

**NO. 2 SWITCHING CONTROL CENTER SYSTEM
NO. 2 ELECTRONIC SWITCHING SYSTEM APPLICATION
OPERATION AND TEST PROCEDURES**

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in addition to those specified in Section 190-110-321 and apply either to a newly installed SCCS or an in-service system to ensure the system is operating properly.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 The No. 2 SCCS No. 2 ESS configuration (Fig. 1) consists of a computer subsystem (CSS) and other facilities (which are concerned with the operation of a work station). Equipment in the work station area includes the critical indicator panel (CIP)—Fig. 2, the No. 2 ESS console—Fig. 3, the central office selector and junction unit (COSJU)—Fig. 4, cathode-ray-tube monitor and associated keyboard (CRT)—Fig. 5, alarm video monitor (AVM)—Fig. 6, line printer, and call director for voice communication. In addition, interface facilities are provided (as required for maximum system flexibility). For detailed information on the description of equipment, features, and procedures of the No. 2 SCCS which are common to all types of central offices, reference should be made to the following sections:

- 190-110-110—No. 2 SCCS Common Application Description
- 190-110-310—No. 2 SCCS Common Application Operating Procedures
- 190-110-311—No. 2 SCCS Common Application Growth and Recent Change Procedures
- 190-110-313—No. 2 SCCS Common Application System Recovery Procedures

1.04 This section covers the operation and test of the No. 2 ESS SCCS console and certain functions displayed on the CIP (which are peculiar to the No. 2 ESS application of No. 2 SCCS).

1.05 During normal operation, the SPCS status is continuously displayed on its associated CIP and the AVM at the SCCS. The SCCS computer subsystem (CSS) is continuously gathering TTY data from the SPCS for storage on disk or tape history files. The CSS also analyzes TTY messages for alarm conditions which are converted to visual and audible alarms at the SCCS. Audible alarms sound when an alarm condition exists at either the SPCS or the SCCS. The alarms may be self-retiring or may require manual release from

the work station CRT terminal keyboard, the remote maintenance teletypewriter (TTY), or the console.

1.06 The console and the CRT terminal are ordinarily not connected to any particular SPCS. The console is a mobile unit that may be moved and connected to a work station. Once it is connected to a work station, operations are required to access a particular SPCS. The CRT is permanently associated with a work station, and accessed to a particular SPCS. It is not moved from one work station to another.

2. OPERATING MODES

2.01 The No. 2 SCCS can be operated in either of two primary modes:

- (a) Full Access Mode
- (b) Monitor Mode.

FULL ACCESS MODE

2.02 In this mode, the No. 2 ESS SCCS console is essentially a functional equivalent of the No. 2 ESS maintenance center (MC) with lamp displays of the necessary status information together with remote control of the No. 2 ESS MC functions. This mode is normally used when full SCCS control of a No. 2 ESS is desired.

MONITOR MODE

2.03 This mode is normally used when either the No. 2 ESS is unmanned and operating normally or manned and under surveillance.

AUXILIARY TTY

2.04 In event of an SCCS CSS outage, a send/receive TTY can be connected to the work station to replace the REMOTE MAINTENANCE (REM MTCE) TTY function. Such an arrangement is a direct interconnection between the REM MTCE TTY and the SPCS involved, serving as a communication channel between the No. 2 ESS office (under SCC monitor/control) and the SCCS.

3. NO. 2 ESS SCCS CONSOLE

3.01 The No. 2 ESS SCCS console (together with the CRT) at the SCCS work station provides

the primary man-machine interface for the No. 2 SCCS monitor/control functions which are peculiar to the No. 2 ESS application. Monitor and control functions include retiring of alarms that are remotod to the SCCS from a No. 2 ESS, observing No. 2 ESS office status, performing tests on the No. 2 ESS office or the No. 2 ESS SCCS interface, undertaking emergency action procedures, etc. A description of the facilities peculiar to the No. 2 ESS application is covered in Section 190-115-110.

CONSOLE OPERATION

3.02 The No. 2 ESS SCCS console at the No. 2 SCCS is peculiar to the remote surveillance and control of a No. 2 ESS office. The lamps on the console show the state of the lamps on the No. 2 ESS MC display. In addition, there are lamps for central office alarm, telemetry and miscellaneous indications. The displays at the No. 2 ESS MC are transmitted to the SCCS via an E2A telemetry link. When a lamp on the MC is lighted, the corresponding output of a memory and display circuit provides a closure to light the equivalent lamps on the console. Selected key and switch controls at the MC are remotod to corresponding keys on the console keyshelf. The keys on the console keyshelf, when operated, cause the transmission of coded binary bit streams via telemetry to alternately operate or release relays at the No. 2 ESS which simulate the desired key action at the MC.

3.03 The keys on the console are mechanically nonlocking; however, they function as

electrically nonlocking or locking keys, depending on which type of key at the MC they duplicate. The operating sequence for a locking key is depress to operate, depress to release. For nonlocking keys the sequence is depress and hold to operate, release to release. With the locking sequence, the associated relay operates and remains operated until the key is operated again. In the nonlocking sequence, the associated relay tracks the key on the console. When the keys on the console keyshelf are operated, a command is sent via E2A telemetry to the MC. E2A scans the circuitry controlling the state of the key/lamp on the console and sends an execute command that changes the state of the corresponding MC key by means of a relay circuit. If the key/lamp was lighted, the E2A sends a command to simulate the release of the key at the MC. If the key/lamp was extinguished, the E2A sends an operate command to simulate the operation of the key.

CONSOLE DISCONNECTION, CONNECTION, AND ACCESSING

3.04 The No. 2 ESS SCCS console is a mobile unit which is moved and connected to a work station as needed. Since consoles are available for use at any work station, disconnection and connection of a console are routine operations. When a console is connected to a work station, console access to a No. 2 ESS is established by means of the COSJU. The functions of the COSJU dials and keys are provided in Table A.

TABLE A

CENTRAL OFFICE SELECTOR AND JUNCTION UNIT (COSJU) DIALS AND KEYS

DIAL	FUNCTION
AUDIBLE ALARM RELEASE	Used in conjunction with the ALM RLS key to silence audible alarms transmitted via telemetry to the SCCS. Selects the SPCS channel for which the alarms are to be released.
CHANNEL SELECT	Selects the SPCS (by TTY channel number) to be accessed by the console and/or TTY.
KEY	FUNCTION
CHAN RLS (Channel Release)	Releases full access to an SPCS and returns the console and/or the TTY to an idle state.
FA (Full Access)	Requests full access of the console and/or the TTY to the SPCS designated by the channel selector dial. This key is illuminated while the console or the TTY is accessing an SPCS.
RO (Receive Only)	Used when a TTY is used in place of the CRT. Places the TTY in a Receive Only mode. Any number of work station TTYs may be in an RO mode simultaneously on the same channel.
ALM RLS (Alarm Release)	Used in conjunction with the audible alarm release dial. Silences the audible alarm which is transmitted over the channel that is selected by the dial.

3.05 When connecting or disconnecting a console at a work station, the following procedures should be followed.

DISCONNECTING A CONSOLE

3.06 To remove a console from a work station, proceed as follows:

- (a) Turn console power off by operating the PWR switch (on left side of the keyshelf) to OFF.
- (b) Disconnect the power cord from the work station power outlet.
- (c) Disconnect the console control cable from the work station COSJU.

CONNECTING A CONSOLE

3.07 Connect a console to a work station as follows:

- (a) Turn console PWR switch to OFF.
- (b) Connect the console power cord to the work station power outlet.
- (c) Connect the console control cable to the work station COSJU.

ACCESSING A NO. 2 ESS

3.08 After the console is connected at a work station, per paragraph 3.07, access the desired No. 2 ESS as follows:

STEP	ACTION	VERIFICATION
1	Operate the console power switch to ON, rotate the COSJU channel select dials until the desired channel number is positioned over the selection points, and operate the COSJU FA key.	Console control CSL PWR ON, COSJU FA key, COSJU CHANNEL SELECT selection points, and CIP ON LINE lamps are lighted.

3.09 If *CIP* ON LINE lamp is not lighted, operate COSJU CHAN RLS and FA key. If *CONSOLE* TELEMETRY CENT and REM are lighted, operate *CONSOLE* TLM ALM RLS key. If the console CRITICAL, MAJOR and MINOR lamps flash, the office selected on the COSJU is not a No. 2 ESS.

CONSOLE KEYSHELF FEATURES

3.10 The keys and lamps on the console keyshelf are grouped according to functions which are peculiar to the No. 2 ESS application of SCCS. These functions will be briefly described in Section 190-115-110, however, for detailed information reference should be made to existing circuit description (CDs), schematic drawings (SDs), and BSPs in the 232 division.

4. CRT MONITOR AND KEYBOARD (CRT)

4.01 The functions associated with the CRT are primarily dependent upon access to (1), the remote maintenance TTY channel of the No. 2 ESS which is under SCCS SURVEILLANCE/CONTROL and (2), the data files stored in the SCCS computer subsystem. More specifically, these functions are:

- (a) Establishing No. 2 ESS SCCS alarm modes
- (b) Requesting No. 2 ESS status information
- (c) TTY backup and TTY restoral procedures
- (d) Telemetry backup and telemetry restoral procedures.

4.02 Common functions which are performed by the CRT are detailed in Sections 190-110-110, 190-110-310 and in the Users Guide for the SCCS. Briefly these functions include operating in various modes as the primary input/output device for the SCCS computer subsystem. If, however, any of these modes of operation are peculiar to the No. 2 ESS application of the SCCS rather than common to all applications, they will be covered herein and/or in Section 190-115-110.

4.03 In normal operation, the SCCS CSS monitors the remote TTY channels from all associated SPCSs for messages being transmitted to the SCCS. All of these messages are evaluated to determine whether they are of a critical nature. When messages are of a critical nature, the CSS initiates the action to bring up alarms in the SCCS.

NO. 2 ESS-SCCS ALARM MODES

4.04 At the SCCS, there are three alarm modes associated with the No. 2 ESS application. These modes, which are set up by TTY input messages to the No. 2 ESS office and the SCCS CSS, are as follows:

- Alarm Mode 1 (No. 2 ESS office alarm inhibit)—This mode is normally established when the No. 2 ESS is to be left unmanned and the SCCS will have control. In this mode, the audible alarms are inhibited at the No. 2 ESS and the audible and visual alarms are active at the SCCS.
- Alarm Mode 2—This mode is established when the No. 2 ESS central office alarm responsibility resides within the SPCS and appropriate action is taken by personnel at the central office.
- Alarm Mode 3—This mode is established when the No. 2 ESS is manned and alarms are desired at both the No. 2 ESS and the SCCS with the No. 2 ESS controlling (this situation would exist when maintenance or trouble clearing tasks are being performed at the No. 2 ESS). In this mode, the audible and visual alarms are active at both the No. 2 ESS and the SCCS (alarms have not been transferred to the SCCS from the No. 2 ESS).

PROCEDURE FOR ESTABLISHING NO. 2 ESS-SCCS ALARM MODES

4.05 Alarm modes are established by means of TTY input messages sent to the particular

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No. 2 ESS which has been accessed from the work station, as follows:

- (a) Alarm Mode 1—To establish this mode, the No. 2 ESS alarms are transferred to the SCCS via TTY message:

M SY:TFR:ALM!

The No. 2 ESS should respond with output message "OK". This indicates that the message was received and alarms were transferred from the No. 2 ESS to the SCCS. The audible alarms at the central office will retire automatically within 30 seconds after activation. The visual alarms remain active. In the No. 2 SCCS configuration, the alarm messages are transferred to the CSS which can then observe message groups and take appropriate action.

