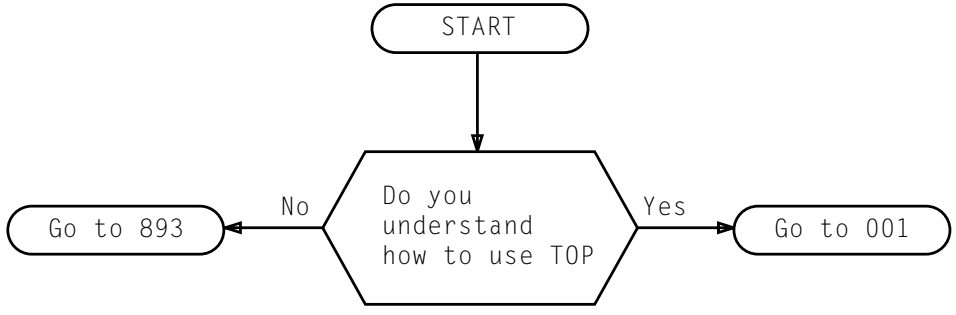
Lucent Technologies
Bell Labs Innovations

Task Oriented Practice (TOP)

4ESS™ SWITCH With 1B Processor Final Verification Tests — System Evaluation and Acceptance



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DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

All procedures in this volume support acceptance tests.

GENERAL

Procedures in this volume support final verification tests of system evaluation and acceptance requirements for a newly installed *4ESS*™ electronic switch. They are the last tests scheduled by the installation force. Final verification tests are performed to ensure integrity of system; namely, its ability to operate normally under adverse operating conditions, to respond to an absolute dead start, and to meet predefined criteria while operating under sustained traffic load for at least 24 hours.

REQUIREMENTS

Requirements for final verification tests are as follows:

- All tests and evaluations shall be performed jointly by operating company personnel and the installation force
- At least one Maintenance Operations Center (MOC) trained technician shall be present throughout these tests
- Significant records of test results must be retained. This includes, but is not limited to, office logs, reporting forms, I/O channel printouts, etc.
- Error Analysis Program (ERAP) "one-liners" shall be transmitted to PECC Diagnostic Center (PDC) every day via data link
- Frame and subsystem prerequisite tests and operational readiness tests shall have been completed

Tests shall be performed in the following sequence:

1) Protected AC Power Test
2) Low Voltage Test
3) DC Power Distribution Test
4) No-Cool Test
5) System Reinitialization Capability Test
6) 24-Hour Run for Record

SYSTEM STATUS

In order for final verification tests to be considered valid, the status of system should be as follows:

- All program overwrites have been removed, except those officially authorized by PECC or Bell Labs
- Generic and office data assembler (ODA) programs are complete and essentially at cutover status
- All CNs designated as critical by PECC have been completed and tested
- Frame and subsystem prerequisite tests and operational readiness tests have been successfully completed (all handbook sections completed except 390)
- Centralized Automatic Message Accounting (CAMA) functions, if required, are available and operational
- Simulated traffic should be applied to the office by the network exercise (NETEX) program. NETEX should be run 16 hours per day and at 100 percent of its load capability
- Integrated Services Digital Network User Part (ISUP) Call Generator (ISCG) is applied to Common Network Interface (CNI) Ring. ISCG can run while NETEX is being run

(Continued on Page 2)

SYSTEM STATUS (Contd)

- All frames have passed diagnostics sane and are operating in full duplex configuration
- No interrupts or audits are inhibited (pested) except those audits inhibited by NETEX after exercise has started

PRECAUTIONS

Some of final verification tests are disruptive and others are potentially disruptive to normal system operations. Therefore, all work centers should be informed that system-dependent activities could be interrupted while these tests are in progress.

ACCEPTANCE TASKS

Final verification tests consist of the following tasks:

Perform Protected AC Power Test DLP-500

Perform Low-Voltage Test (+140 V Battery Plant) DLP-501

Perform Low-Voltage Test (+24 V Battery Plant) DLP-542

Perform Low-Voltage Test (-48 V Battery Plant) DLP-543

Prepare for No-Cool Test NTP-003

Perform DC Power Distribution Test NTP-004

Perform No-Cool Test NTP-005

System Reinitialization Capability:

Test APS System Reinitialization Capability NTP-006

Test 1B Processor System Initialization Capability . . NTP-007

Perform 24-Hour Run for Record NTP-008

TEST RECORDS

Initial and date each test as it is completed in TABLE A. If any tests cannot be completed satisfactorily, prepare a machine exception report DLP-502 after it has been mutually agreed to by Installation and the operating company.

TABLE A
TEST COMPLETION RECORD

TEST	DATE COMPLETED	COMPLETED BY
Protected AC Power		
Low-Voltage +140 V Battery Plant		
Low-Voltage +24 V Battery Plant		
Low-Voltage -48 V Battery Plant		
DC Power Distribution		
No-Cool		
APS System Reinitialization Capability		
1B Processor System Initialization Capability		
24-Hour Run for Record		

DO THE ITEMS BELOW IN THE ORDER LISTED	FOR DETAILS, GO TO
1	Obtain Following Items for Taking Temperature and Relative Humidity Readings: • Twenty-four Thermometers Calibrated 20 to 60 Degrees Celsius • Numbering Tags for Thermometers • Cord to Hang Thermometers From Cable Racks • One Humidity Recorder/Indicator for Each Equipment Floor	–
2	Determine Heat Barrier Requirements for No-Cool Testing	DLP-503
3	Install Heat Barriers	DLP-504
	Note: Installation of heat barriers should be completed 24 to 48 hours before scheduled start of no-cool test	
4	Number Thermometers and Place in Aisles:	
	Note: Thermometers are hung from cable racks 5 feet above floor midway between facing frames, or 1-1/2 feet in front of equipment facing open areas	
	1. Place Two Thermometers in Each 1B Processor Aisle	–
	2. Place at Least Two Thermometers in Each 4ESS Switch Peripheral Aisle	–
5	24-48 Hours Before Scheduled Start of No-Cool Test:	
	1. Record Temperatures in Equipment Areas at Hourly Intervals for Several Hours in Order to Determine Normal Ambient Temperatures	DLP-505
	2. Record Relative Humidity and Continue to Record at 8-Hour Intervals	DLP-505
	3. After Normal Ambient Temperatures Have Been Determined, Adjust Thermostats or Cycle Chillers to Allow Temperatures in Equipment Areas to Rise 8 to 10 Degrees C (14.5 to 18 Degrees F) Above Normal	–
6	Ensure System Operating in Duplex	DLP-506
7	Schedule MSR1 and MPR2 Reports	DLP-507
8	At APS MCRT, Enter Message **OP:PLNTSUM,HR!** To Obtain Plant Measurements Summary Reports for APS Every Hour	–
	(Continued on Page 2)	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
9	Direct *4ESS* Switch Administration Center Supervisor to Schedule Hourly Traffic and Plant Measurements Reports Using MSC 5, OMS 1; MSC 20, OMS 0; MSC 20, OMS 1; MSC 21, OMS 0; MSC 22, OMS 0 and MSC 41, OMS 0	—
10	Determine if Library Tape Containing Program To Be Used Resides in File System Enter Message **OP:LIBSTAT,FS!** To Verify That Library Program LGaNETX Is Loaded on Disk (a = Current Office Generic - 24 for 4E24, etc.)	DLP-544
11	If Library Package Containing Program NETX Does Not Reside in File System	—
	1. Mount Library Tape on 3B Tape Unit	—
	2. Load Library Tape in File System	—
12	Mount Library Tape on 3B Tape Unit	DLP-512
13	Loading an Original Library Tape	DLP-546
14	Loading a Backup Library Tape	DLP-547
15	Set Network Routing to NORM State **SET:NETROUT;NORM:MEMN A!**	DLP-548
16	Execute NETX Library Program and Set Office Translations to In-Service, If Required	DLP-549
17	Enter NETX Execution Data and Start Exercise	DLP-550
18	Demount Tape on 3B Tape Unit	DLP-551
19	Terminate NETX and Run Audits	DLP-552
20	Set Up Integrated Services Digital Network User Part (ISUP) Call Generator (ISCG) Using Installation Handbook 262, Vol. I — Section 302. Start ISCG. ISCG Can Run While NETEX Is Running	—
21	No-Cool Test Is Conducted in Two Temperature Phases (Intermediate Temperature Phase and High Temperature Phase). Before Performing High Temperature Phase, Office Temperature Must Be Allowed to Rise 8 to 10C (14.5 to 18F) and Run for 6 Hours Without Unmanageable Troubles	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	Caution: A considerable number of trunks will be lost during this test. No attempt will be made to prevent duplex failures; therefore, trunk status is ignored	
1	Verify That All Units Are Powered Up	—
2	Establish Dial-Up Monitor With PECC Diagnostic Center	—
3	Using Office Drawings, Identify All 100-Amp Circuit Breakers That Feed "B" Bus Loads With Panel Markings on Control and Distribution Bays in 415B Power Plant	—
4	After All "B" Bus Load Circuit Breakers Have Been Identified, Trip One "B" Bus Circuit Breaker on 415B Control and Distribution Bay	—
5	Verify That Only Expected Units Power Down	—
	Note: Unit type member numbers must be obtained from local office drawings	—
6	Trip Another "B" Bus Load Circuit Breaker	—
7	Verify That Only Expected Units Power Down	—
8	Continue to Trip "B" Bus Load Circuit Breakers in This Manner Until All "B" Bus Circuit Breakers Have Been Tripped:	
	A. If Equipped With Separate −48 Volt Battery Plant, Identify All "B" Bus Load Circuit Breakers or Fuses on Battery Distribution Bays of −48 Volt Plant	—
	B. Trip One "B" Circuit Breaker or Remove Fuse and Repeat Items 5 Through 7	—
	C. If Equipped With Separate +24 Volt Battery Plant, Identify All "B" Bus Load Circuit Breakers or Fuses on Battery Distribution Bays of +24 Volt Plant	
	D. Trip One "B" Circuit Breaker or Remove Fuse and Repeat Items 5 Through 7	
9	Power Distribution Is Verified if Following Conditions Exist:	
	A. Controller 0s and IPUB 0s Are Powered Up Where Controller 0s and IPUB 0s Should Be Powered Down Instead of Controller 1s and IPUB 1s	—
	B. All Controller 1s, IPUB 1s, Even DIU's (Except DIU 0 Is Powered Up and DIU 33 Is Powered Down), and Odd DIUs Will Be Powered Up	—
	C. All Units on "A" Bus Are Powered Up (Per Local Office Drawings)	—
	D. All Units on "B" Bus Are Powered Down (Per Local Office Drawings)	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
10	Verify That Processors Are Still Cycling by Inputting **RST:PUB 1!** and Receiving **DGN:STF** Message on MTC Channel	—
11	At 415B Power Plant Control and Distribution Bays and —48 Volt Battery Distribution Bays, Recharge Capacitors and Reset All Circuit Breakers That Were Tripped	DLP-508
	Warning: Damage will occur to circuit breaker contacts if the proper steps are not followed when resetting circuit breaker(s) to the ON position	
12	Restart All 98A Converters in SP Matrix Frames That Had Power Removed	—
13	*Note:* Two or three converters may have to be put on line at a time to avoid an over-current trip-out	
14	Power Up All Frames That Were Powered Down and Restore Them to Service	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	Notes: 1. Before starting no-cool test, installation force and operating company shall be in complete agreement that no significant problems are present at intermediate temperature level 2. All combustible materials, such as contact cleaner, lubricants, etc., should be removed from test area before No-Cool Tests are performed and only taken into test area when required 3. Establish dial-up monitor with PECC Diagnostic Center (PDC) prior to starting 12-hour evaluation period	
1	Remove All Cooling and Air Circulation From System	—
	Warning: During No-Cool Test, aisle temperature in any location must not be allowed to exceed 49˚C (120˚F)	
2	After Temperatures in at Least 50% of Aisles Have Reached 45˚C (113˚F), Begin 12-Hour Evaluation Period	—
3	During 12-Hour Evaluation Period:	
	1. Maintain Simulated Traffic by Running NETEX 100% of Time:	—
	A. Start NETEX Exercise	DLP-550
	B. Release NETEX	DLP-552
	2. Run ISCG on CNI Ring for Minimum of 8 Hours	—
	3. Manually Switch APS IOPs at 3-Hour Intervals	—
	4. Record Aisle Temperatures at Hourly Intervals	DLP-505
	5. Record Relative Humidity at 8-Hour Intervals	DLP-505
	6. Clear Faults as Quickly as Possible Without Reducing Elevated Temperature	—
	7. Mark All Failed Circuit Packs NO-COOL or HEAT TEST	—
	8. Use Traps to Locate and Correct Ineffective Machine Attempts (IMAs) if They Become Greater Than 3%	—
	9. Obtain ERAP Data to Identify Interrupts, Interjects, and Base Level Maintenance Reports	—
	(Continued on Page 2)	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
3 (Contd)	10. Maintain Detailed Records on Following:	
	A. Replacement of All Circuit Packs, Power Converters, etc.	DLP-509
	B. Out-of-Service Units, Duration, Cause, and Explanation of Nonduplex Operation	—
	C. Description and Reason for Any Phases, Processor Configurations (PCs), or Other Action Required to Recover System	—
	D. Description and Reason for Excessive IMAs	—
	E. Complete Printouts From MTC and SREC 1 Channels	—
	F. Printouts From APS MCRT	—
	G. All Office Trouble Reports (OTRs)	—
4	Monitor TTY Printouts, MCC Indicators, and APS to Ensure That System Is Meeting Test Requirements per 234-382-001	—
5	If Any Test Criteria Is Exceeded During First 6 Hours:	
	1. Correct Any Predominant Fault or Overall Poor System Performance	—
	2. Start Another 12-Hour Evaluation Period (Repeat From Item 3)	—
6	If Any Test Criteria Is Exceeded Following 6th Hour of Test:	
	1. Correct Any Predominant Fault or Overall Poor System Performance	—
	2. Evaluate System for at Least Another 6 Hours	—
7	After 12 Hours Has Elapsed and Test Criteria Is Satisfactorily Completed, Restore System Cooling:	
	Warning: Restoration of cooling must be controlled to insure that aisle temperature does not decrease more than 6˚C (10˚F) per hour	
	1. Restore Individual Parts of Cooling System, or Cycle Entire Cooling System	—
	2. Continue to Monitor Aisle Temperatures	—
	3. Terminate Test When Hottest Aisle Has Returned to Within 3˚C of Normal	—
	(Continued on Page 3)	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
8	Remove Thermometers From Aisles	—
9	Remove Heat Barriers	—
	Warning: Care should be taken when dismantling plastic enclosures to minimize buildup of static charges which could cause damage to circuit components	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	Notes: 1. This procedure must be performed before performing Test 1B Processor System Reinitialization Capability procedure 2. This procedure will delete 1BFILES. Enough time should be allowed to get to Safe Stop Point in Test 1B Processor System Reinitialization Capability procedure 3. If desired results are not obtained for any of the following procedures, discontinue test. When troubles have been cleared by installation force, repeat procedure	
1	Verify That **RESTRICT RC** is ON (Black on White)	DLP-540
2	Write Backup 1B Processor Generic Tape	DLP-510
3	Perform ODA SAST to Identify Overwrites in Office ODA	DLP-553
4	Write Backup ODA Tape	DLP-513
5	Ensure That NETEX Library Program Is Not Running (**OP:MACLI,CLASS LIBU!**)	—
6	Write Trunk Out-of-Service List (TOSL) Tape	DLP-514
7	Write Long-Term Storage (LTS) Tape	DLP-515
8	Write Backup NWM Tape	DLP-541
9	Write 1B Processor Traffic and Plant Measurements Tape	DLP-554
	Notes: 1. Tapes written in Items 3 through 10 are to be used during Test 1B Processor System Reinitialization Capability procedure 2. No overwrites or recent changes should be entered until all system reinitialization capability tests have been completed	
10	Copy Incore Equipment Configuration Database (ECD) to Disk	DLP-517
11	Run File System Audits to Ensure No File System Errors	DLP-518
12	Update Backup Database	DLP-519
13	Write APS Backup Tapes	DLP-559
14	Verify APS Backup Tapes	DLP-558
	(Continued on Page 2)	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	Notes: 1. Safe point to temporarily stop this procedure 2. Tapes written in Item 17 are to be used during this procedure	
16	At MCRT, Enter Message **OP:AMA;MAPS!** and Save Printout for Later Use to Set Up AMA Partitions After APS System Reinitialization	–
17	Enter Message **OP:AMA;CONTROLFILE!** and Save Printout for Later Use to Set Up AMA Control File After APS System Reinitialization	–
18	Initialize Odd-Numbered Equipped Moving Head Disks (1, 3, 5, 7)	DLP-520
19	Perform APS System Reinitialization	DLP-555
20	Apply Volume Table of Contents (VTOC) to Each Odd-Numbered Equipped Moving Head Disk	DLP-522
21	At One Equipped Even-Numbered Moving Head Disk, Depress **ON** Button To Spin Up Disk. Allow 2 minutes to allow disk to stop spinning	–
22	At MCRT, Enter Message **RST:MHD a!** (a = 3, 5, 7)	
23	At MCRT, Enter Message **RST:MHD a!** (a = MHD in Item 22)	
24	Repeat Items 24 and 25 for Each Equipped Even Numbered Moving Head Disk	
25	Equip APS AMA Partitions, if Required	DLP-523
26	Set Up APS AMA Control File Data, if Required	DLP-524
27	Diagnose CU 0 Using RST Message (**RST:CU 0!**)	DLP-525
28	Diagnose MHD 0 Using RST Message (**RST:MHD 0!**)	DLP-526
29	Diagnose IOP 0 Using RST Message (**RST:IOP 0!**)	DLP-527
30	At MCRT, Enter Message **SW:CU!**	–
31	Diagnose CU 1 Using RST Message (**RST:CU 1!**)	DLP-525
32	Diagnose MHD 1 Using RST Message (**RST:MHD 1!**)	DLP-526
33	Diagnose IOP 1 Using RST Message (**RST:IOP 1!**)	DLP-527
34	At MCRT, Enter Message **OP:OOS!** and Determine Out-of-Service Units	–
35	Restore Each Out-of-Service Unit (Except DLNs and DLNEs) Using RST Message. DO NOT Restore Any Unit Unconditionally	–

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
36	At 3B MCRT, Enter Message **ALW:DMQ;SRC ADP!**	—
37	Run File System Audits to Ensure No File System Errors	DLP-518
38	When APS Is Stable, Copy APS Root to Broot, or Broot to Root	DLP-556

DO THE ITEMS BELOW IN THE ORDER LISTED	FOR DETAILS, GO TO
	Notes: 1. If desired results are not obtained for any of the following procedures, discontinue test. When troubles have been cleared by installation force, repeat procedure 2. Items 1 through 30 are being performed to test system reinitialization (SR) of *4ESS* electronic switch using APS tape units 3. Items 36 through 50 are being performed to test system reinitialization of *4ESS* electronic switch using 1B Processor tape transports
1	Verify That 1B Processor MCC Display Shows **801 — RESTRICT RC** is ON (Colored Black on White)	DLP-540
2	Obtain Backup Software Release, Backup ODA, Trunk Out-of-Service List, Network Management (Office Copy) and Long-Term Storage Tapes, and Traffic and Plant Measurement Tape	—
3	At 3B MCRT, if Screen Displays EAI Page, Depress **NORM/DISP** (**PF2**) Key	—
4	Enter **101** in Command Mode to Obtain Display Page 101	—
5	Depress **CMD/MSG** (**PF3**) Key to Move Cursor to Bottom of Screen	—
6	Mount Backup Software Release Tape on APS Tape Unit MT 0	DLP-512
7	Mount Backup ODA Tape on APS Tape Unit MT 1	DLP-512
8	At 3B MCRT, Enter Message **VER:UPDATE:TAPE,MT 0!** and Record Software Release Identification Number (4E<xx>yy.zz) for Later Use in LOAD Message	DLP-528
9	Load Software Release on Disk (**LOAD:UPDATE:GEN "4E<yy>yy.zz",MT 0,NEW!**)	DLP-529
	Caution: When GENERIC COMPLETE - READY FOR ODA *output message is received, update program enters 20-minute wait mode. Input message to process ODA tape must be entered within this time limit or test will be terminated and Item 8 will have to be repeated*	
10	At 1B MCC, Enter Message **VER:UPDATE:TAPE,MT 1!** and Record BASE and CONTROL Numbers for Later Use in LOAD Message	DLP-528
	Note: After Load ODA message has been entered and Software Release tape has rewound on MT 0, Items 12 and 13 can be performed while ODA is being loaded	
11	Load ODA on Disk (**LOAD:UPDATE:CONT "aaaabb",MT 1!**)	DLP-530
	Caution: When ODA COMPLETE - READY FOR NWM *output message is received, update program enters 20-minute wait mode. Input message to process network management must be entered within this time limit or test will be terminated and procedure will have to be repeated from Item 8*	

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
12	Demount Tape on Idle Tape Unit	DLP-511
13	Mount Network Management Tape on Tape Unit (Item 12)	DLP-512
14	Load Network Management Tape on Disk and Complete Database (**LOAD:UPDATE:CONT NWM,MT a!**)	DLP-531
	Note: After receiving **DATABASE COMPLETE - READY FOR GENERIC RETROFIT** output message, loading process is complete	
15	Verify Attached Processor System (APS) 1B FILE Hashed Areas for 0 Errors (**VER:APPFILE UPD!**)	DLP-557
16	At 3B MCRT, Enter Message **INIT:APDRV:FPI!**	—
17	Select Processor Configuration	DLP-532
18	Load Trunk Out-of Service List (TOSL) Data into System **(LOAD:APPTAPE:TOSL,MT a,FN "/dev/1afile0"** or **"/dev/1afile1"!)**	DLP-535
	Note: **VERIFY** which file is the **UPDATE FILE.** At the 3B MCRT, Enter Message **DUMP:SCP NORMAL!**	
19	Initialize 1B Processor Via Update File on APS	DLP-533
20	At MTC Channel, Enter Message **UPD:COMMIT;UPDFILE!.** Ensure That **UPD:COMMIT COMPLETED TO UPDFILE** Message Received	—
	Note: Items 21 through 30 are performed to restore system conditions following initialization of 1B Processor via update file on APS	
21	Allow System to Restore Out-of-Service Units. If Any Units Are Not Restored to Service, Restore Out-of-Service Units Using RST Message, but DO NOT Restore Any Units Unconditionally	—
	Note: Loading of traffic and plant measurement and long-term storage (ODIL) tapes can be done while out-of-service units are being restored	
22	Demount Tapes From Tape Units MT 0 and MT 1	DLP-511
23	Load Traffic and Plant Measurement (TPM) Data Into System and Verify	DLP-516
	Note: Loading of long-term storage data must be started during 7-minute window beginning 4 minutes past any quarter hour	
24	Load Long-Term Storage (ODIL) Data Into System (**LOAD:APPTAPE:ODIL,MT a!**)	DLP-536
	(Continued on Page 3)	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
25	At MTC Channel, Enter Message **AUD:NUM (43,44,45,66,72)!** to Run Audits 43, 44, 45, 66, and 72	—
26	Wait for **AUD COMPLETED, 0 ERRORS DETECTED** Messages to Print (Audit 43 Takes Approximately 40 Minutes To Complete)	—
27	At 3B MCRT, Enter Message **RST:LN0O a!** (a = DLN or DLNE Number). Ensure That **REPT DLNCM PROC** (Pump): **LN0O-a PUMP COMPLETE IN xxxx MSEC** Message Received	—
28	Enter Message **RST:LN32 a!** (a = DLN or DLNE Number). Ensure That **REPT DLNCM PROC** (Pump): **LN32-a PUMP COMPLETE IN xxxx MSEC** Message Received	—
29	Verify CNI Ring Display Pages	DLP-537
30	At MTC Channel, Enter Message **OP:MSGRCD,FS!**. Ensure That **OP:MSGRCD,FS COMPL** Message Received. **SOME MESSAGES LOST** and **NG NO MESSAGES BEING SAVED** Message May Also Be Received	—

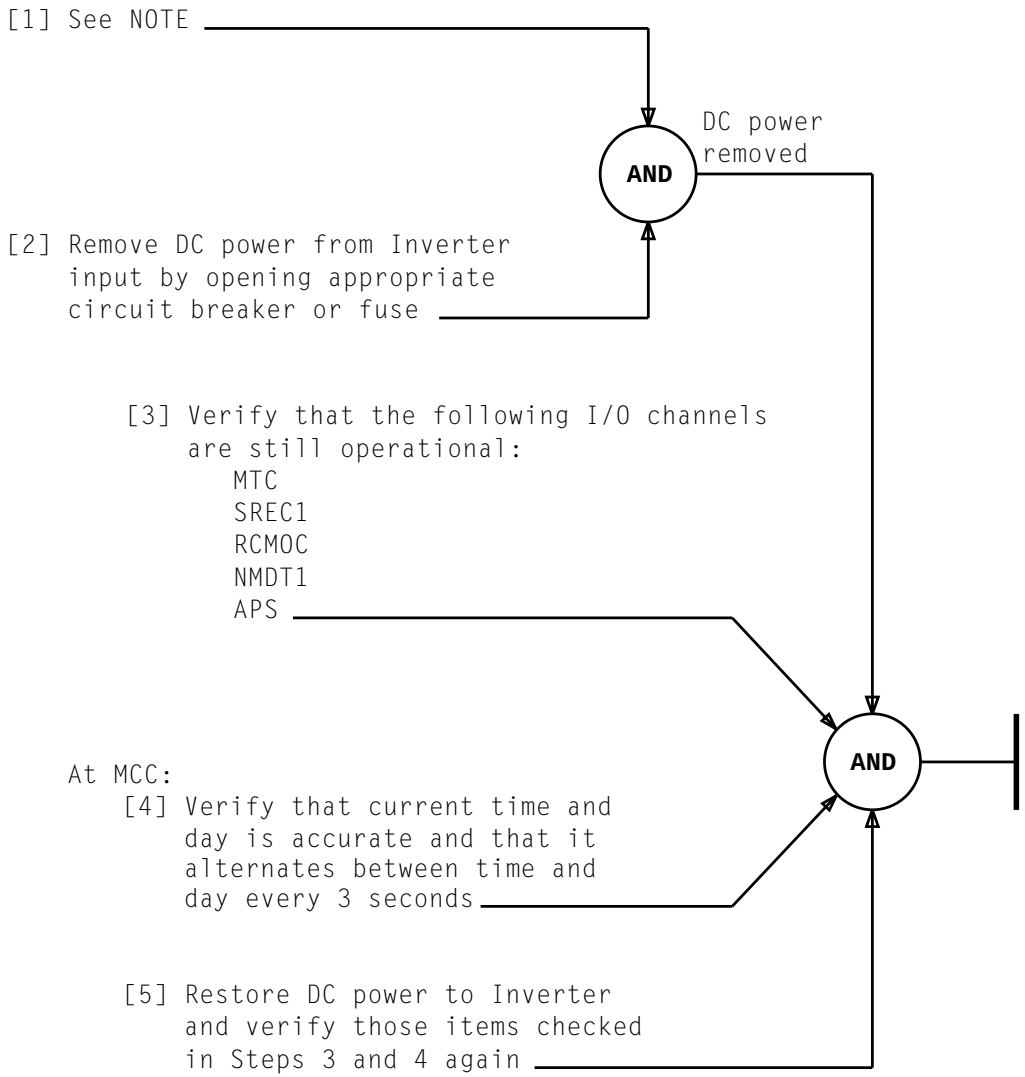
DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Establish Dial-Up Monitor With PECC Diagnostic Center (PDC)	—
2	Prepare System for Run for Record:	
	1. Ensure System Operating in Duplex	DLP-506
	2. Ensure That MSR1 and MPR2 Reports Are Correctly Scheduled	DLP-507
	3. At APS MCRT, Enter Message **OP:PLNTSUM,HR!** To Obtain APS Plant Measurements Summary Reports	—
	4. Remove All System and Unit Pests	—
	5. Ensure That Audits or Audit Messages Are NOT Inhibited	—
3	Load NETEX Library Program on Disk	DLP-546
4	Run NETEX Library Program During 24-Hour Run for Record:	
	1. Start NETEX Exercise	DLP-550
	2. Release NETEX	DLP-552
5	Run ISCG on CNI Ring During 24-Hour Run for Record	—
6	Switch 3B Computer IOPs at 3-Hour Intervals	—
7	Monitor and Maintain System:	
	1. Monitor TTY Printouts, MCC Indicators, and 3B Computer To Ensure That System Is Meeting Test Requirements Per 234-182-001	—
	2. Retain Following Printouts for Post-Test Evaluation: • Printouts From MTC Channel • Printouts From SREC1 Channel • Printouts From APS MCRT • ERAP Data Accumulated for Each Shift	—
	3. Maintain Following Records: • Circuit Pack Replacements — Identify Frame, Code, and How Discovered • Number of Major Alarms • Audit Calls by Client	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
7 (Contd)	3. Maintain Following Records (Contd): • Failed Equipment — Include Time Out of Service and Actions Taken for Restoral • Duration of Nonduplex Operation and Equipment Causing Condition • Breakdown of Interrupts by Cause or Symptom • Explanation of Excessive IMAs • Any Abnormal Activity From MOC, MAC, TOC, etc.	—
	4. Investigate and Clear Sources of All B-, C-, D-, E-, or F-Level Interrupts	—
	5. Investigate and Clear Sources of Excessive Audits	—
	6. Periodically Observe MCC **SYSTEM ACTIVITY** (Page 108), Noting Traffic Levels and Irregularities	—
	7. If Hourly Measurement Reports Indicate IMAs Have Exceeded 3.0% per Hour, Activate IMA Trap on All Trunks for at Least 5 Minutes	—
	8. Allow Automatic Midnight Diagnostic Routine Exercise To Run as Normally Scheduled	—
8	After System Performance Requirements Have Been Met for 24-Hour Period, Terminate NETEX	DLP-552
9	Stop ISCG	—
10	If Any Temporary Data Was Put Into System for ISCG Testing, Remove Temporary Data	—
11	Zero AMA Configuration Files	DLP-539
12	Equip AMA Partitions, if Required	DLP-523

1. Error code that is printed is 5-digit hex number. The three most-significant digits are for an error-code number, and these values and their descriptions are listed below. The two least-significant digits are a unique sequence number for each failure condition so that exact location in program can be determined by developmental organization.

ERROR CODE	EXPLANATION
100	Failure on access of 1BSTAT file
101	UPDATE file is in update mode
102	UPDATE file is unlocked
103	Cannot allocate main memory for merge data
104	Cannot allocate main memory for tape reads
105	Cannot open 1BFILE for reading
106	Cannot open 1BFILE for reading and writing
107	Mismatch of ID tag for tape-only data
108	Failure on seek of 1BFILE
109	Failure on read of 1BFILE
10a	Invalid command line combination
10b	Cannot open tape drive for reading
10c	Cannot read tape
10d	Cannot open scratch file for tape header information
10e	Missing expected EOF
10f	Record size not equal to 1545 bytes
110	Size of ID2FS map on tape not as expected
111	FS address of ID2FS map on tape not as expected
112	MM address of ID2FS map on tape not as expected
113	Size of CS2FS map not as expected
114	FS address of CS2FS map on tape not as expected
115	MM address of CS2FS map on tape not as expected
116	Size of hash-head table on tape not as expected
117	Size of hashsums area on tape not as expected
118	First word in 3-word block header invalid
119	Tape read error or missing EOF
11a	ODA CS2FS map indicates data in all-generic 32K block
11b	Invalid ODA CS2FS map value when generic map has DDB pointer
11c	Start address of FS-only block less than previous end address
11d	Invalid combination for ODA and generic CS2FS maps
11e	FS address for hash-head table on tape not as expected
11f	MM address for hash-head table on tape not as expected
120	ODA tape hash pointers not in numerical sequence
121	Generic tape hash pointers not in numerical sequence
122	First word in 3-word header for hashsum block invalid
123	Invalid hash pointers
124	Unexpected ID tag on tape
125	Hash collision by data other than generic or ODA
126	Invalid ID tag requested for read tape and write FS
127	Failure on write of 1BFILE
128	Pointer error in ID2FS map for merge data

ERROR CODE	EXPLANATION
129	Disagreement in ID2FS map data for hash head table addresses
12a	Disagreement in ID2FS map data for tape header addresses
12b	Disagreement in ID2FS map data for ID2FS and CS2FS addresses
12c	Failure on create of UNIX® file for SYSRBASE
12d	Failure on write of UNIX file for SYSRBASE
12e	Out-of-range MM address for translation to FS address
12f	Cannot translate valid MM address to FS address
130	Invalid condition in collision block
131	Cannot open tape drive for writing
132	Failure on write to tape
133	Pointer error in ID2FS map
134	Disagreement in ID2FS map for network management addresses
135	Failure on create of UNIX file for tape-only data
136	Failure on seek of UNIX file for tape-only data
137	Failure on write of UNIX file for tape-only data
138	Tape is not the required NWM tape
139	Tape is not an SR tape



PERFORM PROTECTED AC POWER TEST

NOTE
Exact procedures required to perform Inverter test are office dependent and must be arranged through building maintenance personnel

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See NOTE.

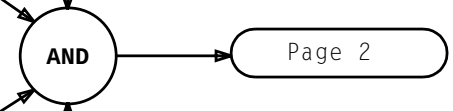
At 415A Power Plant:

[1] Determine total load on 415A Power Plant by adding load readings obtained from all **Control and DC Distribution** bays

[2] Determine total number of battery strings in the plant

[3] Multiply total number of battery strings by 300

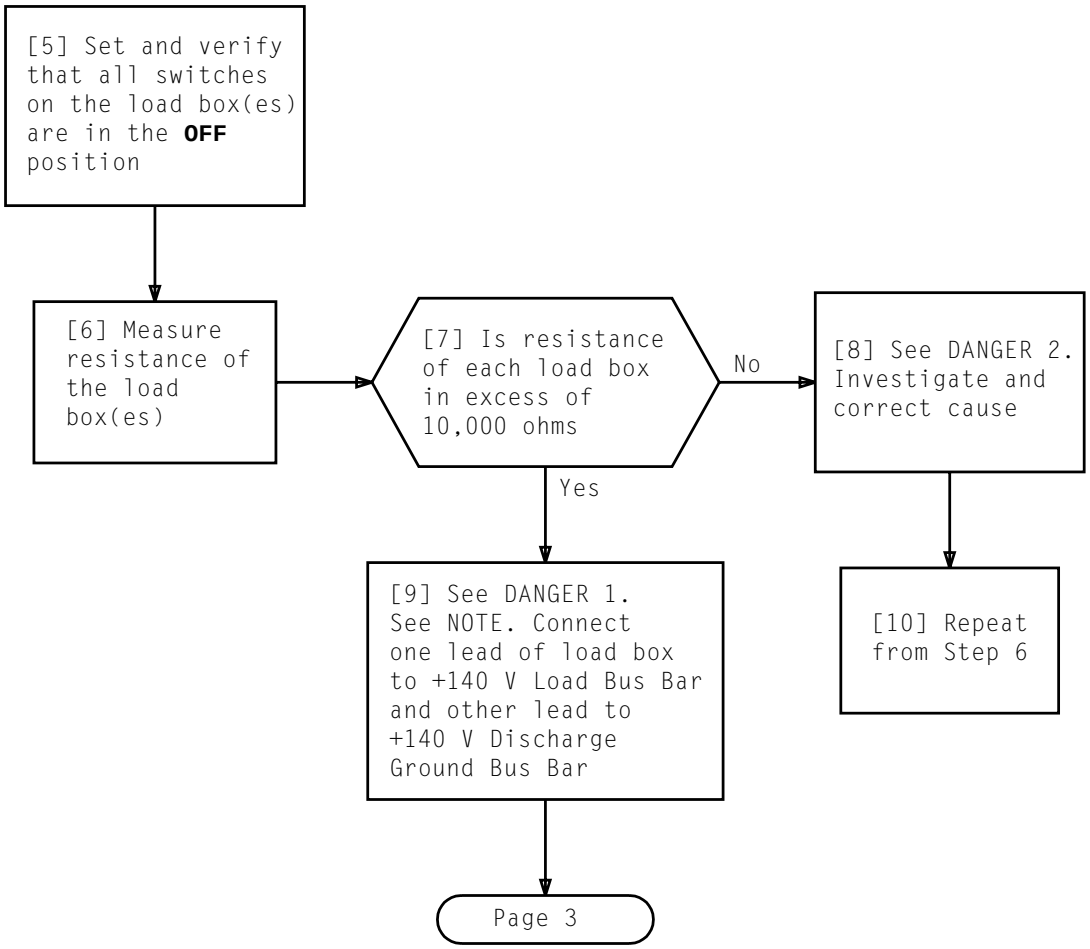
[4] Subtract the number obtained in Step 1 from the number obtained in Step 3; this is the amperage that must be carried by the artificial load (load box[es]) that will be connected to the +140 V Battery Plant



NOTE

If call processing is affected by any of these procedures, discontinue test. When troubles have been cleared, repeat test

PERFORM LOW VOLTAGE TESTS (+140 V BATTERY PLANT)



NOTE
If more than one load box is required, each load box will be connected in a separate Control and Distribution Bay

DANGER 1
+152 volts are present on terminals

DANGER 2
If resistance is less than 10,000 ohms, arcing will occur when leads are connected to +140 V Load Bus Bar and the +140 V Discharge Ground Bus Bar

PERFORM LOW VOLTAGE TESTS (+140 V BATTERY PLANT)

[11] Adjust the load box(es) to carry the amperage determined in Step 4

[12] At AC panel (or Power Distribution System Cabinet) operate circuit breakers to remove power to rectifiers

AND

System operating on batteries

[13] Monitor voltmeter on **Control and Distribution** bay jacks (using a calibrated 4 1/2-digit digital voltmeter) ever 15 minutes

[14] See WARNING. When voltage has been reduced to +126 volts, set all load box switches to **OFF** (no load)

[15] Disconnect load box(es)

[16] Operate AC input circuit breakers to the **ON** position (released in Step 12)

[17] Verify plant voltage returns to normal (+151.9 volts, and no alarms present)

AND

WARNING

*If the battery plant tests should continue after the voltage has dropped to the specified minimum level, individual cell readings **MUST** be taken immediately and at one-half hour intervals. If the voltage of any cell drops below **1.75 V**, the test must be terminated **IMMEDIATELY** and the batteries recharged at specified voltage for at least 12 hours before the test can be resumed*

PERFORM LOW VOLTAGE TESTS (+140 V BATTERY PLANT)

1. Reproduce this page as needed.
2. Complete one copy for each machine failure.
3. Retain completed copies with Acceptance Test records.

MACHINE EXCEPTION REPORT

What acceptance criteria was not met?

