Communication Module, Model 1

**CM2**

Communication Module, Model 2

**CMD**

Command

**CMP**

Communication Module Processor

**CN**

Change Notice

**CNI**

Common Network Interface

**COFLSB**

Clear Off-Line Superblock

**COMMS**

Central Office Maintenance Management System

**CORC**

Customer-Originated Recent Change

**CP**

Central Processor

**CR**

Change Request

**CSCANS**

Customer Service Computer Access Network System

**CSU**

Combined Service Unit

**CTTU**

Centralized Trunk Testing Unit

**CU**

Control Unit

**DAT**

Digital Audio Tape

**CUG**

Closed User Group

**DCTU**

Directly Connected Test Unit

**DDD**

Direct Distance Dialing

**DFC**

Disk File Controller

**DFI**

Digital Facilities Interface

**DFTAC**

Distributing Frame Test Access Circuit

**DGN**

Full Diagnostic

**DGR**

Degraded Grid State

**DLI**

Dual Link Interface

**DLN**

Direct Link Node

**DLTU**

Digital Line Trunk Unit

**DMA**

Direct Memory Access

**DMAC**

Direct Memory Access Controller

**DMERT**

Duplex Multienvironment Real Time

**DMI**

Dual-Message Interface

**DMQ**

Deferred Maintenance Queue

**DN**

Directory Number

**DNU-S**

Digital Networking Unit - SONET

**DRM-2000**

Distant Reliable Switch Module-2000

**DS1**

Digital Signal 1

**DSC**

Digital Service Circuit

**DSU**

Digital Service Unit

**EA**

Emergency Action

**EADAS**

Engineering and Administrative Data Acquisition System

**EAI**

Emergency Action Interface

**ECD**

Equipment Configuration Data Base

**ECS**

ECD Configuration System

**ELS**

Electronic Loop Segregation

**EMM**

Extended Main Memory

**EQL**

Equipment Location

**ERR**

Error

**ESD**

Electrostatic Discharge

**ESAC**

Electronic Switching Assistance Center

**ETL**

Equipment Test List

**EXM-2000**

Extended Switch Module-2000

**FAB**

Fabric Exerciser

**FAC**

Facility

**FETL**

Far-End Test Line

**FIN**

Fault Index Number

**FPC**

Foundation Peripheral Controller

**GDG**

Guard Data Guard

**GDSF**

Global Digital Services Function

**GDSU**

Global Digital Service Unit

**GDX**

Gated-Diode Crosspoint

**HLSC**

High-Level Service Circuit

**HOC**

Host Collector

**HSM**

Host Switching Module

**ID**

Identification

**IDCU**

Integrated Digital Carrier Unit

**IFAC**

IDCU Facility

**IMLT**

Integrated Mechanized Loop Testing

**IMLT2**

Integrated Mechanized Loop Testing 2

**IMPU**

Interface Module Processor Unit

**IOP**

Input/Output Processor

**IPM**

Interruptions Per Minute

**ISDN**

Integrated Services Digital Network

**ISLU**

Integrated Services Line Unit

**ISLU2**

Integrated Services Line Unit 2

**ISTF**

Integrated Services Test Facility

**LDFT**

Load Disk from Tape

**LDSU**

Local Digital Service Unit

**LED**

Light-Emitting Diode

**LEN**

Line Equipment Number

**LSI**

Loop-Side Interface

**LSM**

Local Switching Module

**LTD**

Local Test Desk

**LTP**

Logical Test Port

**LU**

Line Unit

**MASC**

Main Store Controller

**MCC**

Master Control Center

**MCTSI**

Module Controller/Time Slot Interchange Unit

**MCU**

Module Controller Unit

**MDM**

Modular Data Module

**MF**

Multifrequency

**MHD**

Moving Head Disk

**MI**

Message Interface

**MICU**

Message Interface Clock Unit

**MLHG**

Multiline Hunt Group

**MLT**

Mechanized Loop Test

**MOR**

Manual Override

**MPU**

Module Processor Unit

**MSCU**



Message Switch Control Unit

**MSG**

Message

**MSGS**

Message Switch

**MSGS/TMS**

Message Switch/Time Multiplexed Switch

**MSPU**

Message Switch Peripheral Unit