- (b) Alarm Mode 2—To establish this mode, alarms which were transferred to the SCCS are restored by TTY message:

M SY:RST:ALM!

Audible and visual alarms will then be continuous at the No. 2 ESS until retired. At the SCCS, the audible alarms generated by the SCCS CSS are inhibited by typing the appropriate TTY message [INH:ALARMS (OFC NAME)!—See IM-1P131 for details] on the CRT keyboard. This message will illuminate the AUD OFF light on the alarm video monitor and on the CIP.

- (c) Alarm Mode 3—To establish this mode, take same action as for Mode 2 but do not inhibit audible alarms generated by SCCS CSS.

PROCEDURES FOR RESTORING OR RETIRING ALARMS

4.06 The procedures for restoring or retiring alarms are as follows:

- (a) Audible alarms generated at the SCCS, via the E2A telemetry, can be silenced by depressing the ALM RLS key located on the COSJU after selecting the correct channel on the Audible Alarm Release dial.
- (b) Audible alarms generated at the SCCS, via transferred TTY messages (from No. 2 ESS), are silenced from the CRT by selecting the appropriate alarm release message.

[RETIRE:(SUBSYS,OFNAME)!]—see IM-1P131 for details.

- (c) Alarms at the SPCS can be retired by depressing the appropriate alarm reset key located on the No. 2 ESS SCCS console.

- (d) In addition to the above, there are AUD OFF switches at the SCCS which, when thrown, prevent audible alarms (except the critical alarm) from sounding in the SCCS. When an AUD OFF switch for a particular No. 2 ESS office is in the OFF position, only the CRITICAL alarm will sound and the AUD OFF lamp on the CIP will be illuminated.

5. TESTS

TEST REQUIREMENTS

5.01 The following test procedures provide a means to ensure that:

- (a) The SCCS configuration (peculiar to the No. 2 ESS application) is fully functional.
- (b) The No. 2 ESS response to commands transmitted via the SCCS-SPCS interface circuitry is correct.
- (c) The SCCS response to signals returned via the SCCS-SPCS interface circuitry is correct.
- (d) The SCCS-SPCS circuitry responds properly to commands initiated at the No. 2 ESS SCCS console (J1C016H) and the CRT at the work station.

TEST CONFIGURATION

5.02 The tests specified herein are to be performed either prior to cutover of a No. 2 ESS or in a low traffic period to minimize the risk of affecting service. In addition, this effort should be coordinated with users of the SERVICE ORDER TTY, etc, to avoid problems that would develop when tests involve removal of TTY channels. The test configuration will consist of a No. 2 ESS SCCS console connected to a work station with the CRT accessed to a manned No. 2 ESS office (MONITOR mode)—for No. 2 SCCS configuration. For a No. 1 SCCS configuration, the remote maintenance TTY will be connected at the work station with a No. 2 ESS SCCS console (FULL ACCESS mode). TTY

messages are typed in on the CRT for No. 2 SCCS or remote maintenance TTY for No. 1 SCCS. No. 2 ESS input and output messages are covered in the system message manuals, IM-2H200 and OM-2H200, accordingly reference should be made to these manuals, as necessary. For information on CRT usage and input and output messages for the SCCS, reference should be made to the Users Guide for the No. 2 SCCS (which consists of IM-1P131, OM-1P131, PA-1P131, PA-1P196, and PD-1P131).

5.03 After a No. 2 ESS SCCS console is connected to a work station and the console and the CRT (or TTY) are accessing the SPCS under test per paragraph 3.08 (OPERATING MODES), the following items should be checked before any tests are performed:

- Verify that the console SYSTEM STATUS indications are normal. Any indicated No. 2 ESS malfunction must be determined and cleared before proceeding.
- Verify that each key on the console is in its normal unoperated position (associated key/lamp extinguished.) The No. 2 ESS MC and SCCS console will have an ACTIVE and a RUN light on either CU 0 or CU 1

depending on which is on-line. The off-line CU will be in STANDBY, RUN. The only other lights which will be on are NORMAL (MAINTENANCE CENTER MODE), POWER (EMERGENCY ACTION PANEL), and LAMP POWER. Also, DISPLAY BUFFER lamps will be flashing.

- Establish a talking path over the Direct Distant Dialing (DDD) network between the crafts person at the No. 2 ESS MC and the SCCS work station.

5.04 The test procedures set forth in this section are separated in functional "groups" which correspond to the layout of the No. 2 ESS SCCS console (display panel and keyshelf).

Note: *MC* or *SCCS* preceding test indicates that ACTION or VERIFICATION takes place at No. 2 ESS *MC* or at *SCCS*. If tests are for a No. 2 SCCS configuration, set ASCC/BSCC switch in ASCC position (for No. 1 SCCS, set switch in BSCC position) on the AR 745().

Establish Alarm Mode 3—Alarms Active in Both No. 2 ESS Office and SCCS

TTY AND DATA SET DISCONNECT TESTS

STEP	ACTION	VERIFICATION
1	<p>Remove all even numbered TTYs (2, 4, and 6) from service in sequence.</p> <p>At MC TTY— Type in:</p> <p>M TT:RMV:a! a = channel to be removed.</p>	<p>At TTY control panel on MC frame— Corresponding TELETYPEWRITER DISCONNECT (T2, T4 or T6) lamp lighted. At TTY CONTROL STATUS area of SCCS control display panel— TTY DISCONNECT lamp lighted for each TTY channel as it is taken out of service.</p>
2	<p>At TTY control panel on MC frame— Operate POWER OFF-TA key.</p> <p>Note: When power is removed from TTY bus A, power is removed from MC EMERGENCY ACTION PANEL, but emergency action lamps will be lighted on console when console is powered.</p>	<p>At TTY control panel— POWER OFF-TA lamp lighted. At MC— MTCE FORCED lamp lighted. At TTY CONTROL STATUS area of SCCS console display panel— PWR OFF-TA lamp lighted. At SYSTEM STATUS area—</p>

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STEP	ACTION	VERIFICATION
	At MC— Release POWER OFF-TA key.	MTCE FORCED lamp lighted. (Note that there is an electrical interlock in the power control circuit to prevent manual removal of power from both A and B power buses at the same time.) At MC— POWER OFF-TA lamp extinguished. At TTY CONTROL STATUS area of SCCS display console— PWR OFF-TA lamp extinguished.
4	At MC TTY control panel— Operate DATA SET DISCONNECT and TTY DISCONNECT keys for even numbered channels 2, 4, and 6 in sequence.	At MC and SCCS— Lamps D2, D4, and D6 and T2, T4, and T6 lighted as key is operated.
5	At MC TTY control panel— Release TELETYPEWRITER DISCONNECT and DATA SET DISCONNECT keys for even numbered channels 2, 4, and 6.	At MC and SCCS— Lamps extinguished that were lighted in Step 4.
6	At TTY control panel— Restore DISCONNECT keys to their original position and restore channels 2, 4, and 6 to service. At MC TTY— Type in: M TT:RST:a!	At MC— Even numbered channels restored to service.
7	Remove and restore channel 1. At MC TTY— Type in: M TT:RMV:1! M TT:RST:1!	At DATA SET DISCONNECT area of MC TTY control panel— TR1 ON lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp lighted.
8	At TTY control panel on MC frame— Depress and hold TELETYPEWRITER DISCONNECT-RST key.	At MC TTY control panel— DATA SET DISCONNECT-TR1 ON lamp extinguished. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp

STEP	ACTION	VERIFICATION
		extinguished and RST lamp lighted while key is depressed.
9	Verify that the maintenance TTY is operational on channel 0. At MC TTY— Type in: M TT:TIM!	At MC TTY— Time printout received on channel 0.
10	At TTY control panel on MC frame— Operate TR1 ON key.	At TTY control panel— DATA SET DISCONNECT-TR1 ON lamp lighted. At MC— MTC FORCED lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp lighted. At SYSTEM STATUS area— MTCE FORCED lamp lighted.
11	Verify the maintenance TTY is operational on channel 1. At MC TTY— Type in: M TT:TIM!	At MC TTY— Time printout received on channel 1.
12	At TTY control panel on MC frame— Release TR1 ON key.	At TTY control panel— DATA SET DISCONNECT-TR1 ON lamp extinguished. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp extinguished.
13	Reactivate TR1. At MC TTY— Type in: M TT:RMV:1! and M TT:RST:1!	At TTY control panel— DATA SET DISCONNECT-TR1 ON lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp lighted.

STEP	ACTION	VERIFICATION
14	<p>Caution: <i>When operating momentary keys on console, do not hold operated for more than 1 or 2 seconds. If nonlocking keys are held for excessive time, tests will fail and MC could ultimately fail.</i></p> <p>At TTY CONTROL area of SCCS keyshelf panel— Depress RESET key momentarily and release.</p>	<p>At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp extinguished while the RESET key is depressed. At SYSTEM STATUS area— SCCS FORCED lamp lighted while the RESET key is depressed. At TTY control panel on MC frame— DATA SET DISCONNECT-TR1 ON lamp extinguished while the RESET key is depressed. At MC— SCCS FORCED lamp lighted while RESET key is depressed.</p>
15	<p>At TTY CONTROL area of SCCS keyshelf panel— Depress (operate) TR1 ON key.</p>	<p>At TTY control panel on MC frame— DATA SET DISCONNECT-TR1 ON lamp lighted. At MC— SCCS FORCED lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-TR1 ON lamp lighted. At SYSTEM STATUS area— SCCS FORCED lamp lighted.</p>
16	<p>At SCCS— Depress (release) TR1 ON key.</p>	<p>At MC— TR1 ON and SCCS FORCED lamps extinguished. TTY is operational on channel 0. At SCCS— TR1 ON and SCCS FORCED lamps extinguished.</p>
17	<p>Remove the odd-numbered TTYs (1, 3, 5 and 7) from service. At MC TTY— Type in:</p>	<p>At MC TTY control panel— Corresponding TELETYPEWRITER DISCONNECT lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— Corresponding TTY DISCONNECT lamp lighted.</p>
	<p>M TT:RMV:a! a = channel to be removed.</p>	

STEP	ACTION	VERIFICATION
18	At TTY control panel on MC frame— Operate POWER OFF-TB key.	At MC TTY control panel— POWER OFF-TB lamp lighted. At MC— MTC FORCED lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— PWR OFF-TB lamp lighted. At SYSTEM STATUS area— MTCE FORCED lamp lighted.
19	At TTY control panel— Release POWER OFF-TB key.	At MC— POWER OFF-TB and MTC FORCED lamps extinguished. At SCCS— PWR OFF-TB and MTCE FORCED lamps extinguished.
20	At TELETYPEWRITER DISCONNECT area of TTY control panel on MC frame— Depress RST key.	At MC— TTY is operational.
21	At TTY control panel on MC frame— Operate TELETYPEWRITER DISCONNECT and DATA SET DISCONNECT keys for channels 3, 5, and 7 in sequence.	At TTY control panel on MC frame— TELETYPEWRITER DISCONNECT lamps T3, T5, and T7 and DATA SET. DISCONNECT lamps D3, D5, and D7 lighted. At TTY CONTROL STATUS area of SCCS display panel— TTY DISCONNECT lamps T3, T5, and T7 and DATA SET DISCONNECT lamps D3, D5, and D7 lighted.
22	At TTY control panel— Release keys operated in Step 21.	At MC and SCCS— Lamps lighted in Step 21 extinguished.
23	Restore the TELETYPEWRITER DISCONNECT and DATA SET DISCONNECT keys to their original positions and restore channels 1, 3, 5, and 7. At MC TTY— Type in: M TT:RST:a!	