Nature of failure or reason for exception:

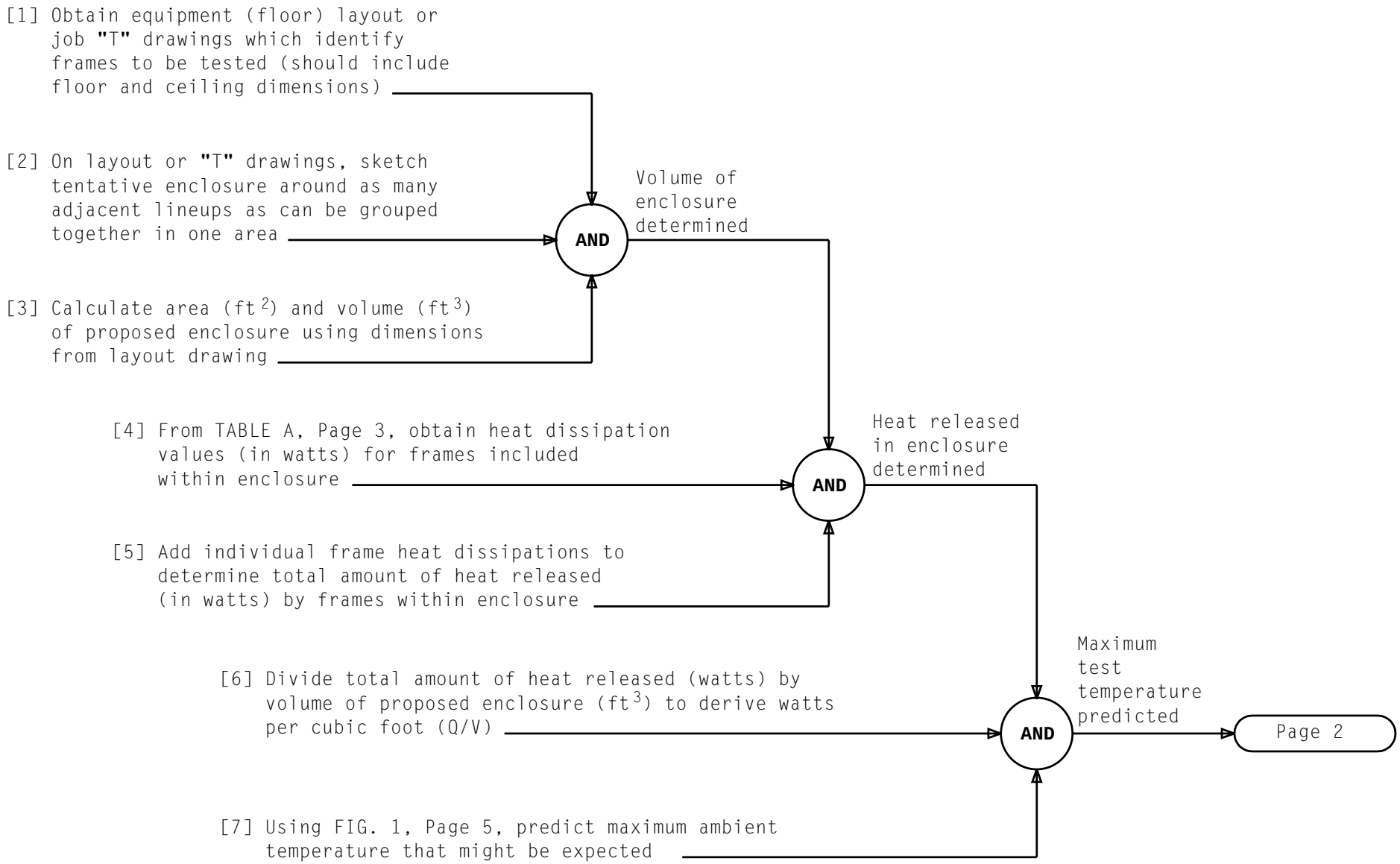
Corrective action required:

Responsibility for corrective action:

Name:_____ Organization:_____

Schedule of corrective action:

PREPARE MACHINE EXCEPTION REPORT



DETERMINE HEAT BARRIER REQUIREMENTS FOR NO-COOL TESTING

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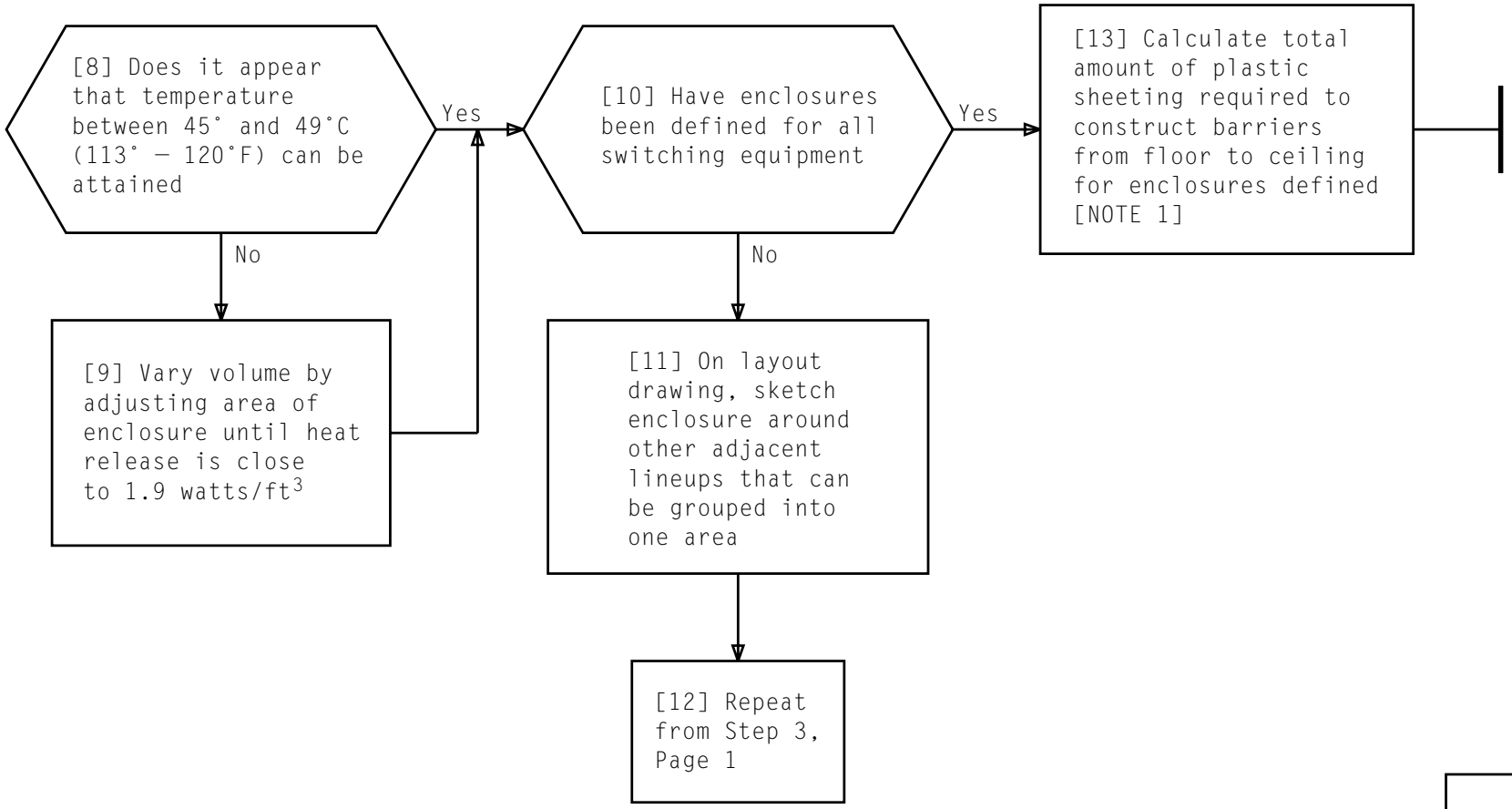


NOTE 1
The recommended enclosure material is 6 mil, clear, fire retardant polyvinyl chloride (PVC) plastic sheeting which is available in rolls of varying widths from many suppliers

DETERMINE HEAT BARRIER REQUIREMENTS FOR NO-COOL TESTING

TABLE A

HEAT DISSIPATION OF *4ESS*™ SWITCH FRAMES

FRAME (J NUMBER)	FLOOR PLAN CONVENTION AND FRAME WIDTH	HEAT RELEASE * (WATTS)
1B Processor (J4A023AA-1 to J4A023AD-1)	2'6" 2'6" CC0 | CC1	6000
3B21D Computer System (J3T059A-1 to J3T061A-1)	2'6" 2'6" 2'6" PC 0 & 1 | SDC | SDC	3234
Attached Processor Interface (API) (J5A012A)	API 3'3"	870
Common Network Interface (CNI) Ring (J3F011E-1)	CNI 2'2"	1680
Data Set (DS)	DS 2'2"	250
Digital Facility Access (DFA) Frame (J3F022A)	DFA 2'6"	384
Digital Interface Frame Export 1 Domestic (DIF-E1) (J5X059B-1)	6'6" 3'3" DIF-E1 (L1) | (L2)	2409
Input/Output Processor (IOP) (J5A006D)	IOP 2'2"	540
Miscellaneous Frame A (J4A0104)	MA 2'2"	150
Miscellaneous Frame B (J4A0105)	MB 2'2"	200
Miscellaneous Frame C (J4A0105)	MC 2'2"	200
Network Clock (J4A004A)	NCLK 6'6"	920
APS Peripheral Control (PC) (J1C187A-1)	PC 2'2"	2256
Power Distribution Frame (J86334D-1)	PDF 2'6"	0
Power Distribution (PD) Frame - 3B Computer (J86334C)	PD 2'6"	360
Peripheral Unit Bus Branching (PUBB) (J4A005A)	PUBB 4'4"	1100
Remote Measurement System — D2 (RMS-D2) (J1P092A)	RMS-D2 2'6"	1000
Ringing and Tone Plant (RT) (3500-535)	RT 2'2"	98
Service Circuit Controller Cabinet (J4A024A-1)	SCS 2'6"	2183
Service Circuit Unit Cabinet (J4A024B)	SCU 2'6"	2138
Signal Processor 1 (SP 1) (J4A003F & G)	6'6" 4'4" (F) | SP(F) | (G)	3700 †

* Heat release figures are for a fully equipped frame or frame complex.
† This figure is for a complete complex of one J4A003G frame and two J4A003F frames.

DETERMINE HEAT BARRIER REQUIREMENTS FOR NO-COOL TESTING

TABLE A (Contd)

HEAT DISSIPATION OF *4ESS*™ SWITCH FRAMES

FRAME (J NUMBER)	FLOOR PLAN CONVENTION AND FRAME WIDTH	HEAT RELEASE* (WATTS)	FRAME (J NUMBER)	FLOOR PLAN CONVENTION	HEAT RELEASE* (WATTS)
Tape/Disk (TD) Cabinet - 3B Computer (J1C186A-1)	TD 2'2"	With tape unit - 1248	Time Slot Interchange (TSI) (J4A001B)	TSI-B 6'6"	1988
		Without tape unit - 2400	Expanded TSI (XTSI) (J4A034A-1)	XTSI 2'6"	2000 for R1 3000 for R2
Time Multiplex Switch (TMS) (J4A002B)	TMS-B 6'6"	1683	Custom Data Services Cabinet-II (J4A024D-1)	CDSU-II 2'6"	2400

* Heat release figures are for a fully equipped frame or frame complex.

‡ This figure is for initial bay. Wattage dissipation for supplementary bay would be the same. Heat dissipation for a Battery Distribution Fuse Bay is insignificant.

DETERMINE HEAT BARRIER REQUIREMENTS FOR NO-COOL TESTING

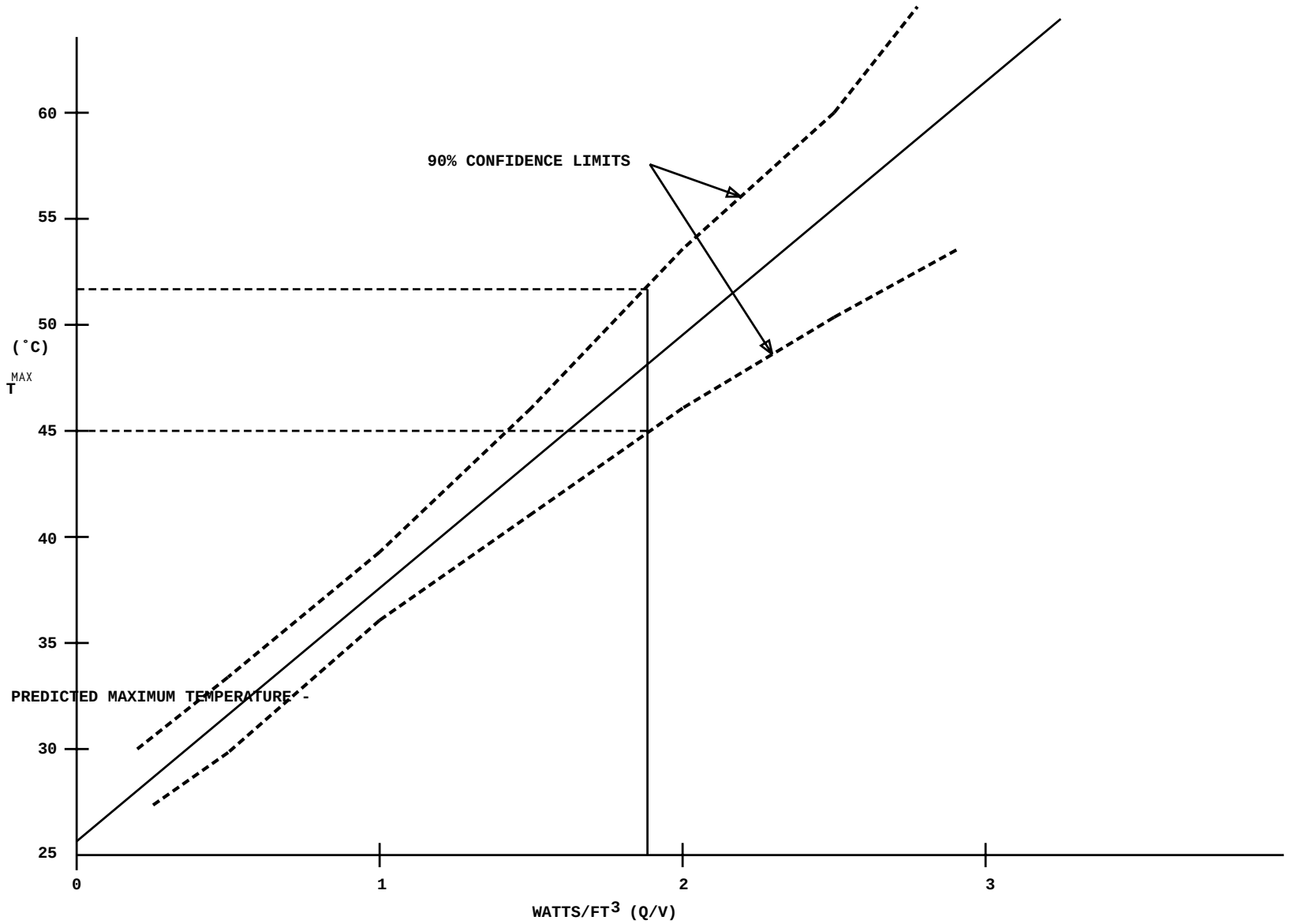
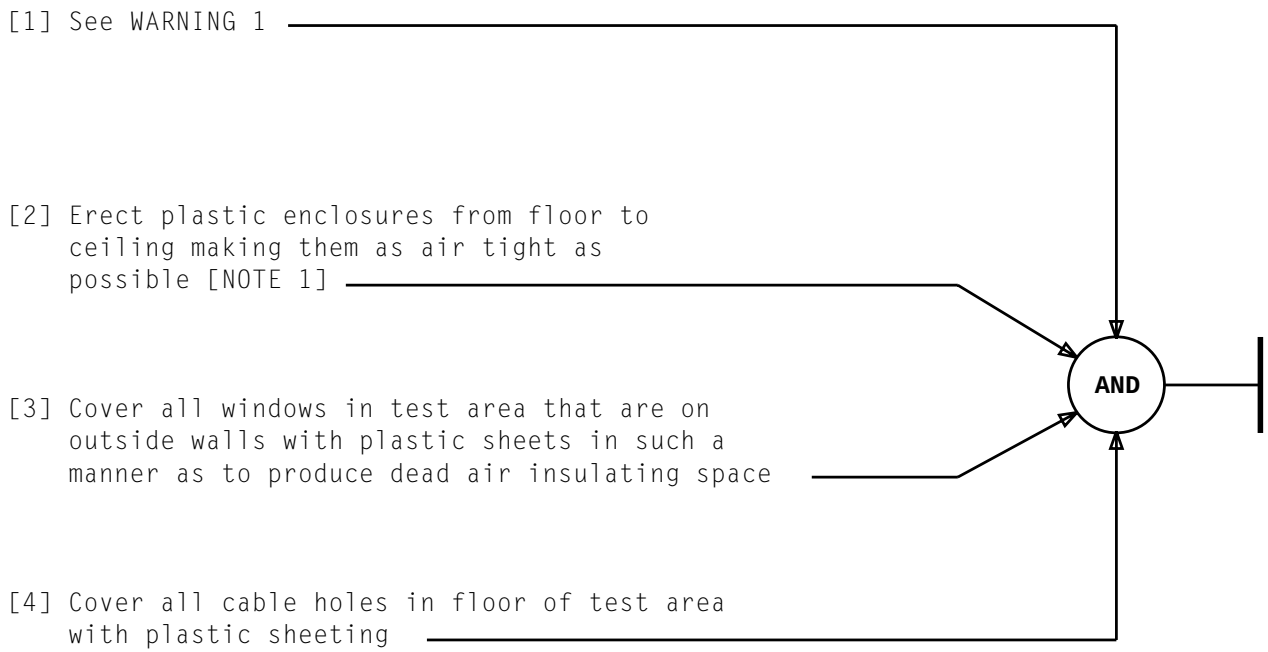


FIG. 1 - Maximum Temperature Prediction For No-Cool Test

INSTALL HEAT BARRIERS



NOTE 1

It is not recommended that large sheets of plastic be taped directly to ceiling because tape tends to soften at high temperatures and will not support any appreciable weight

WARNING 1

Do not use metal staples to fasten sheets of plastic together since there is a possible hazard of staples falling into equipment when enclosure is disassembled

1. Reproduce this page as needed.
2. Record aisle temperatures hourly, beginning 2 hours before cooling is removed.
3. Record relative humidity readings of equipment area every 8 hours during test.

DATE _____ ⟵ **TIME** ⟶

THERMOMETER NO.	LOCATION														

TEMPERATURE °C

TIME	HUMIDITY	TIME	HUMIDITY

RECORD AISLE TEMPERATURE AND RELATIVE HUMIDITY

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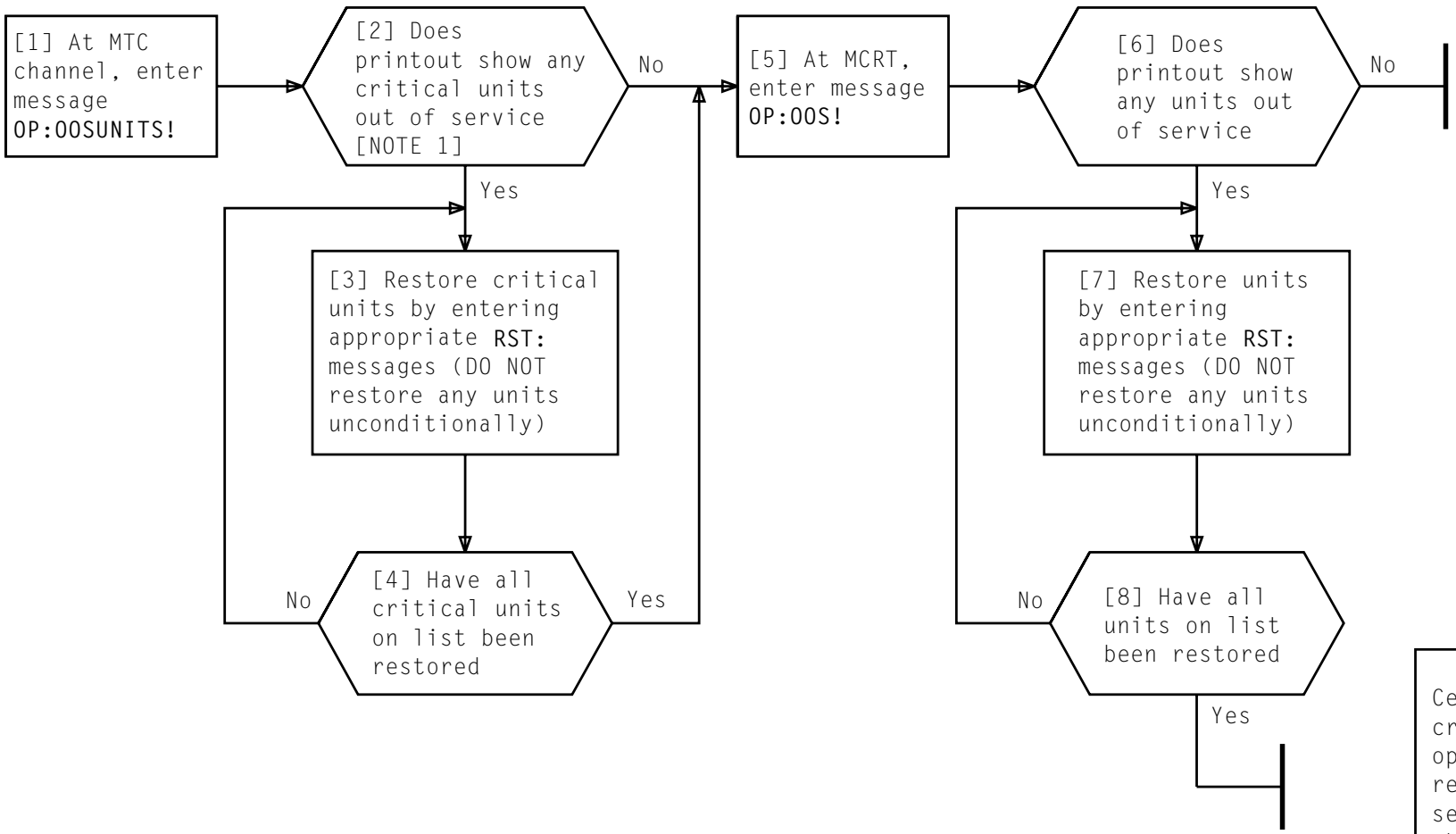
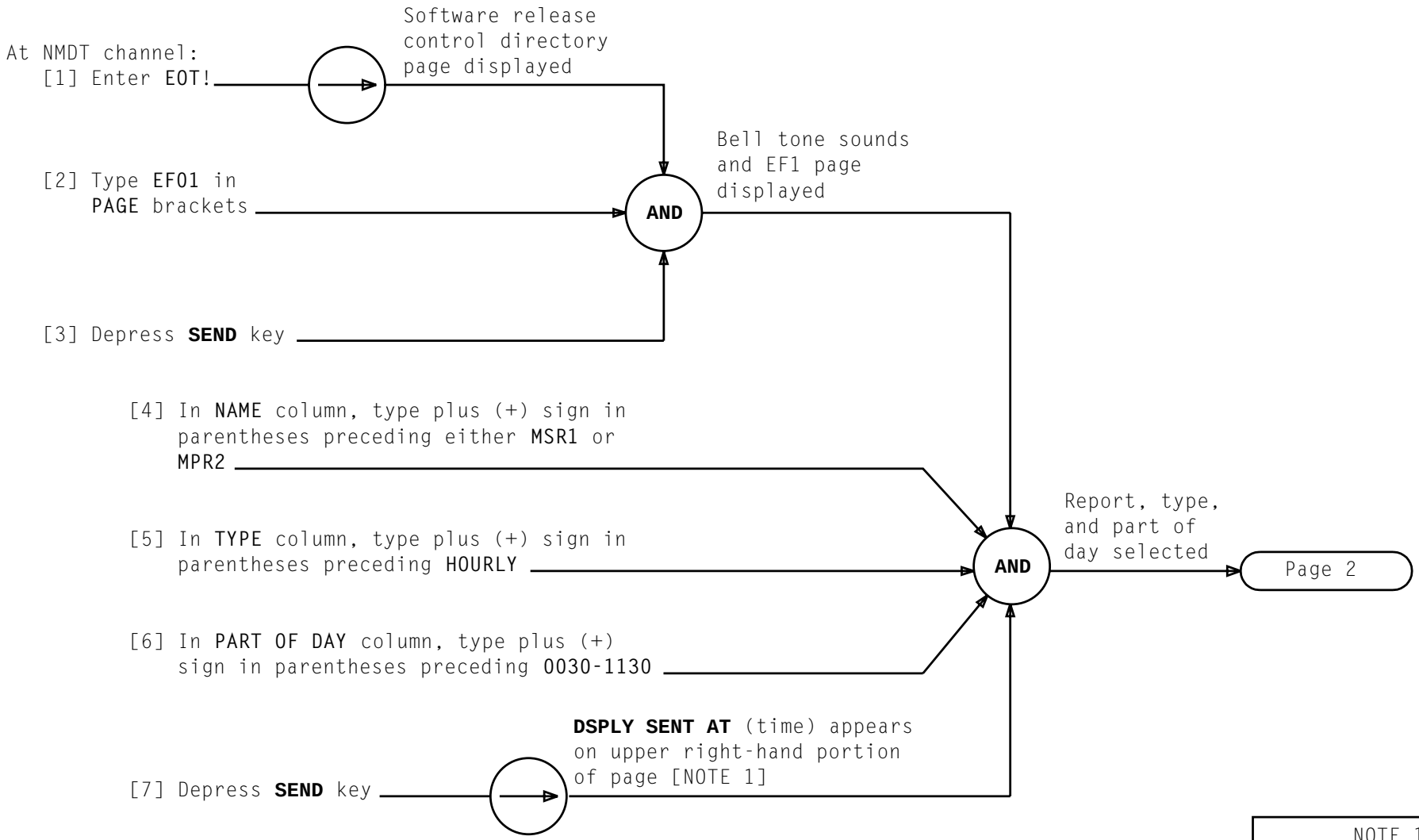


NOTE 1
Certain units not critical to machine operation may remain out of service, such as, phase announcement system, CCIS terminals, certain I/O units, and the ringing, tone, and interrupter plant. All other units must be in service to continue test

ENSURE SYSTEM OPERATING IN DUPLEX



NOTE 1
If report has been previously scheduled, existing schedule data will be displayed

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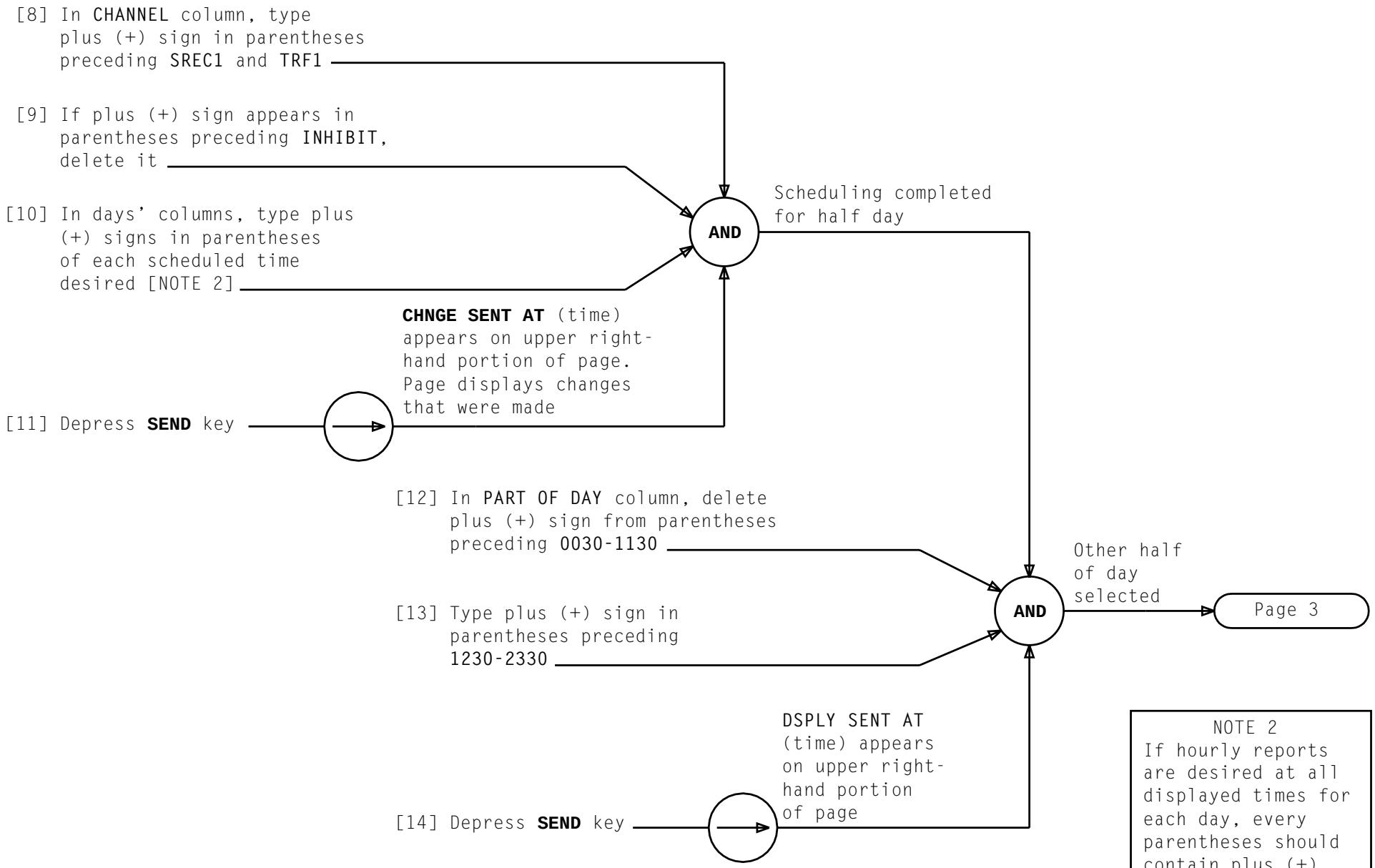
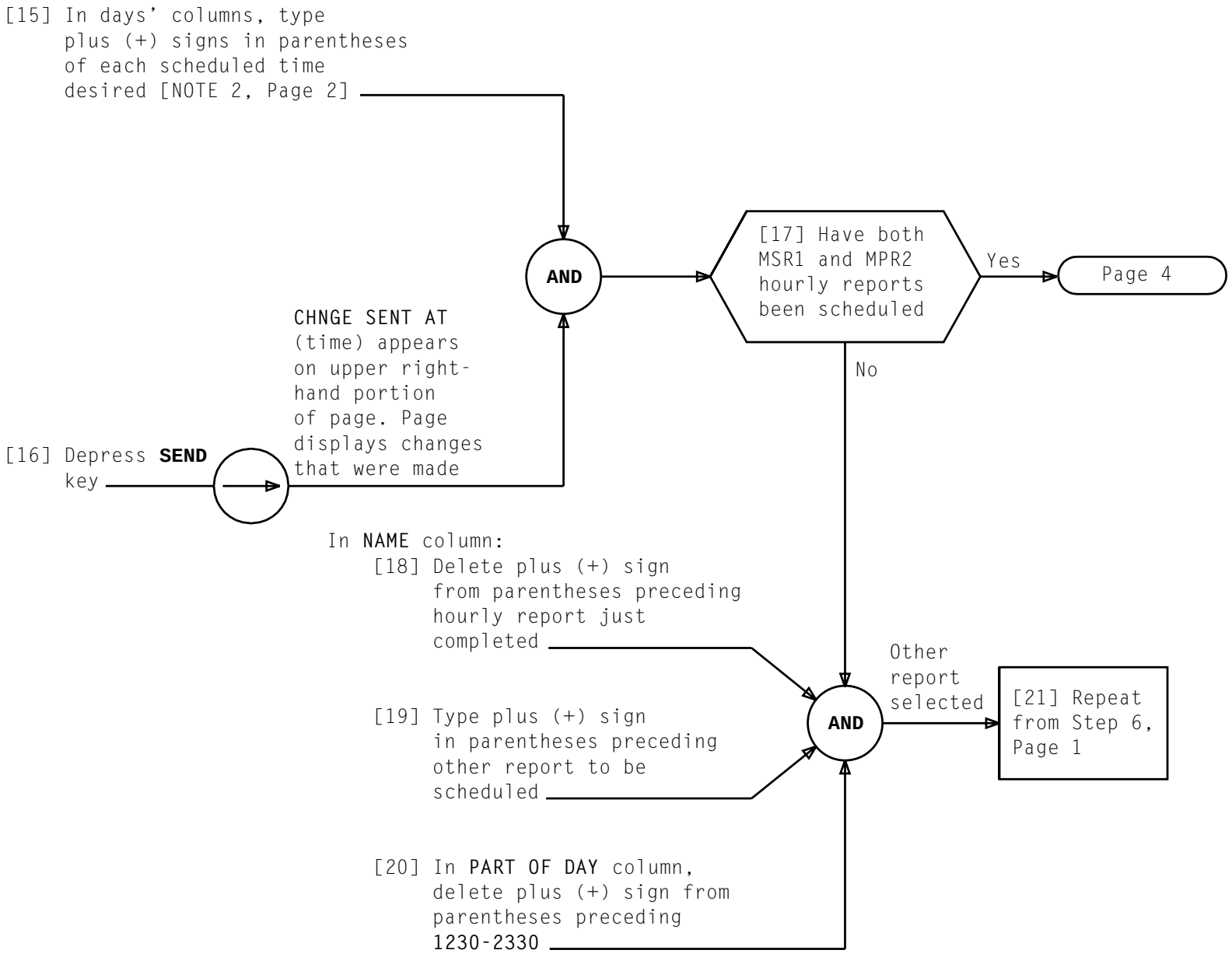
SCHEDULE MSR1 AND MPR2 REPORTS

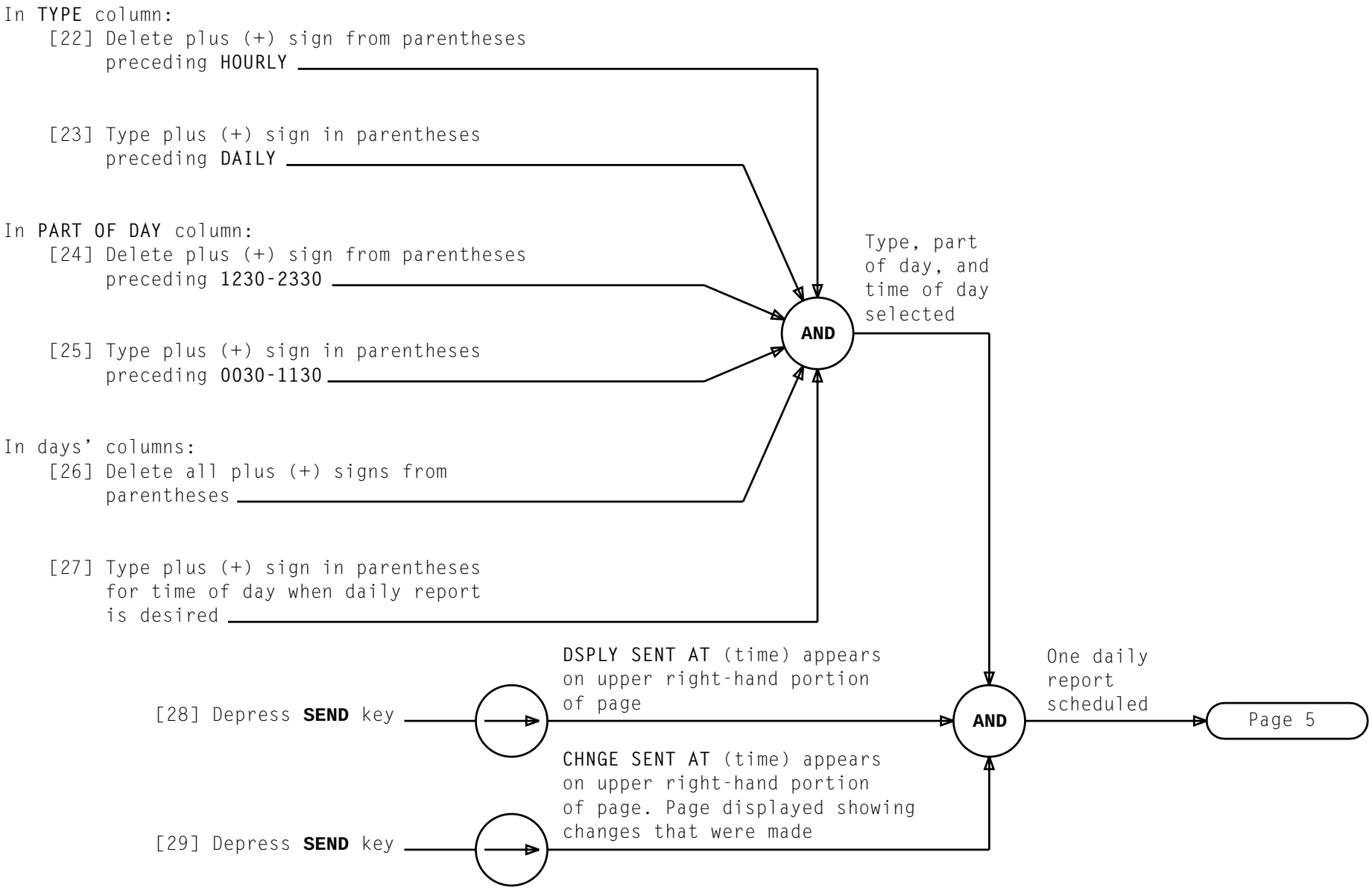


NOTE 2
If hourly reports are desired at all displayed times for each day, every parentheses should contain plus (+).

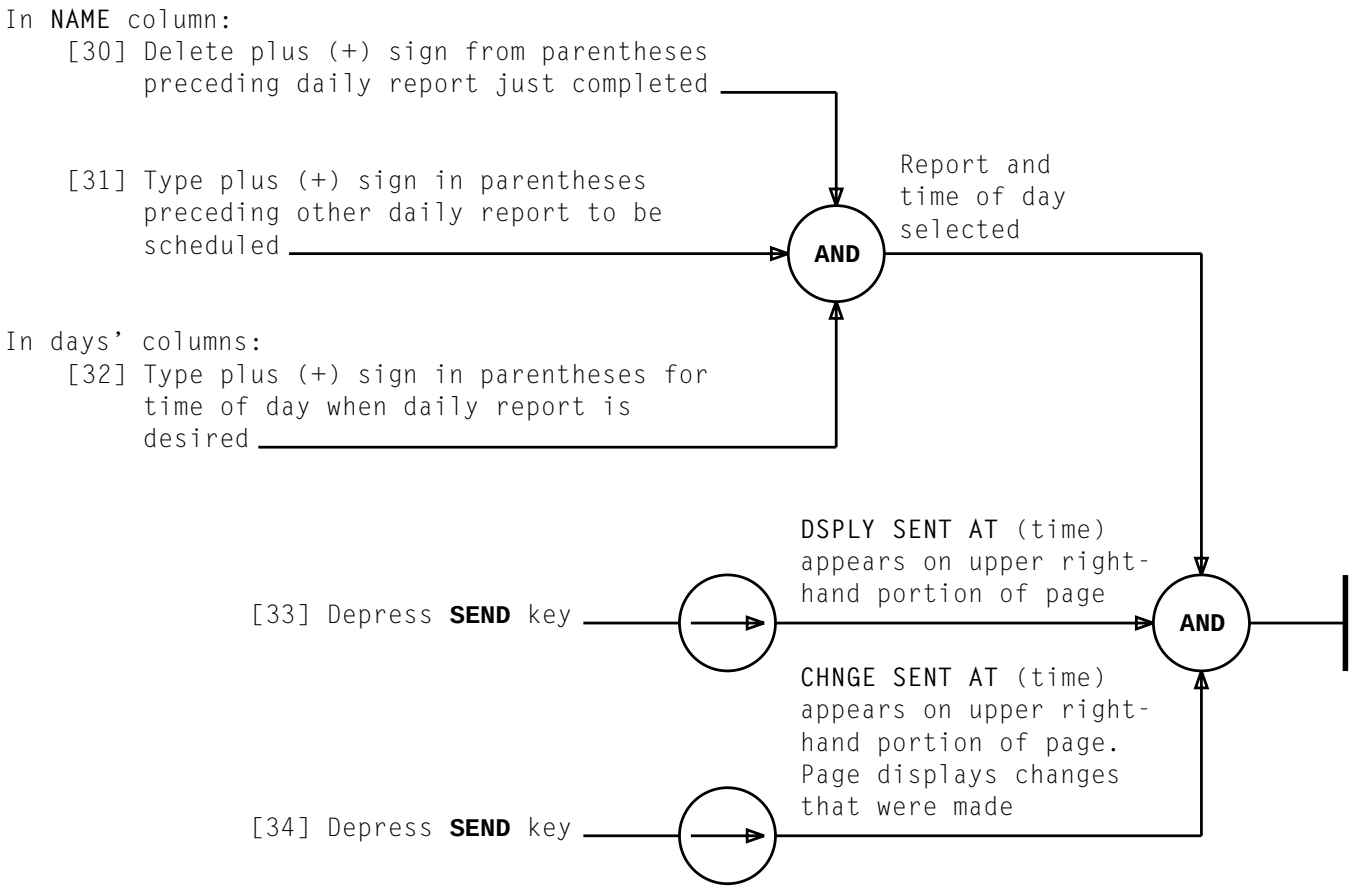
SCHEDULE MSR1 AND MPR2 REPORTS



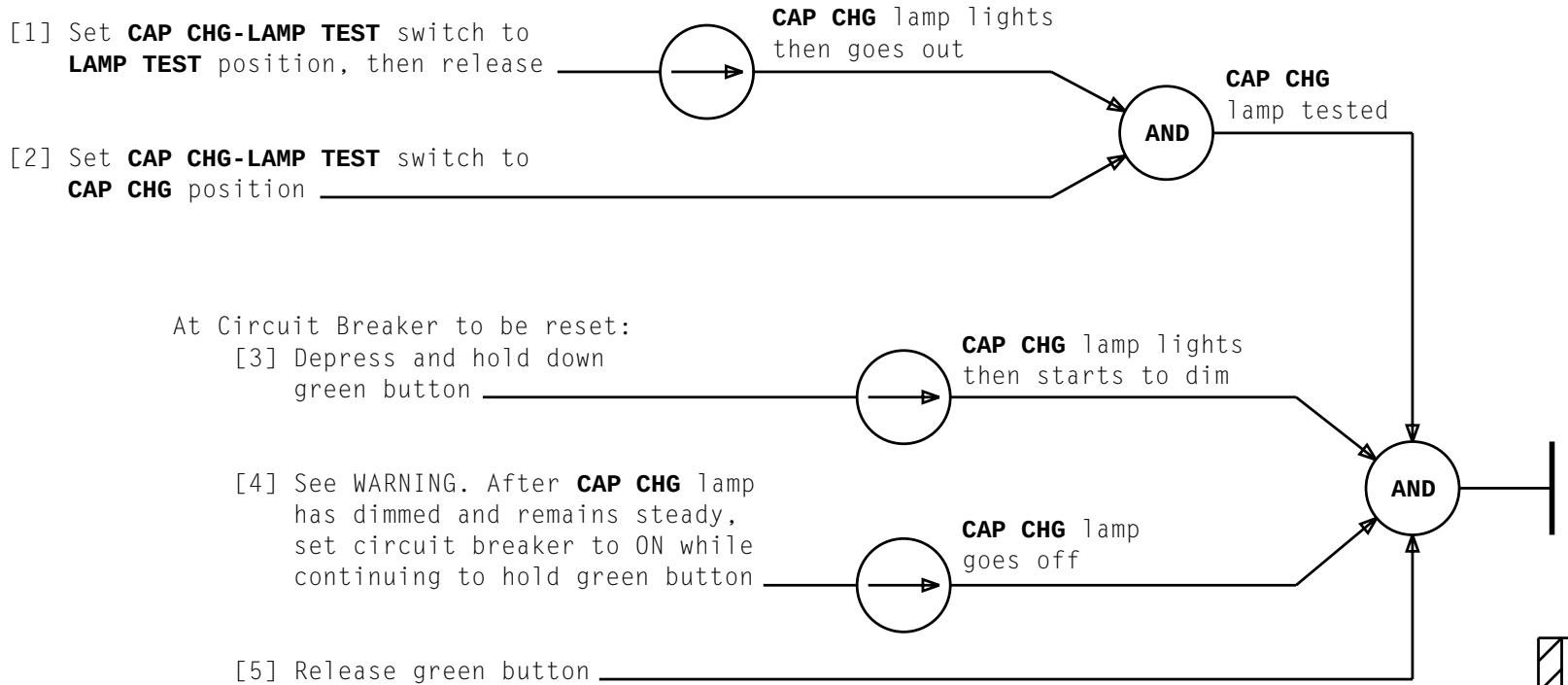
SCHEDULE MSR1 AND MPR2 REPORTS



SCHEDULE MSR1 AND MPR2 REPORTS



SCHEDULE MSR1 AND MPR2 REPORTS



WARNING

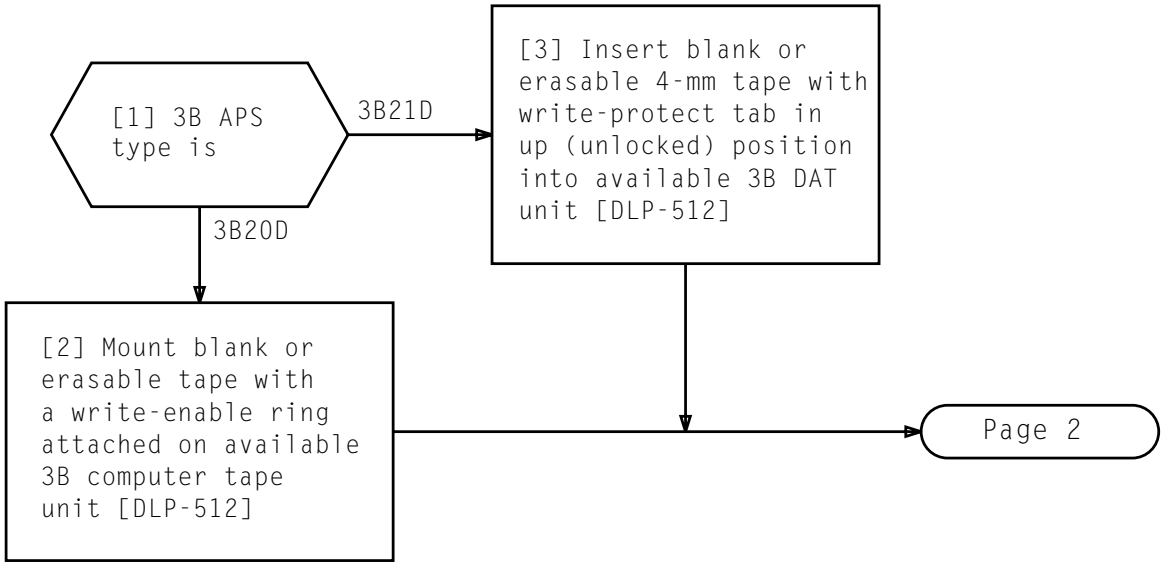
If **CAP CHG** *lamp remains bright without any dimming, DO NOT RESET CIRCUIT BREAKER. This indicates grounded output feeder lead or grounded condition at the ABC. Damage will occur to circuit breaker contacts if circuit breaker is reset*

