

**NETWORK SWITCHING PERFORMANCE MEASUREMENT PLAN**  
**INTEGRITY REVIEW**  
**NETWORK SWITCHED SERVICES**  
**NO. 1/1A ELECTRONIC SWITCHING SYSTEM**

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**1. GENERAL**

**1.01** This section provides a method to study the integrity review of the No. 1/1A Electronic Switching System (ESS) Network Switching Performance Measurement Plan (NSPMP) source data and computation accuracy.

**1.02** Whenever this section is revised, the reason(s) for reissue will be given in this paragraph.

**1.03** The title for each figure includes a number(s) in parentheses which identifies the paragraph(s) in which the figure is referenced.

**1.04** Figures 1 through 4 may be used independently or in any combination based on the type of review desired; however, data collection checks should be completed before any data testing is attempted.

**1.05** Some of the source data collected from a No. 1/1A ESS office is not used directly to compile service results. This source data is used for Trunking Forecasts, Engineering Capacities, etc. Even though this source data is not directly part of Form E-6421A (Control Group Report), it may affect service and must be covered in the data collection and data testing portions of the review.

**2. OBJECTIVE**

**2.01** This section provides a method of reviewing the No. 1/1A ESS NSPMP in order to assure its accuracy and reliability. It is recommended that results for 3 prior months be reviewed.

**2.02** In order to provide accurate end results, the data used must be tested from its source through all phases of processing.

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**2.03** This integrity review is designed to identify problems in the following areas:

- (a) ESS Register Assignments
- (b) Mechanized systems such as Engineering and Administrative Data Acquisition System (EADAS) and Network Operations Report Generator (NORGEN) and other downstream processors, such as Traffic Data Administration System (TDAS) and Central Office Equipment Reports (COER)
- (c) Administration of Manual Data Collecting Procedures
- (d) Accuracy of Control Group Report (E-6421A) and Summary Results (E-6421B) Forms
- (e) Retention of all documents and data used to compile No. 1/1A ESS indices.

### 3. LIMITATIONS

**3.01** This section is designed to provide a method of reviewing the No. 1/1A ESS NSPMP. This section does not change the guidelines for indices defined in Section 231-001-005.

**3.02** The integrity review should not be regarded as a personnel evaluation plan. Proper application will assist management in identifying engineering, administration, and maintenance problems that distort the accuracy of the No. 1/1A ESS NSPMP.

**3.03** The No. 1/1A ESS integrity review is designed so that it can effectively be used to review all or part of the switching control center. It can also be used by local office supervision to identify trouble. However, the use of the review should not be limited to central office review functions.

**3.04** This section is limited to the offices which perform an "end office" function (offices used less than 50 percent as tandem switches).

**3.05** This section is not intended for and should not be applied to No. 1/1A ESS 4-Wire HILO, common channel interoffice signaling (CCIS), or No. 1/1A ESS offices that switch more than 50 percent tandem traffic.

### 4. DATA COLLECTION

**4.01** The No. 1/1A ESS data registers are the primary source of data used for the NSPMP.

Data is collected from these registers on a quarter hour, hourly, daily, and weekly basis by teletypewriter or data polling circuits.

**4.02** Systems such as EADAS/NORGEN, COER, and TDAS are some of the downstream data processors in use today. The NSPMP guidelines for usable data are found in Section 231-001-005. All source data for the NSPMP must cover the same time frame, from the 23rd of the month to the 22nd of the following month.

**4.03** *ESS Register Verification:* A method of assuring that data is properly collected is as follows (see Fig. 1):

(a) Check latest telephone company (Telco) order and Parameter Data Assembler (PDA) listing against both the Hourly Traffic Schedule (H-Schedule) and the Continuous Traffic Schedule (C-Schedule). Make sure all required registers are assigned. If using NORGEN, check only for annual register verification.

(b) When were all the registers last verified? All registers must be verified annually. Use TRF-VFY-LIST message. See Section 231-070-515 for correct assignments.

(c) Dump traffic Matrix Printout (MAP). Is collect time correct for all schedules?

**4.04** *Manual Collection:* A method of assuring that data is properly collected is as follows (see Fig. 1):

(a) Data from the PM01 should match daily entries on Forms E-5230, E-10623, or equivalent (control records). The total of all the PM01s may not exactly agree to the PM02 but should be extremely close.