LOCAL AND REMOTE MAINTENANCE TESTS

24	At TTY control panel on MC frame— Operate LOC MTC key.	At TTY control panel— LOC MTC lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— TTY DISCONNECT-MTCE lamp lighted. At SYSTEM STATUS area— MTCE FORCED lamps lighted.
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STEP	ACTION	VERIFICATION
25	At TTY control panel on MC frame— Release LOC MTC key.	At MC and SCCS— Lamps lighted in Step 24 extinguished.
26	At TTY control panel on MC frame— Operate REM MTC key.	At TTY control panel— REM MTC lamp lighted. At MC— MTC FORCED lamp lighted. At TTY CONTROL STATUS area of SCCS display panel— DATA SET DISCONNECT-REM MTCE lamp lighted. At SYSTEM STATUS area— MTCE FORCED lamp lighted.
27	At TTY control panel— Release REM MTC key.	At MC and SCCS— Lamps lighted in Step 26 extinguished.
28	At TTY CONTROL area of SCCS keyshelf panel— Depress LOC MTCE key.	At TTY CONTROL area SCCS keyshelf panel— REM MTCE lamp lighted. At SYSTEM STATUS area of SCCS display panel— SCCS FORCED lamp lighted. At TTY control panel on MC frame— LOC MTC lamp lighted. At MC— MTC FORCED lamp lighted.
29	At TTY CONTROL area of SCCS keyshelf panel— Depress LOC MTCE key.	At MC and SCCS— Lamps lighted in Step 28 extinguished.
30	At TTY CONTROL area of SCCS keyshelf panel— Depress (operate) REM MTCE key.	At TTY CONTROL STATUS area of SCCS keyshelf panel— REM MTCE lamp lighted. At SYSTEM STATUS area of SCCS display panel— SCCS FORCED lamp lighted. At TTY control panel on MC frame— REM MTC lamp lighted. At MC— MTC FORCED lamp lighted.
31	At SCCS keyshelf panel— Depress (release) REM MTCE key.	At MC and SCCS— Lamps lighted in Step 30 extinguished.

MAINTENANCE CENTER MODE TESTS

32	Remove the off-line CU. At MC TTY— Type in: M CU:RMV!	At MC— Off-line CU is out of service.
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STEP	ACTION	VERIFICATION
33	<p>At MAINTENANCE CENTER MODE area of MC control and display panel— Depress NORMAL key and operate OFFLINE STOP key. At AUXILIARY FUNCTIONS area— Depress OFFLINE STOPPED MANUALLY key.</p>	<p>At MAINTENANCE CENTER MODE area of MC control and display panel— NORMAL lamp lighted and MANUAL and OFFLINE STOP lamps extinguished. At AUXILIARY FUNCTIONS area— OFFLINE STOPPED MANUALLY lamp extinguished. At MAINTENANCE CENTER MODE area of SCCS display panel— NORMAL lamp lighted and MANUAL and OFFLINE STOP lamps extinguished. At AUXILIARY FUNCTIONS area— OFFLINE STOPPED MANUAL lamp extinguished.</p>
34	<p>At MAINTENANCE CENTER MODE area of MC control and display panel— Depress MANUAL key. At AUXILIARY FUNCTIONS area— Depress OFFLINE STOPPED MANUALLY key.</p>	<p>At MAINTENANCE CENTER MODE area of MC control and display panel— MANUAL and OFFLINE STOP lamps lighted and NORMAL lamp extinguished. At AUXILIARY FUNCTIONS area— OFFLINE STOPPED MANUALLY lamp lighted. At MAINTENANCE CENTER MODE area of SCCS display panel— MANUAL and OFFLINE STOP lamps lighted and NORMAL lamp extinguished. At AUXILIARY FUNCTIONS area— OFFLINE STOPPED MANUAL lamp lighted.</p>
35	<p>At OFFLINE LOAD AND DISPLAY area of MC control and display panel— Depress LOAD key.</p>	<p>At MC control and display panel— LOAD lamp lighted. At OFFLINE LOAD & DISPLAY area of SCCS display panel— LOAD lamp lighted.</p>
36	<p>At OFFLINE AND DISPLAY area of MC control and display panel— Depress DISPLAY key.</p>	<p>At MC control and display panel— DISPLAY lamp lighted and LOAD lamp extinguished. At OFFLINE LOAD & DISPLAY area of SCCS display panel— DISPLAY lamp lighted and LOAD lamp extinguished.</p>
37	<p>At MAINTENANCE CENTER MODE area of MC control and display panel— Release OFFLINE STOP key and operate ONLINE INTERRUPT key.</p>	<p>At MC control and display panel— OFFLINE STOP lamp extinguished and ONLINE INTERRUPT lamp lighted. At MAINTENANCE CENTER MODE area of SCCS display panel— OFFLINE STOP lamp extinguished and ONLINE INTERRUPT lamp lighted.</p>
38	<p>At MC control and display panel— Release ONLINE INTERRUPT key.</p>	<p>At MC and SCCS— ONLINE INTERRUPT lamps extinguished.</p>

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STEP	ACTION	VERIFICATION
39	At MAINTENANCE CENTER MODE area of SCCS keyshelf panel— Depress NORM key momentarily.	At MAINTENANCE CENTER MODE area of SCCS display panel and at MC control and display panel— NORMAL lamps lighted and MANUAL lamps extinguished. At MC and SYSTEM STATUS area of SCCS display panel— SCCS FORCED lamps are lighted while key is depressed.
40	At MAINTENANCE CENTER MODE area of SCCS keyshelf panel— Depress MAN key momentarily.	At SCCS keyshelf panel— MAN lamp lighted and NORM lamp extinguished. At SYSTEM STATUS area of SCCS display panel— SCCS FORCED lamp lighted. At MAINTENANCE CENTER MODE section of MC control and display panel— MANUAL lamp lighted and NORMAL lamp extinguished. At MC— SCCS FORCED lamp lighted.
41	At MAINTENANCE CENTER MODE area of SCCS keyshelf panel— Depress (operate) ONLINE INT key.	At MAINTENANCE CENTER MODE area of MC control and display panel— ONLINE INTERRUPT lamp lighted. At MC— SCCS FORCED lamp lighted. At SCCS keyshelf panel— ONLINE INT lamp lighted. At SYSTEM STATUS area of SCCS display panel— SCCS FORCED lamp lighted. At MAINTENANCE CENTER MODE area— ONLINE INTERRUPT lamp lighted.
42	At SCCS keyshelf panel— Depress (release) ONLINE INT key.	At MC and SCCS— Lamps lighted in Step 41 extinguished.
43	At STORE MARGIN TEST area of MC control and display panel— Set MARGIN switch to PROGRAM STORE position.	At STORE MARGIN TEST area of SCCS display panel— PROGRAM STORE lamp lighted.
44	At STORE MARGIN TEST position of MC control and display panel— Set MARGIN switch to CALL STORE position.	At STORE MARGIN TEST area of SCCS display panel— CALL STORE lamp lighted and PROGRAM STORE lamp extinguished.
45	At MC control and display panel— Set MARGIN switch to OFF position.	At SCCS display panel— CALL STORE lamp extinguished.

STEP	ACTION	VERIFICATION
46	At MAINTENANCE CENTER MODE area of the MC control and display panel— Depress MANUAL key and operate OFFLINE STOP key. At AUXILIARY FUNCTIONS area— Depress OFFLINE STOPPED MANUALLY key. At DISPLAY BUFFER area— Depress all DISPLAY BUFFER keys.	At MC control and display panel and SCCS display panel— All DISPLAY BUFFER lamps lighted.
47	At DISPLAY BUFFER area of MC control and display panel— Depress CLEAR DISPLAY BUFFER key.	At MC control and display panel— All DISPLAY BUFFER lamps extinguished. CLEAR DISPLAY BUFFER lamp lighted while key is depressed. At SCCS display panel— All DISPLAY BUFFER lamps extinguished. CLR DISPL BUFR lamp lighted while MC panel CLEAR DISPLAY BUFFER key is depressed.
48	At MC control and display panel— Depress all DISPLAY BUFFER keys.	At MC control and display panel— All DISPLAY BUFFER lamps lighted. At SCCS display panel— DISPLAY BUFFER lamps lighted.
49	At DISPLAY BUFFER area of SCCS keyshelf panel— Depress CLEAR key.	At MC control and display panel— DISPLAY BUFFER lamps extinguished. At SCCS display panel— DISPLAY BUFFER lamps extinguished, CLR DISPL BUFR and SYSTEM STATUS— SCCS FORCED lamps lighted while key is depressed. At SCCS keyshelf panel— DISPLAY BUFFER-CLEAR lamp lighted.

ALARM AND COMPARATOR INPUT SWITCHES TESTS

Caution: *The ENABLE key primes the system for initialization. Do not operate the GO key while ENABLE is operated.*

50	At EMERGENCY ACTION PANEL of MC— Operate ENABLE key.	At EMERGENCY ACTION PANEL of MC— ENABLE lamp lighted. At SYSTEM STATUS area of MC panel— MAJOR ALARM lamp lighted. At SCCS display panel— MAJOR alarm lamp lighted. At MC and SCCS— Major alarm sounds.
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STEP	ACTION	VERIFICATION
51	At MC— Release ENABLE key.	At MC and SCCS— ENABLE lamp extinguished.
52	At ALARM RESET area of SCCS keyshelf panel— Depress MAJOR key.	At MC and SCCS— Major alarms silenced. SCCS FORCED lamps lighted while key is depressed.
53	Remove dial pulse receiver test circuits (group 40). At MC TTY— Type in: M SV:RMV:40 0!	At MC and SCCS— Minor alarm sounds and MINOR ALARM lamp lighted.
54	At keyshelf panel of SCCS— Depress ALARM RESET-MINOR key within 5 seconds. (If 5 seconds elapses and the burst alarm extinguishes, restore the circuit and then remove it again.)	At MC and SCCS— Minor alarms silenced and MINOR ALARM lamp extinguished. SCCS FORCED lamp lighted while key is depressed.
55	Restore dial pulse receiver test circuits— At MC TTY— Type in: MH SV:RST:40 0!	
56	At MC— Depress the NORMAL key and request a repetitive diagnostic on the off-line CU with the following: At MC TTY— Type in: MR CU:DGN:1!	At MC and SCCS— PASS or FAIL lamps are lighted upon completion of diagnostic.
57	At MC— Hold MAJOR ALARM RST key depressed and then release it.	At MC and SCCS— PASS lamps extinguished and FAIL lamp lighted while key is depressed.
58	At keyshelf panel of SCCS— Momentarily depress TEST STATUS-PF key.	At MC and SCCS— SCCS FORCED lamps lighted while key is depressed and PASS or FAIL lamps extinguished and lighted again when the diagnostic completes.
59	At MC— Remove the step diagnostic request.	