RECHARGE CAPACITORS AND RESET CIRCUIT BREAKERS ON CONTROL AND DISTRIBUTION BAY - 415B POWER PLANT

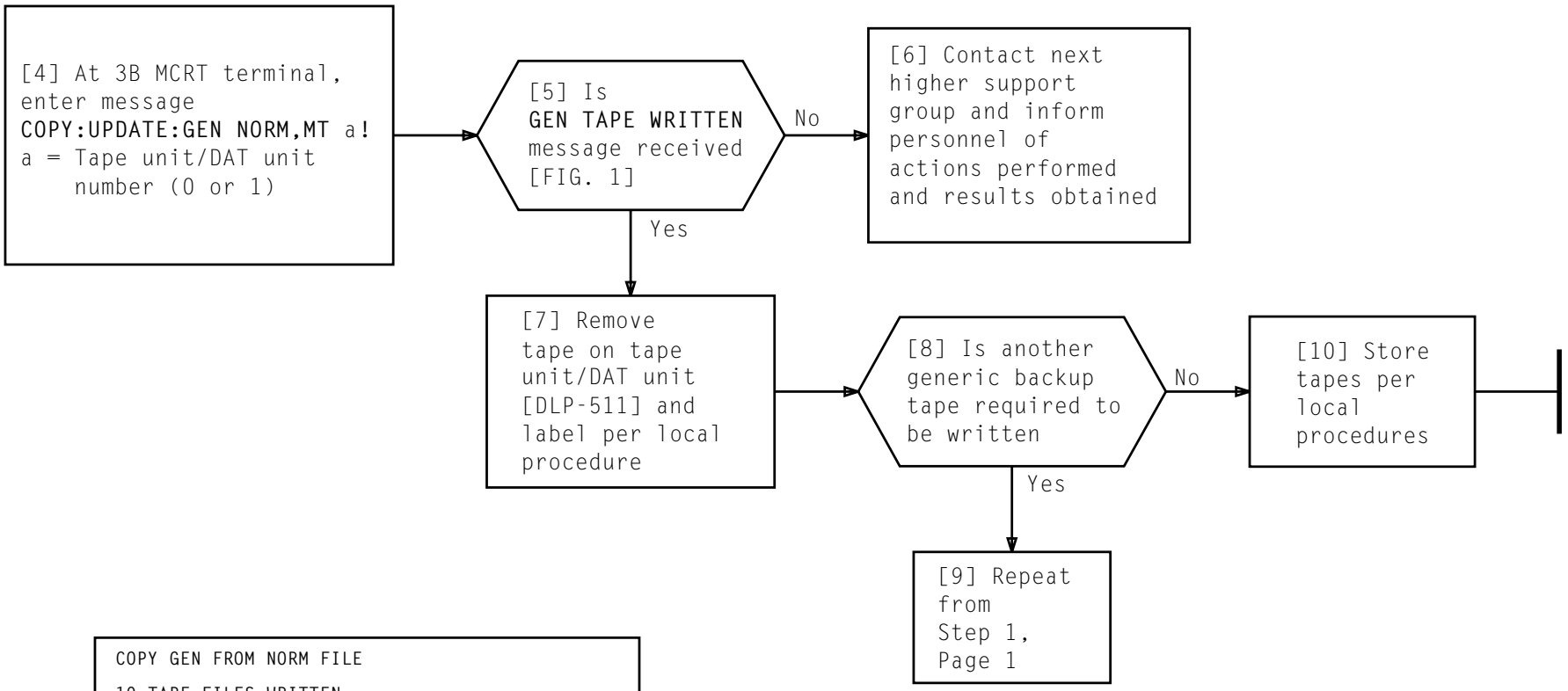
1. Reproduce this page as needed
2. Record information pertaining to units replaced in TABLE A

TABLE A - NO-COOL UNIT REPLACEMENT RECORD						
FRAME TYPE (1B Processor, TSI, ETC)	MEMBER NUMBER	CIRCUIT PACK (TYPE AND SERIES)	TIME OF FAILURE	TEMPERATURE (˚C)	DATE	COMMENTS

RECORD REPLACEMENT OF ALL CIRCUIT PACKS, POWER CONVERTERS, ETC.



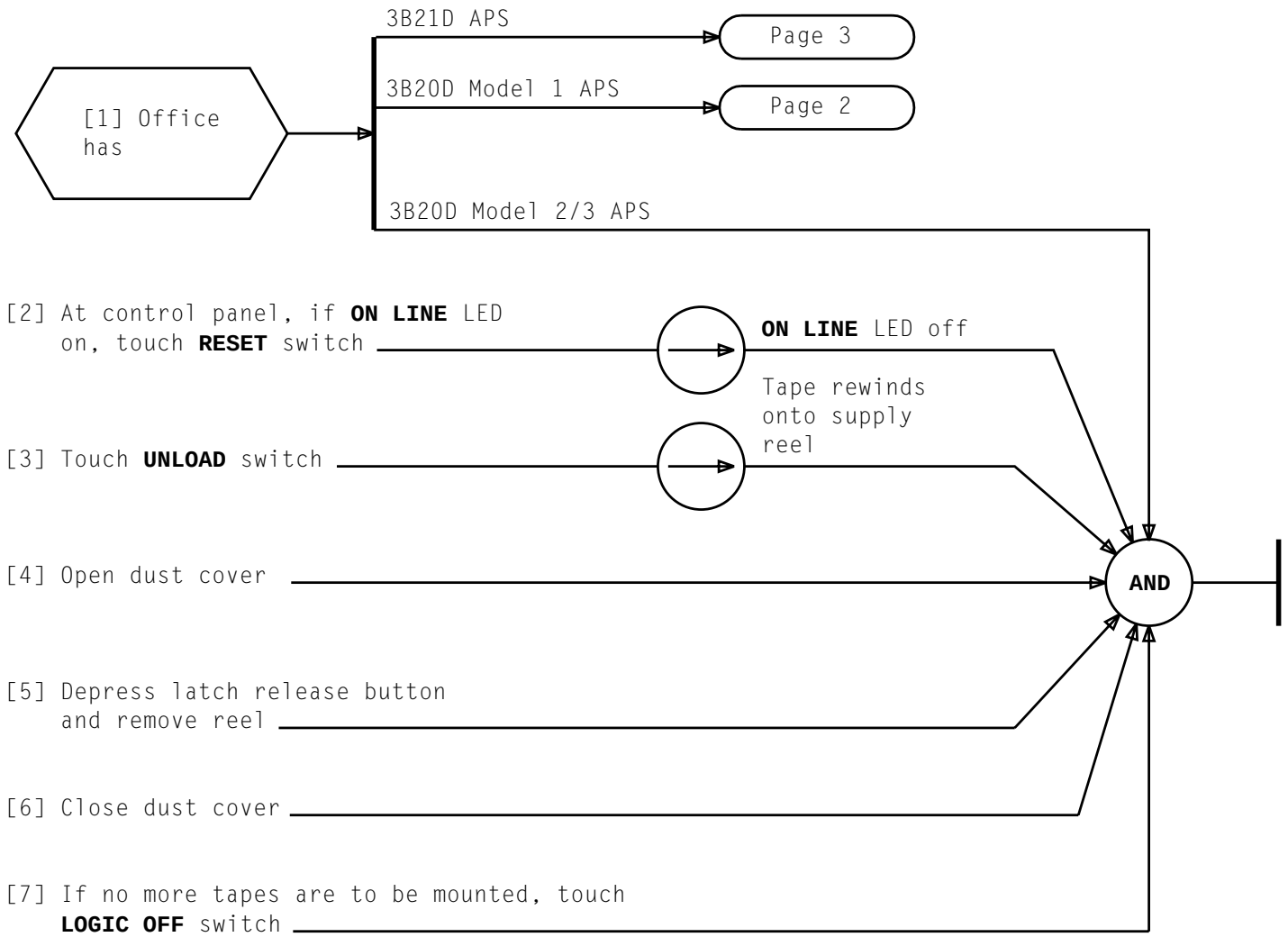
WRITE BACKUP 1B PROCESSOR GENERIC TAPE



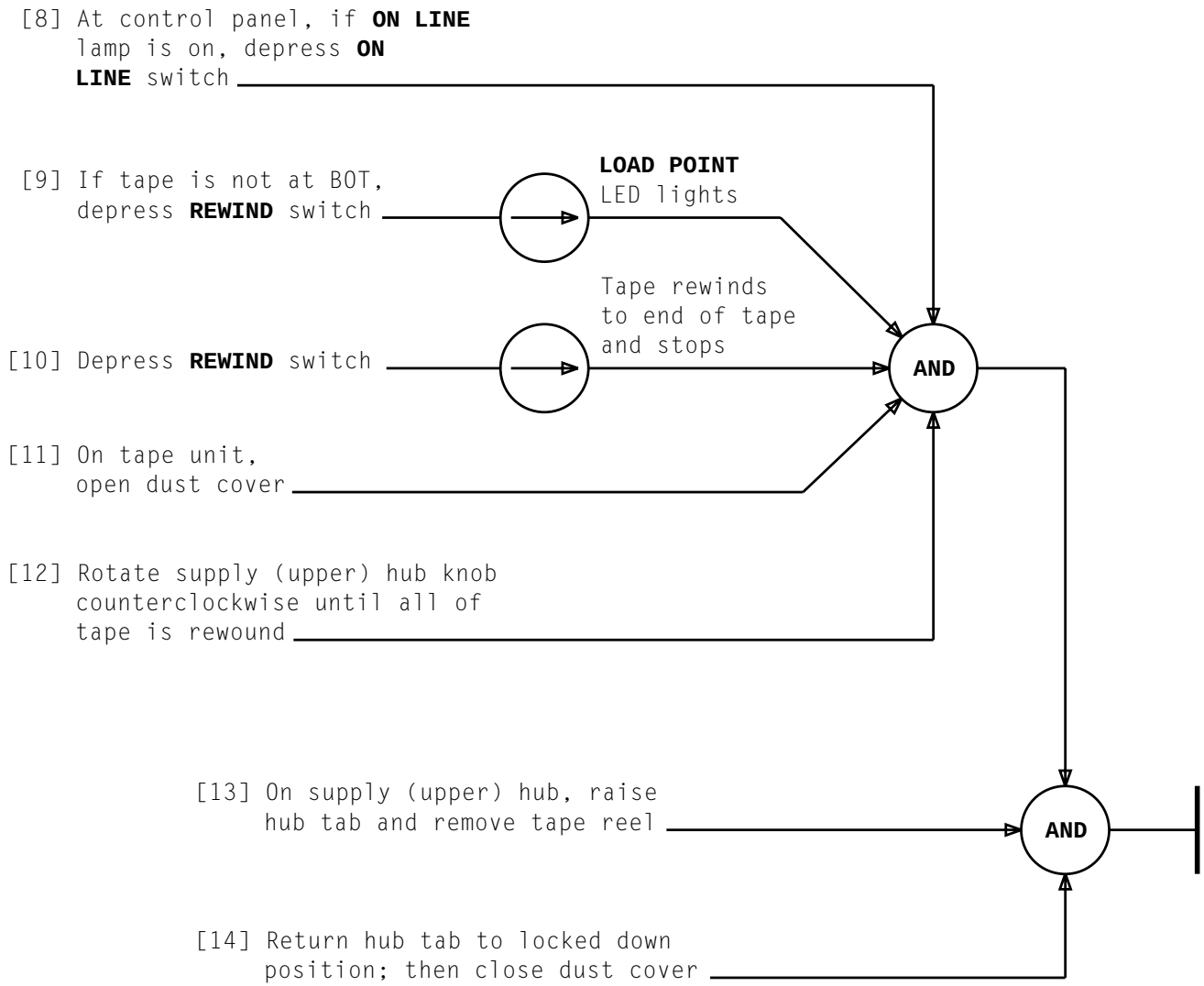

```
COPY GEN FROM NORM FILE
10 TAPE FILES WRITTEN
20 TAPE FILES WRITTEN
30 TAPE FILES WRITTEN
          .
          .
n TAPE FILES WRITTEN
GEN TAPE WRITTEN
```

FIG. 1 — Sample Printout of Generic Backup Tape Write

WRITE BACKUP 1B PROCESSOR GENERIC TAPE



REMOVE TAPE FROM 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT



REMOVE TAPE FROM 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT

[15] At digital audio tape (DAT) unit that contains tape to be removed, depress eject button [FIG. 1]

[16] Was tape just written

No

Yes

[17] Put write-protect tab in the down (locked) position [FIG. 2]

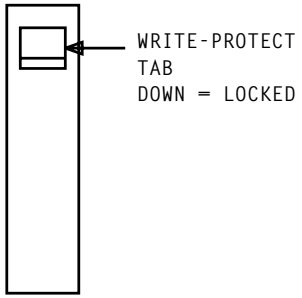


FIG. 2 — 4-mm Tape

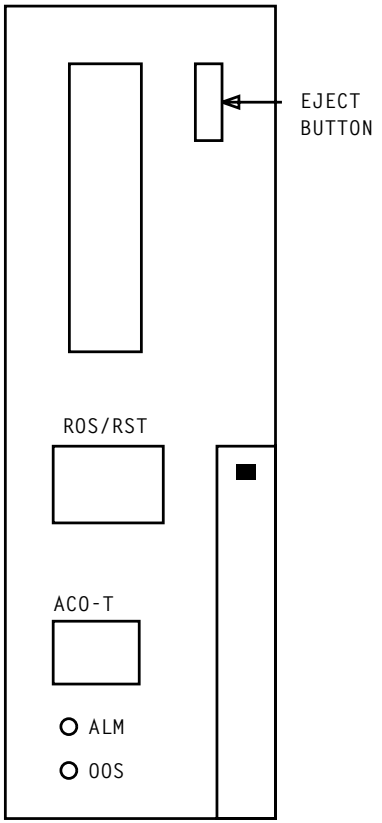
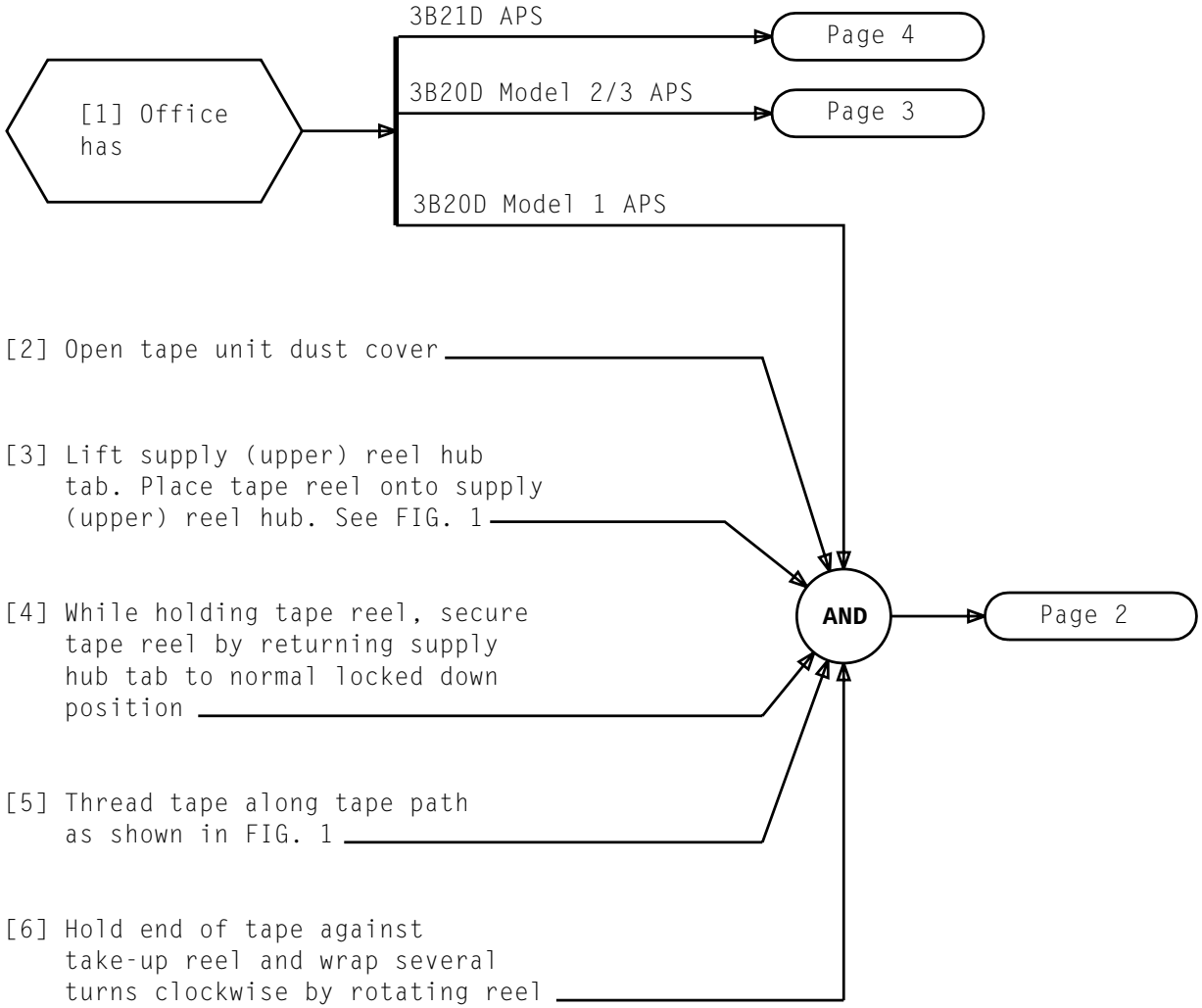


FIG. 1 — DAT Unit

REMOVE TAPE FROM 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT



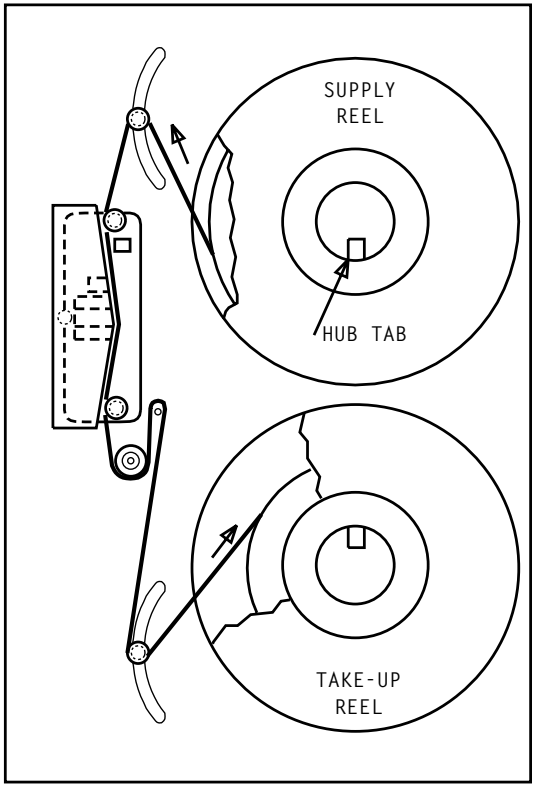


FIG. 1

MOUNT TAPE ON 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT

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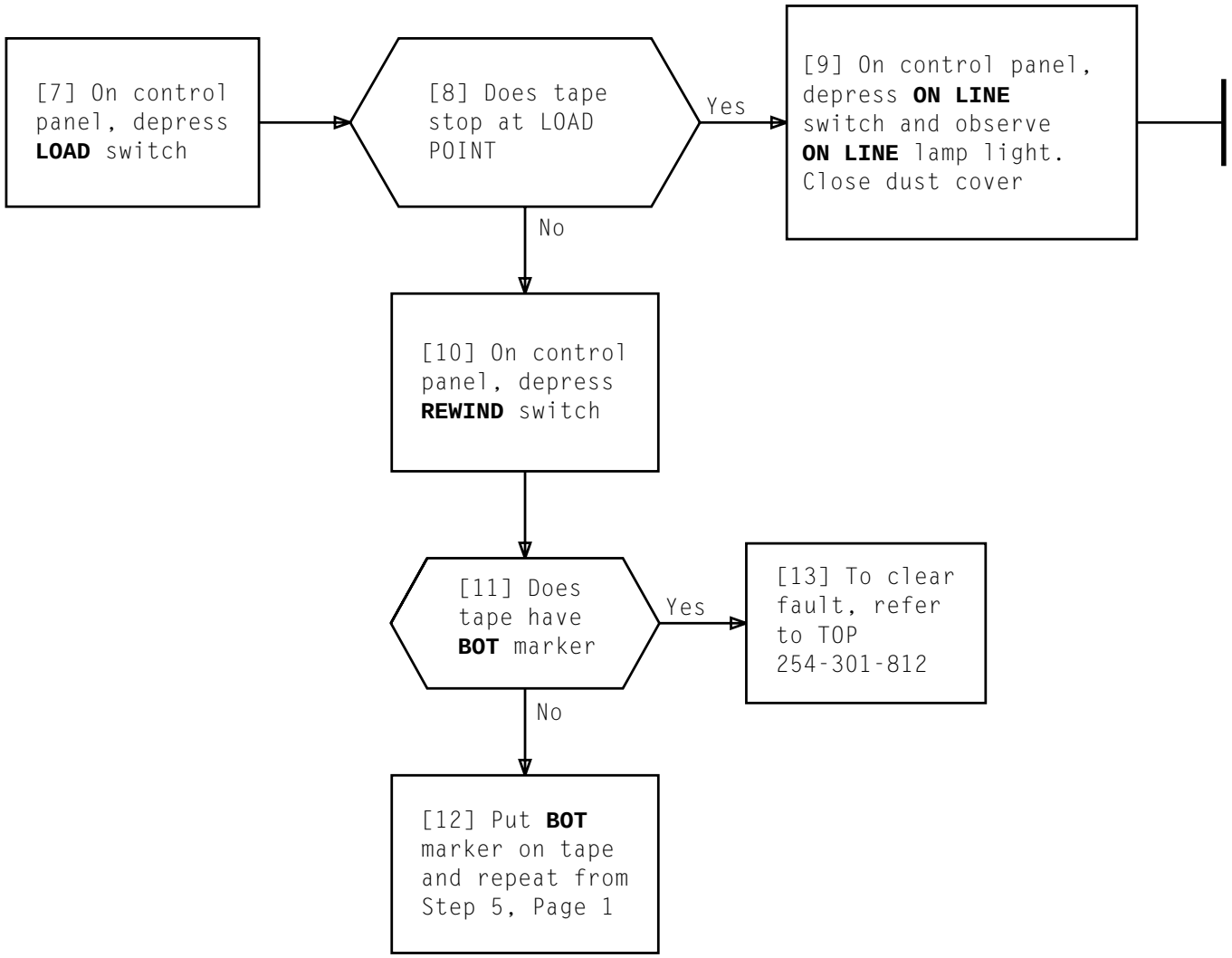


MOUNT TAPE ON 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT

[14] If tape is to be written, attach write-enable ring on supply reel

[15] If **LOGIC OFF** LED lighted, touch **LOGIC ON** switch

[16] Open dust cover and verify circuit breaker at side 1

[17] See FIG. 2. Place supply reel on hub and depress hub latch

[18] Thread tape from bottom of supply reel along path as shown in FIG. 2

[19] Hold end of tape against take-up reel and wrap several turns clockwise by rotating reel; then close dust cover

[20] At control panel, touch **LOAD/REWIND** switch

AND

[21] Does tape move and stop, and is **BOT** LED lighted

Yes

[24] Touch **ON LINE** switch

No

[22] Touch **RESET** switch, attach beginning of tape (BOT) marker, and repeat from Step 18

No

[23] To clear fault, refer to TOP 254-301-812

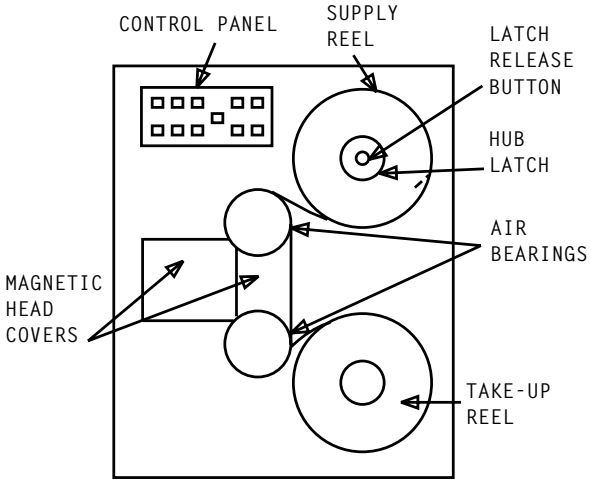
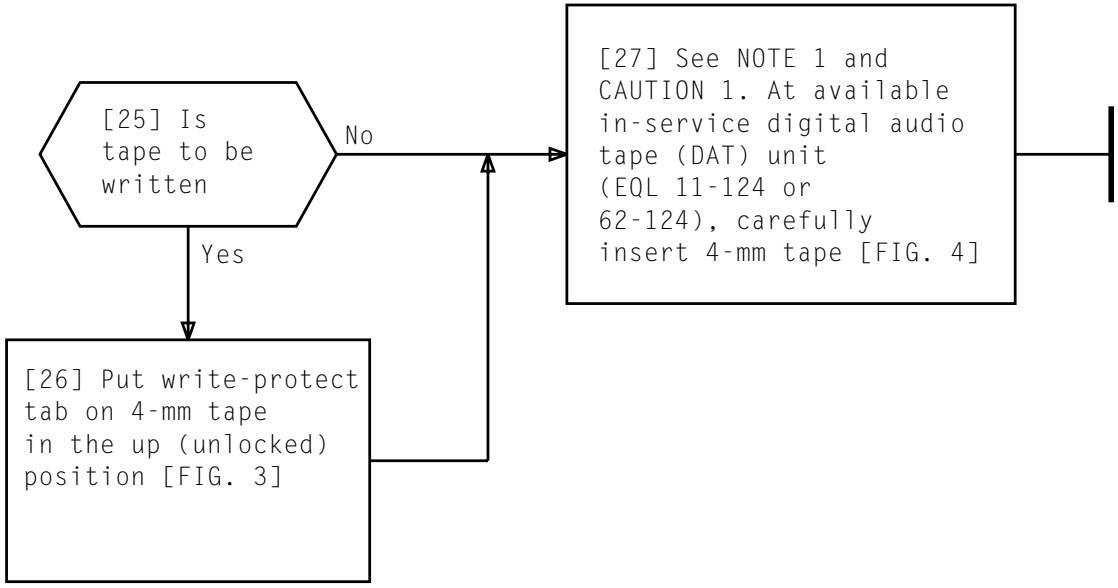


FIG. 2

MOUNT TAPE ON 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT



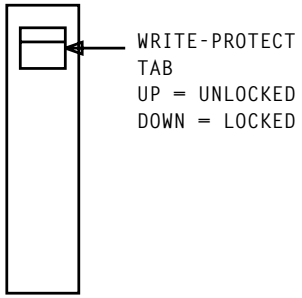


FIG. 3 — 4-mm Tape

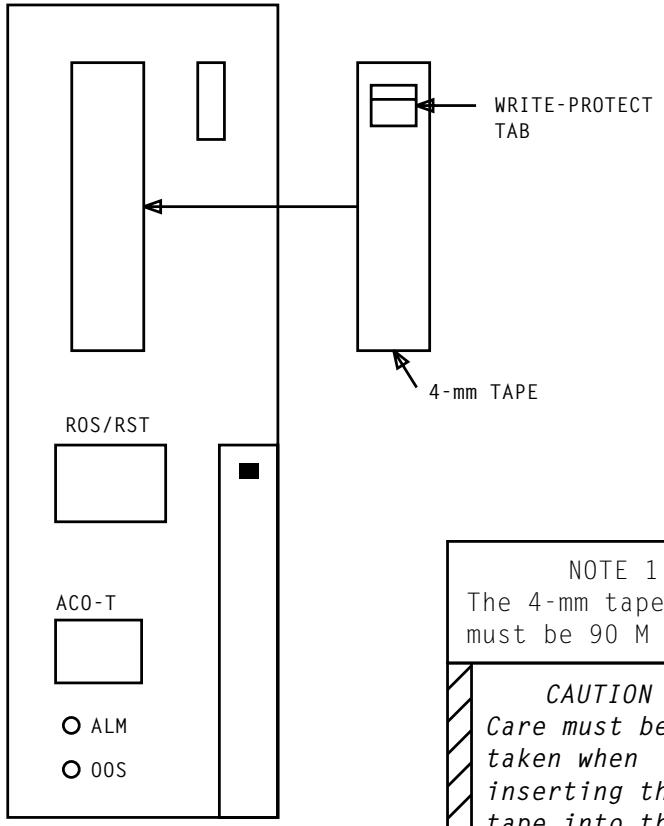
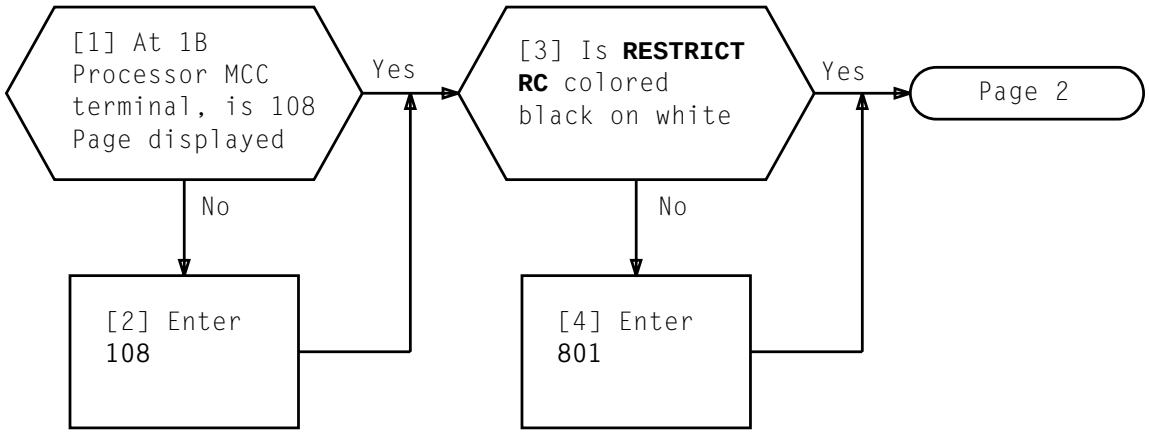


FIG. 4 — DAT Unit

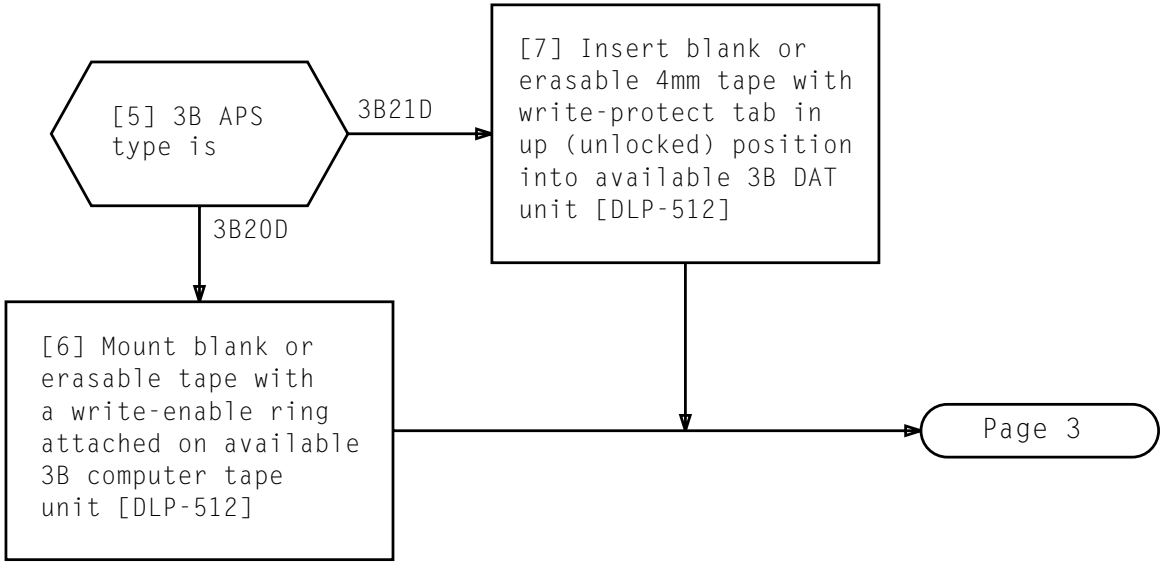
NOTE 1
The 4-mm tape length must be 90 M

CAUTION 1
Care must be taken when inserting the tape into the DAT unit. Tape must not be forced

MOUNT TAPE ON 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT



WRITE BACKUP 1B PROCESSOR ODA TAPE



WRITE BACKUP 1B PROCESSOR ODA TAPE

[8] At 3B MCRT terminal, enter message **COPY:UPDATE:ODA NORM,MT** a**!**
a = Tape unit/DAT unit number (0 or 1)

[9] Is **ODA TAPE WRITTEN** message received [FIG. 1]

No

[10] Contact next higher support group and inform personnel of actions performed and results obtained

Yes

[11] Remove tape on tape unit/DAT unit [DLP-511] and label per local procedure

[12] Is another ODA backup tape required to be written

No

[14] Store tapes per local procedure

[15] At MTC Channel, Enter Message **AUD:NUM (43,44,45,66,72)!** to run audits 43, 44, 45, 66, and 72

Yes

[13] Repeat from Step 5, Page 2

[16] At 1B Processor MCC terminal, enter 801 **(RESTRICT RC** colored white on black)

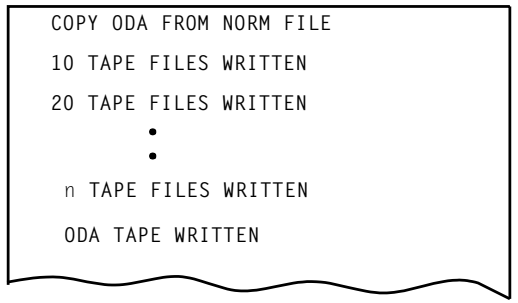
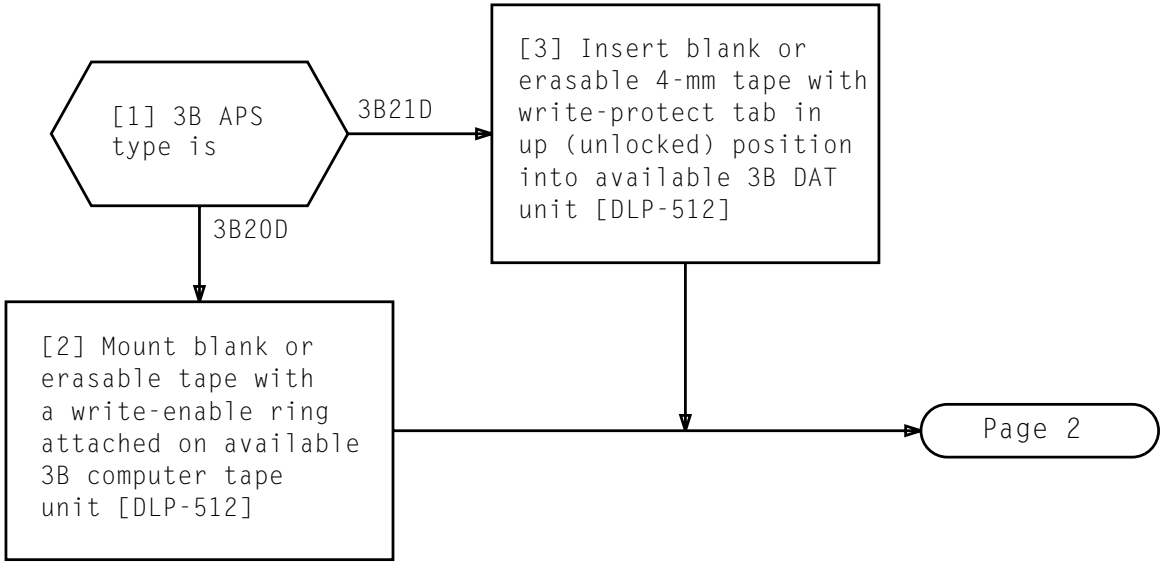
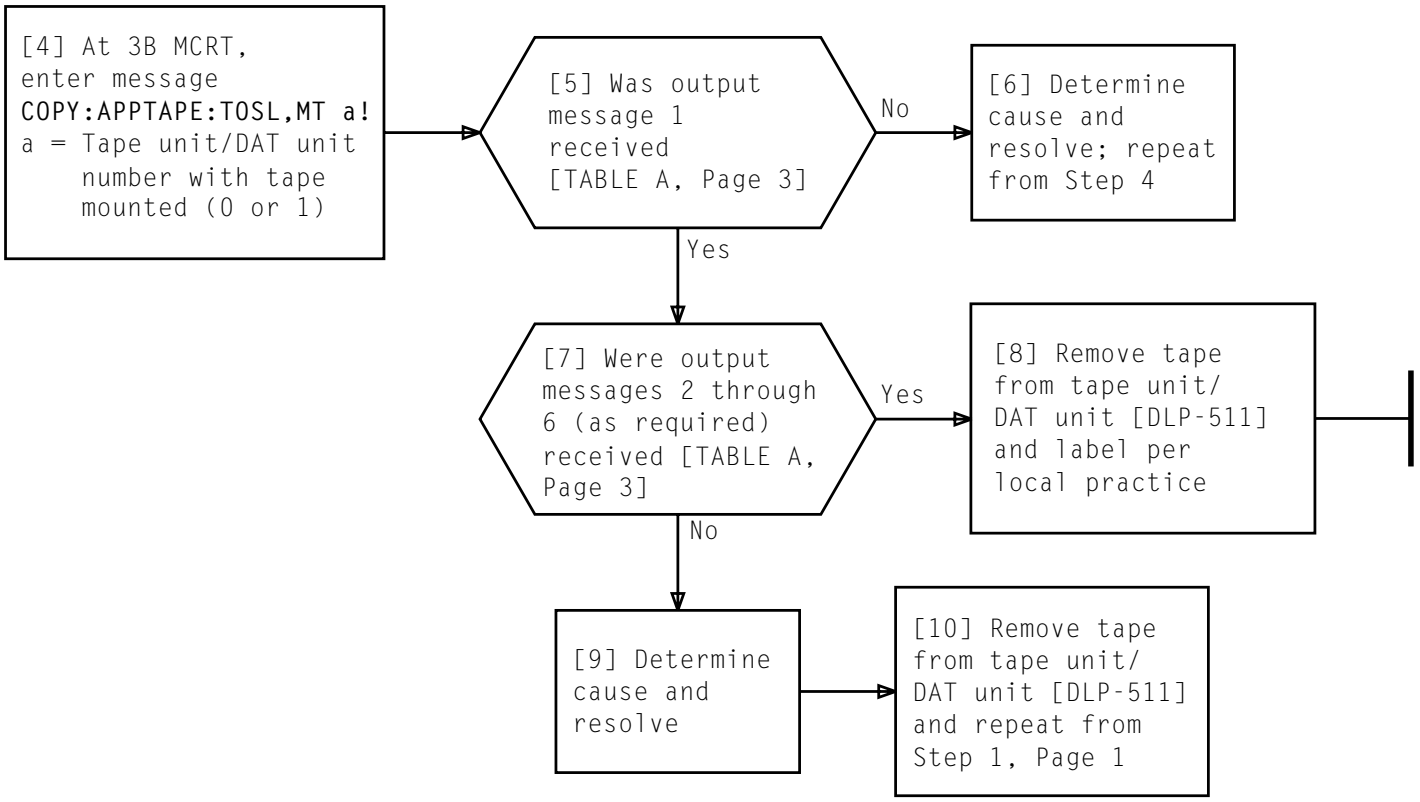