(b) Fifteen days of valid busy hour entries are required for each component per report period. Refer to Section 231-001-005.

(c) Dump Emergency Action (EA) save area and verify lines 10 and 11 of Form E-6421A. Planned EAs must be documented.

(d) Verify equipment count on line 12, column B, of Form E-6421A. See Table A to reconstruct equipment count, if necessary.

**4.05 Mechanized Data Collection:** A method of assuring that data is properly collected is as follows (see Fig. 1):

- (a) The NORGEN requires six office assignment files—entity, Data Collection Device (DCD) master, parameters, thresholds, trunk control, and message class. Output and verify as needed per PA-3B080-02 (EADAS/NORGEN Messages).
- (b) The EADAS requires one channel definition file per office—output and verify.
- (c) Verify office description file used for COER. See Section 231-070-555.
- (d) Review TDAS data collection reports such as TP816 and TP801.
- (e) Review EADAS abort errors.

**4.06** The latest Telco order and PDA listing should be checked against H- and C-Schedules.

**5. VERIFICATION OF FORM E-6421A**

**5.01** Figure 2 provides a guideline to determine the accuracy of Form E-6421A. It assumes that all source data is correct and is used only to determine if the source data is transcribed to Form E-6421A correctly and that the computations are correct.

**5.02** The following items are valid source documents and may be used all or in part for service results:

PM01	Daily Plant Measurement Printout
PM02	Monthly Plant Measurement Printout
H-Schedule	Hourly Traffic Schedule
C-Schedule	Continuous Traffic Schedule
TC15	Quarter-Hour Traffic TTY Printout
E-3994	Trunk Outage Report Form
EADAS/NORGEN NSPMP Report	-

SES Report                      Service Evaluation System Report

BSMP                              Billing Service Measurement Plan (M-125H)

TREAT-02 Report              Repair Service Bureau Report (Trouble Report Evaluation and Analysis Tool)

E-5230, E-10623 or equivalent              Control Records

Locally designed reports from No. 2 SCCS minicomputer

SCCS forms when on generic SC7 or later.

**6. DATA VERIFICATION AND TESTING**

**6.01** The mechanized system used to process No. 1/1A ESS data contains built-in programs for data verification and testing. These programs verify against office data files that are input manually. The office data files should be verified before attempting to validate or test processed data.

**6.02** After checking office data files, mechanized results may yet appear to be out of range; if so, compute manually from raw data and compare results.

**6.03 Mechanized Verification and Testing:** Figure 3 provides the following guide for verifying and testing data:

- (a) Review EADAS/NORGEN exception reports. Reports may be generated because of wrong threshold or range rather than ESS trouble.
- (b) The NORGEN NSPMP report computes daily results for lines 1, 2, 3, 8, 13, 14, 17, 18, and 21 of Form E-6421A and should match monthly results.
- (c) Review daily and monthly data reliability reports from COER.
- (d) Obtain data reliability test failure log and exception report. Look for components that fail and that are repetitively unflagged.

(e) Review daily reports from any mechanized systems making sure cumulative totals match the monthly summary.

**6.04 Manual Tests:** Figure 3 provides the following guide for verifying and testing data:

(a) Refer to Section 231-001-005 and check computation of all items for which direct register read out is not available; such as customer digit receiver overflow, receiver attachment delay recorder, and Automatic Message Accounting (AMA) overflow.

(b) Check Form E-3994 (trunk outage results summary) to validate data for line 4, column 6 (Section 660-400-010).

(c) Check Equipment Test List (ETL) Section 231-001-013. Completion of System Evaluation during the time frame under review should result in deductible interrupts. Form E-6429 (record of test failure deductions) must be used to document deductible interrupts per Section 231-001-005.

(d) Line 12, column A, may have outage hours for growth frames deducted, if documented on Form E-4256 (equipment outage). Obtain latest Normal Business Day (NBD) or Abbreviated Business Day (ABD) study, PM01, must specify the same type day.

(e) Check the PDA listing to see what size AMA registers are available. If all three sizes are available, line 14 must be computed manually since EADAS/NORGEN will not handle three sizes.