**MSU**

Metallic Services Unit

**MTTY**

Video Terminal

**NAR**

North American Region

**NARTAC**

North American Regional Technical Assistance Center

**NCT**

Network Control and Timing

**NG**

No Good

**NLI**

Network Link Interface

**ODBE**

Office Data Base Editor

**ODD**

Office Dependent Data

**ONTC**

Office Network and Timing Complex

**OOS**

Out of Service

**ORM**

Optically Remote Module

**OSS**

Operational Support System

**OTC**

Operating Telephone Company

**PAS**

Protected Application Segment

**PC**

Peripheral Controller

**PDF**

Power Distribution Frame

**PDS**

Program Documentation Standard

**PECC**

Product Engineering Control Center

**PF**

Printout Follows

**PFR**

Peripheral Fault Recovery

**PGTC**

Pair Gain Test Controller

**PICB**

Peripheral Interface Control Bus

**PID**

Process Identification

**PIDB**

Peripheral Interface Data Bus

**PPC**

Pump Peripheral Controller

**PRM**

Processor Recovery Message

**PRN**

Pseudo-Random Number

**PSS**

Programmer Support System

**PSU**

Packet Switch Unit

**PSU2**

Packet Switch Unit 2

**QGP**

QLPS Gateway Processor

**QLPS**

Quad-Link Packet Switch

**RAM**

Random-Access Memory

**RBOC**

Regional Bell Operating Company

**RC**

Recent Change

**RC/V**

Recent Change and Verify

**RDT**

Remote Digital Terminal

**REX**

Routine Exercise

**RI**

Route Index

**RL**

Repeat Later

**RLI**

Remote Link Interface

**RLS**

Release

**RMAS**

Remote Memory Administration System

**ROM**

Read-Only Memory

**ROP**

Receive-Only Printer

**ROS**

Request Out of Service

**ROTL**

Remote Office Test Line

**RQIP**

Request In Progress

**RSM**

Remote Switching Module

**RST**

Restore

**RT**

Remote Terminal

**RTR**

Real-Time Reliable

**SCANS**

Software Change Administration and Notification System

**SCC**

Switching Control Center

**SCCS**

Switching Control Center System

**SCSD**

Scanner and Signal Distributor

**SCSI**

Small Computer Systems Interface

**SDL**

Synchronous Data Link

**SDLC**

Synchronous Data Link Controller

**SDS**

Shared Data Segment

**SES**

Service Evaluation System

**SFID**

Secured Feature ID

**SITs**

Special Information Tones

**SIV**

System Integrity Verification

**SLIM**

Subscriber Loop Instrument Measurement

**SM**

Switching Module

**SM-2000**

Switching Module-2000

**SMD**

Storage Module Device

**SODD**

Static ODD

**SONET**

Synchronous Optical Network

**STBY**

Standby State

**STE**

SONET Terminating Equipment

**STF**

Some Tests Failed

**STEFAC**

SONET Terminating Equipment Facility

**STLWS**

Supplementary Trunk and Line Work Station

**SUPR**

System Update Procedures

**SWITCH**

Partial Diagnostic

**TAU**

Test Access Unit

**TDM**

Translations Data Manual

**TEN**

Trunk Equipment Number

**TL**

Test Line

**TLP**

Trouble Locating Procedure

**TLWS**

Trunk and Line Work Station

**TMCU**

Time Multiplexed Control Unit

**TMS**

Time Multiplexed Switch

**TMSU**

Time Multiplex Switch Unit

**TMUX**

Transmission Multiplexer

**TN**

Telephone Number

**TOP**

Task Oriented Practices

**TRM**

Two-Mile Optically Remoted Module

**TSIU**

Time Slot Interchange Unit

**TTF**

Transmission Test Function

**TTY**

Teletypewriter

**TU**

Trunk Unit

**UNAV**

Unavailable

**UTD**

Universal Tone Decoder

**UTG**

Universal Tone Generator

**VCDX**

Very Compact Digital Exchange

**VPA**

Voice Path Assurance

**VLMM**

Very Large Main Memory

**VML**

Variable Message Length

**VTOC**

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