FIG. 1 — Sample Printout of ODA Backup Tape Write

WRITE BACKUP 1B PROCESSOR ODA TAPE



WRITE BACKUP TRUNK OUT-OF-SERVICE LIST (TOSL) TAPE

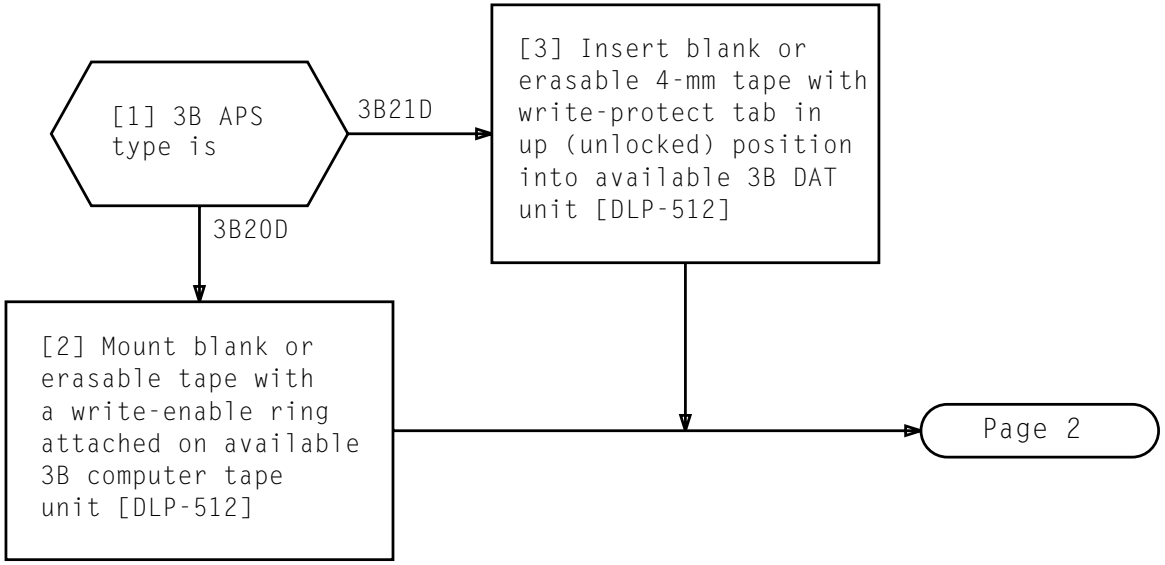


WRITE BACKUP TRUNK OUT-OF-SERVICE LIST (TOSL) TAPE

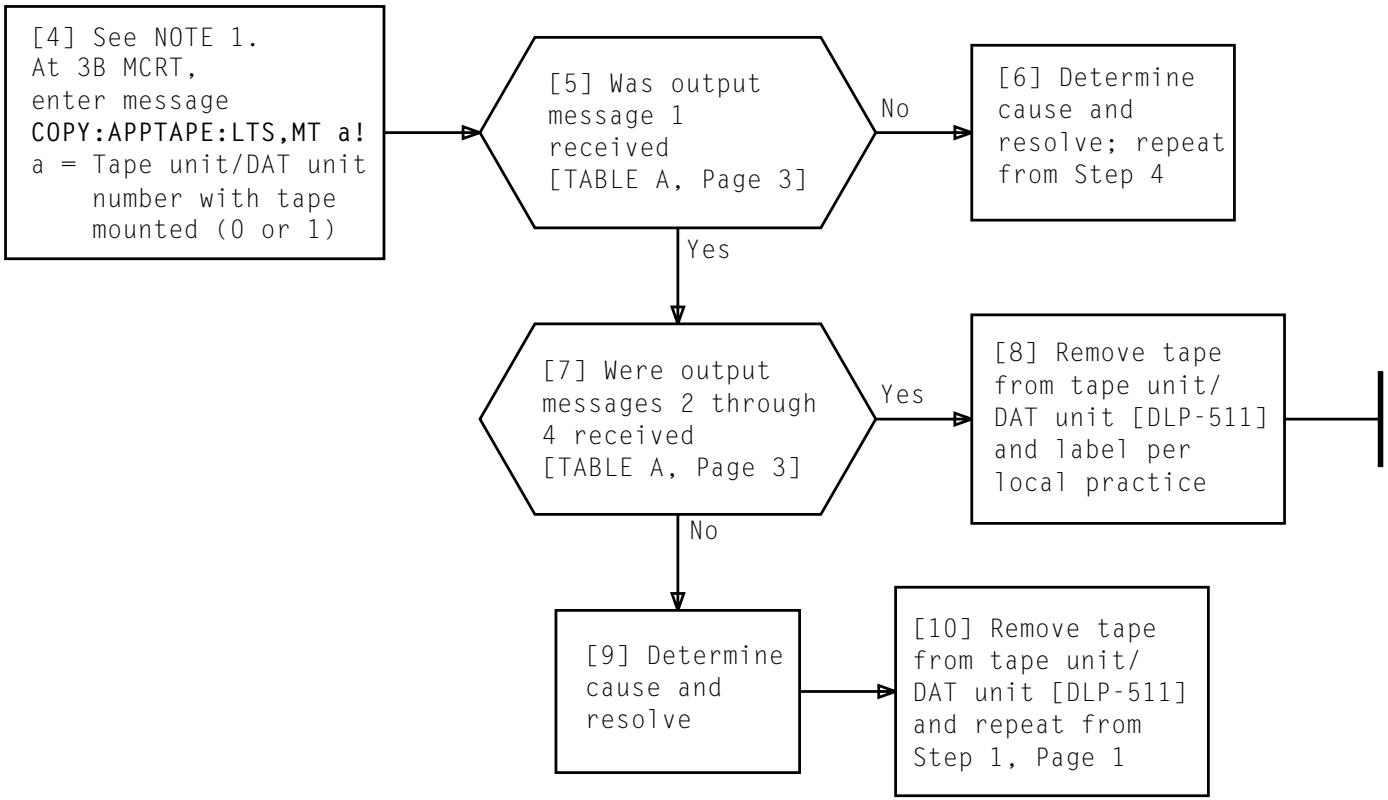
TABLE A	
MESSAGE NUMBER	**OUTPUT MESSAGES**
1	COPY APPTAPE TYPE: TOSL, WRITTEN mm/dd/yy hh:mm
2	COPY APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb STARTED,FILE /dev/1afileX
3	COPY APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb COMPLETED
4	COPY APPTAPE COMPLETED

mm/dd/yy hh:mm = month/day/year hour:minute tape was written
aaaaaaaa = starting TOSL address through
bbbbbbbb = ending TOSL address written

WRITE BACKUP TRUNK OUT-OF-SERVICE LIST (TOSL) TAPE



WRITE BACKUP LONG-TERM STORAGE (LTS) TAPE

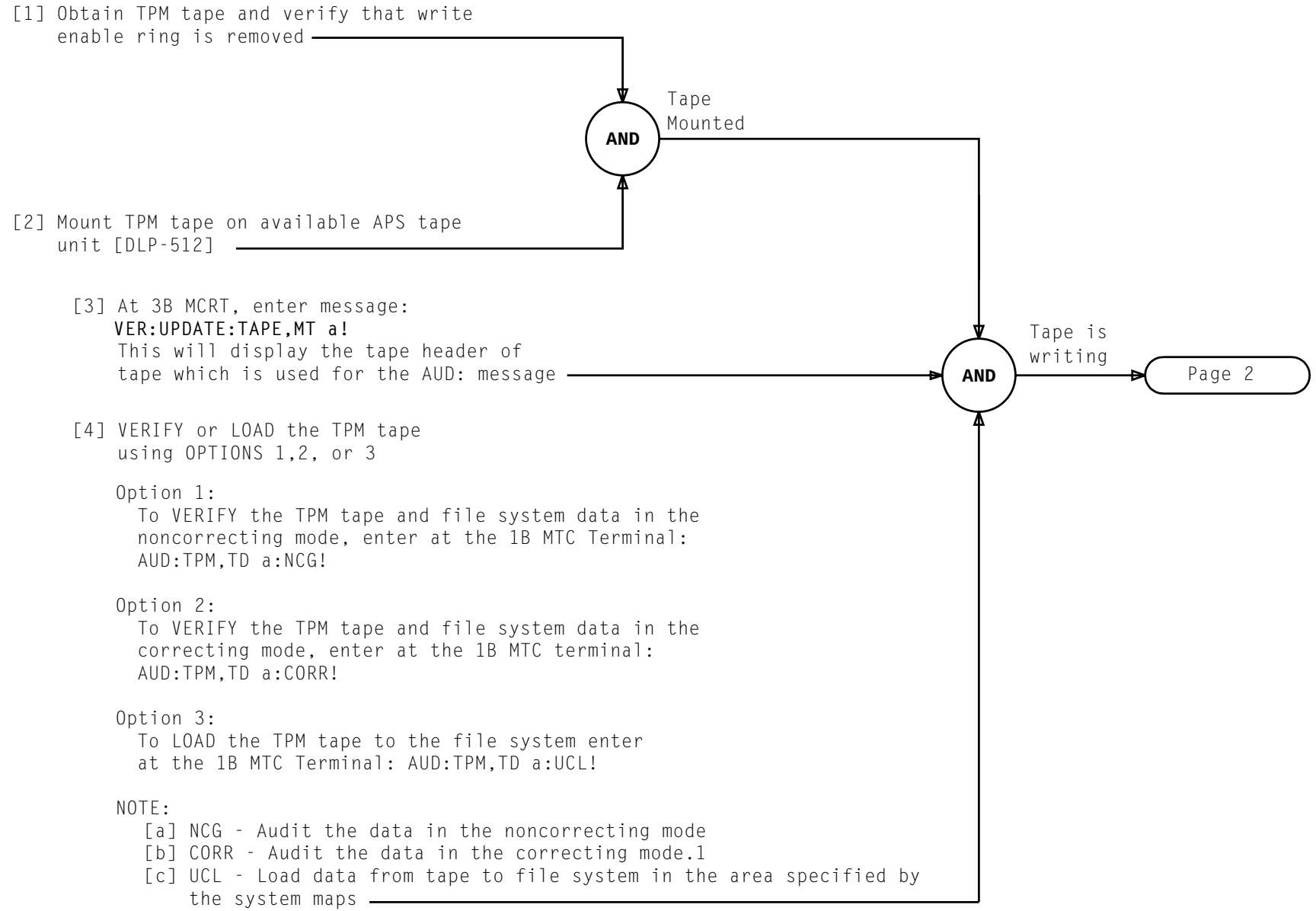


NOTE 1
Writing of LTS tape must be initiated during 7-minute window beginning 4 minutes past any quarter hour. If COPY message is not entered during this window, an RL will be received

WRITE BACKUP LONG-TERM STORAGE (LTS) TAPE

TABLE A	
MESSAGE NUMBER	**OUTPUT MESSAGES**
1	COPY APPTAPE TYPE: LTS, WRITTEN mm/dd/yy hh:mm
2	COPY APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb STARTED,FILE /dev/1afileX
3	COPY APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb COMPLETED
4	COPY APPTAPE COMPLETED

mm/dd/yy hh:mm = month/day/year hour:minute tape was written
aaaaaaaa = starting LTS address through
bbbbbbbb = ending LTS address written



LOAD TRAFFIC AND PLANT MEASUREMENTS (TPM) DATA AND VERIFY

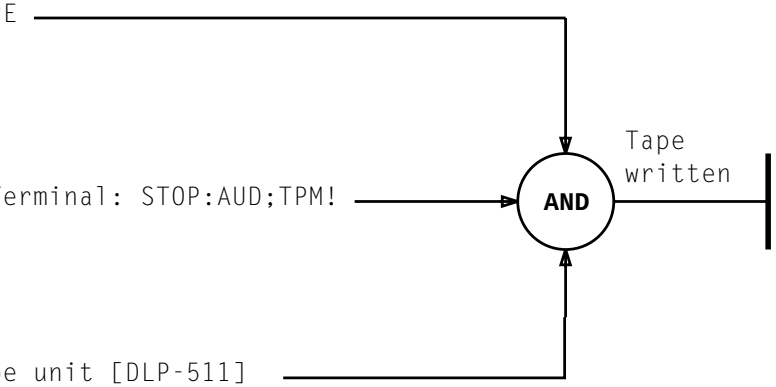
[5] Wait for audit to complete.
Expecting the following messages:
[a] AUD:TPM;NCG ABORTED OR
[b] AUD:TPM;NCG IN PROGRESS
0 ERROR(S) IN CS2FS MAP DETECTED

AUD:TPM;NCG IN PROGRESS
0 ERROR(S) IN ID2FS MAP DETECTED

AUD:TPM;NCG IN PROGRESS
0 ERROR(S) IN HASH TABLES DETECTED

AUD:TPM;NCG IN PROGRESS TAPE DONE
AWAITING INSTRUCTIONS.

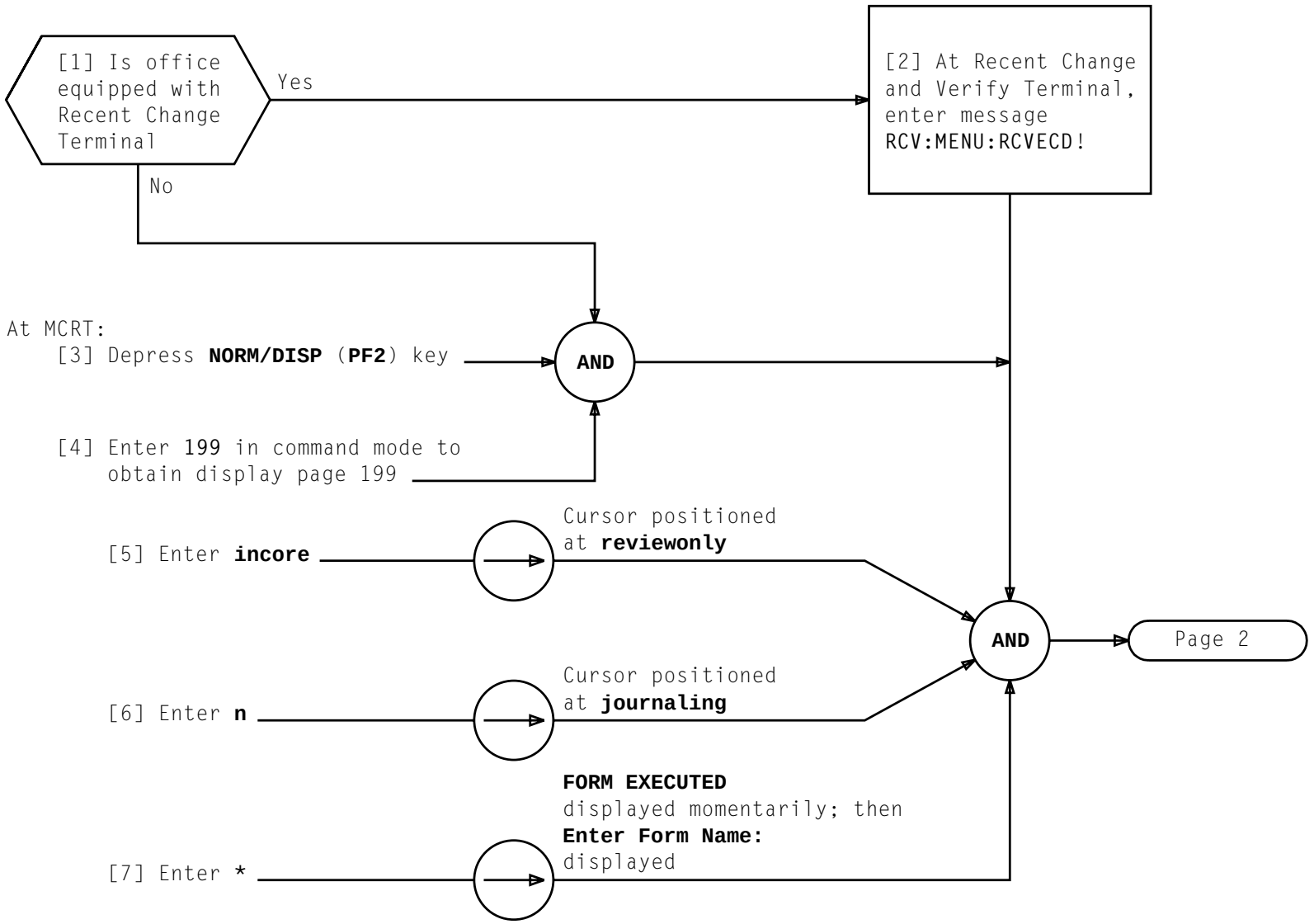
REPT:DEMOUNT TAPE



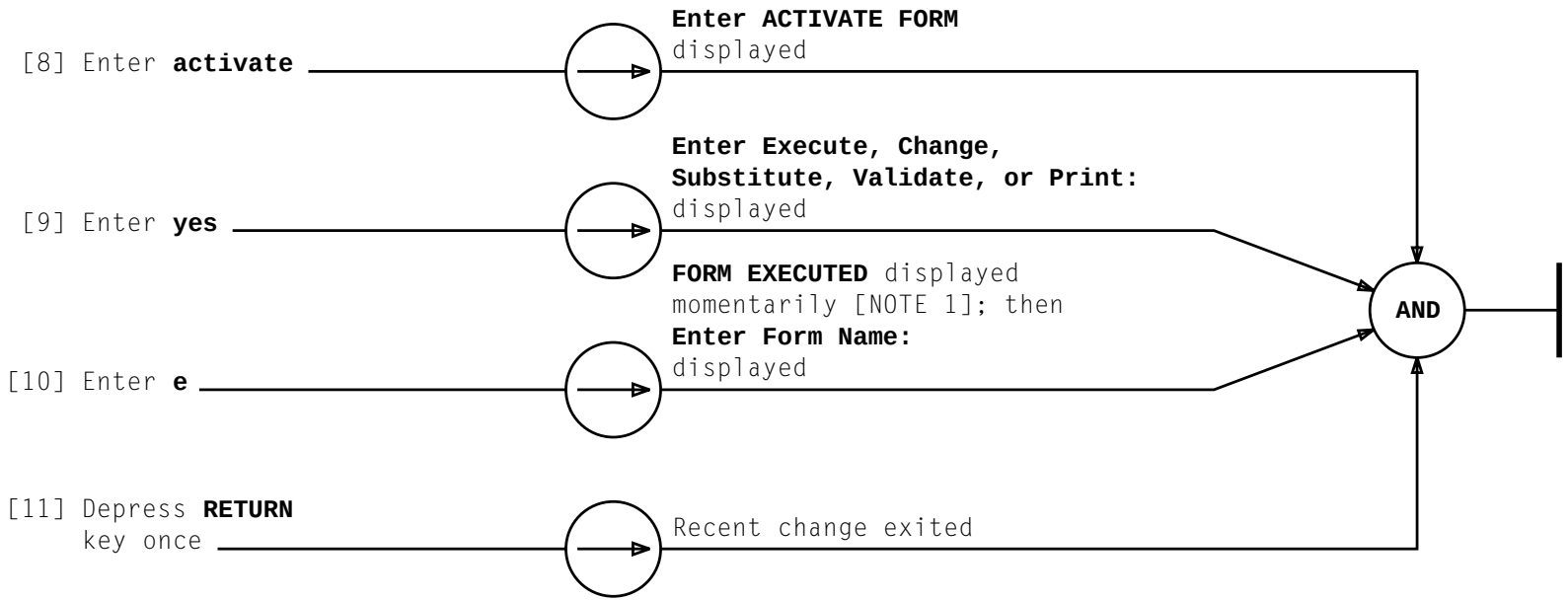
[6] Enter at the 1B MTC Terminal: STOP:AUD;TPM!

[7] Demount tape from tape unit [DLP-511]

LOAD TRAFFIC AND PLANT MEASUREMENTS (TPM) DATA AND VERIFY



COPY INCORE EQUIPMENT CONFIGURATION DATABASE (ECD) TO DISK



NOTE 1
It may take several minutes before **FORM EXECUTED** is displayed

COPY INCORE EQUIPMENT CONFIGURATION DATABASE (ECD) TO DISK

[1] At MCRT, enter message
OP:STATUS:FILESYS!

[2] Using ROP printout, determine if /dev/root (system running on root) or /dev/broot (system running on broot) listed and record

[3] At MCRT, enter message, replacing /x/x with one file in TABLE A associated with running file system (Step 2)
AUD:FSBLK 1,INS"/x/x"!

AND

[4] From printout, is number of errors found and number of errors corrected the same

Yes

[7] Has Step 3 been run for all three files in TABLE A

Yes

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No

[8] Repeat from Step 3 for next file in TABLE A

No

[5] Contact the appropriate support organization before running audit in CORR mode

[6] At MCRT, enter message replacing /x/x with file entered in Step 3 that is in error
AUD:FSBLK 1,INS"/x/x";CORR!

TABLE A	
SYSTEM RUNNING ON	
ROOT	BROOT
/dev/root	/dev/broot
/dev/db	/dev/bdb
/dev/etc	/dev/betc
/dev/log	
/dev/tdas	

RUN FILE SYSTEM AUDITS TO ENSURE NO FILE SYSTEM ERRORS

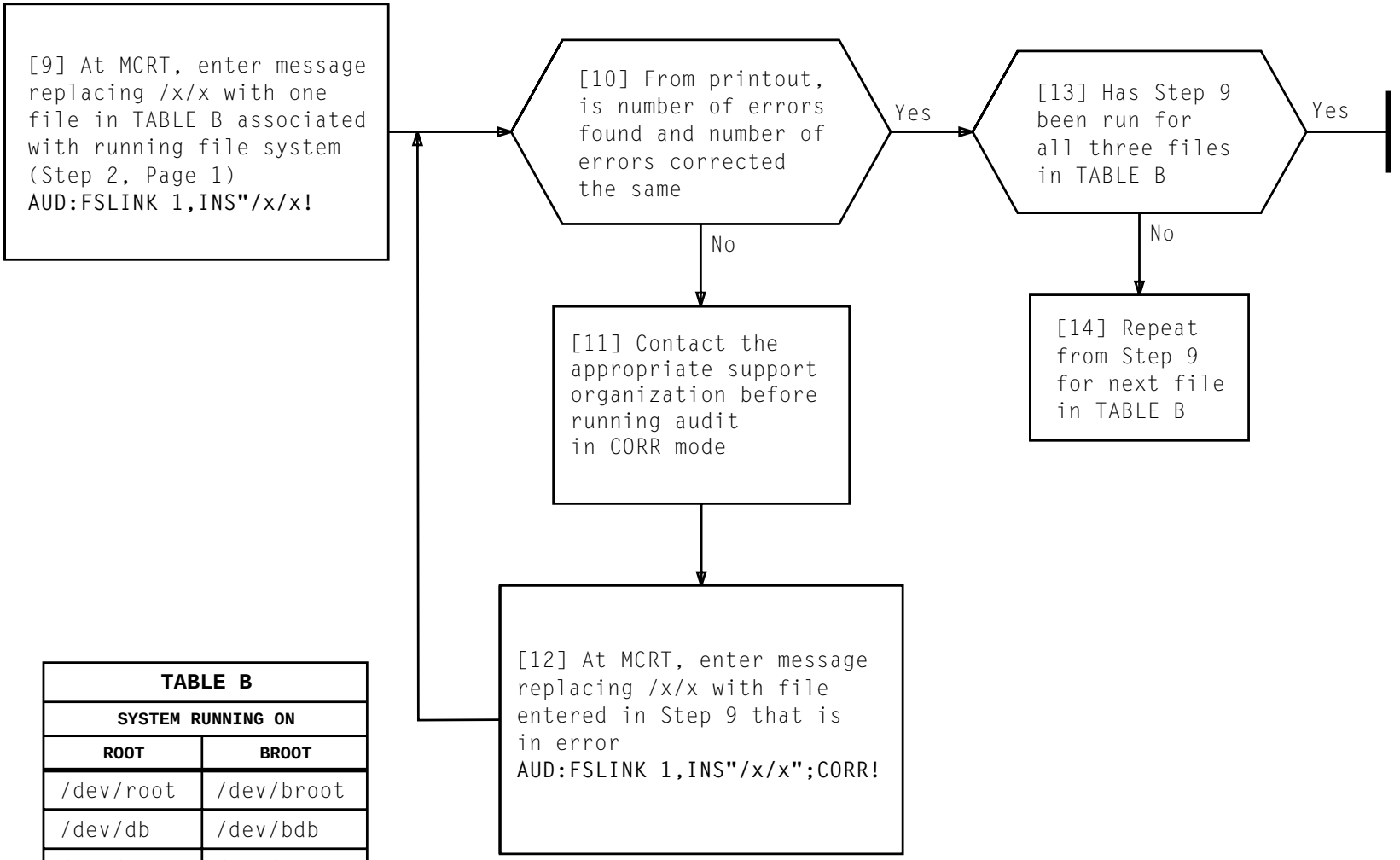


TABLE B	
SYSTEM RUNNING ON	
ROOT	BROOT
/dev/root	/dev/broot
/dev/db	/dev/bdb
/dev/etc	/dev/betc
/dev/log	
/dev/tdas	

RUN FILE SYSTEM AUDITS TO ENSURE NO FILE SYSTEM ERRORS

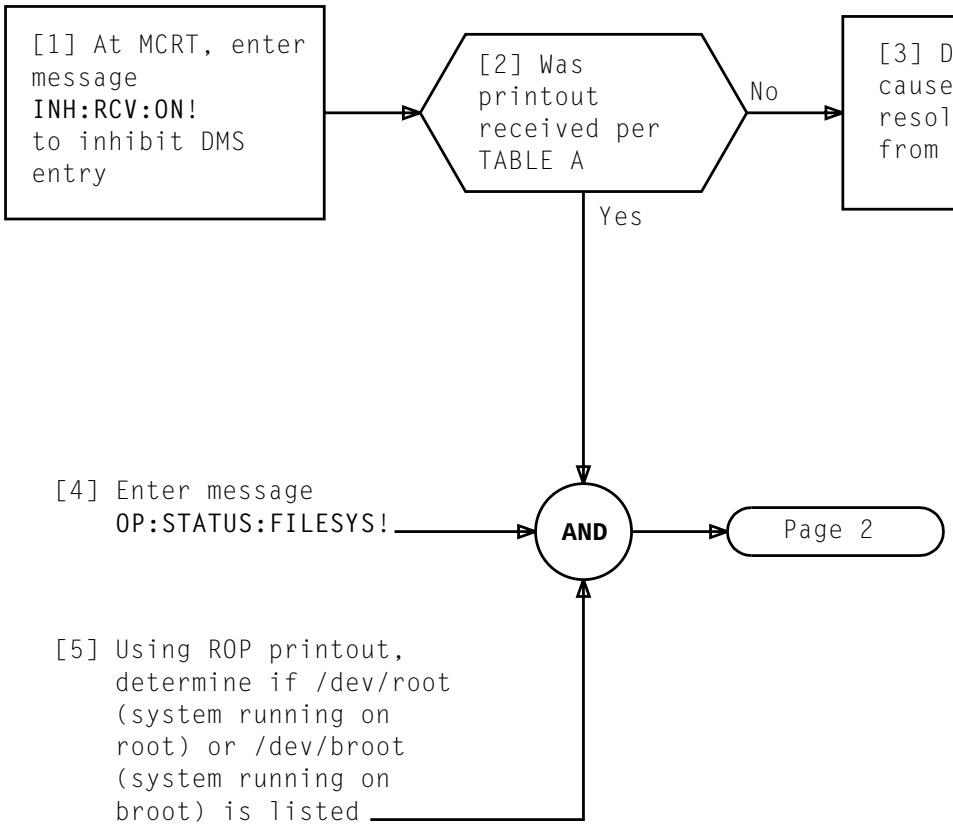


TABLE A

MESSAGE NUMBER	OUTPUT MESSAGE
1	INH RCV COMPLETED 4ESS INH RCV COMPL RECENT CHANGE INHIBIT ON

UPDATE BACKUP DATABASE

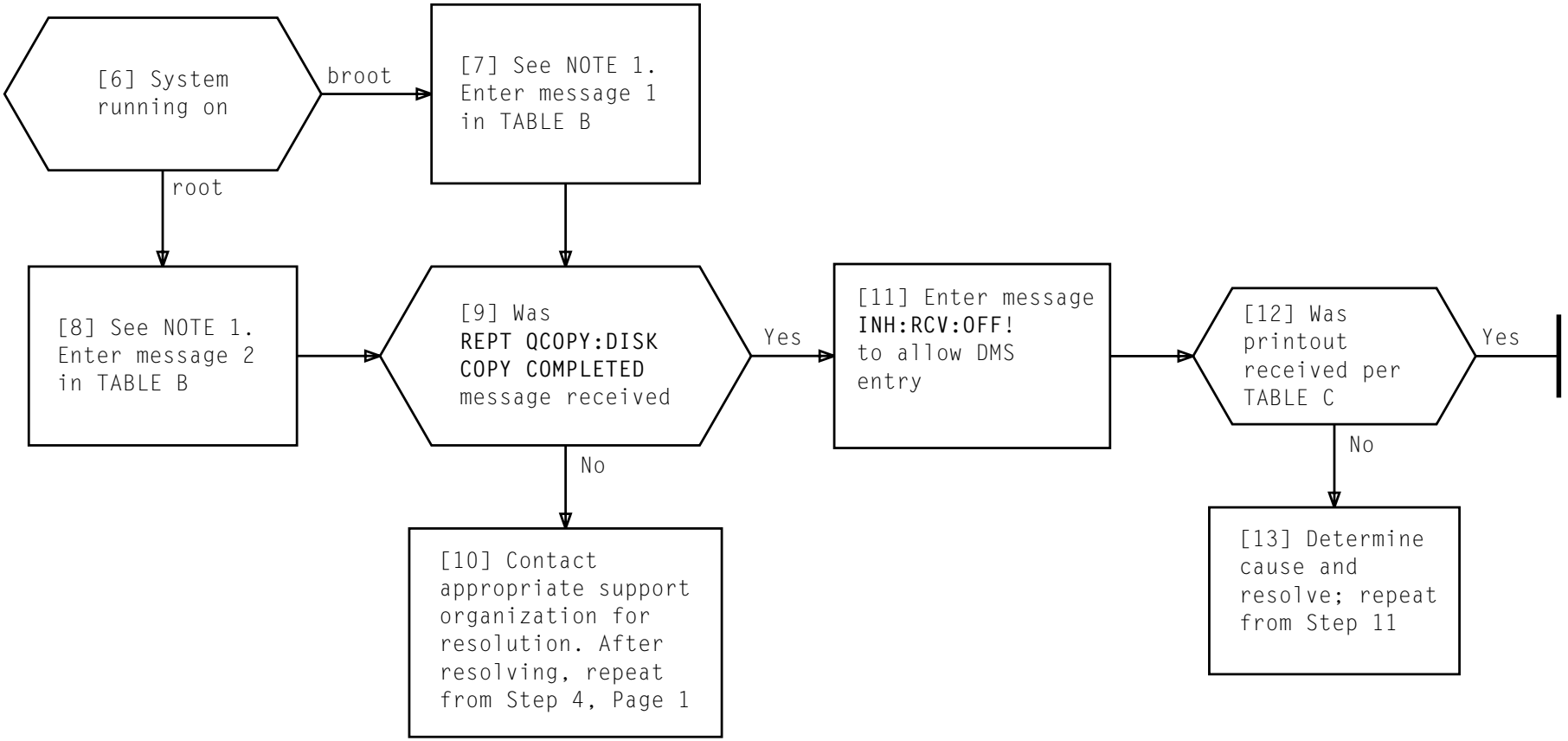


TABLE B

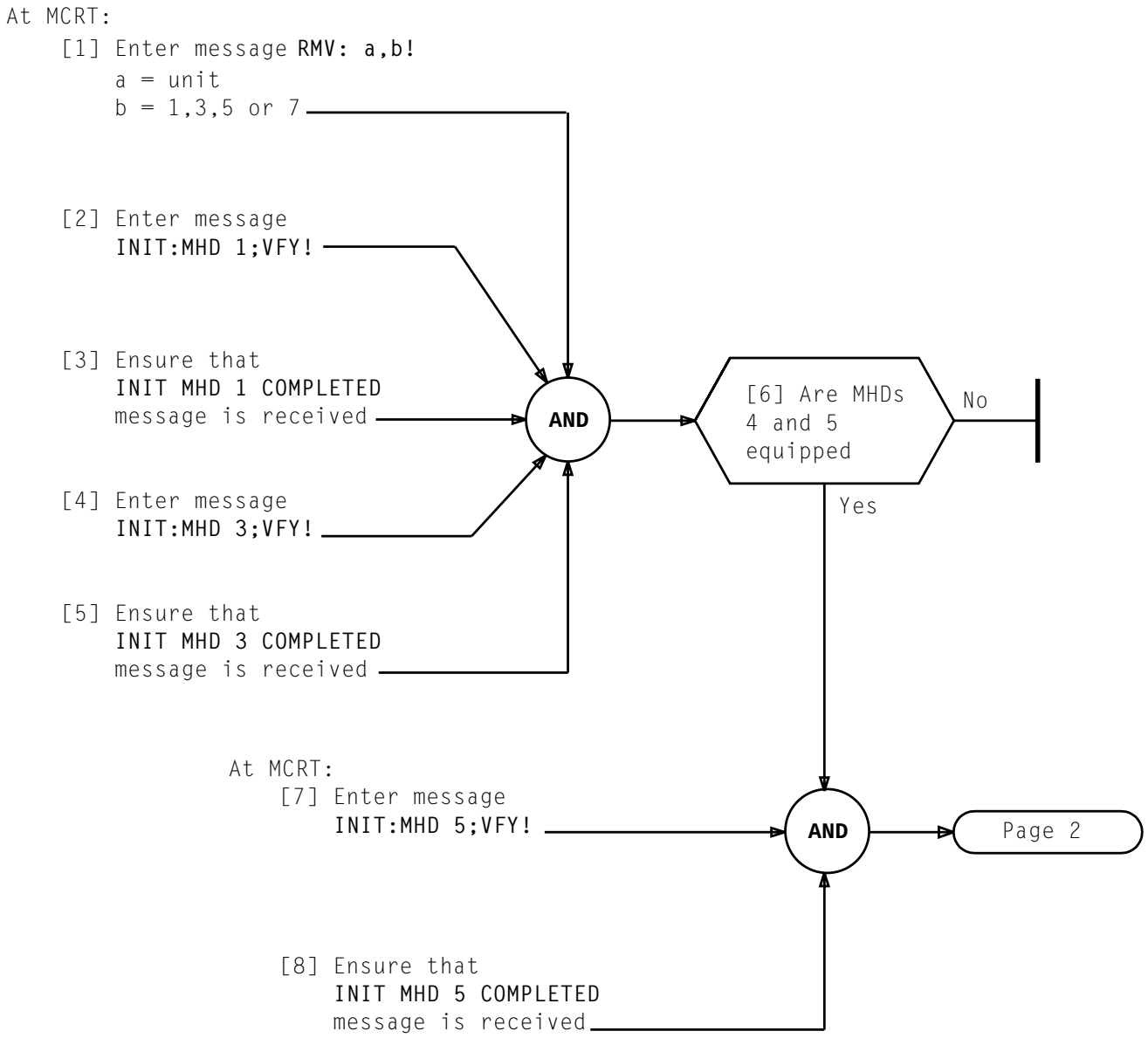
MESSAGE NUMBER	INPUT MESSAGE
1	EXC:QCOPY:TOROOT!
2	EXC:QCOPY:TOBROOT!