(f) If coin control failures are high with no overflow on the trunk group, check PDA listing for number of coin control registers. The quantity of registers must be one less than the number of trunks in a coin control group in order to overflow.

(g) Was overflow from certain trunk groups such as Direct Inward Dialing (DID) and Common Control Switched Arrangement (CCSA) deducted and documented? If applicable, see Section 231-001-005.

(h) Dial Pulse receiver time-outs may not score correctly. Verify that Broadcast Warning Message 80-262 is applied correctly including appropriate trunk class code changes.

(i) Investigate repeated softspot and low band items. In Operating Telephone Companies-Centralized Results System (OTC-CRS), programs are available to extract trend information.

(j) Review printout for 0-80 Audits indicating No. 1/1A ESS register trouble. Audit runs print daily at 0200 hours but input message TC-work-set 0233 will request audits on a demand basis.

(k) Review TOC01 messages. Network tests such as false cross ground and restore verify should not be inhibited.

**7. RECORD RETENTION**

**7.01** Figure 4 provides a guideline for checking results reporting and record retention.

**7.02** All forms, both standard and locally developed, printouts, and/or other documentation used in the preparation of results data reported on Forms E-6421A and E-6421B shall be retained for 1 year. It is recommended that a retention file system similar to that described in Section 190-130-010, Stored Program Control Systems (SPCS)—Switching Control Center (SCC) Controlled Maintenance Plan, be used.

**7.03** The following is a list of items requiring 1-year retention.

PM02	Monthly Plant Measurement Printout
E-6421A	Control Group Report
E-6429	Record of Test Failure Deductions
E-4256	Equipment Outage
E-3994	Trunk Outage
TREAT-02 Report	-
Control Record	-
MOPS associated with EA phases and interrupts deducted from index	
NSPMP Report from NORGEN	
Tickets and Logs	

Record of trunk groups qualifying for deductible office overflow

Record of trunk groups qualifying for deductible receiving time-outs

Record of total equipment count in line 12 of Form E-6421A. (A sample is provided in Table A.)

**8. INTERPRETATION AND USE OF REVIEW RESULTS**

**8.01** The problems that are identified by use of this review cover many areas of responsibilities where no one individual or group is responsible for the resolution. Cooperation among involved force groups is necessary to resolve both machine and ad-

ministrative problems. This would eliminate less impact on service and results.

**8.02** The prime responsibility of the review person is to determine if the instructions in the NSPMP are followed correctly, that the data used to compute the index are valid, and that supporting documents are maintained for review purposes.

**8.03** Results of the review must be discussed in detail with local supervision of the control group involved. If corrective action is needed, it should be agreed to and implemented at this time. An official report should then be filed with follow-up to ensure that corrective actions are completed.