STEP	ACTION	VERIFICATION
	At MC TTY— Type in: M SY:CLR!	
REMOVAL AND TRANSFER FUNCTION TESTS		
60	Remove the off-line CU if it is not already out of service. At MC TTY— Type in: M CU:RMV!	At MC and SCCS— Verify that the off-line CU OUT OF SERVICE lamp and MAINTENANCE CENTER-INTERRUPT DISABLE lamp are lighted and the on-line CU ACTIVE and RUN lamps are lighted.
61	Return off-line CU to STANDBY. At MC TTY— Type in: M CU:RST!	At MC and SCCS— STANDBY and RUN lamp lighted when off-line CU is returned to STANDBY.
62	Switch CUs. At MC TTY— Type in: M CU:SWO (0 or 1)!	At MC and SCCS— STANDBY and RUN lamps lighted for the off-line CU.
63	At MC— Repeat Step 62.	At MC and SCCS— STANDBY and RUN lamps lighted for the off-line CU.
64	At COMPARATOR INPUT SWITCHES area of MC control and display panel— Set each switch to 1 position and the 0 position (in sequence).	At COMPARATOR INPUT SWITCHES area of SCCS keyshelf panel— Corresponding CIS lamp is lighted when switch is set to 1 and extinguished when switch is set to 0.
65	At COMPARATOR INPUT SWITCHES area of SCCS keyshelf panel— Depress (operate) and depress (release), in sequence, each CIS key.	At COMPARATOR INPUT SWITCHES area of SCCS keyshelf panel— Each CIS lamp is lighted when key is operated and extinguished when key is released. At SYSTEM STATUS area of SCCS display panel— CIS lamp lighted when key is operated and

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STEP	ACTION	VERIFICATION
		<p>extinguished when key is released. At MC— SCCS FORCED lamp lighted when key is operated and extinguished when key is released.</p>
66	<p>Remove maintenance center from service. At MC TTY— Type in: M MC:RMV!</p>	<p>At MAINTENANCE CENTER area of SCCS display panel and of MC control and display panel— OUT OF SERVICE lamps lighted.</p>
67	<p>At POWER CONTROL area of MC control and display panel— Operate MAINTENANCE CENTER CIRCUIT key.</p>	<p>At MC control and display console— MAINTENANCE CENTER CIRCUIT lamp lighted. All other lamps except OFFLINE CONTROL UNIT lamp extinguished. At POWER CONTROL area of SCCS display panel— MTCE CENTER CIRCUIT lamp lighted.</p>
68	<p>At POWER CONTROL area of MC control and display panel— Release MAINTENANCE CENTER CIRCUIT key.</p>	<p>At POWER CONTROL area of MC control and display panel— MAINTENANCE CENTER CIRCUIT lamp extinguished. At POWER CONTROL area of SCCS display panel— MTCE CENTER CIRCUIT lamp extinguished.</p>
69	<p>Restore maintenance center to service. At MC TTY— Type in: MH MC:RST! and M CU:RST!</p>	<p>At MAINTENANCE CENTER area of MC control and display panel and at SCCS display panel— OUT OF SERVICE lamp extinguished.</p>
70	<p>Inhibit audits. At MC TTY— Type in: M AU:INH!</p>	<p>At SYSTEM STATUS area of MC control and display panel— AUTOMATIC TEST INHIBIT lamp lighted. At SYSTEM STATUS area of SCCS display panel— AUTO TEST INHIBIT lamp lighted.</p>

STEP	ACTION	VERIFICATION
71	Restore audits. At MC TTY— Type in: M AU:RST!	At MC and SCCS— Lamps lighted in Step 70 extinguished.
72	Transfer alarms. At MC TTY— Type in: M SY:TFR:ALM!	At SYSTEM STATUS area of MC control and display panel and of SCCS display panel— ALARMS TRANSFERRED lamp lighted.
73	Restore alarms. At MC TTY— Type in: M SY:RST:ALM!	At SYSTEM STATUS area of MC control and display panel and of SCCS display panel— ALARMS TRANSFERRED lamp extinguished.

LAMP TESTS AND OFFLINE CONTROL TESTS

74	At AUXILIARY FUNCTIONS area of MC control and display panel— Operate LAMP-TEST key and then release.	At MC control and display panel and at SCCS display panel— All lamps lighted when key is operated and extinguished when key is released.
75	At AUXILIARY FUNCTIONS area of MC control and display panel— Release LAMP-POWER key and then operate the key.	At AUXILIARY FUNCTIONS area of MC control and display panel and at <i>SCCS</i> display panel— LAMP-POWER lamp extinguished when key is operated and lighted when key is released.
76	At MAINTENANCE CENTER MODE area of MC control and display panel— Depress MANUAL key and operate OFFLINE STOP key. At AUXILIARY FUNCTIONS area— Depress OFFLINE STOPPED MANUALLY key.	At MC and SCCS— Corresponding lamps are lighted.
77	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Depress SYSTEM RESET & CLEAR key and then release the key.	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel and of SCCS display panel— SYSTEM RESET & CLEAR lamp lighted when key is depressed and extinguished when key is released.

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STEP	ACTION	VERIFICATION
78	At MAINTENANCE CENTER MODE area of MC control and display panel— Depress MANUAL key and operate OFFLINE STOP key. At AUXILIARY FUNCTIONS area— Depress OFFLINE STOPPED MANUALLY and PROGRAM EXECUTE keys.	At MC control and display panel and at SCCS display panel— MANUAL, OFFLINE STOP and PROGRAM EXECUTE lamp lighted. OFFLINE STOPPED MANUALLY lamp extinguished and off-line RUN lamp lighted.
79	At MC control and display panel— Depress OFFLINE STOPPED MANUALLY key and load PA with O(177) by depressing: (a) DISPLAY BUFFER keys 6 through 0 (b) LOAD (c) PA (d) CLEAR DISPLAY BUFFER (e) DISPLAY (f) PA to verify.	At MC and SCCS— Corresponding lamps lighted or extinguished.
80	At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel— Depress SYS RESET & CLR key. At MC control and display panel— Depress CLEAR DISPLAY BUFFER, DISPLAY, and PA keys.	At MC and SCCS— Corresponding lamps and SCCS FORCED lamps lighted and extinguished when key is released. PA now contains O(177).
81	At COMPARATOR INPUT SWITCHES area of MC control and display panel— Set CIS switches to O(22). At AUXILIARY FUNCTIONS area— Depress (reset) INHIBIT AUTOMATIC DISPLAY key. At MAINTENANCE CENTER FUNCTIONS area— Operate COMPARE CSA-CIS key.	At MC control and display panel and at SCCS display panel— COMPARE CSA-CIS lamp lighted.
82	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release COMPARE CSA-CIS key and operate DYNAMIC CALL STORE READ key.	At MC and SCCS— COMPARE CSA-CIS lamp extinguished and DYNAMIC CALL STORE READ lamp lighted.
83	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release DYNAMIC CALL STORE READ key and operate DYNAMIC PROGRAM STORE READ key.	At MC and SCCS— DYNAMIC CALL STORE READ lamp extinguished and DYNAMIC PROGRAM STORE READ lamp lighted.
84	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release DYNAMIC PROGRAM STORE READ key and operate COMPARE PSB-CIS key.	At MC and SCCS— DYNAMIC PROGRAM STORE READ lamp extinguished and COMPARE PSB-CIS lamp lighted.

STEP	ACTION	VERIFICATION
85	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release COMPARE PSB-CIS key and operate COMPARE EXTERNAL-CIS key.	At MC and SCCS— COMPARE PSB-CIS lamp extinguished and COMPARE EXTERNAL-CIS lamp lighted.
86	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release COMPARE EXTERNAL-CIS key and operate COMPARE PA-CIS key.	At MC and SCCS— COMPARE EXTERNAL-CIS lamp extinguished and COMPARE PA-CIS lamp lighted.
87	At AUXILIARY FUNCTIONS area of SCCS keyshelf panel— Depress (operate) PROG EXEC key.	At SCCS keyshelf panel— PROG EXEC lamp lighted. At AUXILIARY FUNCTIONS area of MC control and display panel and at SCCS display panel— INHIBIT AUTOMATIC DISPLAY lamp lighted. At MC and SCCS— SCCS FORCED lamp lighted. DISPLAY BUFFER contents = 21.
88	At AUXILIARY FUNCTIONS area of SCCS keyshelf panel— Depress (operate) INHIBIT AUTO DISPLAY key.	At MC and SCCS— INHIBIT AUTOMATIC DISPLAY lamp extinguished and SCCS FORCED lamp lighted while key is depressed.
89	At AUXILIARY FUNCTIONS area of MC control and display console— Depress OFFLINE STOPPED MANUALLY key. At MAINTENANCE CENTER FUNCTIONS area— Release COMPARE PA-CIS key and operate EXECUTE ONE WORD NO ADVANCE key.	At MC and SCCS— OFFLINE STOPPED MANUALLY lamp lighted, COMPARE PA-CIS lamp extinguished. At MC— EXECUTE ONE WORD NO ADVANCE lamp lighted. At SCCS— EXECUTE ONE WORD NO ADV lamp lighted.
90	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release EXECUTE ONE WORD NO ADVANCE key and operate EXECUTE ONE INSTRUCTION & ADVANCE key.	At MC— EXECUTE ONE WORD NO ADVANCE lamp extinguished and EXECUTE ONE INSTRUCTION & ADVANCE lamp lighted. At SCCS— EXECUTE ONE WORD NO ADV lamp extinguished and EXECUTE ONE INST & ADV lamp lighted.
91	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release EXECUTE ONE INSTRUCTION & ADVANCE key and operate REPEAT EXECUTE ONE WORD key.	At MC control and display panel— EXECUTE ONE INSTRUCTION & ADVANCE lamp extinguished and REPEAT EXECUTE ONE WORD lamp lighted. At SCCS display panel— EXECUTE ONE INST & ADV lamp extinguished and REPEAT EXECUTE ONE WORD lamp lighted.

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STEP	ACTION	VERIFICATION
92	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release REPEAT EXECUTE ONE WORD key.	At MC control and display panel and at SCCS display panel— REPEAT EXECUTE ONE WORD lamp extinguished.
93	Make CU 0 active if not already active. At MC TTY— Type in: M CU:UPS!	At MC and SCCS— CONTROL UNIT 0-ACTIVE and -RUN lamps lighted and CONTROL UNIT 1-STANDBY and RUN lamps lighted.
<i>Caution: Do not use MC control unit switch or console power control keys to switch control units. Use TTY commands only for this operation.</i>		
94	At SYSTEM STATUS area of SCCS keyshelf panel— Depress (operate) LOCK CU 0 ACT key.	At MC control and display panel— LOCK CU0 ACTIVE lamp lighted. At SCCS display panel— LOCK CU 0 ACTIVE lamp lighted. At SCCS keyshelf panel— LOCK CU 0 ACT lamp lighted. At MC and SCCS— SCCS FORCED lamp lighted.
95	Attempt to switch CUs. At SCCS CRT keyboard— Type in: M CU:UPS!	At MC and SCCS— RL response is received.
96	At SYSTEM STATUS area of SCCS keyshelf panel— Depress (release) LOCK CU 0 ACT key.	At MC and SCCS— Corresponding lamps and SCCS FORCED lamps extinguished.
97	At SYSTEM STATUS area of MC control and display panel— Verify that CU 0 is active and operate LOCK CU0 ACTIVE key.	At MC and SCCS— Corresponding lamps and MTC FORCED lamps lighted.
98	At SYSTEM STATUS area of MC control and display panel— Release LOCK CU0 ACTIVE key.	At MC and SCCS— Corresponding lamps and MTC FORCED lamps extinguished.
99	Verify that CU 0 is active. At POWER CONTROL area of MC control and display panel— Set CONTROL UNIT SWITCH INHIBIT key to CONTROL UNIT 0 ACTIVE position.	At POWER CONTROL area of MC control and display panel and at SCCS control panel— CONTROL UNIT SWITCH INHIBIT lamps lighted.