TABLE C

MESSAGE NUMBER	OUTPUT MESSAGE
1	INH RCV COMPLETED 4ESS INH RCV COMPL RECENT CHANGE INHIBIT OFF

NOTE 1
This command requires several minutes to complete

UPDATE BACKUP DATABASE



INITIALIZE ODD-NUMBERED EQUIPPED MOVING HEAD DISKS (MHDs)

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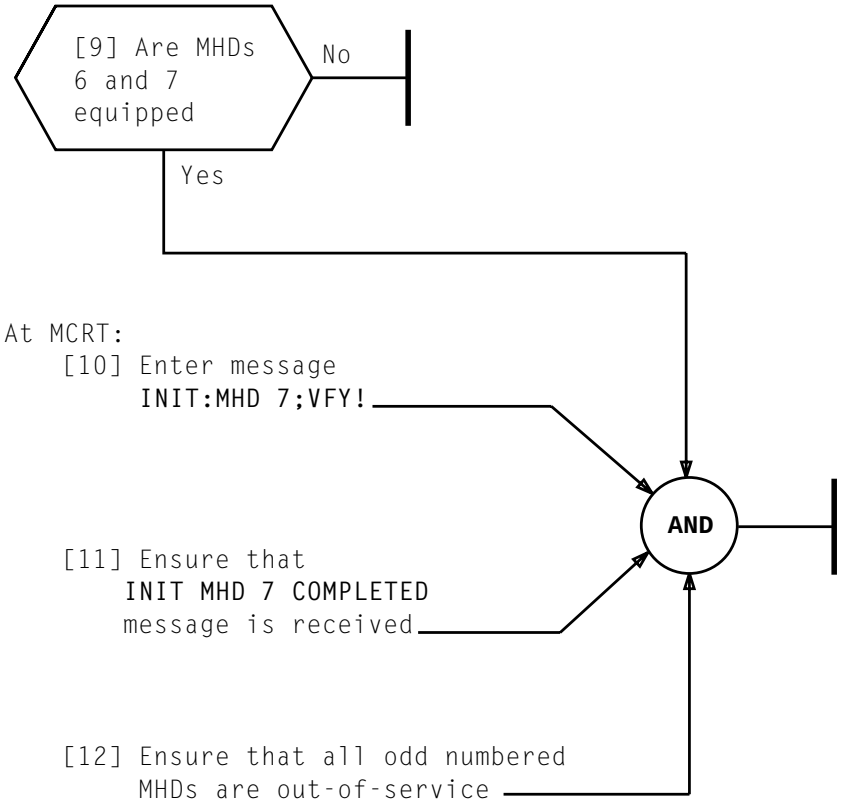
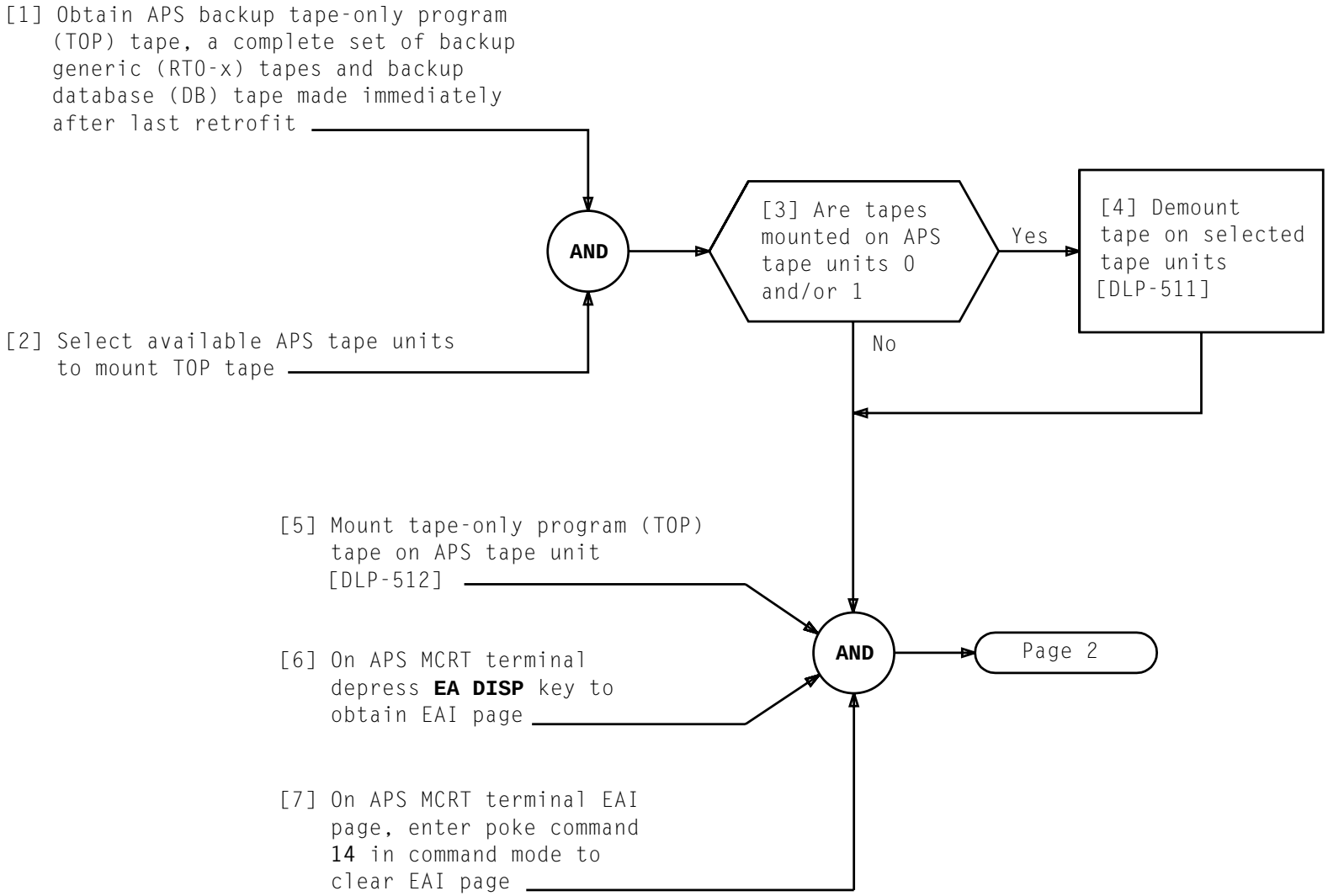


INITIALIZE ODD-NUMBERED EQUIPPED MOVING HEAD DISKS (MHDs)



PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

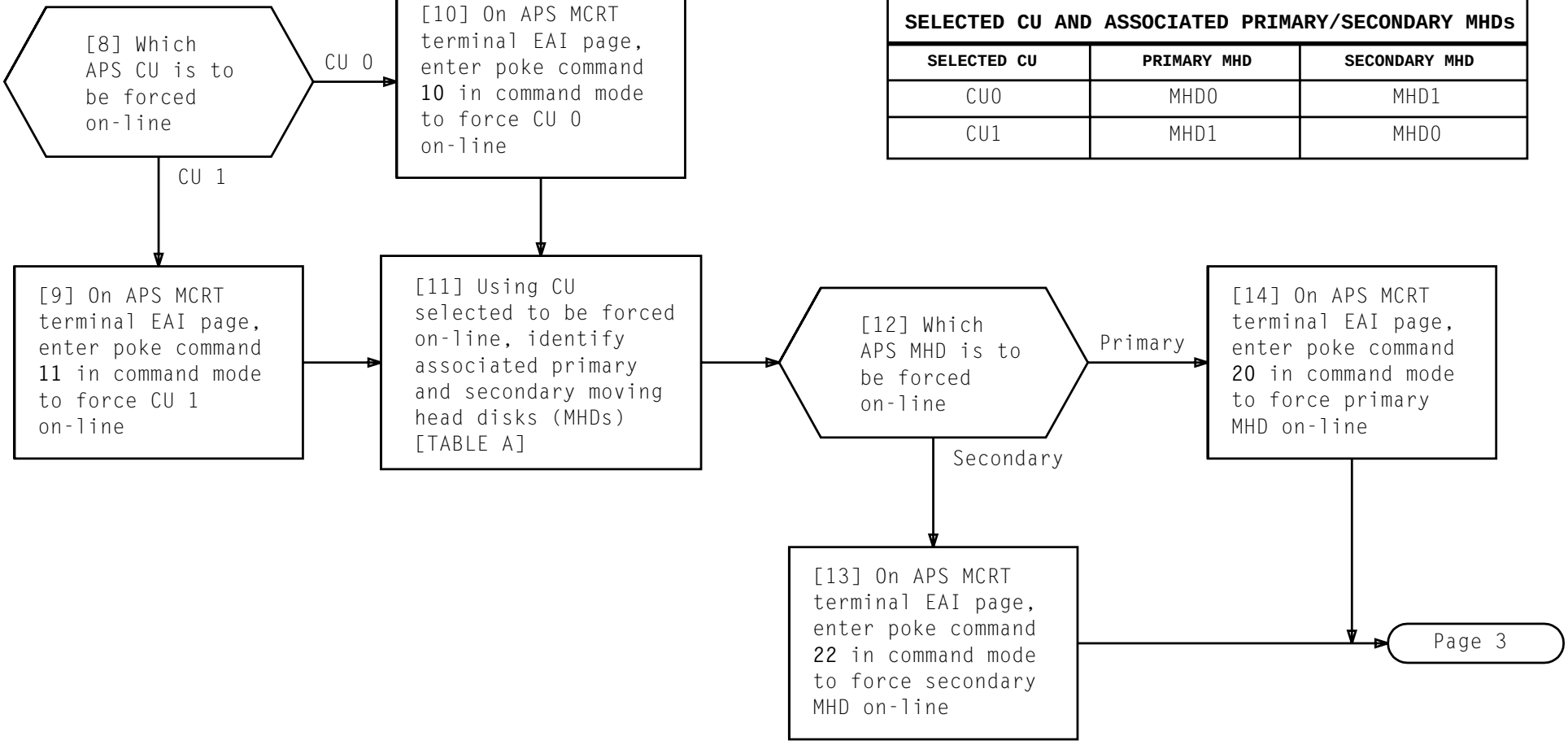
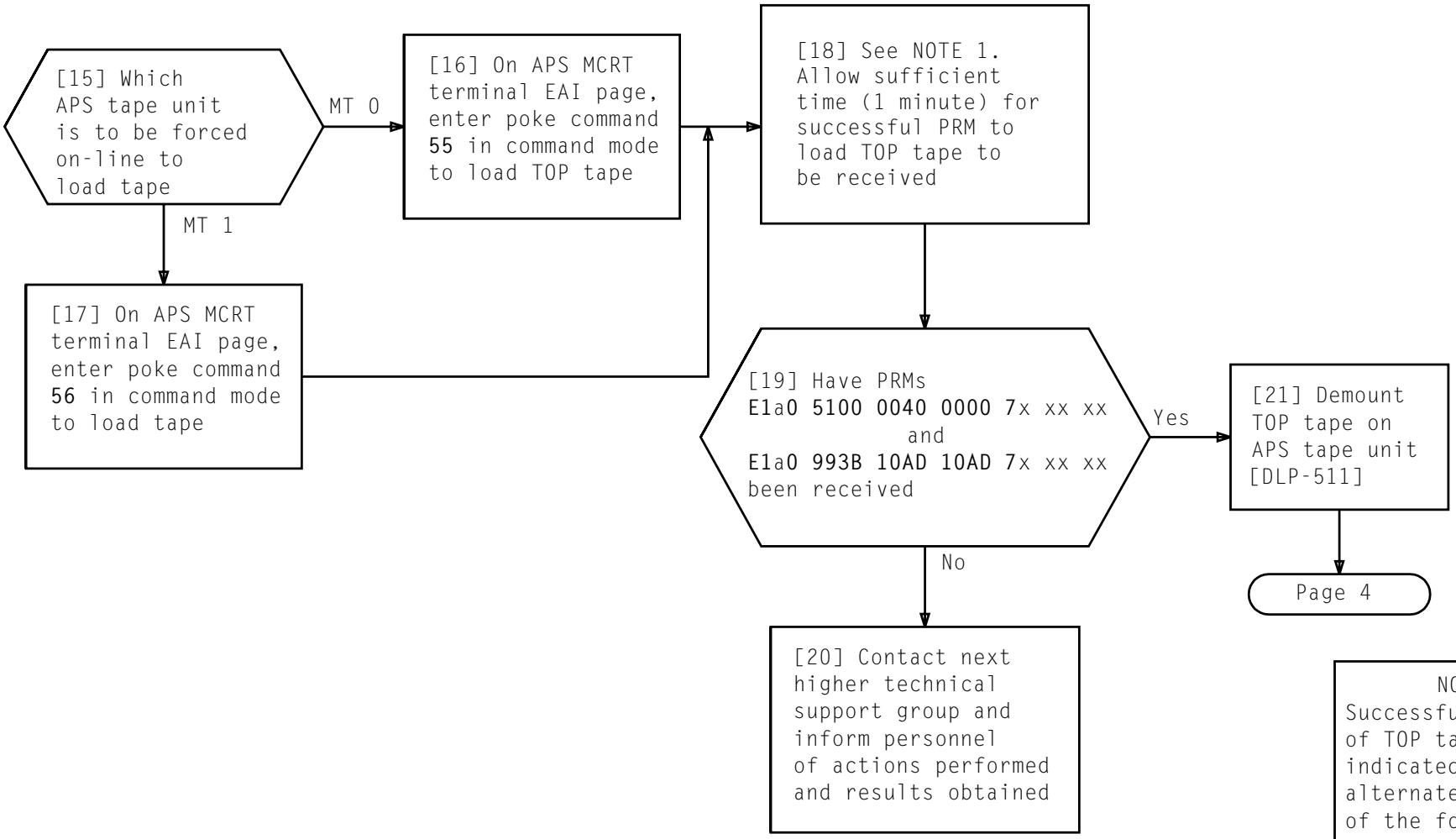


TABLE A

SELECTED CU AND ASSOCIATED PRIMARY/SECONDARY MHDs

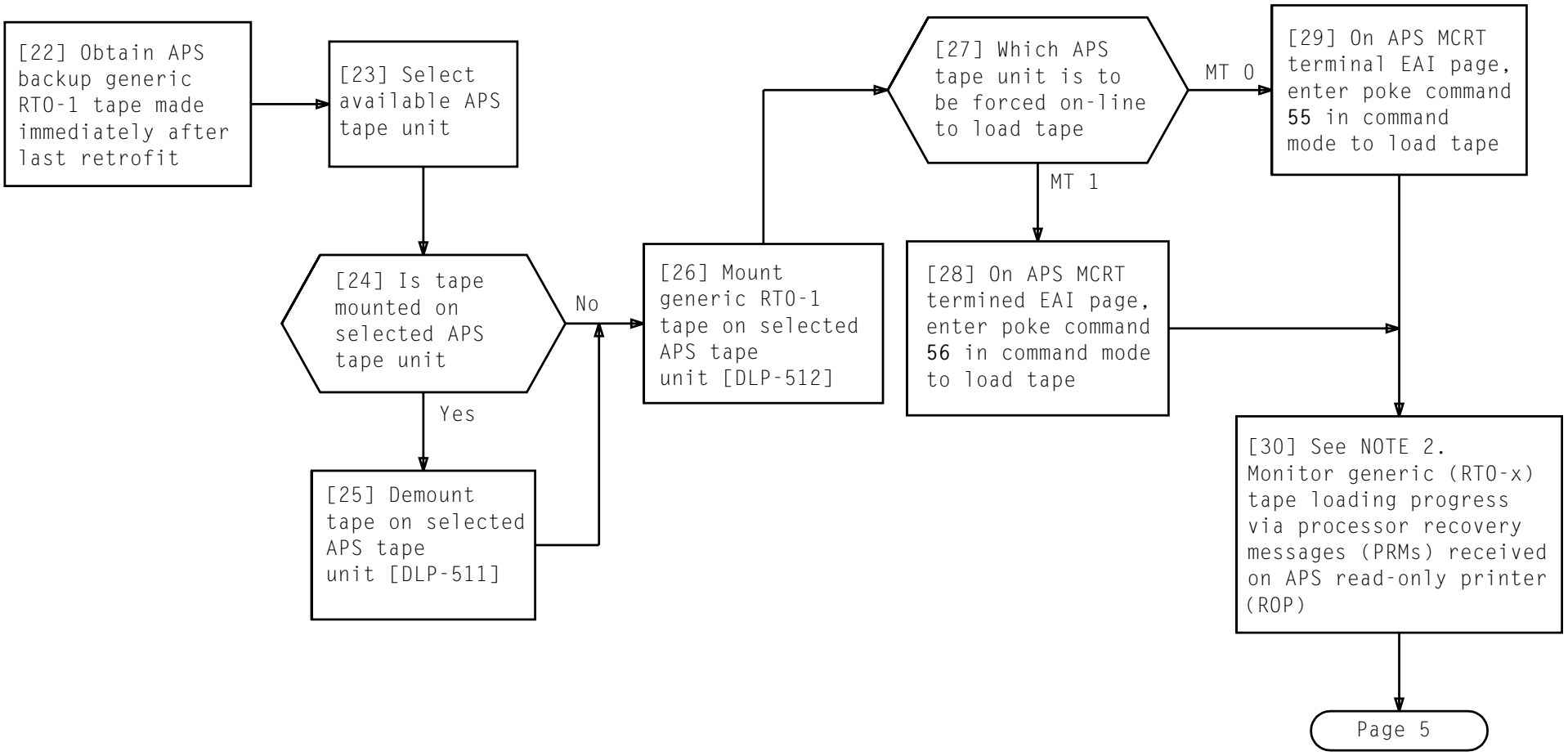
SELECTED CU	PRIMARY MHD	SECONDARY MHD
CU0	MHD0	MHD1
CU1	MHD1	MHD0

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



NOTE 1
Successful completion of TOP tape load is indicated by the alternate printing of the following PRMs on APS read-only printer (ROP):
PRM_0 E1a0 5100 0040 0000 7x xx xx
PRM_0 E1a0 993B 10AD 10AD 7x xx xx
a = 6 or 7

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



NOTE 2
During loading of generic (RTO-x) tape, a series of PRMs will be printed that contain status information pertaining to load

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

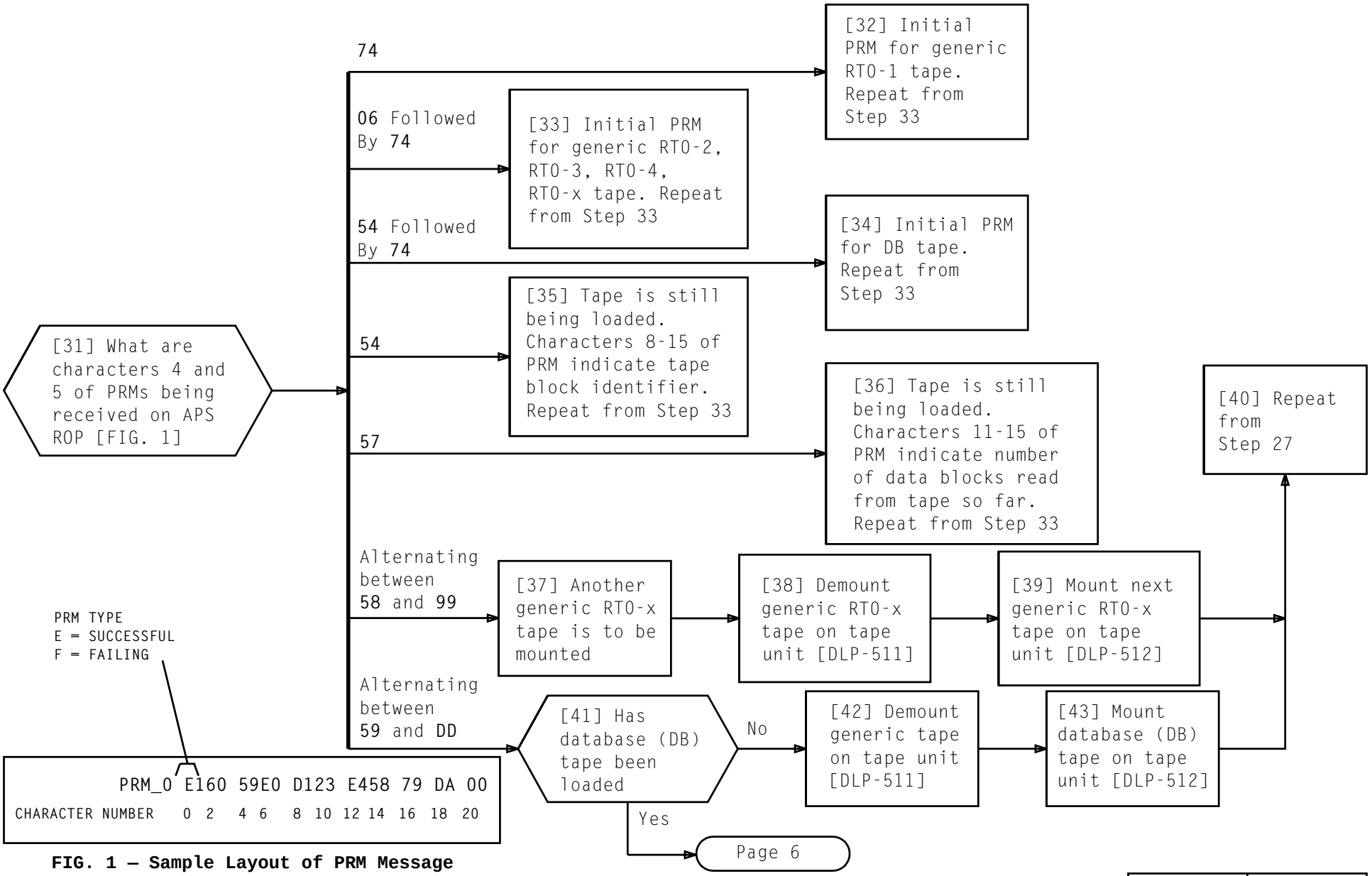
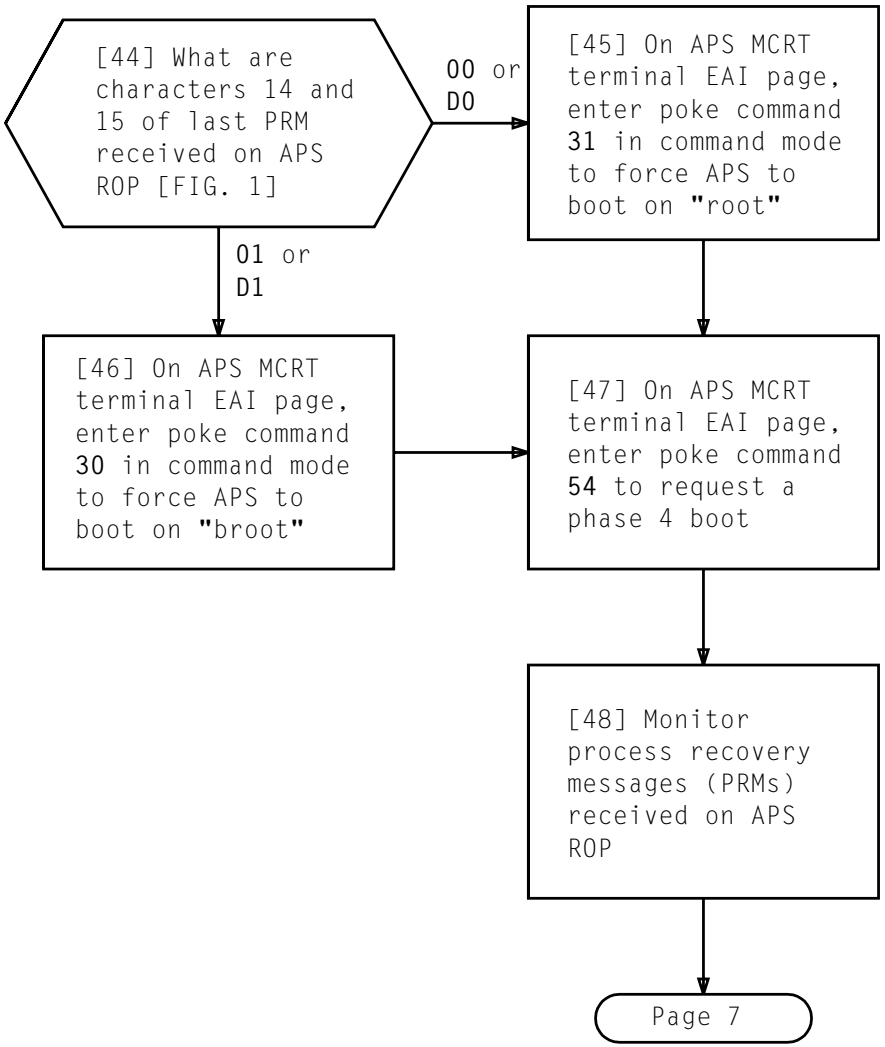
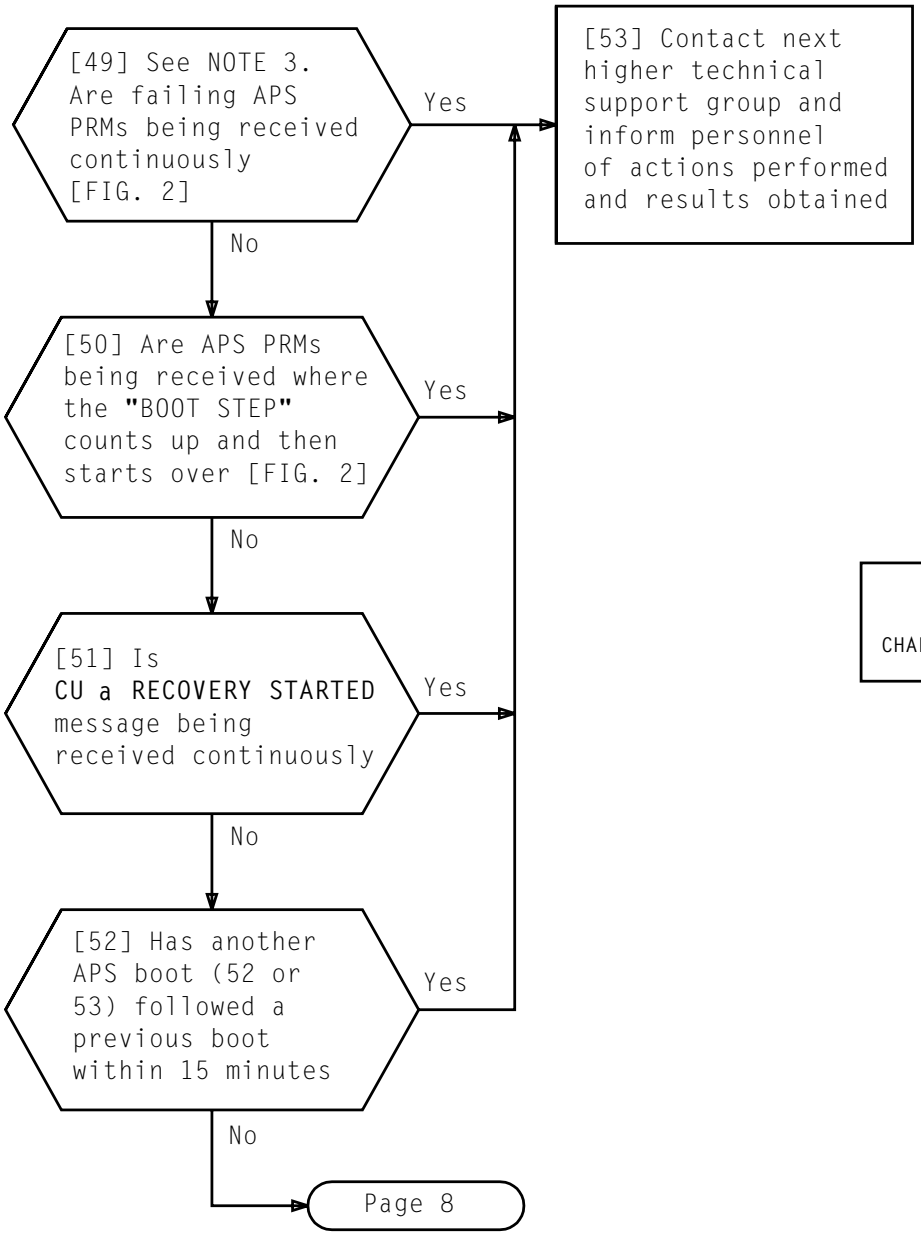


FIG. 1 – Sample Layout of PRM Message

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



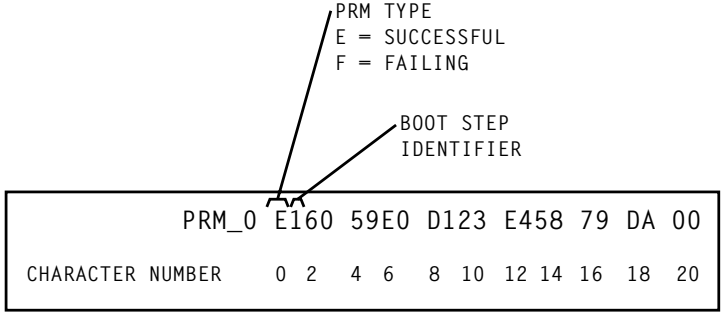
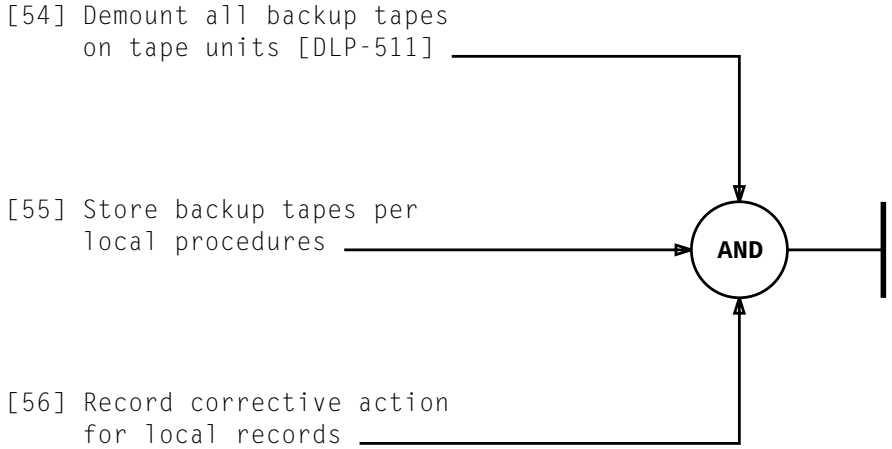


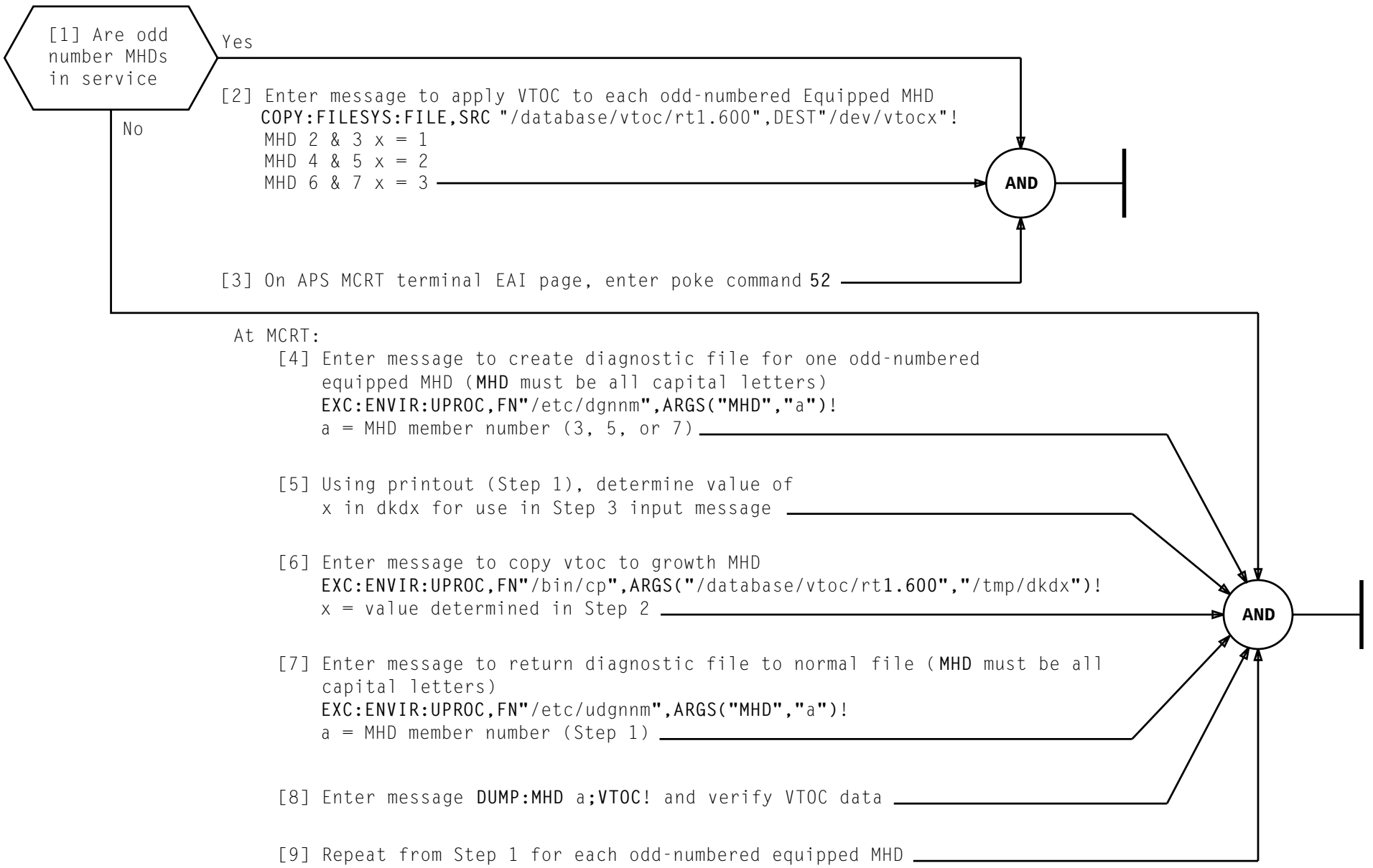
FIG. 2 – Sample Layout of PRM Message

NOTE 3
One or two failing PRMs among many successful PRMs does not indicate system sanity is in jeopardy

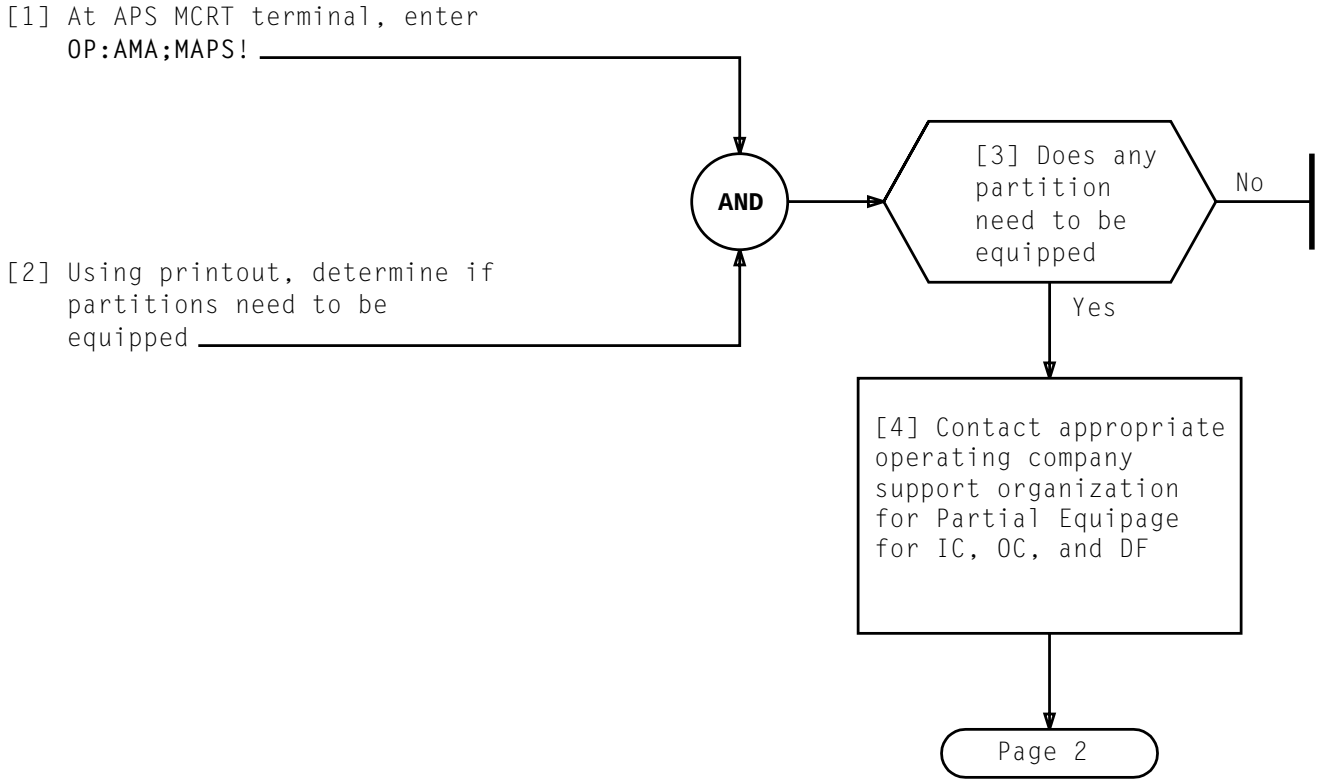
PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



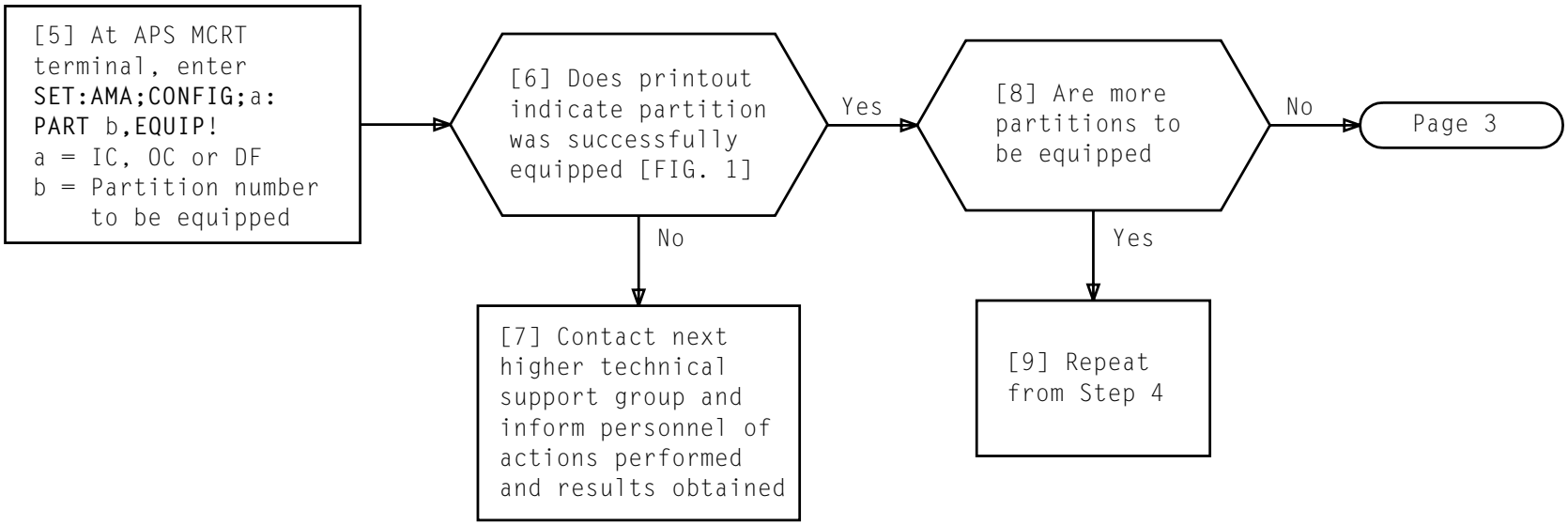
PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



APPLY VTOC TO EACH ODD-NUMBERED EQUIPPED MHD



EQUIP ATTACHED PROCESSOR SYSTEM (APS) AMA PARTITIONS

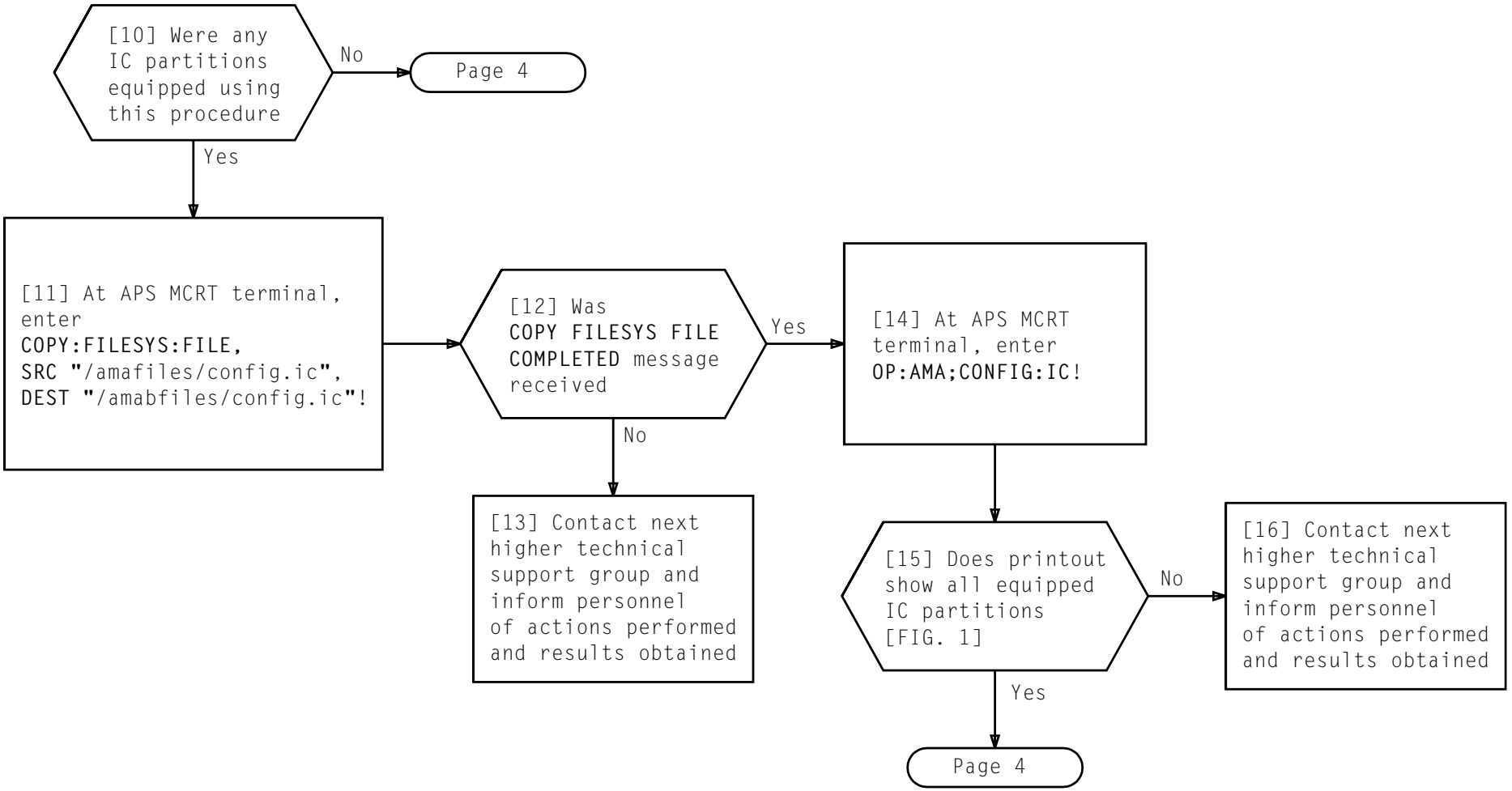



```
REPT AMA CONFIG FILE FOR a STREAM
     NUMBER OF EQUIPPED PARTITIONS b
     TOTAL NUMBER OF AMA BLOCKS c
     d e f
```