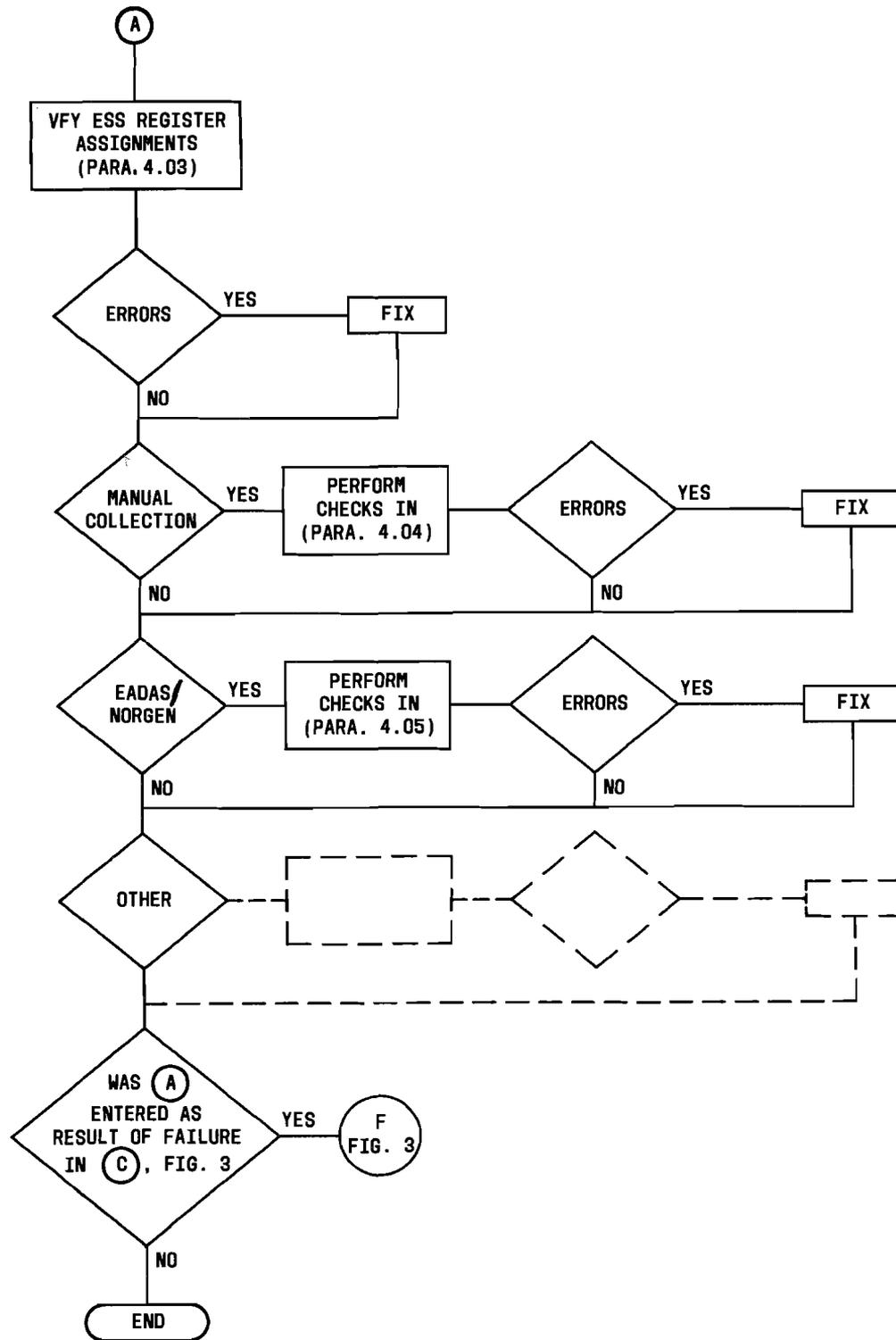


Fig. 1—Data Collection Flowchart (4.03)