STEP	ACTION	VERIFICATION
		<p>At POWER CONTROL area of SCCS keyshelf panel— CU 0 ACT lamp lighted. At SYSTEM STATUS area of SCCS display panel— MTCE FORCED lamp lighted. At MC— MTC FORCED lamp lighted and PD0 relay operated.</p>
100	<p>At POWER CONTROL area of MC control and display panel— Set CONTROL UNIT SWITCH INHIBIT key to OFF position.</p>	<p>At MC and SCCS— Lamps lighted in Step 99 extinguished and PD0 relay released.</p>
101	<p>At POWER CONTROL area of SCCS keyshelf panel— Depress (operate) CU 0 ACT key (depress until lamps are lighted) and then release.</p>	<p>At MC and SCCS— SCCS FORCED lamps lighted. At MC— CONTROL UNIT SWITCH INHIBIT lamp lighted.</p>
102	<p>At SYSTEM STATUS area of MC control and display panel— Operate LOCK CU0 ACTIVE key. At POWER CONTROL area— Operate OFFLINE CONTROL UNIT key (Bus B starts to power down).</p>	<p>At MC and SCCS— OFFLINE CONTROL UNIT lamp lighted and SEQUENCE FAILURE—BUS B lamp is lighted while power is sequencing down.</p>
103	<p>At MC— Release OFFLINE CONTROL UNIT key (Bus B starts to power up).</p>	<p>At MC and SCCS— OFFLINE CONTROL UNIT lamp extinguished and SEQUENCE FAILURE-BUS B lamp lighted while power is sequencing up.</p>
104	<p>At SYSTEM STATUS area of MC control and display panel— Release LOCK CU0 ACTIVE key.</p>	<p>At SYSTEM STATUS area of MC control and display panel— LOCK CU0 ACTIVE lamp extinguished. At SYSTEM STATUS area of SCCS display panel— LOCK CU 0 ACTIVE lamp extinguished.</p>
105	<p>Run CU diagnostics. At MC TTY— Type in:</p>	
	M CU:DGN!	<p>At MC and SCCS— Printout indicates CU diagnostics pass (ATP).</p>

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STEP	ACTION	VERIFICATION
106	If CU 1 is not active, switch CUs. At MC TTY— Type in: M CU:UPS!	At MC and SCCS— Corresponding lamps are lighted (on-line CU goes off-line and off-line CU goes on-line).
107	At SYSTEM STATUS area of SCCS keyshelf panel— Depress (operate) LOCK CU 1 ACT key.	At MC and SCCS— Corresponding lamps lighted and SCCS FORCED lamps lighted.
108	Attempt to switch CUs. At SCCS— Type in: M CU:UPS!	At MC and SCCS— RL response received (CUs do not switch).
109	At SYSTEM STATUS area of SCCS keyshelf panel— Depress (release) LOCK CU 1 ACT key.	At MC and SCCS— Corresponding lamps extinguished and SCCS FORCED lamps extinguished.
110	At SYSTEM STATUS area of MC control and display panel— Operate LOCK CU1 ACTIVE key.	At MC and SCCS— Corresponding lamps lighted and MTC FORCED lamps lighted.
111	At SYSTEM STATUS area of MC control and display panel— Release LOCK CU1 ACTIVE key.	At MC and SCCS— Corresponding lamps extinguished and MTC FORCED lamps extinguished.
112	At POWER CONTROL area of MC control and display panel— Verify that CU 1 is active and set CONTROL UNIT SWITCH INHIBIT switch to CONTROL UNIT 1 ACTIVE position.	At MC and SCCS— CONTROL UNIT SWITCH INHIBIT and MTC FORCED lamps lighted. At SCCS— CONTROL UNIT 1—ACTIVE lamp lighted. At MC— PD1 relay operated.
113	At POWER CONTROL area of MC control and display panel— Set CONTROL UNIT SWITCH INHIBIT switch to OFF position.	At MC and SCCS— Lamps lighted in Step 112 extinguished and PD1 relay released.
114	At POWER CONTROL area of SCCS keyshelf panel— Depress (operate) CU 1 ACT key (depress until lamp lighted and then release).	At MC and SCCS— Corresponding lamps lighted and SCCS FORCED lamps lighted. CONTROL UNIT SWITCH INHIBIT lamps lighted.
115	At SCCS— Depress (release) CU 1 ACT key.	At MC and SCCS— Lamps lighted in Step 114 extinguished.

STEP	ACTION	VERIFICATION
116	At SYSTEM STATUS area of MC control and display panel— Operate the LOCK CU1 ACTIVE key. At POWER CONTROL area— Operate OFFLINE CONTROL UNIT key (Bus A starts to power down).	At MC and SCCS— OFFLINE CONTROL UNIT lamp lighted and SEQUENCE FAILURE—BUS A lamp lighted while power is sequencing down.
117	At POWER CONTROL area of MC control and display console— Release OFFLINE CONTROL UNIT key (Bus A starts to power up).	At MC and SCCS— OFFLINE CONTROL UNIT lamp extinguished and SEQUENCE FAILURE—BUS A lamp lighted while power is sequencing up.
118	At SYSTEM STATUS area of MC control and display panel— Release LOCK CU1 ACTIVE key.	At MC and SCCS— LOCK CU 1 ACTIVE lamps extinguished.
119	Run CU diagnostics. At MC TTY— Type in: M CU:DGN!	At MC and SCCS— Printout indicates CU diagnostics pass (ATP).
120	At MAINTENANCE CENTER MODE area of MC control and display panel— Depress (operate) MANUAL key and release OFFLINE STOP key.	At MC and SCCS— MANUAL lamp lighted and OFFLINE STOP lamp extinguished.
121	At POWER CONTROL area of MC control and display panel— Operate TEST MODE REVERSAL ENABLE key and set switch to ON position and then release key and set switch to OFF position.	At MC and SCCS— Corresponding lamps lighted and extinguished when key and switch are operated and released. Also MTC FORCED lamp lighted and extinguished.
	Caution: Test Mode Reversal allows tests to be performed on on-line CU; should be used only in emergency.	

MAINTENANCE CENTER FUNCTIONS TESTS

122	Remove off-line CU from service if not already out of service. At MC TTY— Type in: M CU:RMV!	At MC and SCCS— Off-line CU OUT OF SERVICE lamp lighted.
123	At MAINTENANCE CENTER MODE area of MC control and display panel— Depress MANUAL key and operate OFFLINE STOP key.	At MC and SCCS— Corresponding lamps lighted.

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STEP	ACTION	VERIFICATION
	At AUXILIARY FUNCTIONS area— Depress OFFLINE STOPPED MANUALLY key.	
124	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Operate COMPARE EXTERNAL-CIS key.	At MC— COMPARE EXTERNAL-CIS lamp lighted. At MAINTENANCE CENTER FUNCTIONS of SCCS display panel— COMPARE EXT-CIS lamp lighted.
125	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Operate, verify results, and release in sequence DYNAMIC CALL STORE READ and COMPARE PA-CIS keys.	At MC— COMPARE EXTERNAL-CIS lamp extinguished and then lighted as keys are operated and released. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— COMPARE EXT-CIS lamp extinguished and then lighted as keys are operated and released.
126	At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel— Depress (operate), verify results, and depress (release), in sequence DYN PS READ, DYN CS READ, CMPR PA-CIS, and CMPR CSA-CIS keys.	At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— COMPARE EXT-CIS lamp extinguished and then lighted as each key is operated and released. At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— COMPARE EXTERNAL-CIS lamp extinguished and then lighted as each key is operated and released. At MC and SCCS— SCCS FORCED lamp lighted as each key is operated and extinguished when key is released.
127	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release COMPARE EXTERNAL-CIS key and operate DYNAMIC CALL STORE READ key.	At MC— COMPARE EXTERNAL-CIS lamp extinguished and DYNAMIC CALL STORE READ lamp lighted. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— COMPARE EXT-CIS lamp extinguished and DYN CALL STORE READ lamp lighted.
128	At MC— Operate, verify result, and release COMPARE PA-CIS key.	At MC— DYNAMIC CALL STORE READ lamp extinguished and lighted when key is operated and released. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— DYN CALL STORE READ lamp extinguished and lighted when key is operated and released.

STEP	ACTION	VERIFICATION
129	At MAINTENANCE CENTER FUNCTIONS of SCCS key shelf panel— Depress (operate), verify results, and depress (release) in sequence DYN PS READ and CMPR PA-CIS keys.	At SCCS keyshelf panel— Corresponding lamps lighted. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— DYN CALL STORE READ lamp extinguished and lighted when each key is operated and released. At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— DYNAMIC CALL STORE READ lamp extinguished and lighted when each key is operated and released. At MC and SCCS— SCCS FORCED lamps lighted and extinguished when each key is operated and released.
130	At MAINTENANCE CENTER FUNCTIONS AREA OF MC control and display panel— Release DYNAMIC CALL STORE READ key and operate DYNAMIC PROGRAM STORE READ key.	At MC— DYNAMIC CALL STORE READ lamp extinguished and DYNAMIC PROGRAM STORE READ lamp lighted. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— DYN CALL STORE READ lamp extinguished and DYN PROG STORE READ lamp lighted.
131	At MC— Operate COMPARE CSA-CIS key, verify results, and release key.	At MC— DYNAMIC PROGRAM STORE READ extinguished and lighted when key is operated and released. At MAINTENANCE CENTER FUNCTIONS of SCCS display panel— DYN PROG STORE READ lamp extinguished and lighted when key is operated and released.
132	At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel— Depress (operate), verify results, and release in sequence DYN CS READ and CMPR CSA-CIS keys.	At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— DYN PROG STORE READ lamp extinguished and lighted when key is operated and released. At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— DYNAMIC PROGRAM STORE READ lamps extinguished when key is operated and released. At MC and SCCS— SCCS FORCED lamp lighted and extinguished as key is operated and released.
133	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release DYNAMIC PROGRAM STORE READ key.	At MC control and display panel— DYNAMIC PROGRAM STORE READ lamp extinguished. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— DYN PROG STORE READ lamp extinguished.

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STEP	ACTION	VERIFICATION
134	At MAINTENANCE CENTER MODE area of MC control and display panel— Depress (operate) MANUAL key if not already operated.	At MAINTENANCE CENTER MODE area of MC control and display panel and of SCCS display panel— MANUAL lamp lighted and NORMAL lamp extinguished.
135	At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel— Depress (operate) in sequence CMPR PA-CIS, CMPR CSA-CIS, DYN PS READ, and DYN CS READ.	At MC and SCCS— Corresponding lamp lighted, operation of any of the other three keys has no affect while the indicated key is operated.
136	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release DYNAMIC CALL STORE READ key.	At MC control and display panel— DYNAMIC CALL STORE READ lamp extinguished. At MAINTENANCE CENTER FUNCTIONS area of SCCS display panel— DYN CALL STORE READ lamp extinguished.
137	Set the system to process a utility interrupt request as follows: (a) At MAINTENANCE CENTER MODE area of MC control and display panel— Release OFFLINE STOP key. (b) At MAINTENANCE CENTER MODE area of SCCS keyshelf panel— Depress (operate) ONLINE INT key. At MAINTENANCE CENTER FUNCTIONS area— Depress (operate) CMPR PA-CIS key.	At MC and SCCS— OFFLINE STOP lamp extinguished. ONLINE INTERRUPT lamp and COMPARE PA-CIS lamp lighted. All CIS lamps extinguished.
	(c) At SCCS CRT keyboard— Type in: UI CU:RED:10!	
138	Request a base level read on address 0. At SCCS— Type in: UB PS:RP:0!	At MC and SCCS— URCU RED 000010 with no additional data is generated as well as UR PS RP.