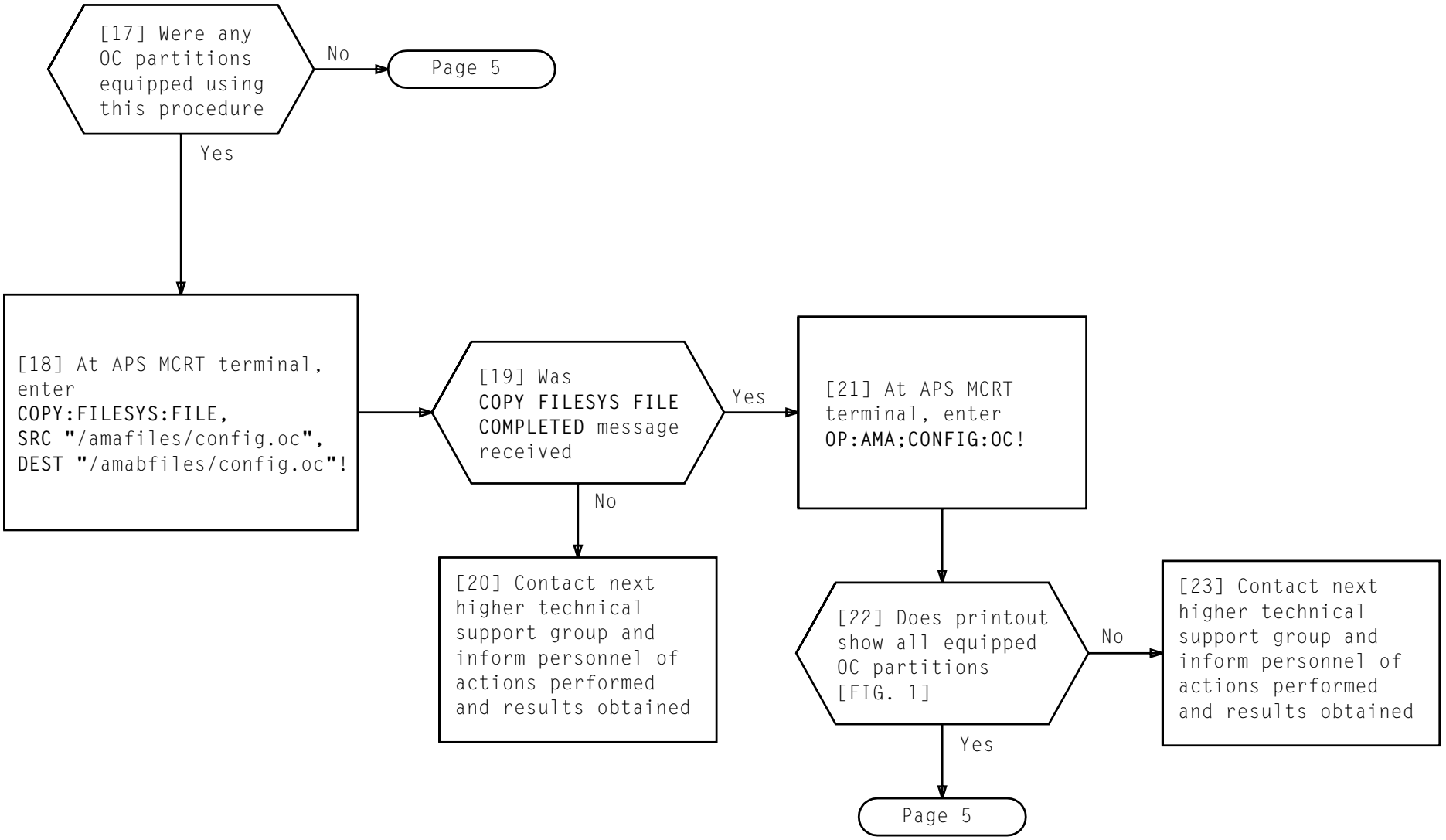
a = IC, OC or DF
b = Number of AMA partitions equipped for this stream
c = Number of AMA blocks for this stream
d = AMA partition number
e = AMA partition file name
f = Number of AMA blocks for this partition

FIG. 1 — Sample Output Message Indicating Successful Equipage of Partition

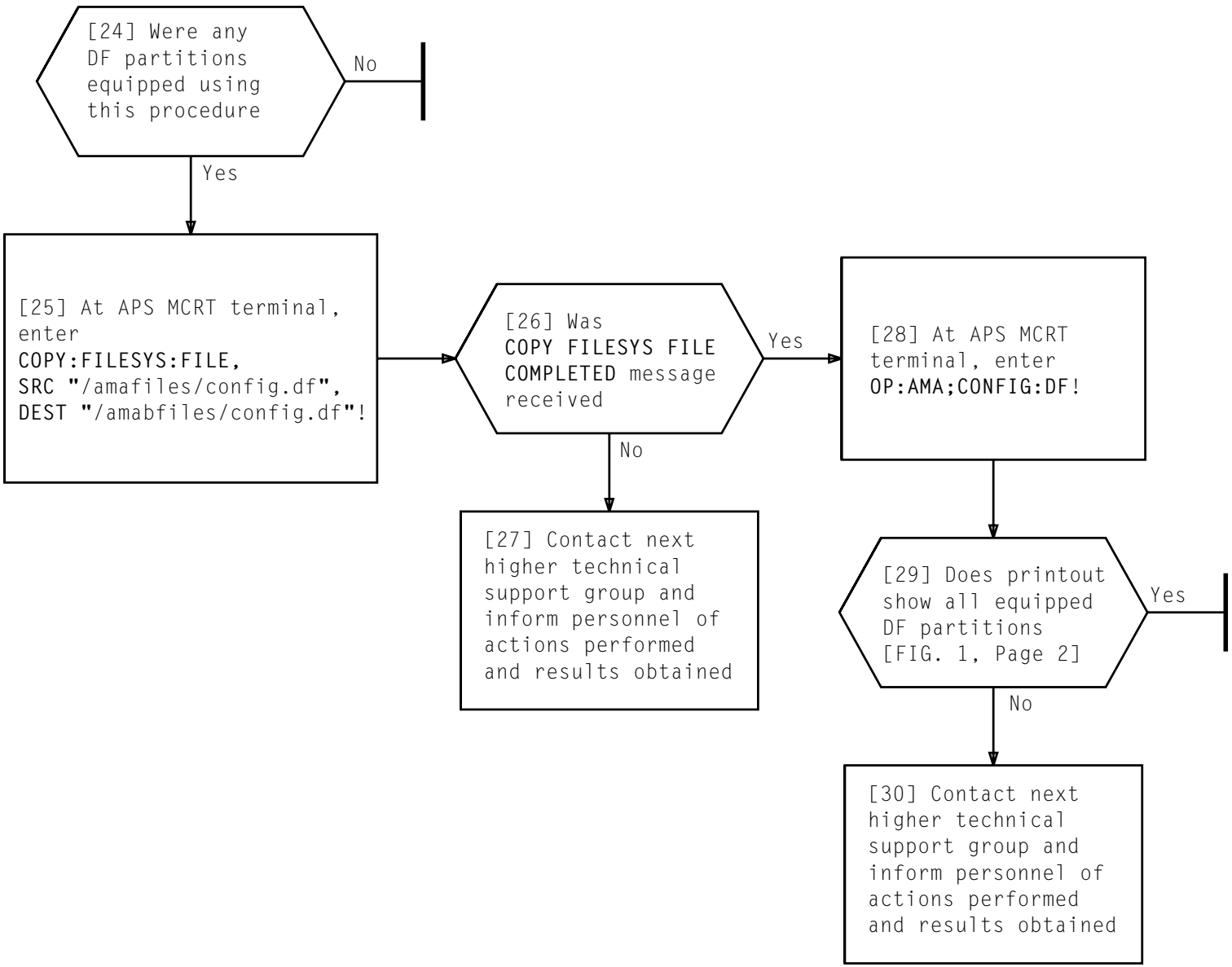
EQUIP ATTACHED PROCESSOR SYSTEM (APS) AMA PARTITIONS



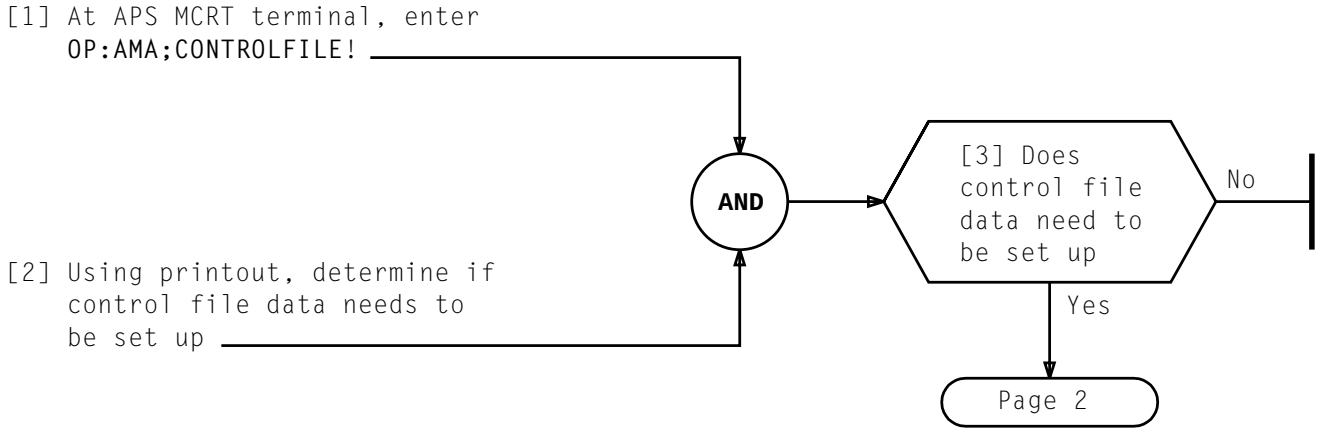
EQUIP ATTACHED PROCESSOR SYSTEM (APS) AMA PARTITIONS



EQUIP ATTACHED PROCESSOR SYSTEM (APS) AMA PARTITIONS



EQUIP ATTACHED PROCESSOR SYSTEM (APS) AMA PARTITIONS



SET UP ATTACHED PROCESSOR SYSTEM (APS) AMA CONTROL FILE DATA

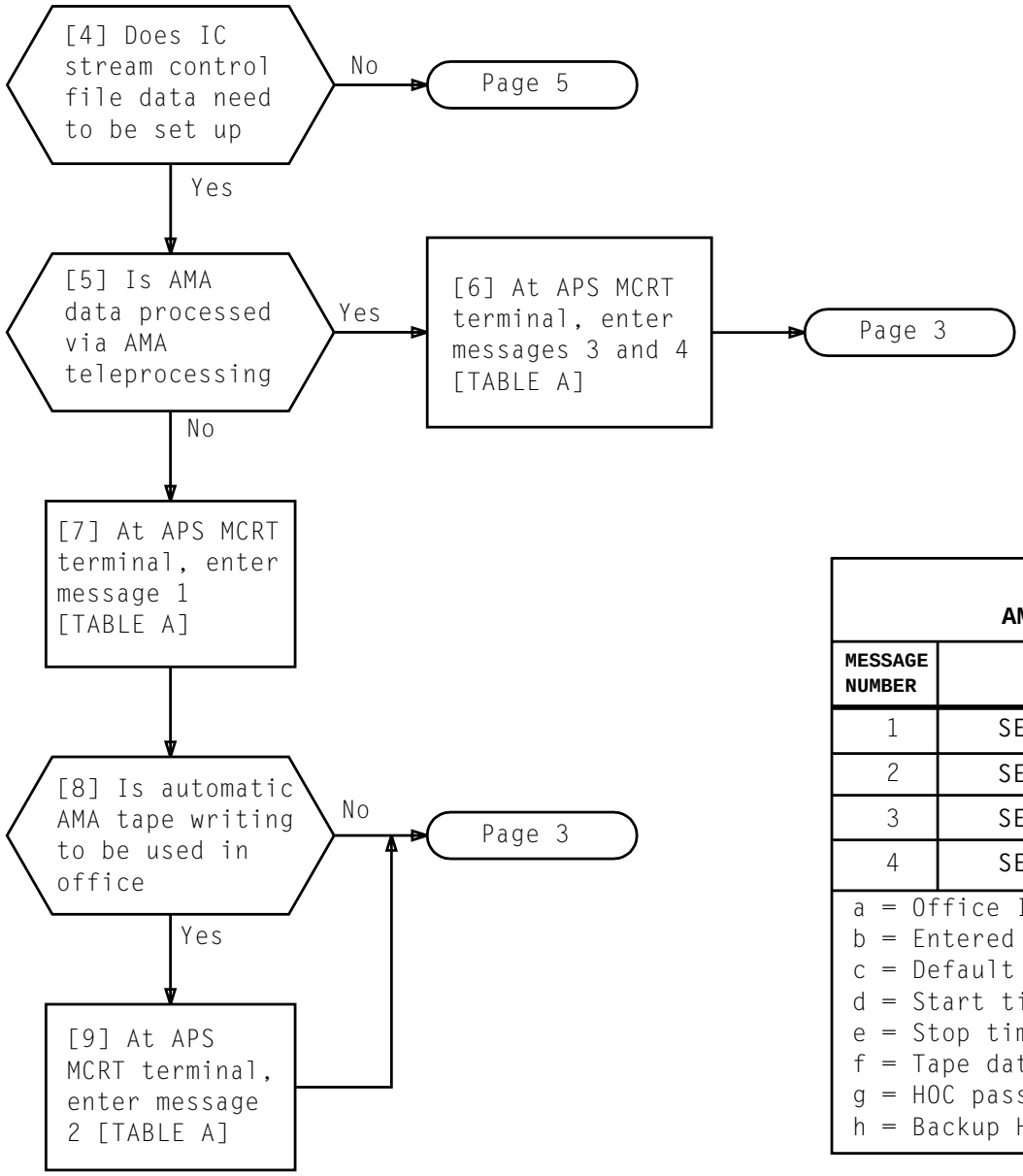


TABLE A
AMA IC STREAM CONTROL FILE DATA INPUT MESSAGES

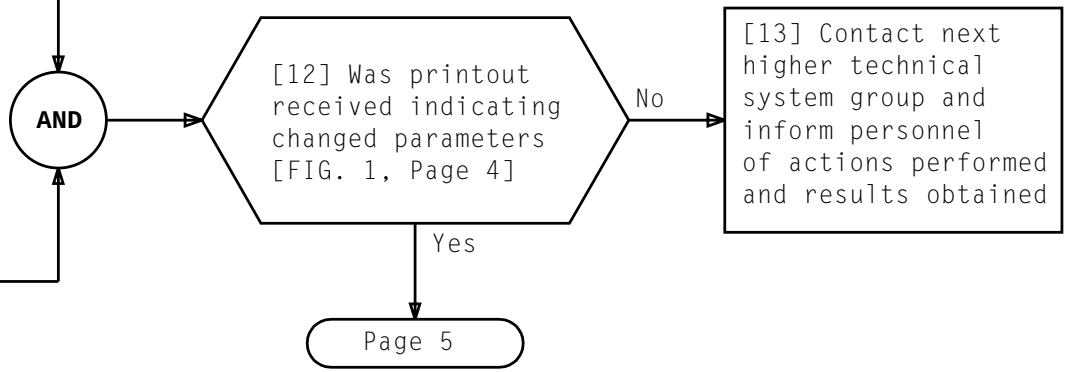
MESSAGE NUMBER	INPUT MESSAGE
1	SET:AMA;CONTROL;IC:OFFICEID a,EXPDATE b,OPTION TAPE!
2	SET:AMA;CONTROL;IC:MT c,START d,STOP e,TAPEID "f"!
3	SET:AMA;CONTROL;IC:OFFICEID a,START d,STOP e!
4	SET:AMA;CONTROL;IC:OPTION TP,HOCPSWD g,BACKUPSWD h!

a = Office ID assigned by HOC (6 digits)
b = Entered number of days until AMA tape expires
c = Default tape drive number for automatic tape process
d = Start time for automatic tape writing or teleprocessing (hh,mm)
e = Stop time for automatic tape writing or teleprocessing (hh,mm)
f = Tape data set ID
g = HOC password (10 digits)
h = Backup HOC password (10 digits)

SET UP ATTACHED PROCESSOR SYSTEM (APS) AMA CONTROL FILE DATA

[10] At APS MCRT terminal, enter
SET:AMA;CONTROL;IC:DF a!
a = Deferred format feature
switch setting (ON or OFF)

[11] At APS MCRT terminal,
enter SET:AMA;CONTROL;IC:FAST a!
a = Fast Stream Option indicating
which office stream is fast
(IC or OC)



SET UP ATTACHED PROCESSOR SYSTEM (APS) AMA CONTROL FILE DATA

```
REPT AMA CONTROL FILE AUDIT FOR a STREAM
     OFFICE ID b
     DAYS UNTIL EXPIRATION c
     PROCESS START TIME d
     PROCESS STOP TIME e
     DEFAULT MT FOR AUTO TAPE START f
     AMA OPTION IS g
     DATA TRANSFER h MANUALLY INHIBITED
     AMAT PASSWORD i
     HOC PASSWORD j
     BACKUP HOC PASSWORD k
     PASSWORD FROM LAST SESSION x
     TAPE SESSION IS NOT IN PROGRESS
     TELEPROCESSING SESSION IS NOT IN PROGRESS
     AUTOMATIC TAPE WRITING x INHIBITED
     TAPE SEQUENCE NUMBER x
     TAPE DATA SET ID l

a = IC or OC
b = Office identification
c = Number of days until tape expires
d = Start time in hours and minutes
e = Stop time in hours and minutes
f = Default tape drive for AMA function
g = TAPE or TELEPROCESSING
h = IS or IS NOT
i = AMA teleprocessing password
j = HOC password
k = Backup HOC password
l = Tape data set ID
x = Don't care
```

FIG. 1 – Sample Output Message Indicating Successful Equipage of Control File

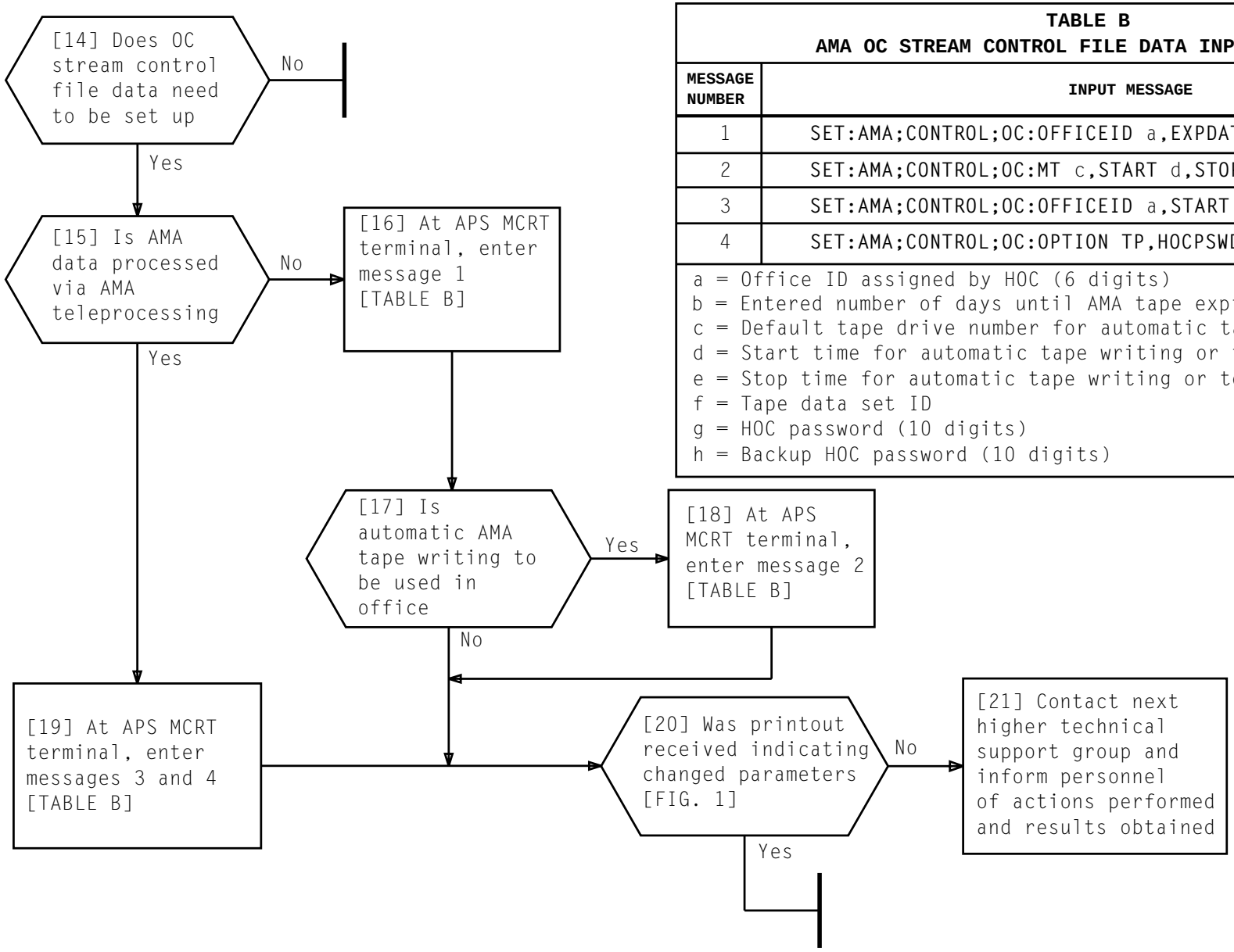
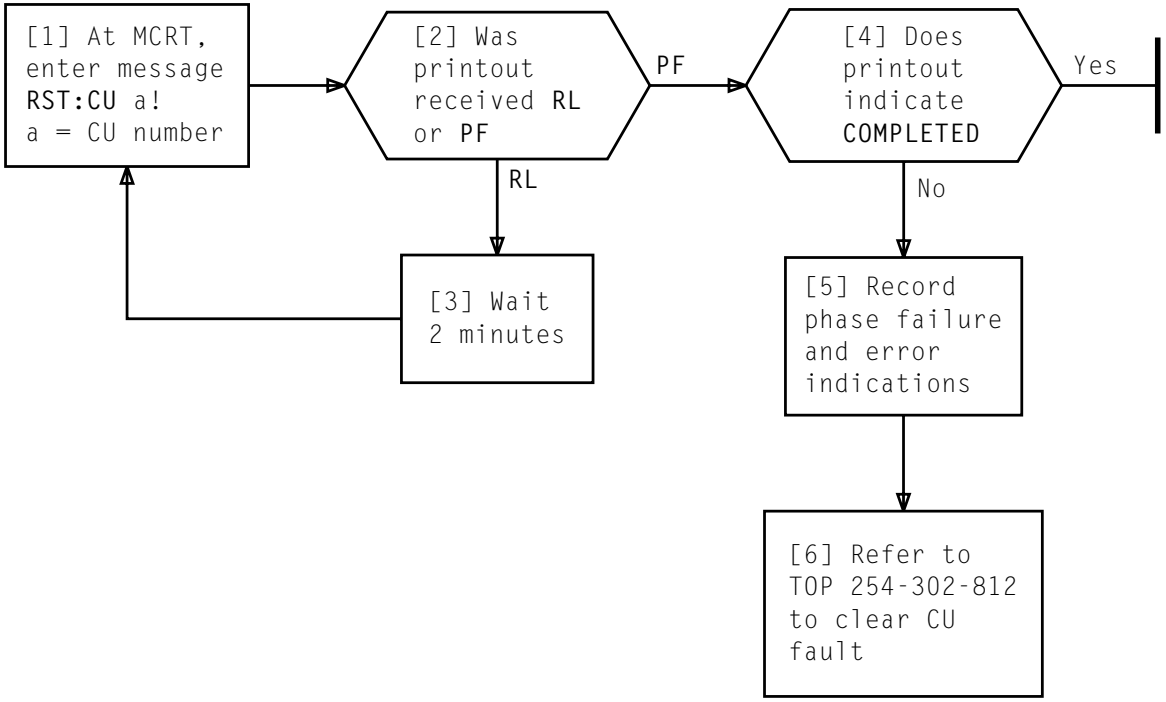


TABLE B
AMA OC STREAM CONTROL FILE DATA INPUT MESSAGES

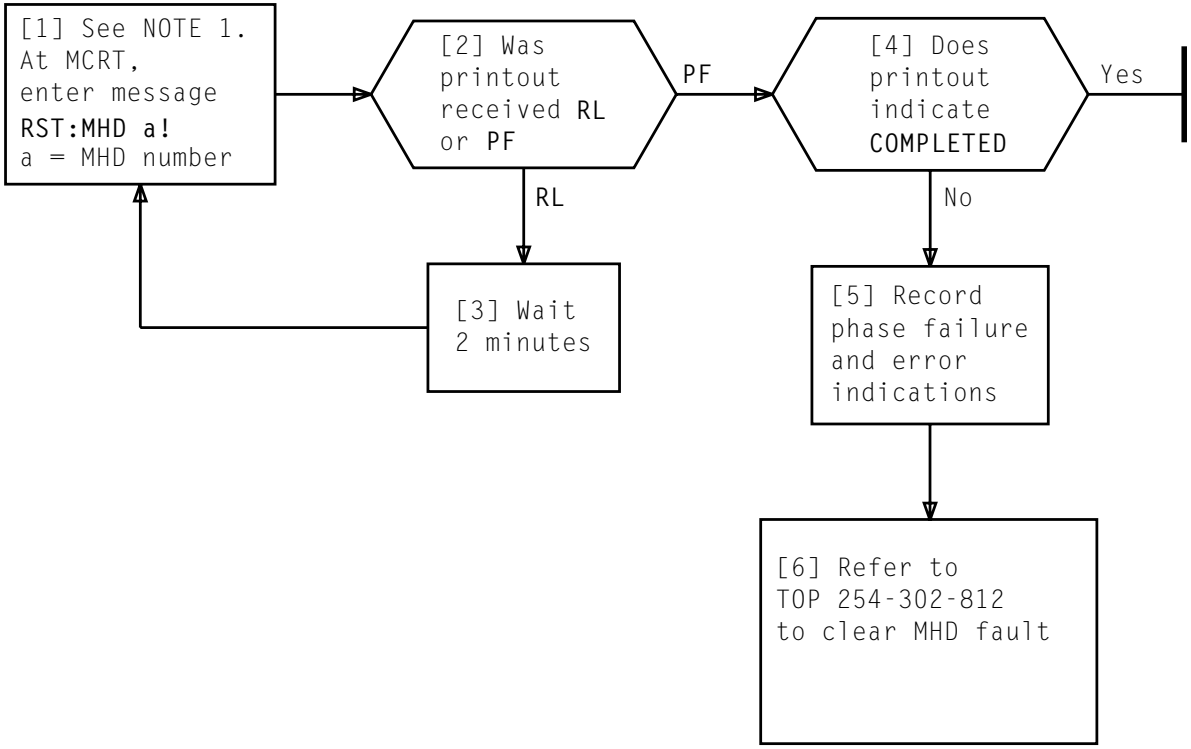
MESSAGE NUMBER	INPUT MESSAGE
1	SET:AMA;CONTROL;OC:OFFICEID a,EXPDATE b,OPTION TAPE!
2	SET:AMA;CONTROL;OC:MT c,START d,STOP e,TAPEID "f"!
3	SET:AMA;CONTROL;OC:OFFICEID a,START d,STOP e!
4	SET:AMA;CONTROL;OC:OPTION TP,HOCPSWD g,BACKUPSWD h!

a = Office ID assigned by HOC (6 digits)
b = Entered number of days until AMA tape expires
c = Default tape drive number for automatic tape process
d = Start time for automatic tape writing or teleprocessing (hh,mm)
e = Stop time for automatic tape writing or teleprocessing (hh,mm)
f = Tape data set ID
g = HOC password (10 digits)
h = Backup HOC password (10 digits)

SET UP ATTACHED PROCESSOR SYSTEM (APS) AMA CONTROL FILE DATA



DIAGNOSE CONTROL UNIT (CU) USING RST MESSAGE



NOTE 1
The disk file controller (DFC) must be in service before the MHD can be diagnosed. Associated 'S' bus must be in service

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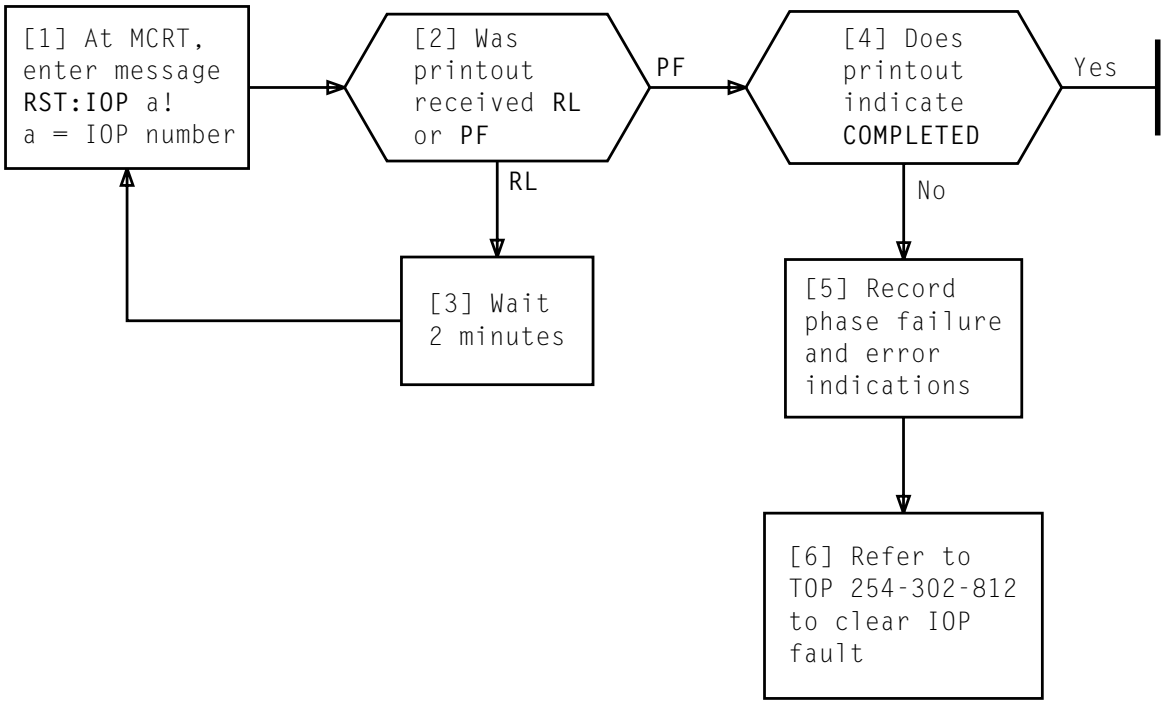
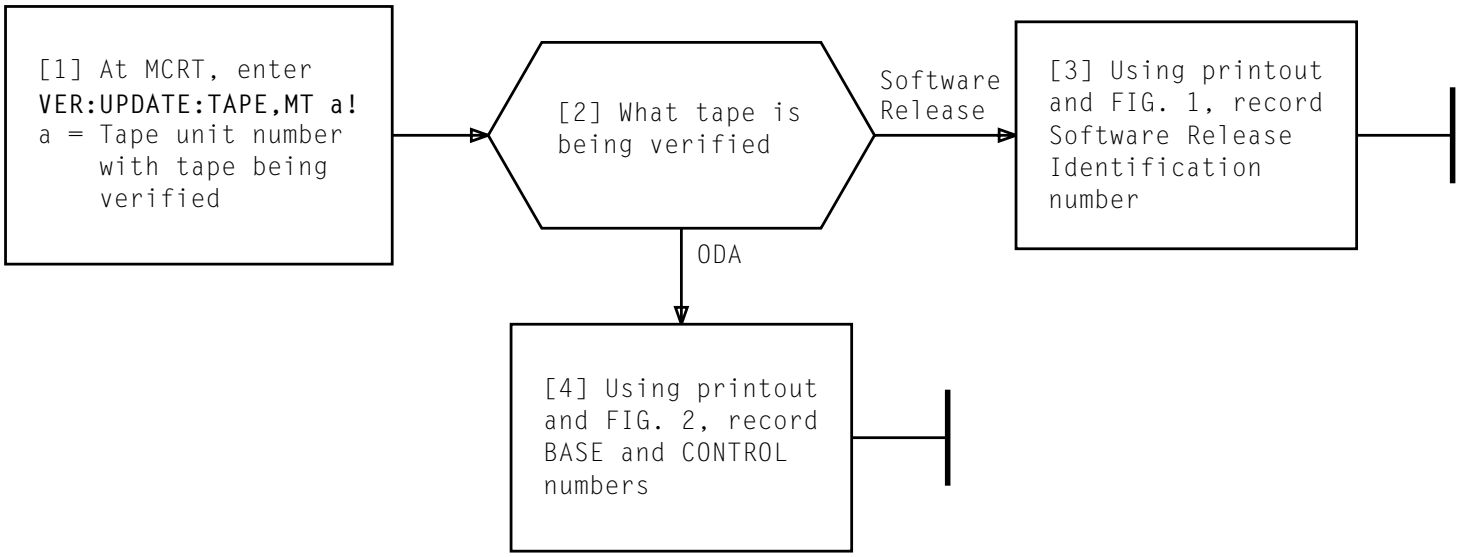
DIAGNOSE MOVING HEAD DISK (MHD) USING RST MESSAGE



DIAGNOSE INPUT/OUTPUT PROCESSOR (IOP) USING RST MESSAGE



TAPE TYPE: GEN

GENERIC 4E<19>4A.01 ← Record This Value

MOST RECENT OFL GENERATION: YR 94,MON 03,DAY 04 AT 11:28

THIS TAPE WRITTEN: YR 94,MON 03,DAY 04 AT 17:19

FS IDS: 0000000000000010,TAPE IDS: 0000000011111111

PARTL UPD FLG: 0,PHASE REQD: 0001000

FIG. 1 — Sample Generic Tape Header Printout

TAPE TYPE: ODA

BASE 908F,CONTROL H0 ← Record These Values

ORIGINAL GENERIC 4E<G19>.4R

MOST RECENT OFL GENERATION: YR 94,MON 03,DAY 05 AT 16:23

THIS TAPE WRITTEN: YR 94,MON 03,DAY 09 AT 08:23

FS IDS: 0000000000001000,TAPE IDS: 0000000011110100

PRTL UPD FLG: 0,PHASE REQD: 0001000

FIG. 2 — Sample ODA Tape Header Printout

RECORD TAPE HEADER INFORMATION

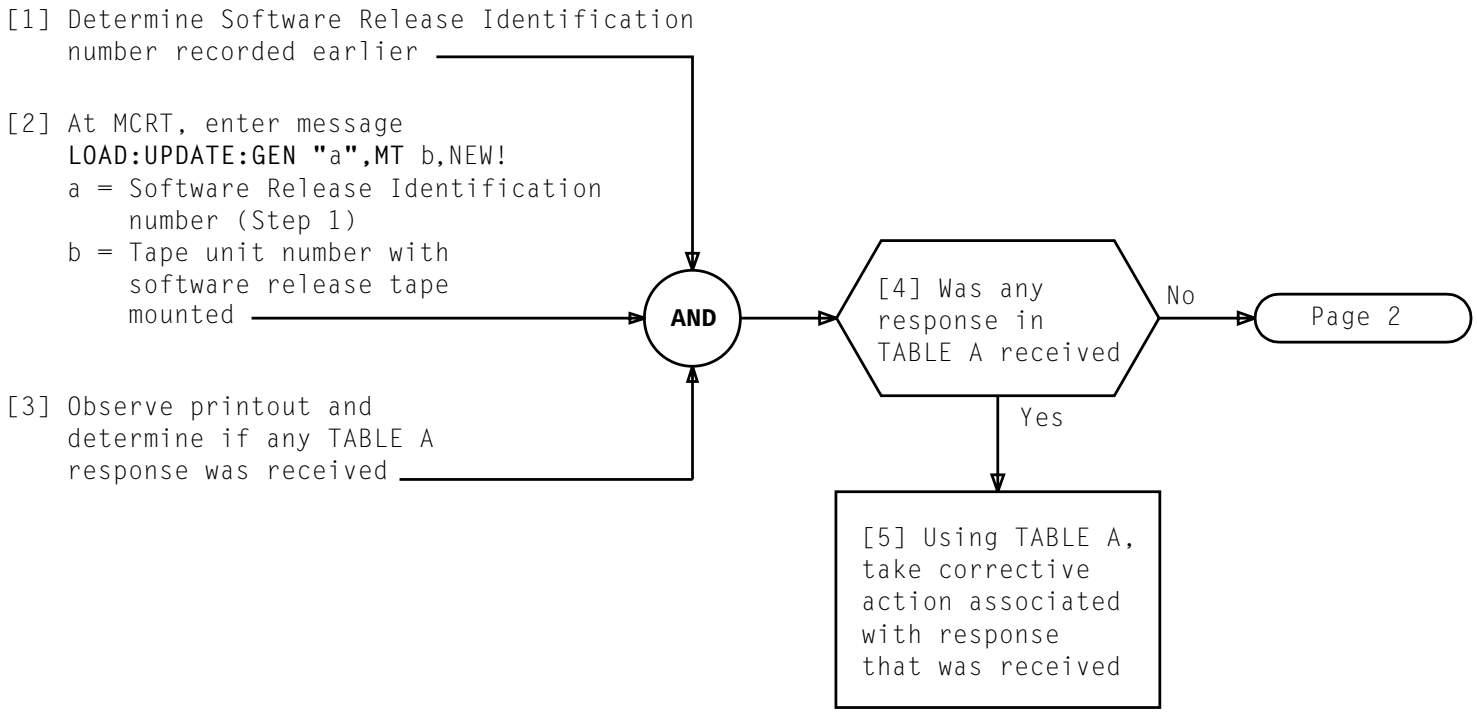
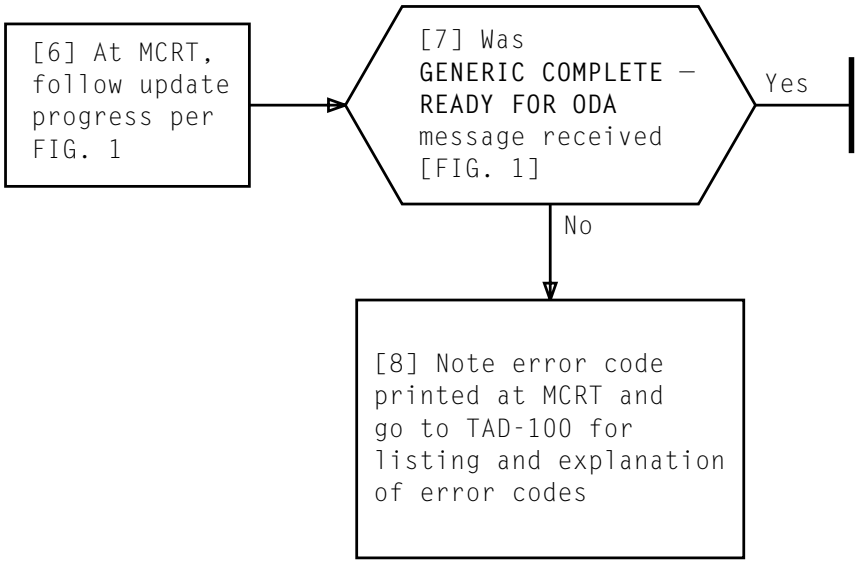


TABLE A

RESPONSE	CORRECTIVE ACTION
INVALID TAPE ID — ENTER AGAIN	Repeat from Step 2 with correct Software Release Identification number
TAPE DRIVE NOT READY — CORRECT AND ENTER AGAIN	Correct tape drive problem and repeat from Step 2

LOAD SOFTWARE RELEASE ON DISK




```
GENERIC RETROFIT

TAPE HEADER
              .
              .
              .
TAPE FILE 10 LOADED TO FS

TAPE FILE 20 LOADED TO FS

TAPE FILE 30 LOADED TO FS
              .
              .
              .
TAPE FILE n LOADED TO FS

GENERIC COMPLETE - READY FOR ODA
```

FIG. 1 — Sample Software Release Load Printout

[1] Determine BASE and CONTROL numbers recorded earlier

[2] At MCRT, enter message
LOAD:UPDATE:CONT "ab",MT c!
a = BASE number (Step 1). Must be 4 characters long. Spaces are used after BASE number if not 4 characters long
b = CONTROL number (Step 1). Must be 2 characters long. Space is used after CONTROL number if not 2 characters long
c = Tape unit number with ODA tape mounted

[3] Observe printout and determine if any TABLE A response was received

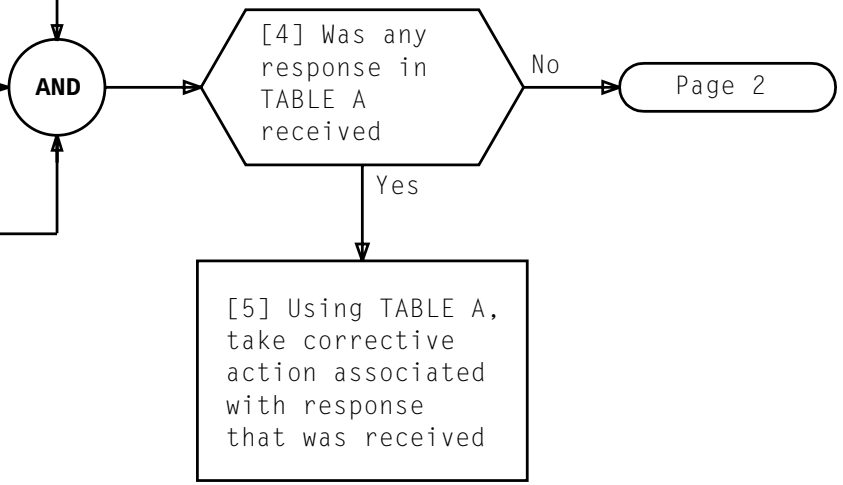
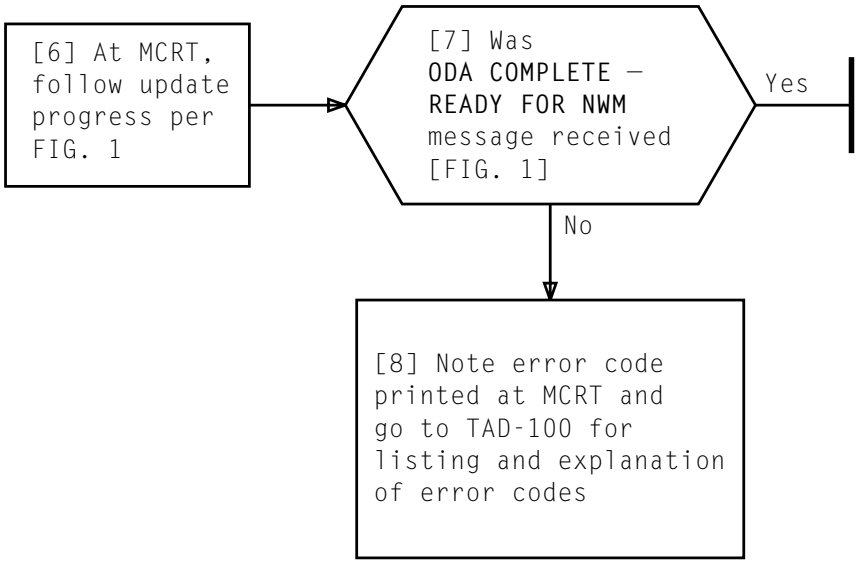