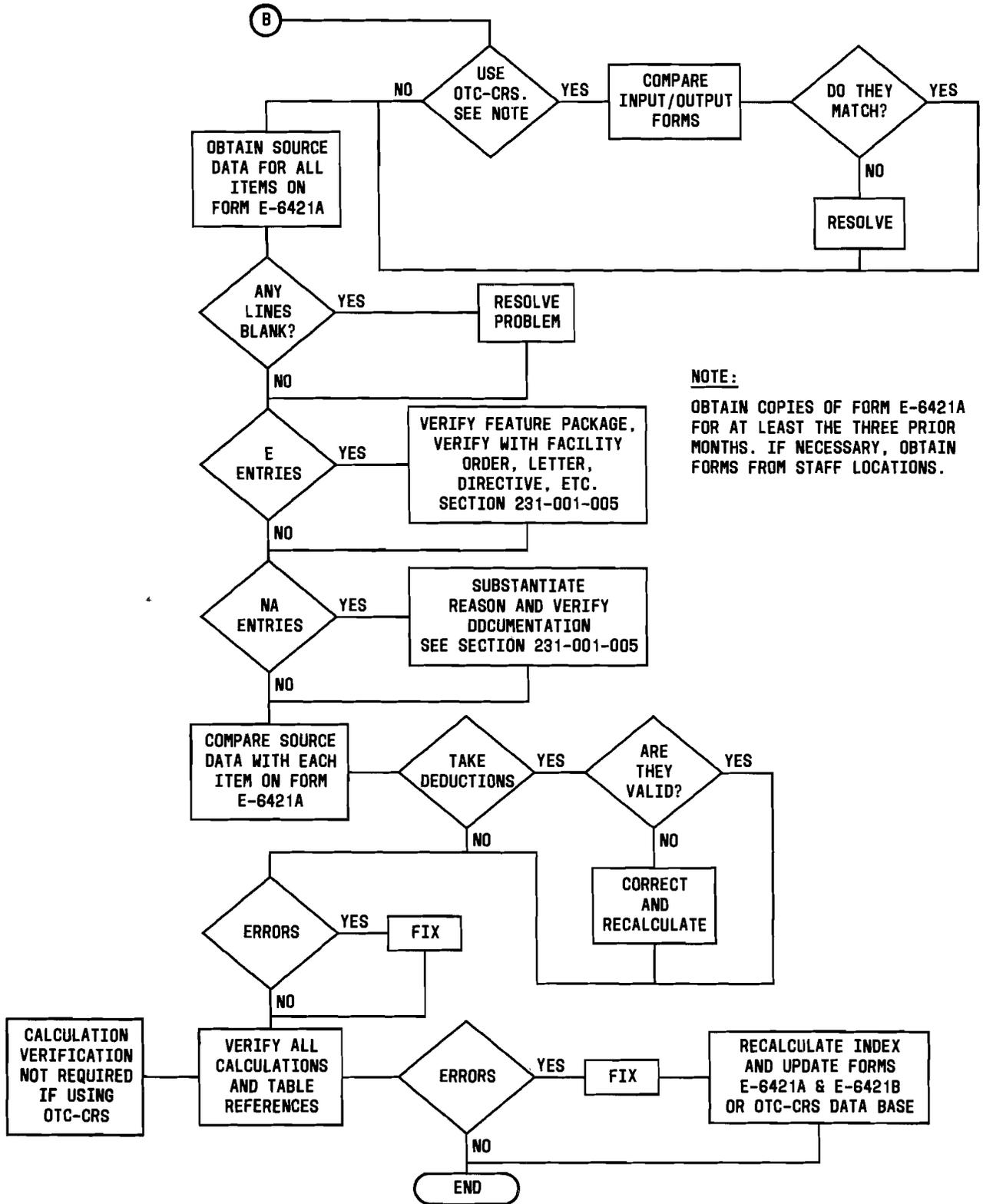


Fig. 2—Example of Form E-6421A Verification Flowchart (5.01)