STEP	ACTION	VERIFICATION
139	Terminate detection tests. At SCCS— Type in: M CU:DET:0!	At MC and SCCS— OK follows input message indicating it has been completed.
140	At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel— Depress (release) CMPR PA-CIS key.	At SCCS and MC— COMPARE PA-CIS lamp extinguished.
141	At COMPARATOR INPUT SWITCHES area of MC control and display panel— Set all CIS switches to the 1 position.	At MC and SCCS— Corresponding lamps lighted.
142	At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Operate COMPARE PSB-CIS key.	At MC and SCCS— COMPARE PSB-CIS lamp lighted.
143	Request utility interrupt. At MC TTY— Type in: UI CU:RED:10!	At MC and SCCS— UR CR RED 000010 aaaaaa printout is generated.
144	Request a base level read on the symbolic address A1ML in PSDIG. At MC TTY— Type in: UB PS:RP:aaaaaa!	
145	Activate the detection tests. At SCCS— Type in: M CU:DET:1!	At MC and SCCS— OK follows input message indicating it has been completed.
146	At COMPARATOR INPUT SWITCHES area of SCCS keyshelf panel— Set CIS keys to address of BEGMM found in BLMM. At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— Release COMPARE PSB-CIS key. At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel—	At MC and SCCS— Contents of DISPLAY BUFFER match program listing at CIS address. (Read program at address BEGMM by typing: UB PS:RP:aaaaaa! Should match DISPLAY BUFFER).

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STEP	ACTION	VERIFICATION
	Depress (operate) DYN PS READ key. At AUXILIARY FUNCTIONS area— Reset INHIBIT AUTO DISPLAY key.	
147	At MAINTENANCE CENTER FUNCTIONS area of SCCS keyshelf panel— Depress (release) DYN PS READ key and depress (operate) DYN CS READ key. At COMPARATOR INPUT SWITCHES area— Set CIS keys to address of SYSTIM in LAYOUT.	At SCCS keyshelf panel— DYN PS READ lamp extinguished and DYN CS READ lamp lighted. At SCCS display panel— DYN PROG STORE READ lamp extinguished and DYN CALL STORE READ lamp lighted. At MAINTENANCE CENTER FUNCTIONS area of MC control and display panel— DYNAMIC PROGRAM STORE READ lamp extinguished and DYNAMIC CALL STORE READ lamp lighted. At MC and SCCS— DISPLAY BUFFER lamps are counting.
148	At SCCS keyshelf panel— Release DYN CS READ, ONLINE INT, and all CIS keys and depress (operate) NORM key.	At MC and SCCS— SCCS FORCE lamp extinguished and MAINTENANCE CENTER MODE— NORMAL lamp lighted.

EMERGENCY ACTIONS TESTS

149	At MC and SCCS— Verify that EMERGENCY ACTION PANEL power is on.	At MC EMERGENCY ACTION PANEL— POWER lamp lighted.
	Caution: Operating ENABLE key primes the system for initialization. Do not operate emergency action keys READY and GO after ENABLE key is operated.	
150	At EMERGENCY ACTION area of SCCS keyshelf panel— Depress (operate) ENABLE key.	At MC— SCCS FORCED lamp lighted. At MC EMERGENCY ACTION PANEL— ENABLE lamp lighted. At MC and SCCS— MA SY EAP 000002 is printed. At SYSTEM STATUS area of SCCS control panel— SCCS FORCED lamp lighted. At MC and SCCS— Major alarm generated.
151	At SCCS keyshelf panel— Depress ALARM RESET-MAJOR key and depress (operate) READY key.	At MC and SCCS— SCCS FORCED and READY lamps lighted. Major alarm silenced.

STEP	ACTION	VERIFICATION
152	At SCCS keyshelf panel— Depress (release) ENABLE key.	At MC and SCCS— SCCS FORCED and READY lamps extinguished.
153	At SCCS keyshelf panel— Depress (operate) STABLE key.	At MC and SCCS— STABLE and SCCS FORCED lamps lighted. MA SY EAP 000010 printed. Major alarm generated.
154	At SCCS keyshelf panel— Depress ALARM RESET-MAJOR key and depress (release) STABLE key.	At MC and SCCS— Major alarm silenced and STABLE lamp extinguished.
155	At SCCS keyshelf panel— Depress (operate) REC CHG/TAPE key.	At MC— REC CHANGE and SCCS FORCED lamps lighted. At SCCS— REC CHG/TAPE and SCCS FORCED lamps lighted. At MC and SCCS— MA SY EAP 000004 printed. Major alarm generated.
156	At SCCS keyshelf panel— Depress ALARM RESET-MAJOR key and depress (release) REC CHG/TAPE key.	At MC— SCCS FORCED and REG CHANGE lamps extinguished. At SCCS— SCCS FORCED and REC CHG/TAPE lamps extinguished.
157	At SCCS keyshelf panel— Depress GO key momentarily.	At MC and SCCS— GO and SCCS FORCED lamps lighted while key is operated.
<p>Caution: The Go function will not initialize the system when ENABLE is not set. Do not operate GO key in this step if ENABLE key is operated.</p>		
158	At SCCS keyshelf panel— Depress (operate) ENABLE and READY keys.	At MC and SCCS— ENABLE and READY lamps lighted.
159	At SCCS— Initialize system by depressing (operating) GO key.	At MC and SCCS— READY lamps extinguished, system initialization occurs, and MAJOR ALARM and SERVICE LOSS lamps lighted. Major alarms generated.

Caution: This step will clear out transient calls, etc; however, it should be performed periodically (in low traffic periods) to verify that this very important function is operational.

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STEP	ACTION	VERIFICATION
160	At SCCS keyshelf panel— Depress (reset) ENABLE key and ALARM RESET-MAJOR key.	At MC and SCCS— ENABLE and SCCS FORCED lamps lighted and MAJOR alarm lamp extinguished. Major alarm silenced.
161	At SCCS keyshelf panel— Depress (operate) TTY INIT key.	At MC and SCCS— Corresponding lamps and SCCS FORCED lamp lighted. Major alarm generated.
162	At SCCS keyshelf panel— Depress (operate) ALARM RESET-MAJOR key.	At MCC and SCCS— Major alarm silenced.
163	At EMERGENCY ACTION area of SCCS keyshelf panel— Depress (operate) POWER key.	At MC and SCCS— POWER and SCCS FORCED lamps lighted.
164	At SCCS keyshelf panel— Depress (operate) ENABLE and READY keys. (Refer to Caution in Step 149.)	At MC and SCCS— ENABLE and READY lamps lighted.
165	At SCCS keyshelf panel— Depress (release) ENABLE key.	At MC and SCCS— ENABLE and READY lamps extinguished.
166	At SCCS keyshelf panel— Depress (release) POWER key.	At MC and SCCS— SCCS FORCED lamp extinguished and POWER lamp remains lighted.
167	At SCCS— Type in: M CU:RMV!	
168	At MAINTENANCE CENTER MODE of SCCS keyshelf panel— Depress (operate) MAN and ONLINE INT keys.	At MC and SCCS— MANUAL, ONLINE INTERRUPT, and SCCS FORCED lamps lighted.
169	At MC— Operate SCCS ACCESS/DIS key.	At MC and SCCS— ONLINE INTERRUPT and SCCS FORCED lamps extinguished and MTC FORCED lamp lighted. At SCCS— TELEMETRY-REM PWR OFF lamp lighted.
170	At MC— Release SCCS ACCESS/DIS key.	At MC and SCCS— MTC FORCED lamp extinguished.
171	At SCCS keyshelf panel— Depress (release) ONLINE INT key.	At MC and SCCS— SCCS FORCED lamp extinguished.

STEP	ACTION	VERIFICATION
172	At MAINTENANCE CENTER MODE area of MC control and display panel— Depress (operate) NORMAL key. Restore off-line CU to service. At MC TTY— Type in: M CU:RST!	At MC and SCCS— System returns to normal status (status at start of tests).
173	At MC— Sequentially ground each of the following points.	At SCCS— Corresponding MISCELLANEOUS lamps lighted.

<u>Terminal</u>	<u>Lamp</u>
TSA-54	<i>a</i>
-56	<i>b</i>
-58	<i>c</i>
-42	<i>d</i>
-44	<i>e</i>
-51	<i>f</i>
TSB-48	<i>coml_pwr</i>

174	At MC— Temporarily ground 030-07-11 and then depress (reset) ALARM RESET-CRIT key.	At SCCS— CRITICAL lamp lighted and extinguished when CRIT key is depressed.
175	At MC— Check voltage at 030-01-16 initially, and when each of the following functions is activated and then released: LOCK CU0 ACTIVE or LOCK CU1 ACTIVE (whichever is on-line) SCCS ACCESS/DIS ALARM RESET-MAJOR (key on SCCS keyshelf panel) AUTOMATIC TEST INHIBIT [with M AU:INH! (to inhibit) and M AU:RST! (to restore)].	
176	At MC— Remove MC from service.	

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STEP	ACTION	VERIFICATION
At MC TTY— Type in:	M MC:RMV! and then remove MC power, and remove circuit pack A420 from locations 030-46, 030-47 and 030-48 and then restore power.	At MC— MAINTENANCE CENTER-OUT OF SERVICE lamp lighted.
177	At MC— Ground the following terminals:	At SCCS— The following lamps are lighted when terminals are grounded.
	030-46-16 -18 030-47-25 -24 -23 -21 030-48-15 -16	<i>net</i> <i>scan</i> <i>ama</i> <i>misc</i> <i>bldg_pwr</i> <i>ckt_lim</i> <i>traffic</i> <i>dsp</i>
178	At MC— Remove MC power, replace circuit packs that were removed in Step 175, restore MC power, and restore CU and MC. At MC TTY— Type in: MH MC:RST! M CU:RST!	At MC and SCCS— MAINTENANCE CENTER-OUT OF SERVICE lamp extinguished and lamps are lighted indicating off-line CU has been restored to service (tests on CU completed ATP).
179	At MC— Display the ferrod row for the E2A telemetry carrier alarm on the DISPLAY BUFFER. At MC TTY— Type in: UBRL TS:RSN:aabb! (aabb-scanner assignment for E2A carrier alarm ferrod.)	At MC and SCCS— Ferrod row will be displayed on DISPLAY

STEP	ACTION	VERIFICATION
180	At SCCS— Remove power from console and then clear the utility request. At CRT keyboard— Type in: UB SY:CLB!	BUFFER—designated scanner assignment ferrod indicated saturated (lamp extinguished). At MC— Ferrod will go unsaturated (lamp lighted).