TABLE A

RESPONSE	CORRECTIVE ACTION
INVALID TAPE ID – ENTER AGAIN	Repeat from Step 2 with correct BASE and CONTROL numbers
TAPE DRIVE NOT READY – CORRECT AND ENTER AGAIN	Correct tape drive problem and repeat from Step 2
WRONG GENERIC – CHANGE TAPE AND ENTER AGAIN	Demount wrong ODA tape. Obtain correct tape and mount on tape drive. Repeat from Step 2

LOAD ODA ON DISK




```
TAPE HEADER
              .
              .
              .
TAPE FILE 10 LOADED TO FS
              .
TAPE FILE n LOADED TO FS

ODA COMPLETE - READY FOR NWM
```

FIG. 1 – Sample ODA Load Printout

LOAD ODA ON DISK

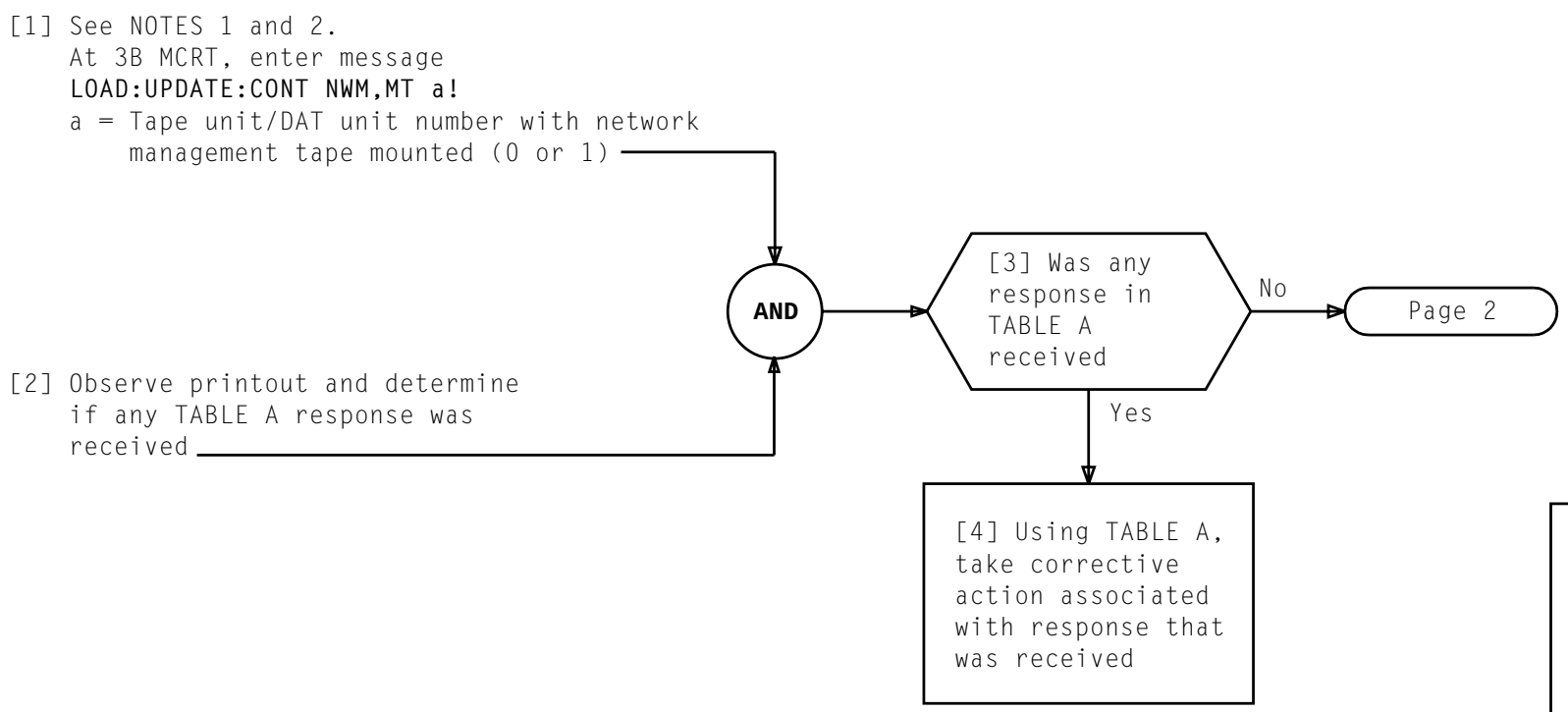


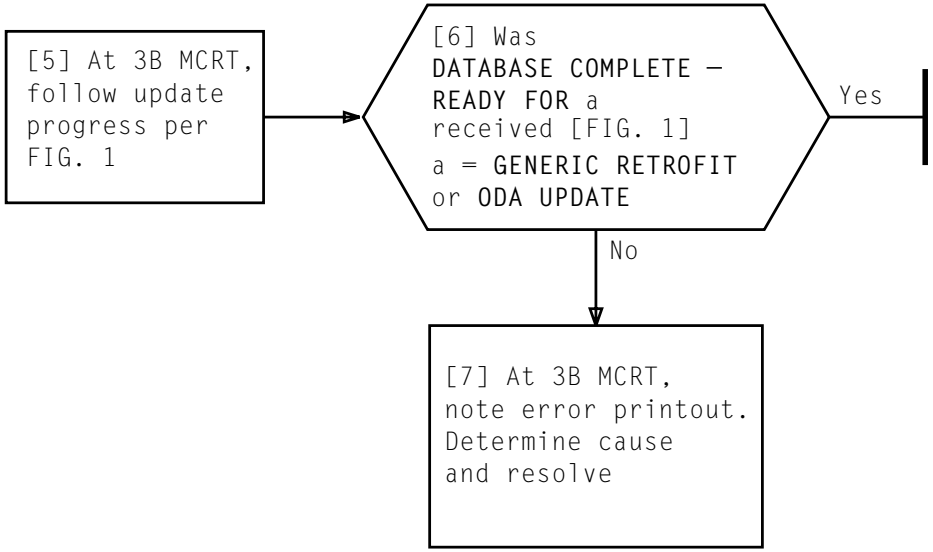
TABLE A

RESPONSE	CORRECTIVE ACTION
TAPE DRIVE NOT READY — CORRECT AND ENTER AGAIN	Correct tape drive problem and repeat from Step 2
WRONG GENERIC — CHANGE TAPE AND ENTER AGAIN	Demount wrong network management tape. Obtain correct tape and mount on tape drive. Repeat from Step 2
INVALID COMMAND - ENTER AGAIN	Repeat from Step 2

NOTES

1. When network management is loaded satisfactorily, system will complete building data base
2. After receiving **MAPPING DYNAMIC DATA FROM NORMAL FILE** output message, **WAITING FOR 4 TO 13 MINUTES PAST QUARTER HOUR** may be received. System will automatically map dynamic data when in proper window

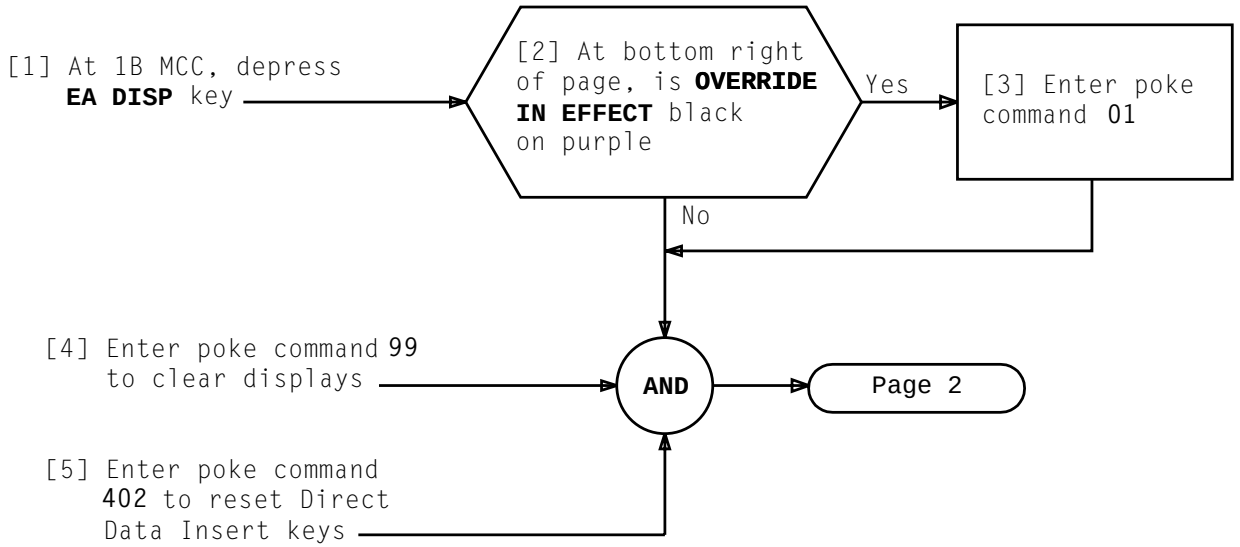
LOAD NETWORK MANAGEMENT ON DISK AND COMPLETE DATA BASE



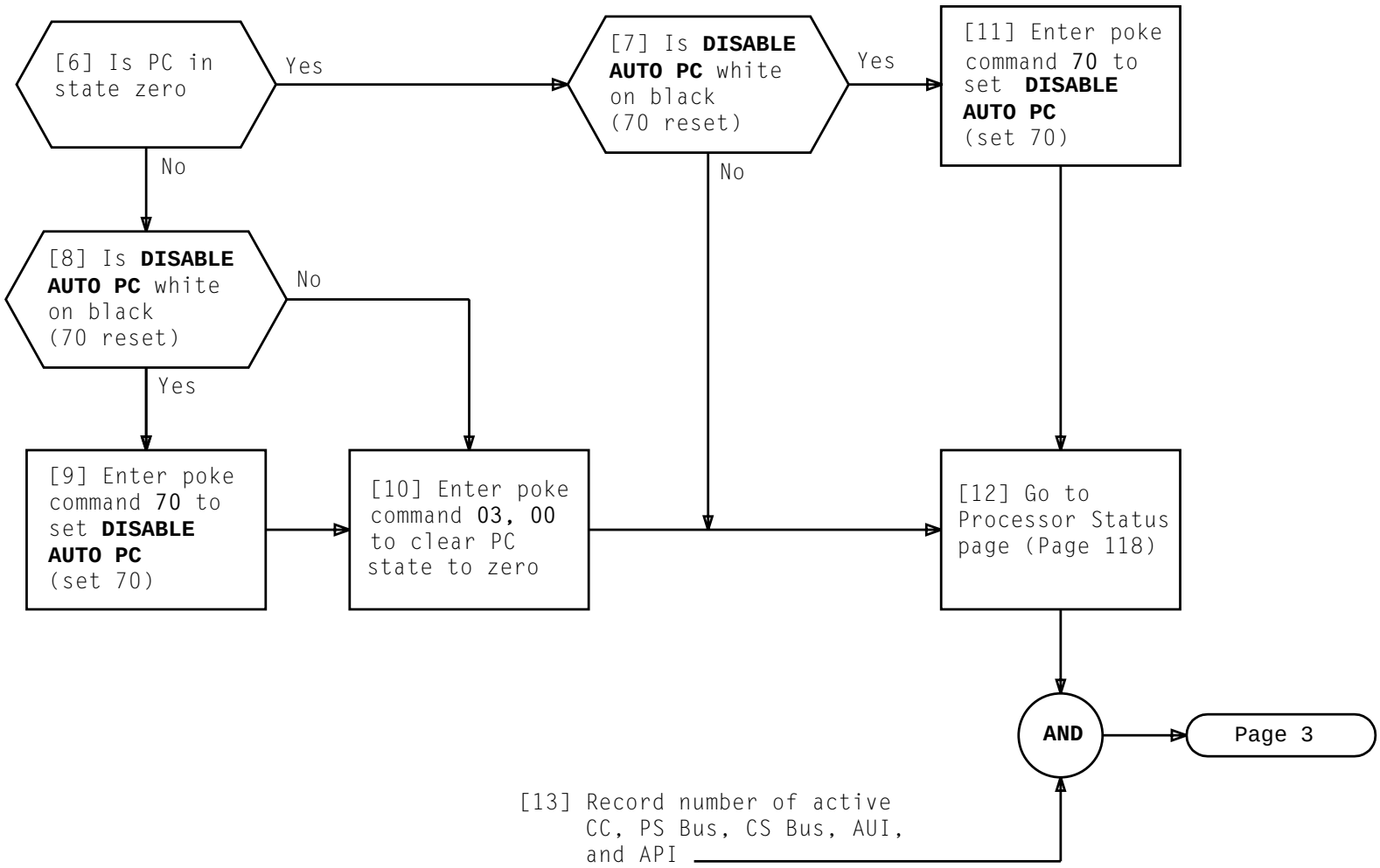

```
TAPE HEADER
      .
      .
      .
TAPE FILE 10 LOADED TO FS

NWM COMPLETE

WRITE MERGE DATA AND ZERO FS AREAS

MAPPING DYNAMIC DATA FROM NORMAL FILE

DATABASE COMPLETE — READY FOR a
```

FIG. 1 — Sample Network Management Load Printout

LOAD NETWORK MANAGEMENT ON DISK AND COMPLETE DATA BASE



SELECT PROCESSOR CONFIGURATION



SELECT PROCESSOR CONFIGURATION

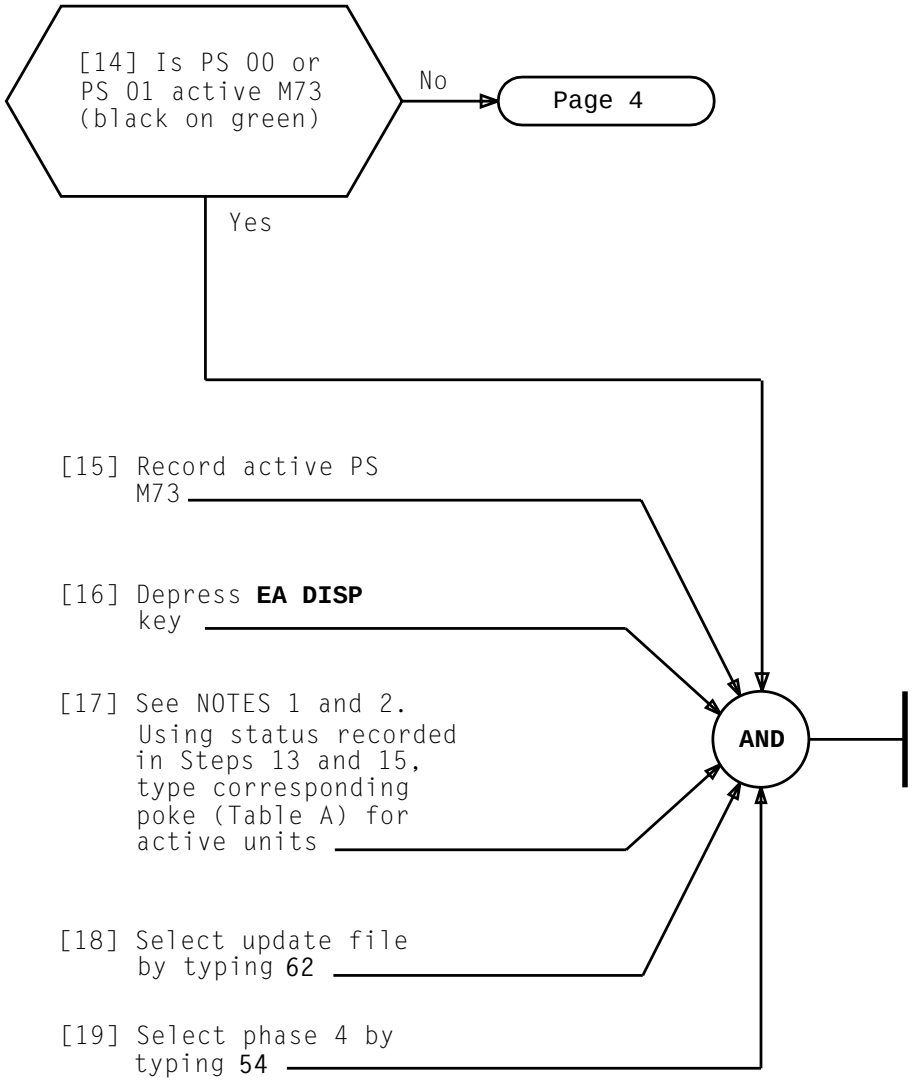


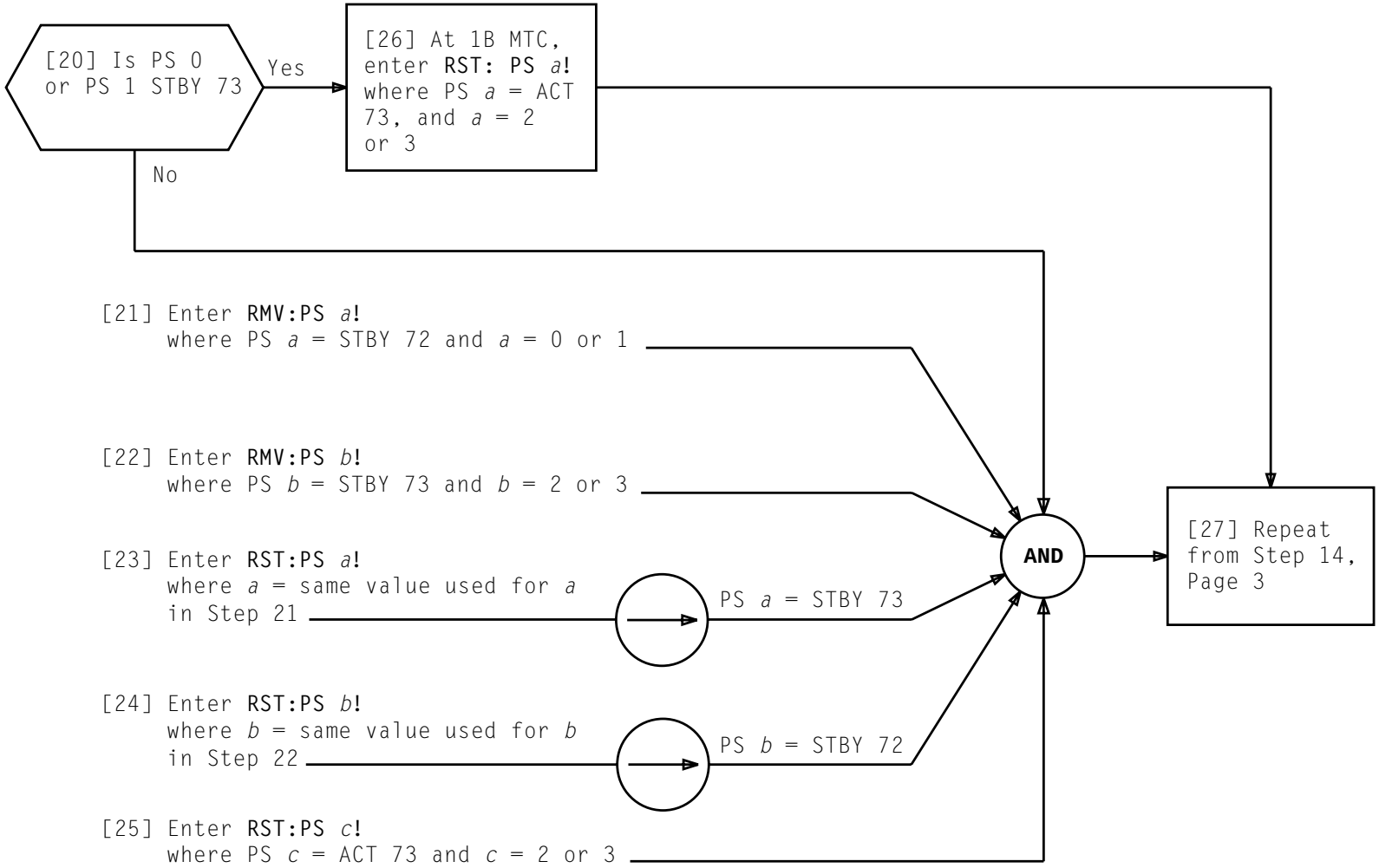
TABLE A

If Active	Poke
CC 00	10
CC 01	11
PS 00	20
PS 01	21
PSB 00	22
PSB 01	23
CSB 00	30
CSB 01	31
IFB 0	40
IFB 1	41
AUB 0	42
AUB 1	43

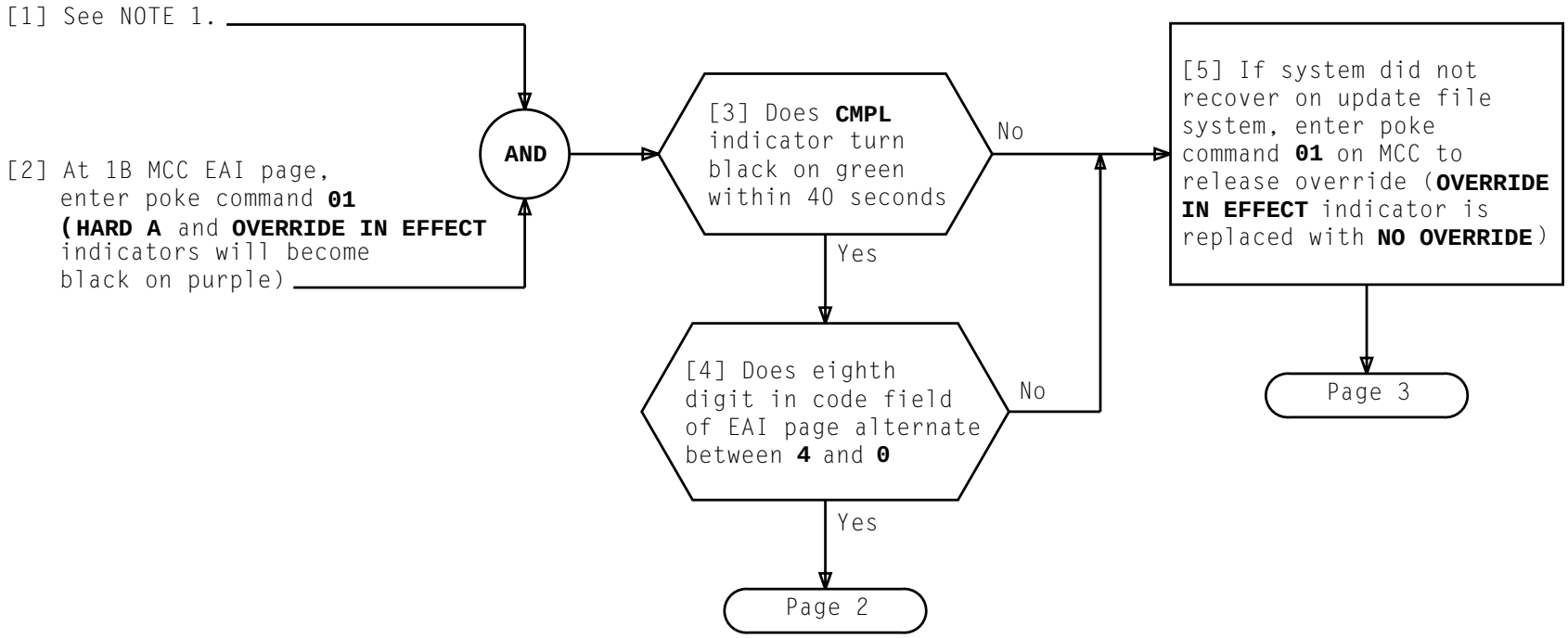
NOTES

1. Generally both IF Buses are active. Make the IF Bus active that corresponds to the active AUI. For example, if AUI 0 is active, make IF Bus 0 active.
2. Generally both AU Buses are active. Make the AU Bus active that corresponds to the active API. For example, if API 0 is active, make AU Bus 0 active.

SELECT PROCESSOR CONFIGURATION



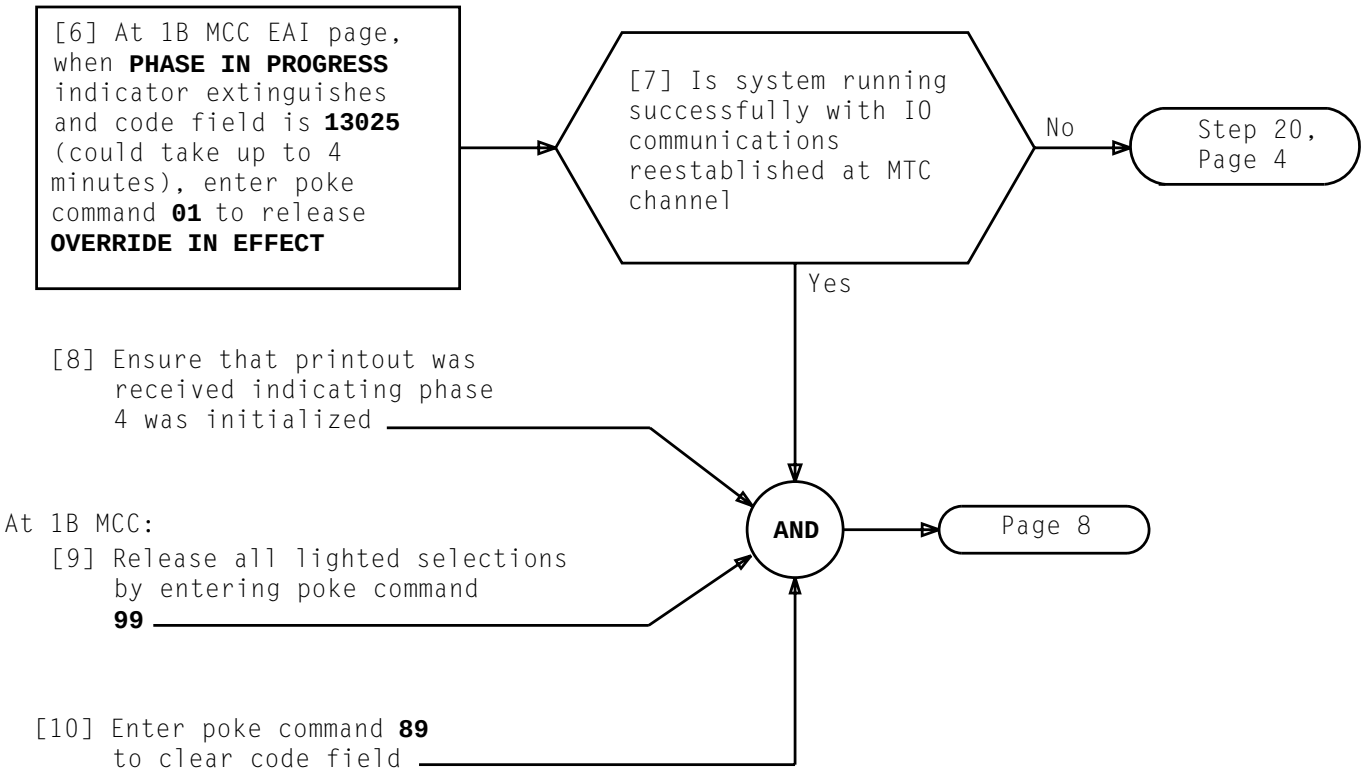
SELECT PROCESSOR CONFIGURATION



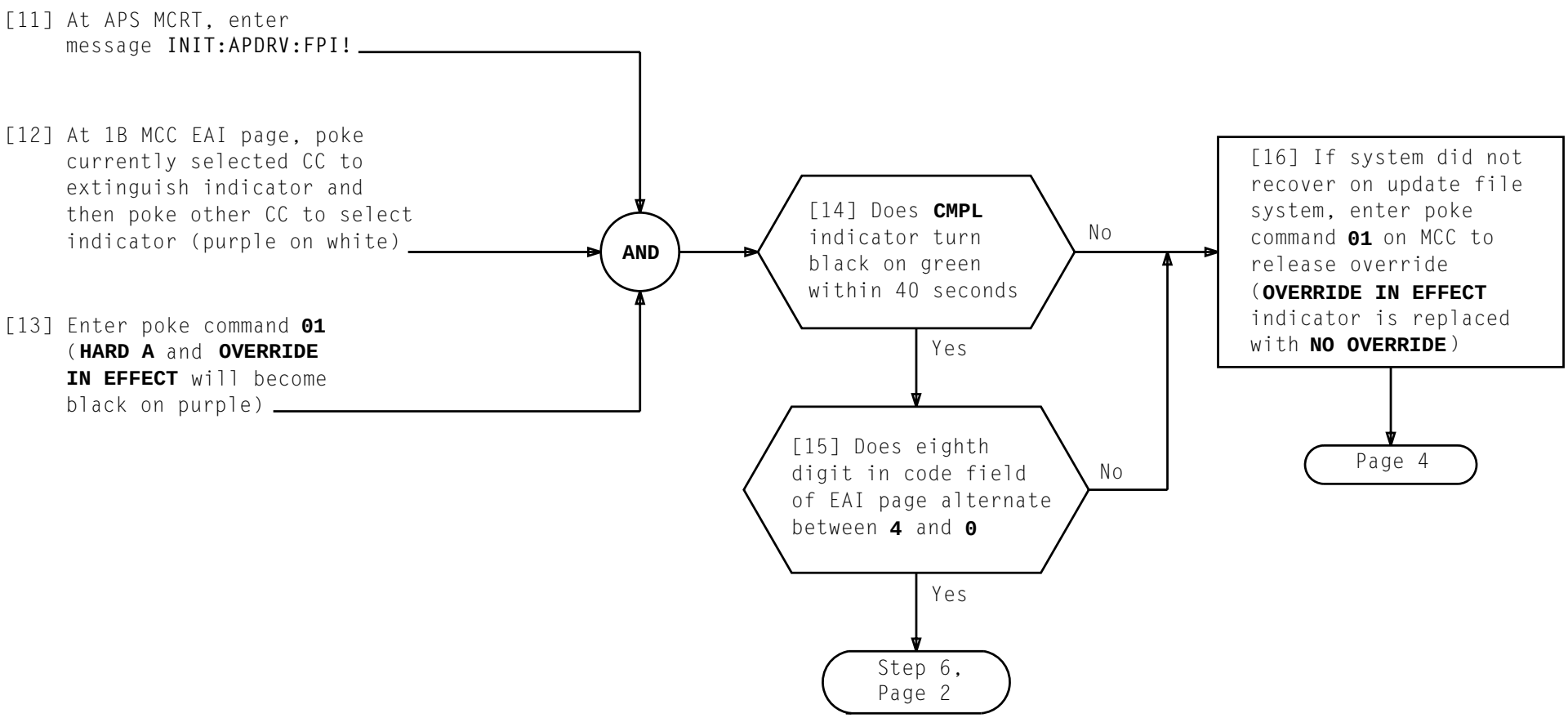
NOTE 1

As soon as **HARD A** is poked, **CC**, **PS**, **CS**, **IFB**, **IF**, **AU**, **CMPL**, will become black on red. When corresponding hardware units are configured, this indicator will return to white on black and when processor configuration is complete, **CMPL** lamp will become black on green

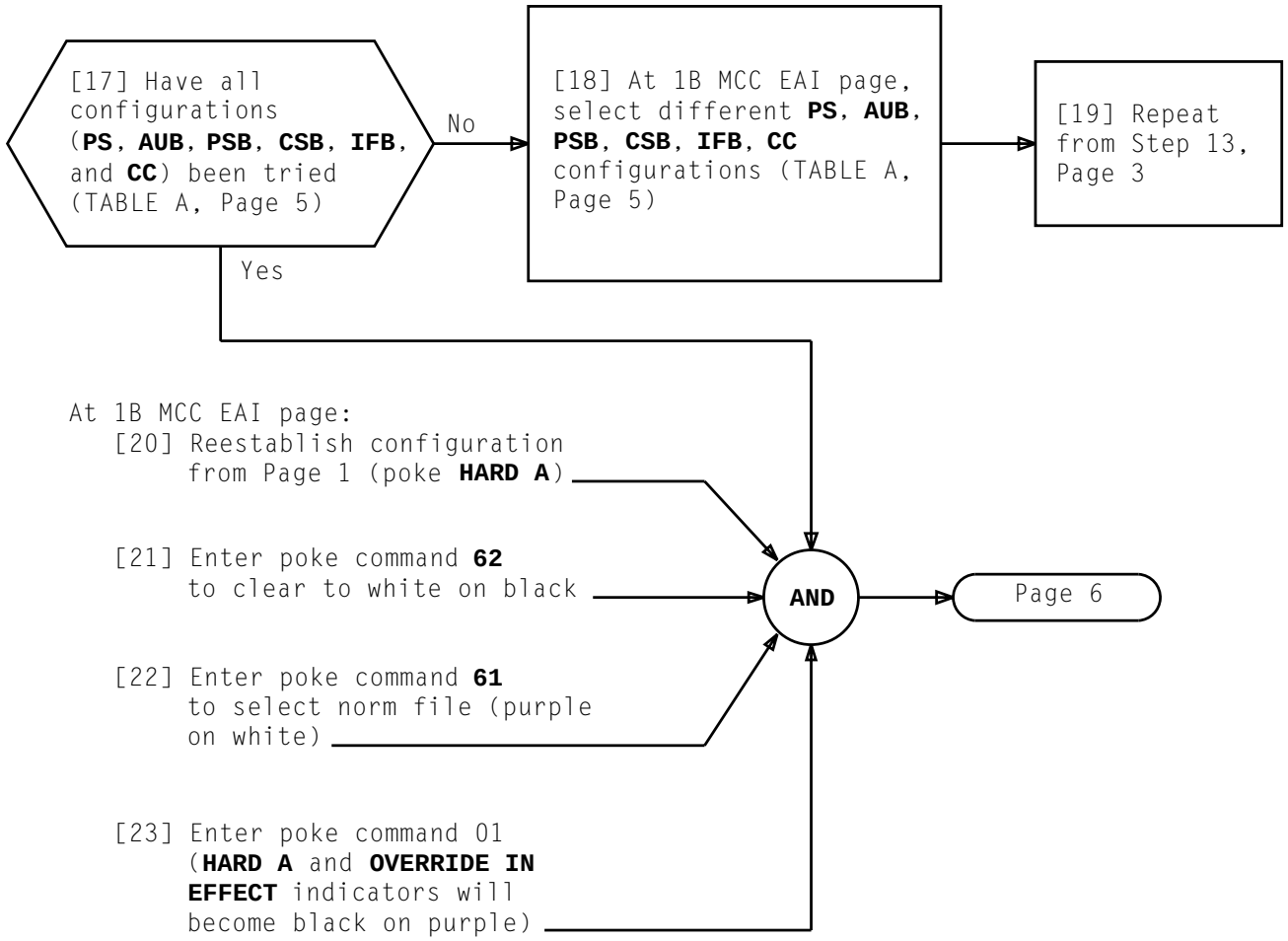
INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS



INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS



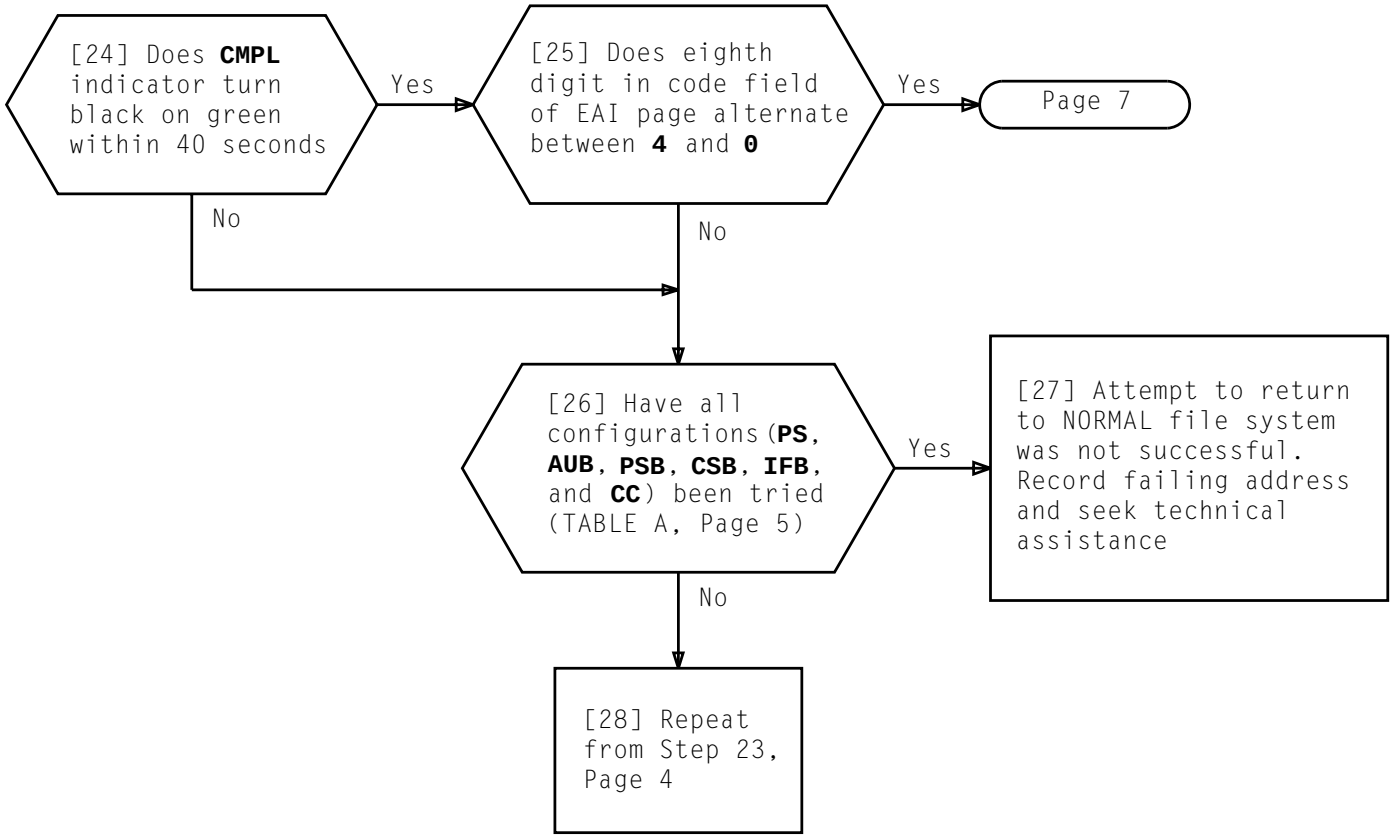
INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS



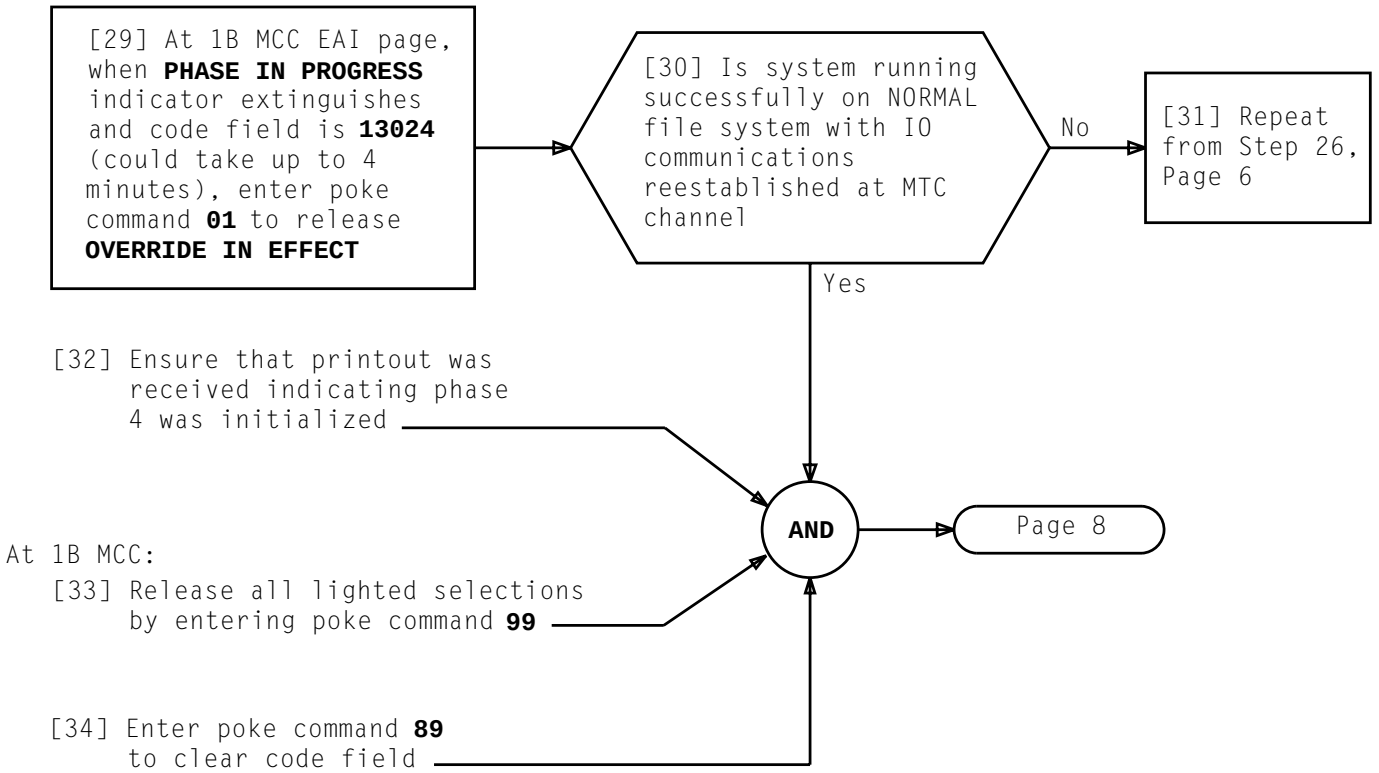
INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS