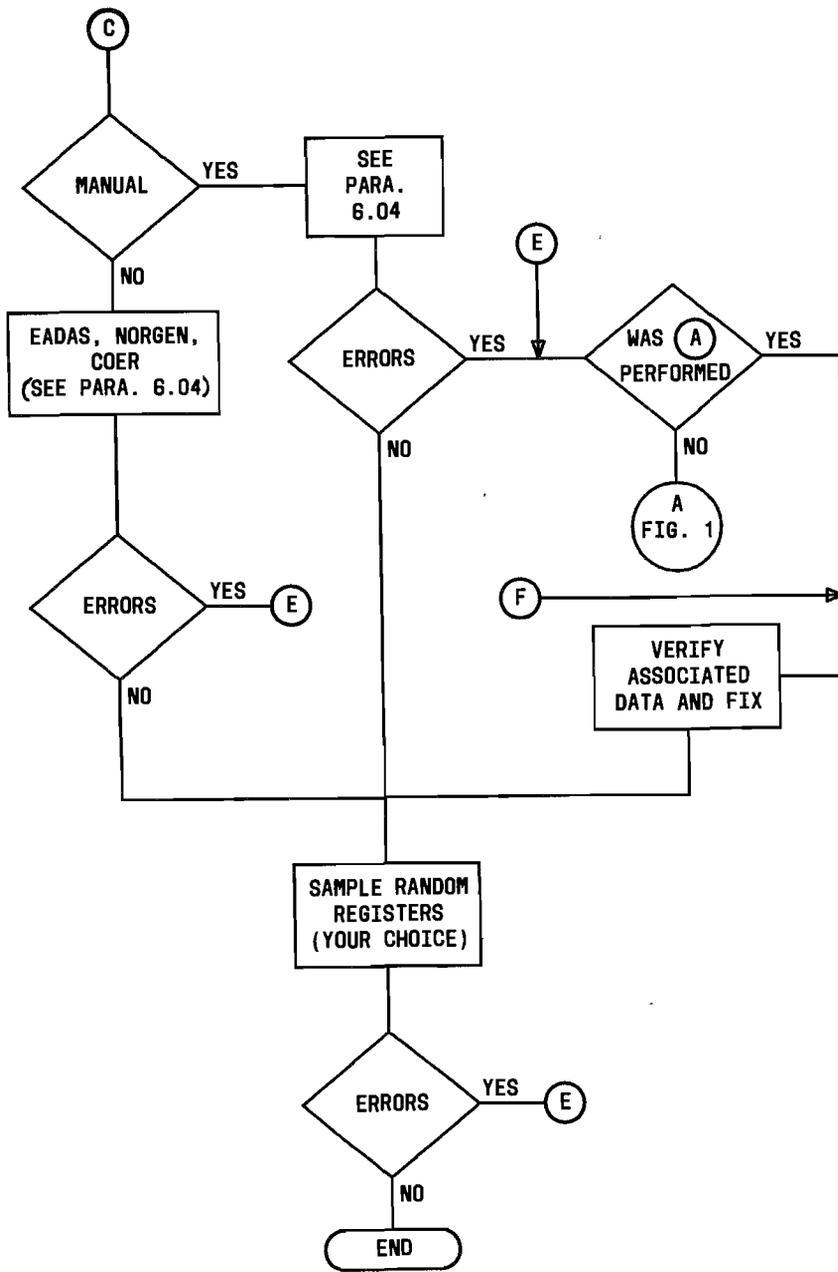
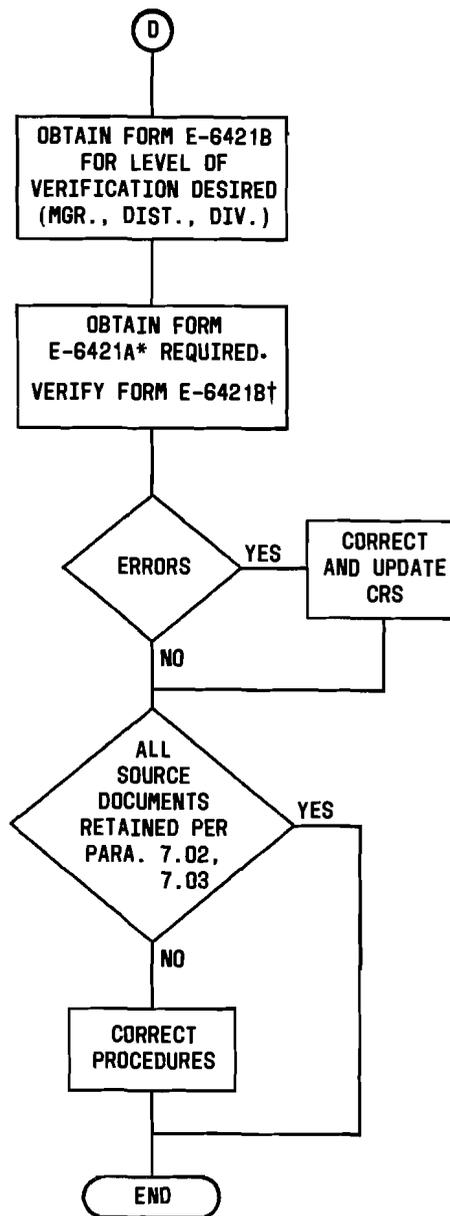


Fig. 3—Data Verification and Testing Flowchart (6.03)



\* IF USING OTC-CRS OBTAIN FROM CRS. IF MANUAL OBTAIN FROM SCC OR LOCAL OFFICE, DEPENDING WHERE FORMS ARE LOCATED.

† NOT REQUIRED IF USING OTC-CRS. ALL DATA IS TAKEN FROM FORM E-6421A.