6. GLOSSARY

AVM	Alarm Video Monitor	CSS	Computer Subsystem
CE	Control Equipment	DDD	Direct Distance Dialing
CIP	Critical Indicator Panel	MC	Maintenance Center
CO	Central Office	RO	Receive Only (TTY)
COSJU	Central Office Selector and Junction Unit	SCCS	Switching Control Center System
CRT	Cathode-Ray Tube and Keyboard	SPCS	Stored Program Control System
		TTY	Teletypewriter

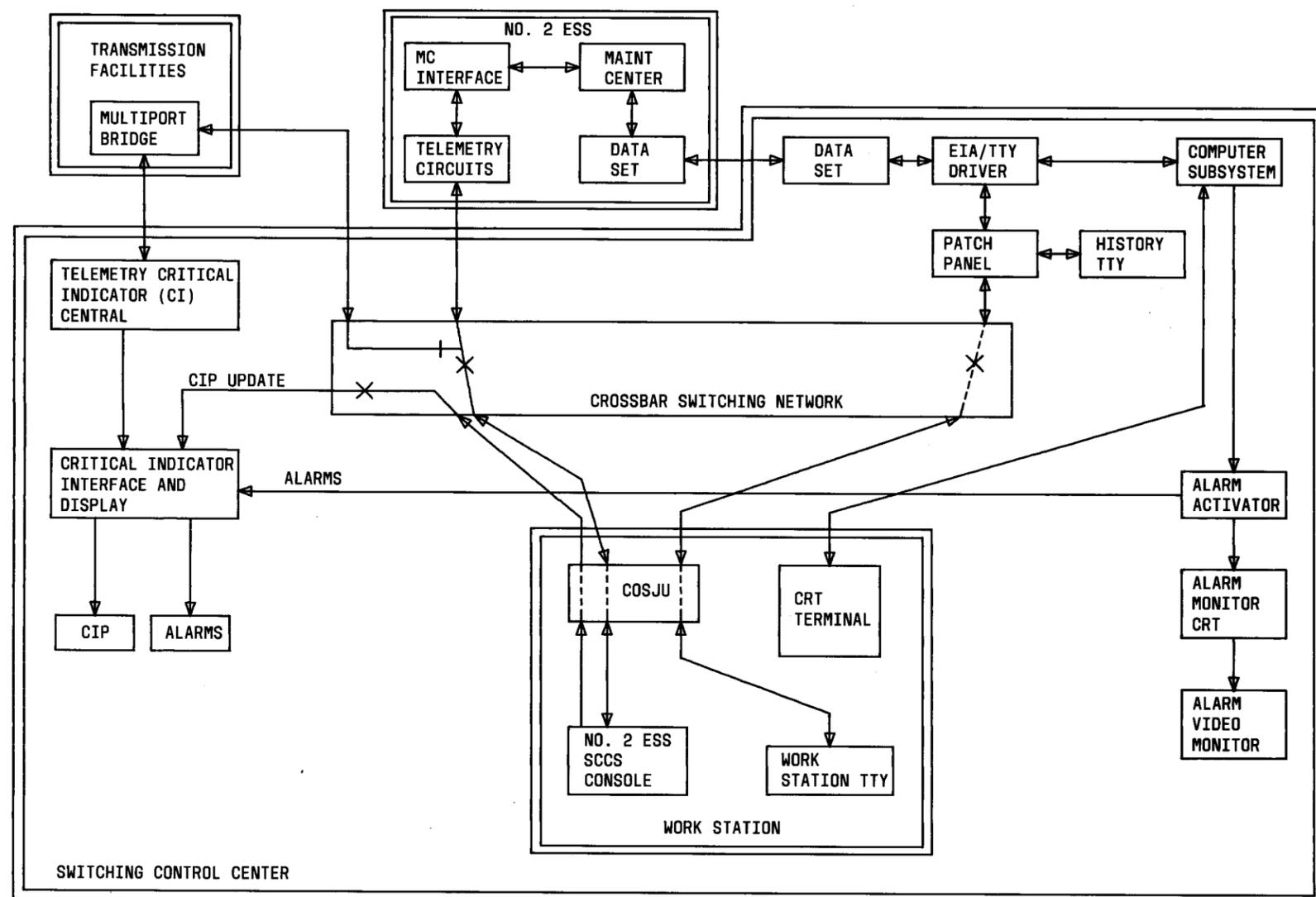


Fig. 1—No. 2 SCCS Configuration

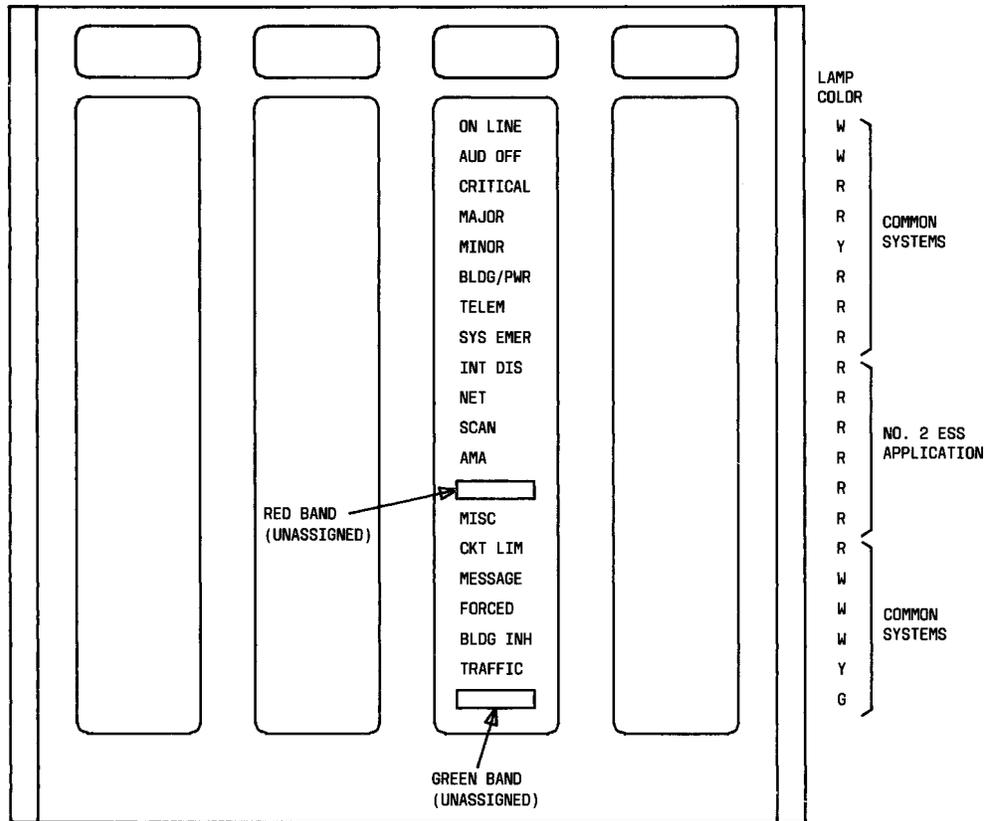


Fig. 2—Critical Indicator Panel

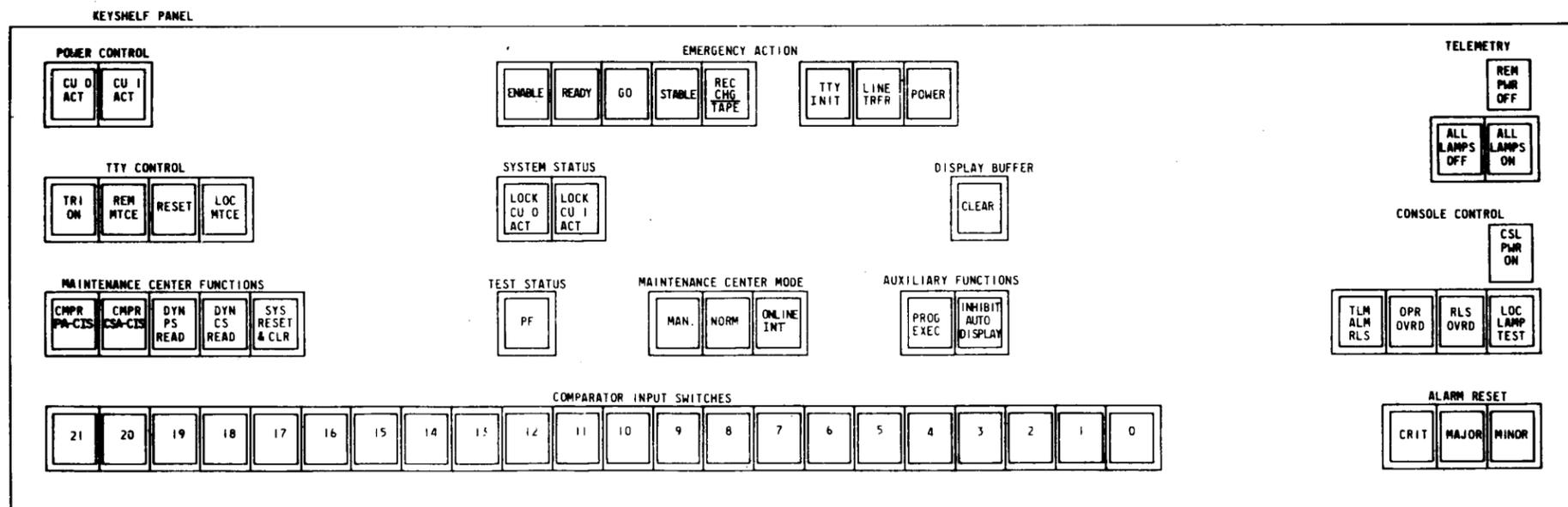
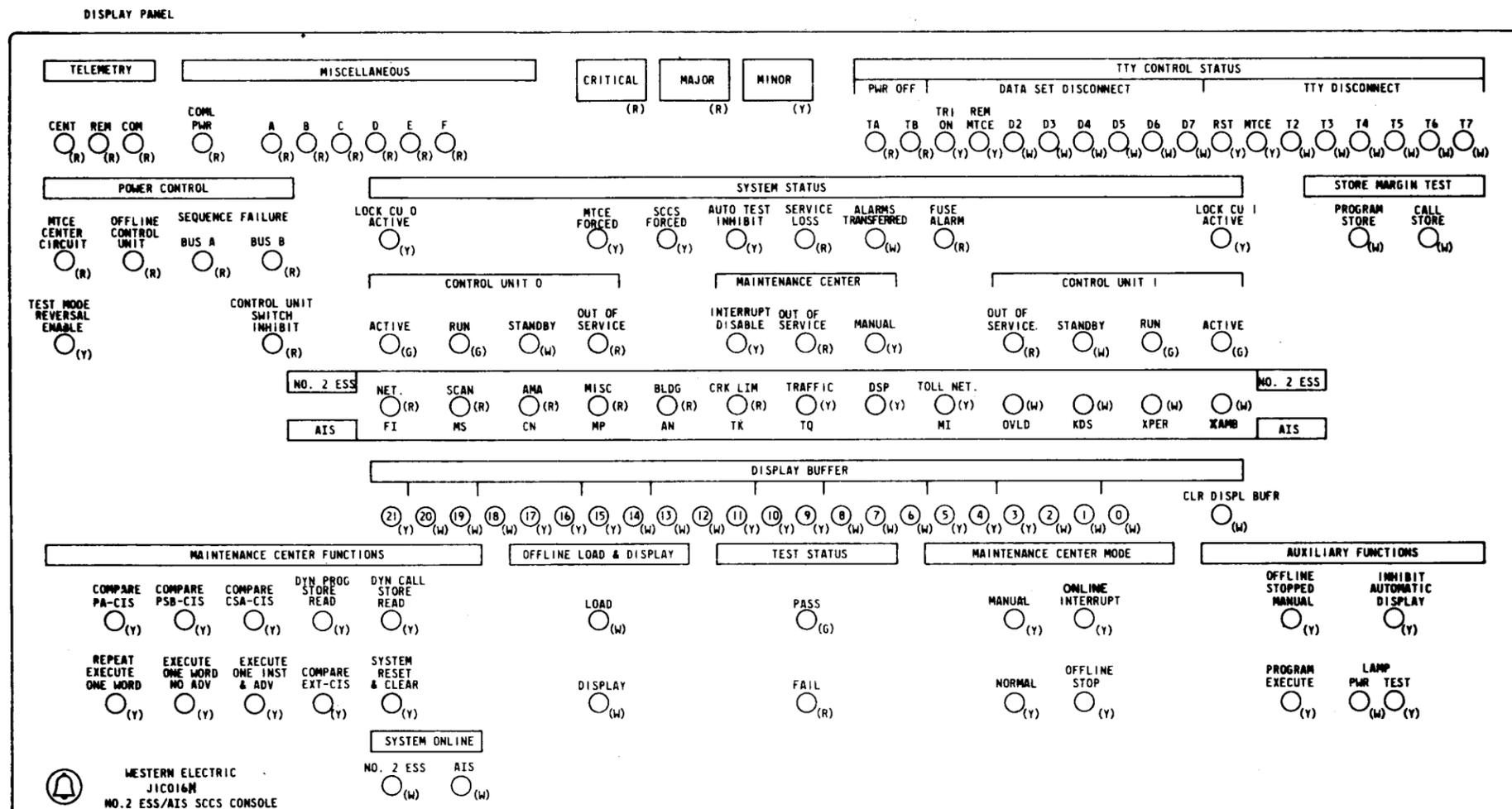