Fig. 4—Results Reporting and Record Retention Flowchart (7.01)

**TABLE A**  
**PLANT MEASUREMENTS RESULTS**  
**EQUIPMENT COUNT TALLY**

EQUIP	SYS	QUANTITY	MULTI	TOTAL
CCs	1/1A	FIXED @ 2	x1	2
SPs	1	FIXED @ 2	x1	_____
PSs	1/1A	MEM NO. _____ to _____	x1	_____
CSs	1/1A	MEM NO. _____ to _____	x1	_____
SPCSs	1	MEM NO. _____ to _____	x1	_____
CPDs	1/1A	MEM NO. _____ to _____	x1	_____
AIOD UNITS	1/1A	MEM NO. _____ to _____	x1	_____
CTX DIs	1/1A	MEM NO. _____ to _____	x1	_____
AMAs	1	FIXED @ 2	x1	_____
PUCs	1/1A	MEM NO. _____ to _____	x2	_____
TUCs	1A	MEM NO. _____ to _____	x1	_____
FSs	1A	MEM NO. _____ to _____	x1	_____
DUSs	1A	MEM NO. _____ to _____	x1	_____
DFs	1A	MEM NO. _____ to _____	x1	_____
PCDFs	1A	MEM NO. _____ to _____	x1	_____
IOPs	1A	MEM NO. _____ to _____	x1	_____
IOUSs	1A	MEM NO. _____ to _____	x1	_____
IOUCs	1A	MEM NO. _____ to _____	x1	_____
MCC/PPI	1A	FIXED @ 1	x1	_____
PUAB	1/1A	FIXED @ 2	x1	2
SCAB	1/1A	FIXED @ 2	x1	2
PSB	1/1A	FIXED @ 2	x1	2
CSB	1/1A	FIXED @ 2	x1	2
CEB	1A	FIXED @ 2	x1	_____
AUB	1A	FIXED @ 2	x1	_____
DATE COMP: _____	TOTAL SIDE ONE			_____
BY: _____	+			
LAST WE	TOTAL FROM SIDE TWO			_____
JOB NO: _____	=			
	GRAND TOTAL			_____

TABLE A (Contd)

PLANT MEASUREMENTS RESULTS  
EQUIPMENT COUNT TALLY

EQUIP	SYS	QUANTITY	MULTI	TOTAL
MASTER SCANNER	1/1A	MEM___ to ___	x2	___
MUT/UT SCANNER	1/1A	MEM___ to ___	x2	___
LINE SCANNER 2:1*†	1/1A	NO. OF sc's ___	x2	___
LINE SCANNER 4:1*†	1/1A	NO. OF sc's ___	x2	___
JUNCTOR SCANNER	1/1A	MEM___ to ___	x2	___
NTWK CONTROLLERS:				
Ferreed/Remreed				
LSF/LSC†	1/1A	NO. of sc's ___	x2	___
LJF/LJC	1/1A	Value of		
(Fixed @ 4/NTWK)		sc LLN ___	x8	___
TSF/TSC	1/1A	NO. of sc's ___	x2	___
(sc TSiii)				
TJF/TJC	1/1A	Value of:		
(sc TDE=4)	1/1A	sc TLN ___	x8	___
(sc TDE=8)	1/1A	sc TLN ___	x16	___
MUT/UT SDs	1/1A	MEM___ to ___	x2	___
CMT/SSDs	1/1A	MEM___ to ___	x2	___
JSDs	1/1A	MEM___ to ___	x2	___
sc = PDA SET CARD NAME		TOTAL SIDE TWO ___		

COUNTING CONTROLLERS IN 2:1 AND 4:1 NETWORKS

\* In 2:1 networks the controller of the line scanner is normally provided in only the Home frames of each network. A member number unit consists of Ferreed Line Switch Frame (LSF) or Remreed Line Switch Circuit (LSC), where the controller is located-normally 00, 02, 04, etc. A 2:1 line network has 2 Line Scanner Controllers for every 4 Line Switch Controllers. A 4:1 line network has 4 Line Scanner Controllers for every 4 Line Switch Controllers.

† To determine each network frame concentration ratio check:  
 For No.1: set card (sc) FCR(ii)=2 for 2:1; =4 for 4:1;  
 For No.14: set card (sc) TLSW(ii)=2 for 2:1; =4 for 4:1.  
 To determine quantity of line scanners and network control units check:  
 2:1 > quantity of sc's LS(iii) w/value of 2 or 3 = No. of Line Scanners;  
 2:1 > quantity of sc's LS(iii) w/value of 1,2,3 = No. of NTWK control units;  
 4:1 > quantity of sc's LS(iii) w/value of 1,2,3 = No. of Line Scanner and number of NTWK control units;  
 > "means count"  
 Set Card (sc) LS(iii) is the same for 1 and 1A systems.