Fig. 3—No. 2 ESS/SCCS Console Display Panel and Keyshelf (J1C016A)

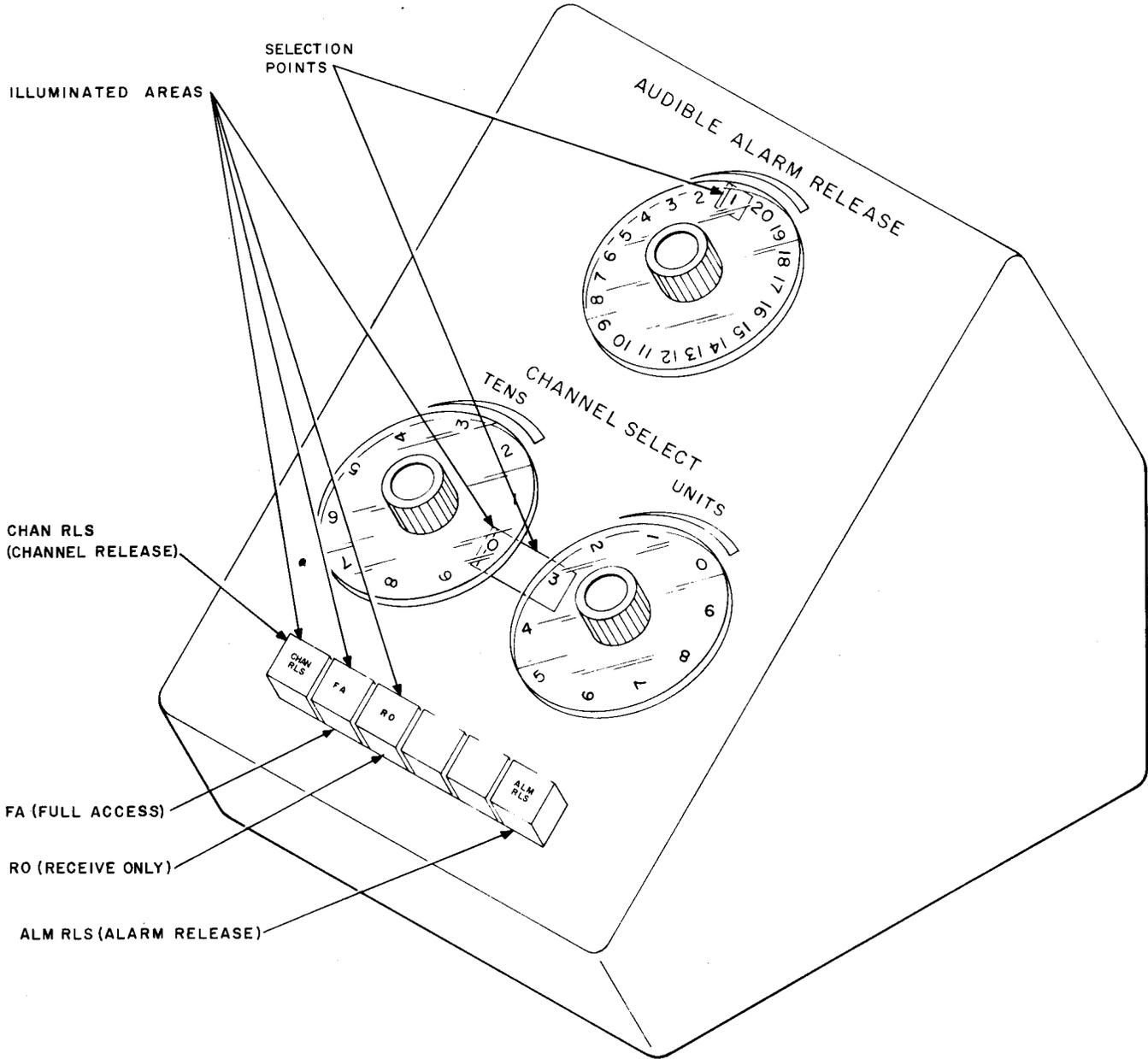
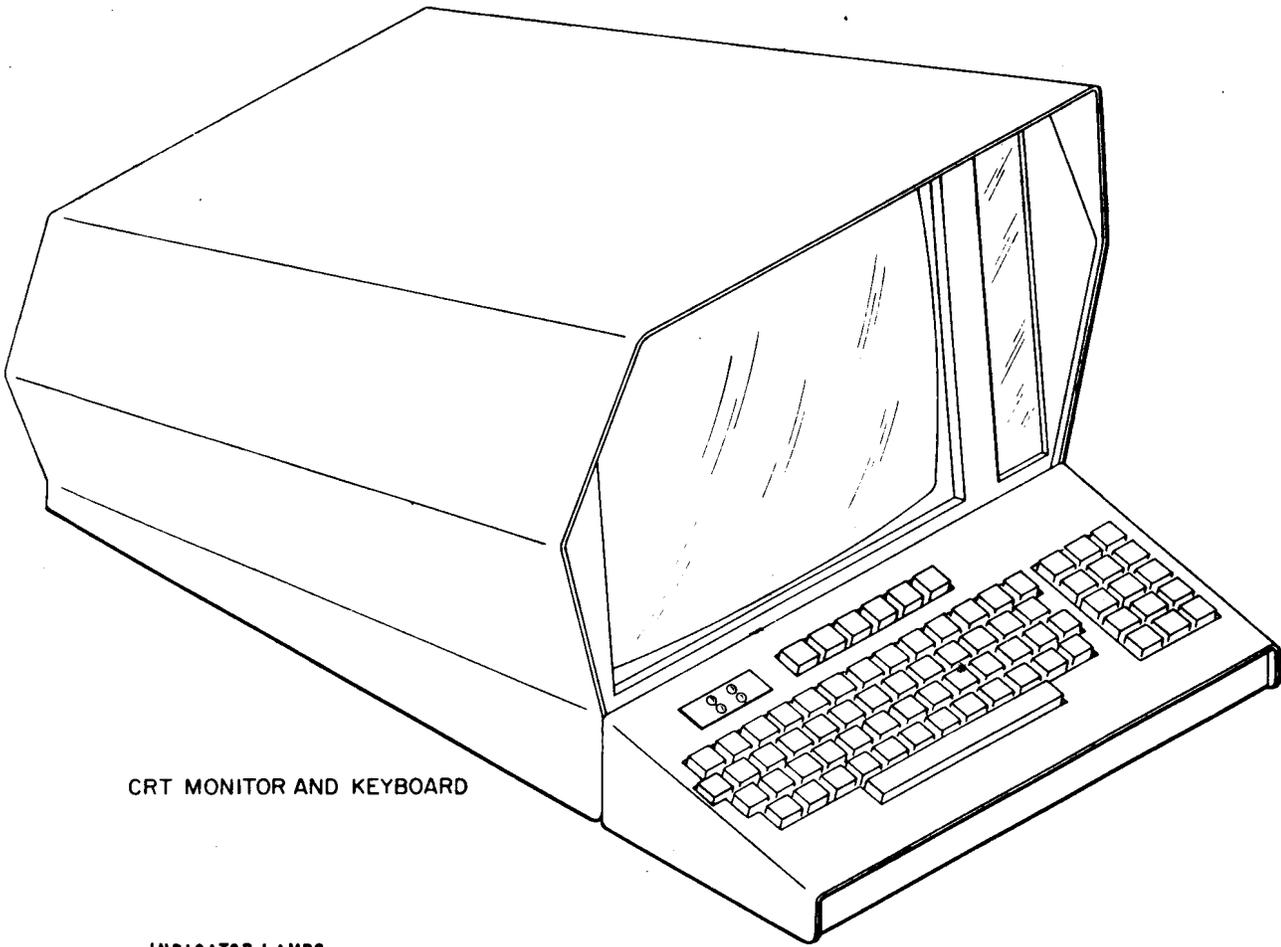


Fig. 4—Central Office Selector and Junction Unit (COSJU)



CRT MONITOR AND KEYBOARD

INDICATOR LAMPS

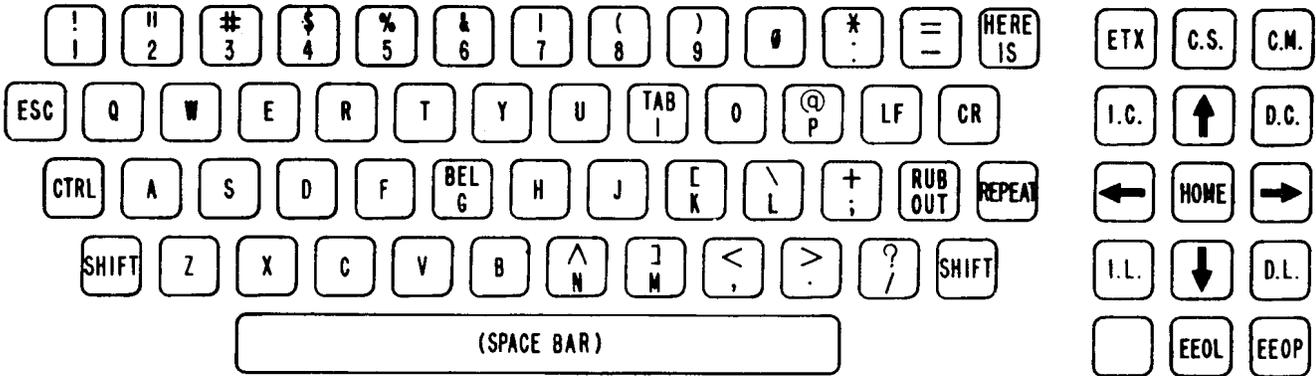


Fig. 5—CRT Terminal

OFC. NAME ON LINE CRITICAL * MESSAGE	MAJOR *	MINOR *	AUD. OFF *				

(SPACE FOR FIVE ONE-LINE MESSAGES)

* ONE OF THESE FOUR INDICATIONS WILL BE DISPLAYED DURING AN ALARM CONDITION.
IF THE ALARMS ARE INHIBITED, THE AUD OFF INDICATION WILL BE DISPLAYED.

Fig. 6—Alarm Video Monitor (AVM)