TABLE A
1B PROCESSOR MANUAL CONFIGURATIONS AND ASSOCIATED POKE COMMANDS

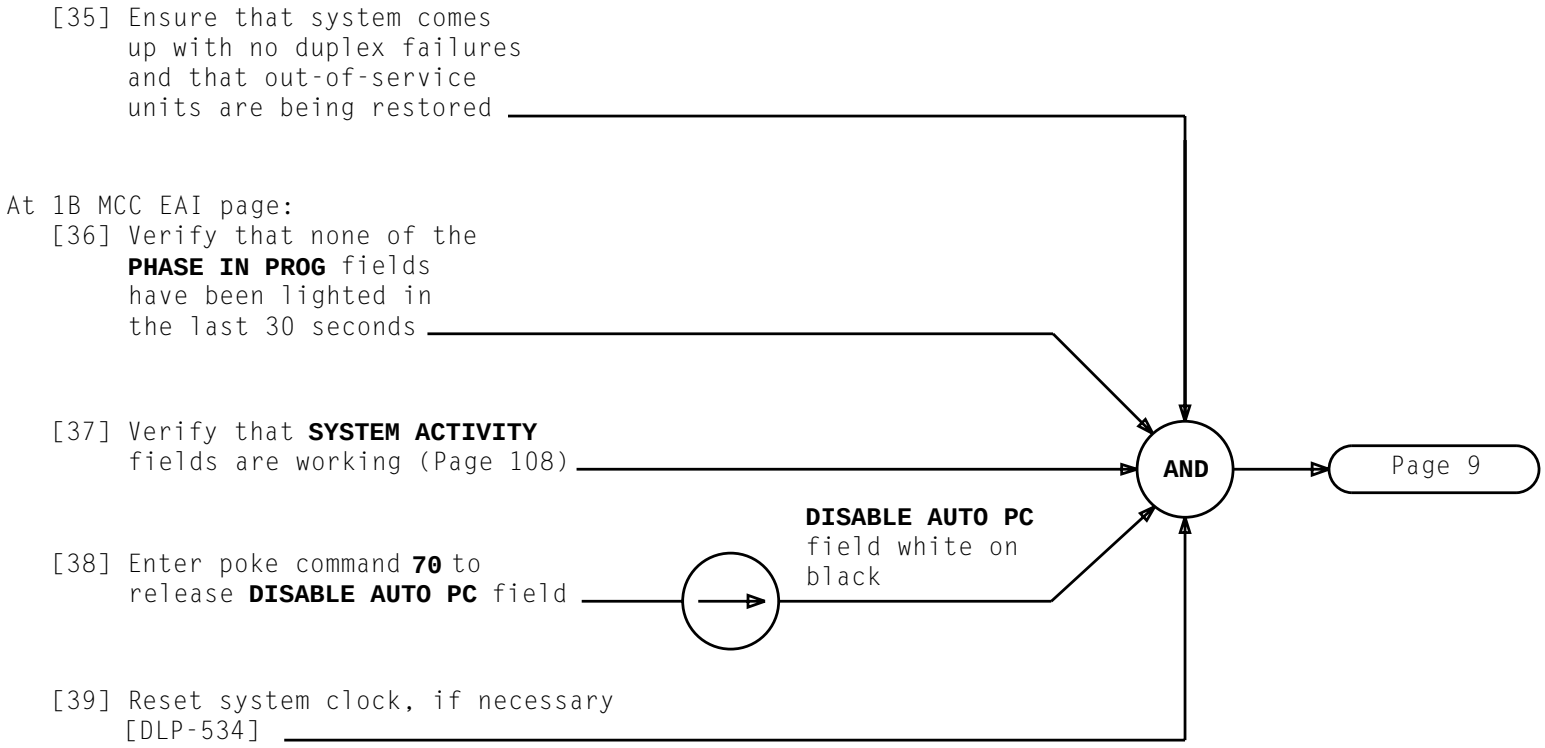
MANUAL SEQUENCE	OVERRIDE CONTROL SELECTIONS												
	PC STATE	CC0	CC1	PS0	PS1	PSB0	PSB1	CSB0	CSB1	IFB0	IFB1	AUB0	AUB1
1	40	10		20		22		30		40		42	
2	41		11		21		23		31		41		43
3	52		11	20			23	30			41	42	
4	53		11		21	22			31	40			43
5	66		11	20			23		31	40			43
6	50	10		20		22		30			41	42	
7	51	10			21		23		31	40			43
8	65	10			21	22		30			41	42	
9	67	10			21	22		30			41	42	
10	64		11	20		22			31	40			43
11	74		11	20		22			31		41		43
12	77		11		21	22		30		40		42	
13	76	10		20			23		31		41		43
14	75	10			21		23	30		40		42	
15	43	10			21	22			31		41		43
16	42		11	20			23	30		40		42	



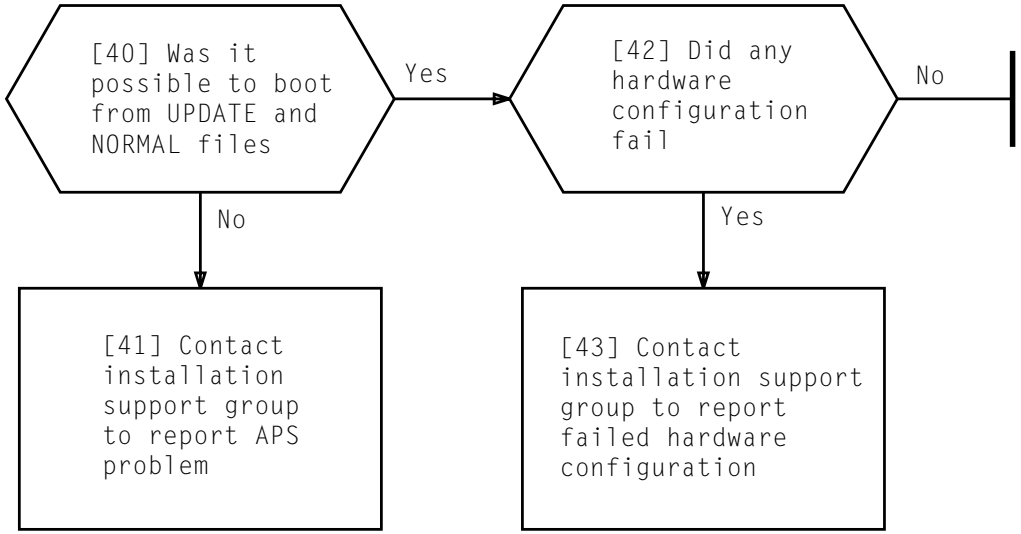
INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS



INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS



INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS



INITIALIZE 1B PROCESSOR VIA UPDATE FILE ON APS

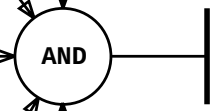
[1] At MTC channel, type in, but do not send, partially
completed message **SET:CLK:DAY** a**,DATE** bbccdd**,TIME** eeffgg!
(Complete everything except minutes and seconds)
a = Day (SUN, MON, TUE, etc.)
bbccdd = Month, day and year
eeffgg = Hour, minute and second

[2] Call U.S. Bureau of Standards Time Announcement,
303-499-7111, and listen for time announcement [NOTE 1]

[3] After time announcement is made,
add minute announced plus 1 and 00 seconds to message

[4] Return cursor to start of message

[5] At next time announcement, depress **SEND** key;
instant tone is heard



NOTE 1

Time announcements are made every minute on the minute. Hours announced are in Greenwich Mean Time

RESET SYSTEM CLOCK

LOAD TRUNK OUT-OF-SERVICE LIST (TOSL) TAPE

[1] Obtain trunk out-of-service list tape and mount without write-enable ring on APS tape unit [DLP-512]

[2] See NOTE. At 3B MCRT, enter massage Load Trunk Out-of Service List (TOSL) Data into System (LOAD:APPTAPE: TOSL,MT a,FN "/dev/1afile0" or "/dev/1afile1"!)

AND

[3] Was output message 1 received [TABLE A]

No → [4] Determine cause and resolve; repeat from Step 2

Yes

[5] Were output messages 2 through 4 (as required) received [TABLE A]

Yes → [6] Demount tape from tape unit [DLP-511]

No → [7] Determine cause and resolve; repeat from Step 2

TABLE A

MESSAGE NUMBER	OUTPUT MESSAGES
1	APPTAPE TYPE: TOSL, WRITTEN mm/dd/yy hh:mm
2	APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb STARTED
3	APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb COMPLETED
4	APPTAPE COMPLETED

NOTE
VERIFY which file is the UPDATE FILE. At the 3B MCRT, Enter Message DUMP:SCP NORMAL!

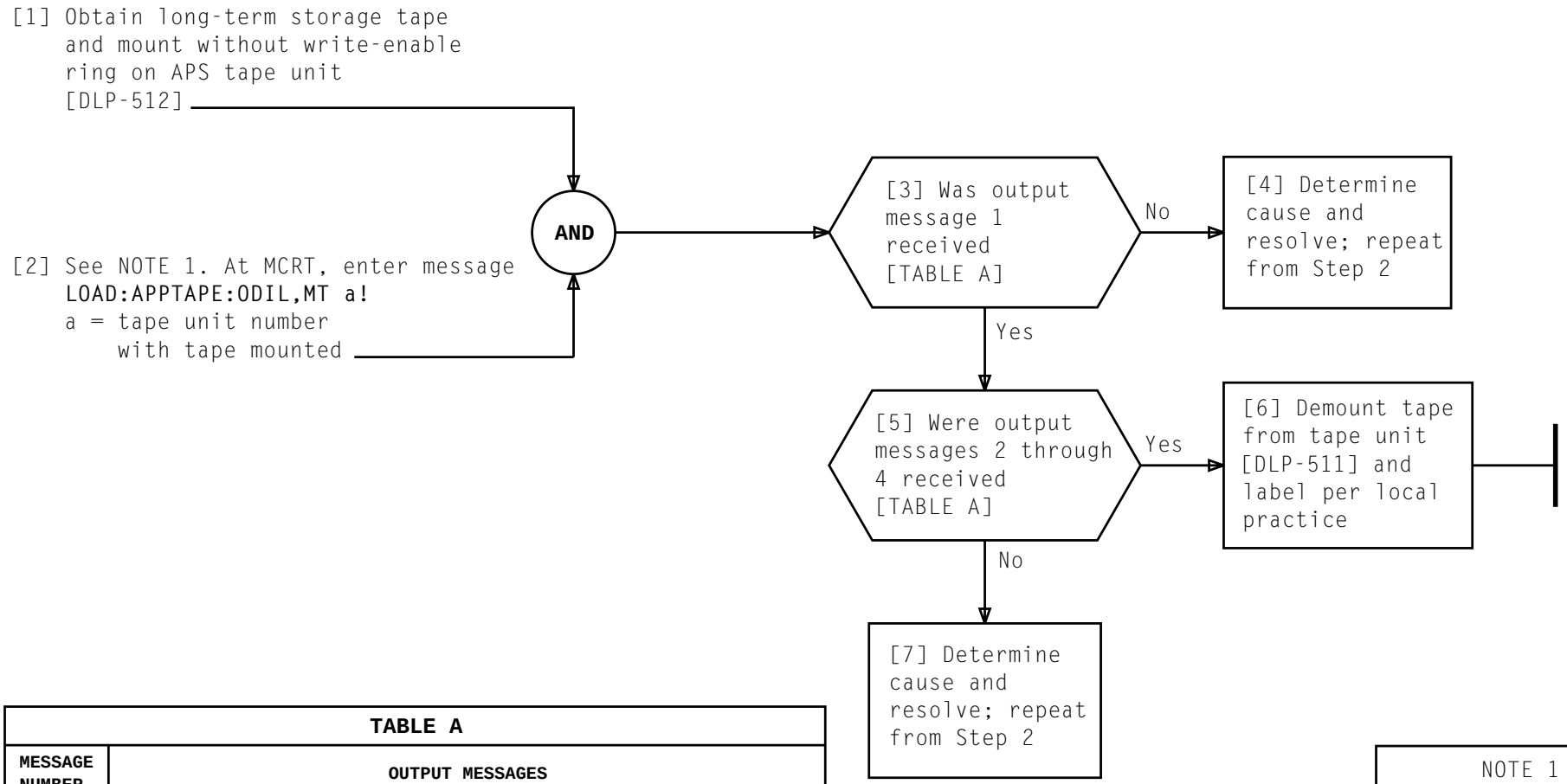


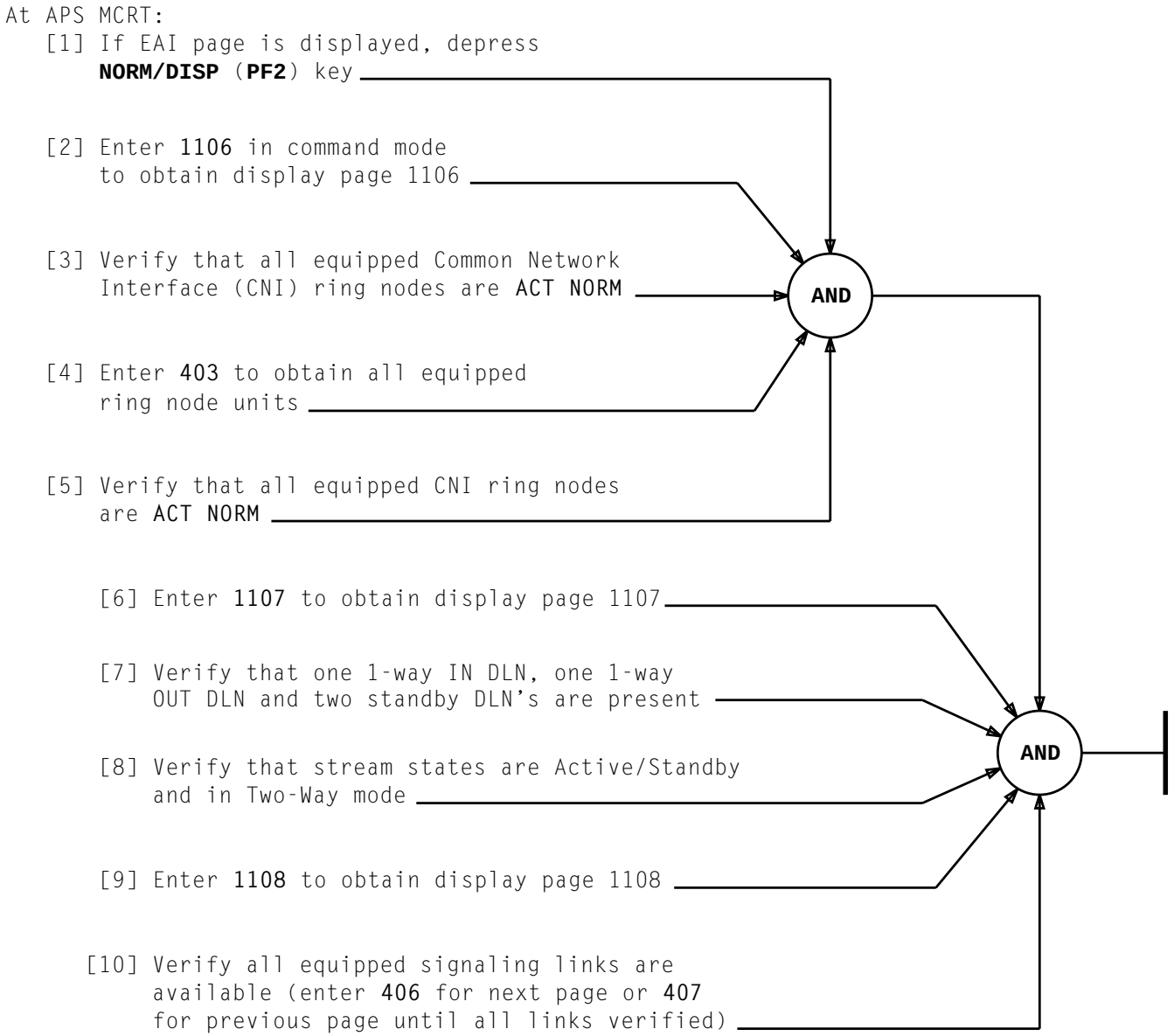
TABLE A	
MESSAGE NUMBER	**OUTPUT MESSAGES**
1	APPTAPE TYPE: LTS, WRITTEN mm/dd/yy hh:mm
2	APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb STARTED
3	APPTAPE ADDRESS RANGE aaaaaaaa – bbbbbbbb COMPLETED
4	APPTAPE COMPLETED

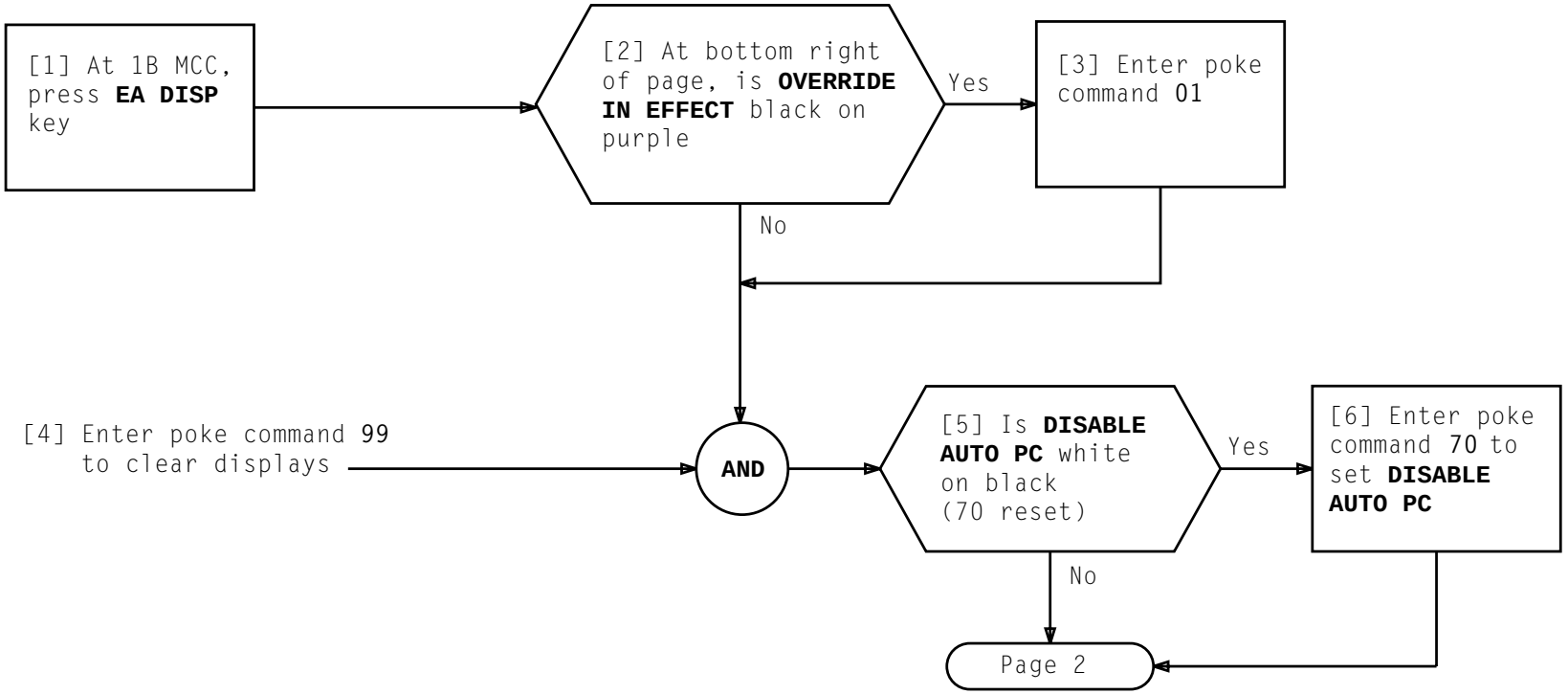
mm/dd/yy hh:mm = month/day/year hour:minute tape was written
aaaaaaaa = starting LTS address through
bbbbbbbb = ending LTS address written

NOTE 1
Loading of LTS tape must be initiated during 7-minute window beginning 4 minutes past any quarter hour. If LOAD message is not entered during this window, an RL will be received

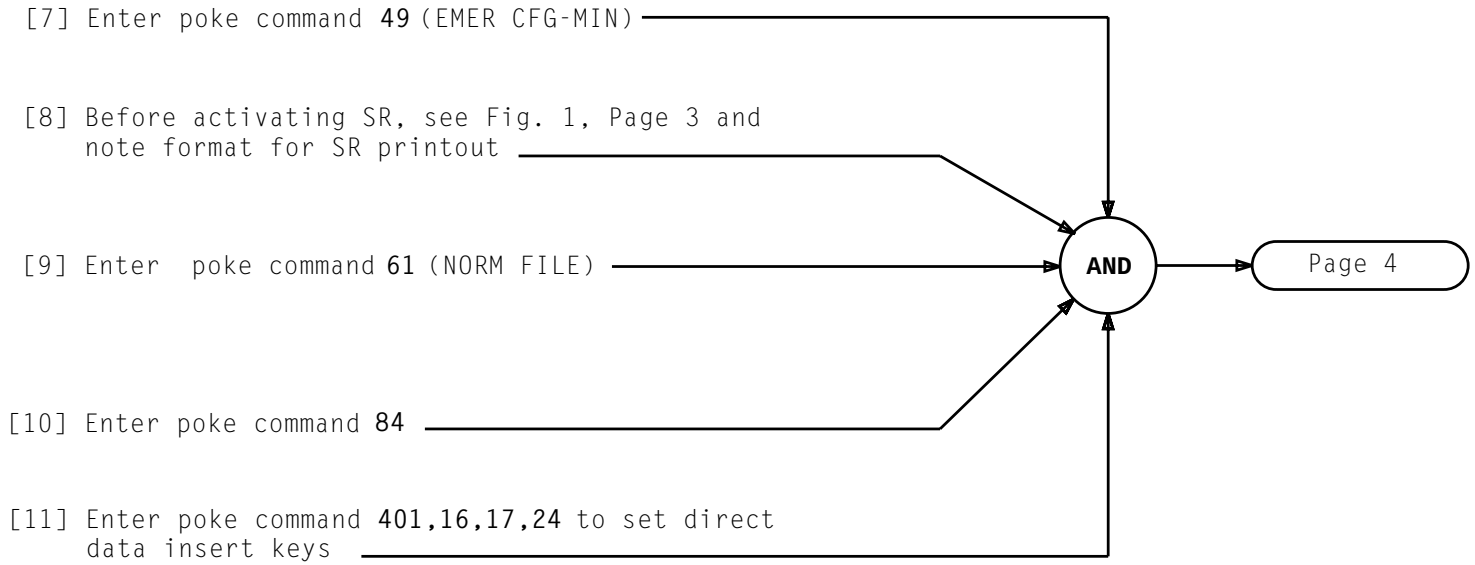
LOAD LONG-TERM STORAGE (ODIL) TAPE

VERIFY CNI RING DISPLAY PAGES





PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION

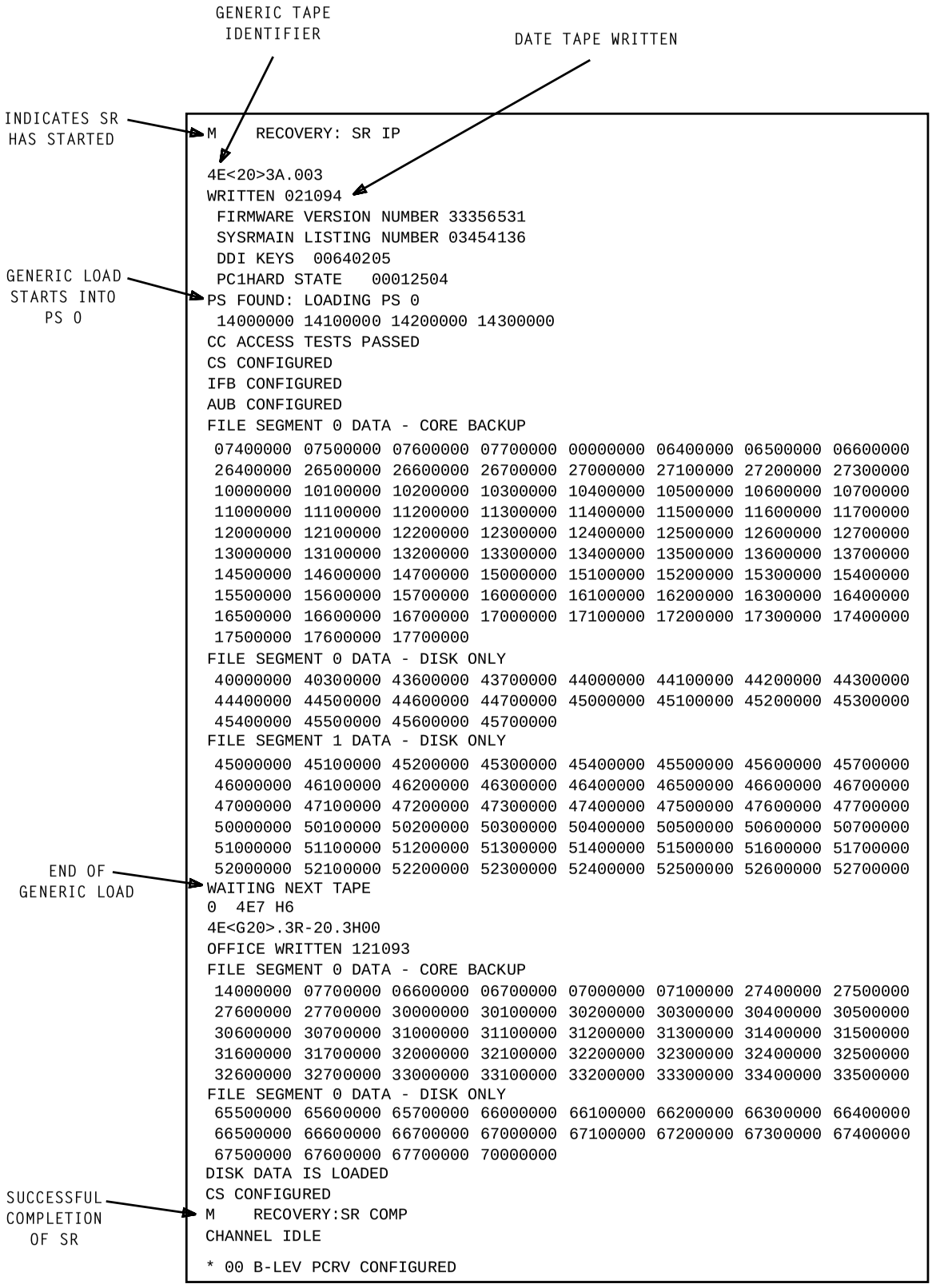
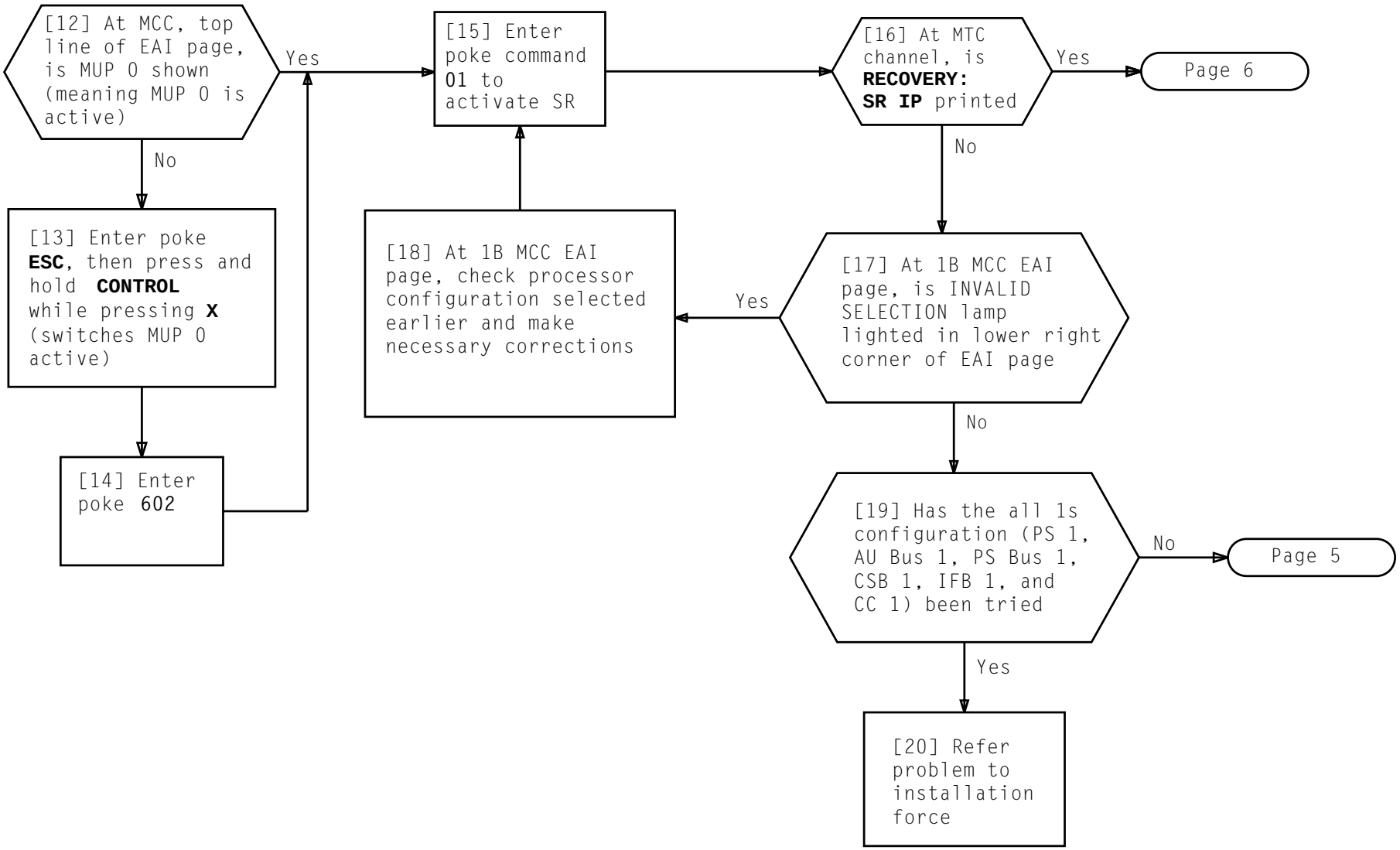
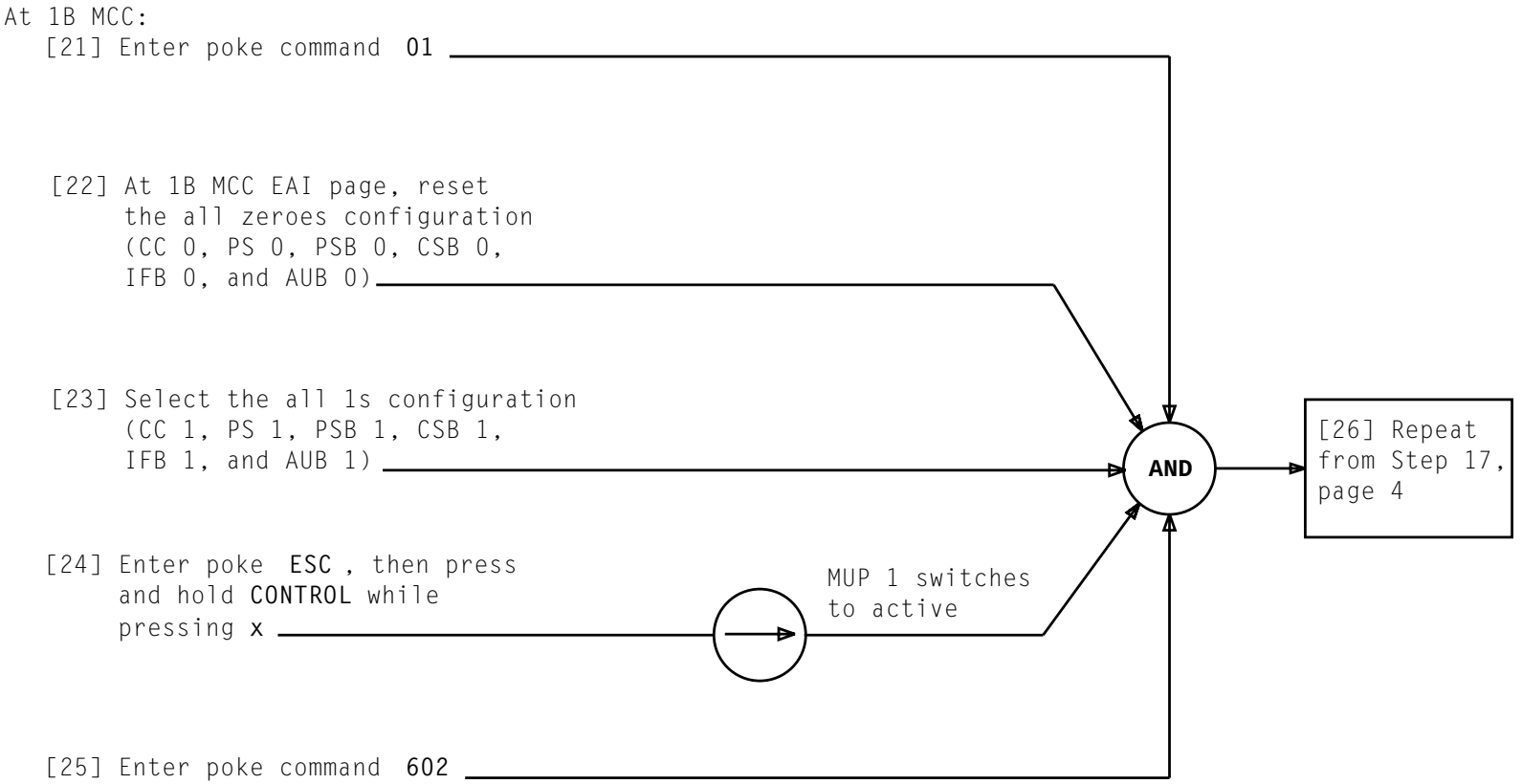


FIG. 1 — Sample SR Printout (Addresses May Not Agree With Actual Office Data)



PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



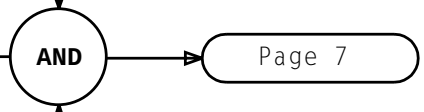
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION

[27] Note that following messages are printed on MTC channel (the numbers will vary depending on version of firmware and generic):

FIRMWARE VERSION NUMBER 33356531
SYSRMAIN LISTING NUMBER 03454136

[28] After approximately 15 seconds, look for following message to print [Fig. 1, Page 3]:

PS FOUND: LOADING PS 0



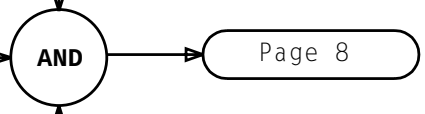
[29] After PS FOUND: LOADING PS 0 is printed, observe that zeroes in code display change to 14XXXXXX and continue changing at a rapid rate

PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION

[30] Observe that **14000000** is printed on MTC channel and every 7-8 seconds another address prints

[31] After addresses have been changing for at least 1 minute, and/or several addresses have been printed, depress **SR** key on tape transport that has ODA tape mounted

[32] See NOTE. Observe generic loading progress at TTY or on 1B MCC (EAI page) code field



NOTE

It will take 25-30 minutes for generic load to complete. If any errors occur during loading process, addresses will stop changing and **FAIL ADDR** display on EAI page will light. If **FAIL ADDR** display does not light when addresses stop changing, generic load is successful. **WAITING NEXT TAPE** is printed after last generic address

PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION

[33] When addresses stop changing and **WAITING NEXT TAPE** is printed, poke Soft A (poke **02**), Phase 4 request on 1B MCC EAI page

ODA tape is loading

AND

[34] See NOTE and Fig. 1, Page 3. Observe loading progress on TTY or on code field on EAI page

[35] Wait until addresses stop advancing, then verify receipt of following TTY output messages [Fig. 1]:

DISK DATA IS LOADED

RECOVER:SR COMP

CHANNEL IDLE

* 00 A-LEV PCRV CONFIGURED

At 1B MCC (EAI page) **EMER CFG** section:

[36] Verify that **MIN** is lighted black on purple

AND

At 1B MCC (EAI page):

[37] Poke 63 to turn off **NORM SR** (black on green from black on purple)

Page 9

At 1B MCC **FORCE FUNCTION** section (EAI page):

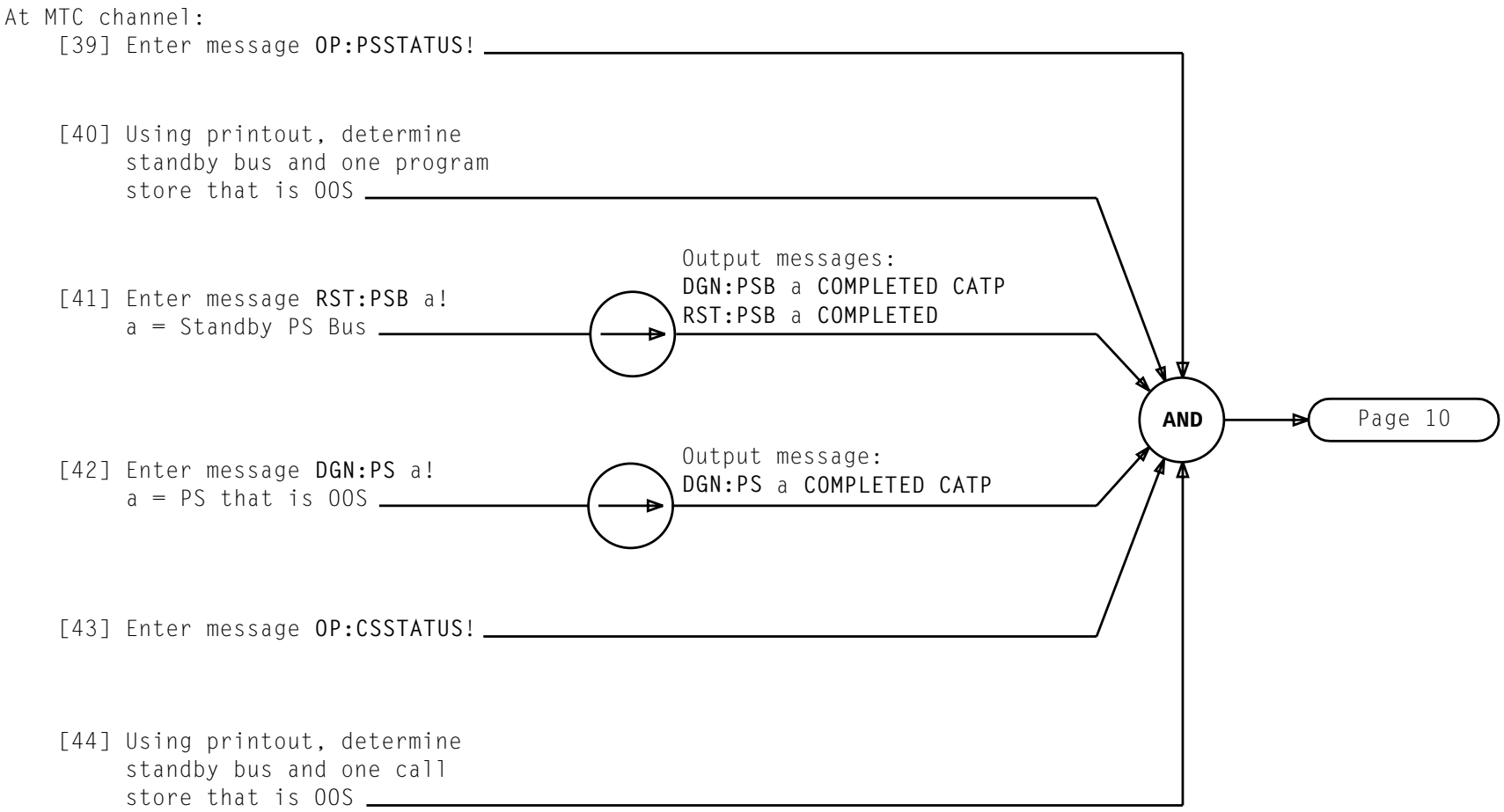
[38] Poke 01 to release **OVERRIDE IN EFFECT**

ACTIVATE-OVERRIDE IN EFFECT is off

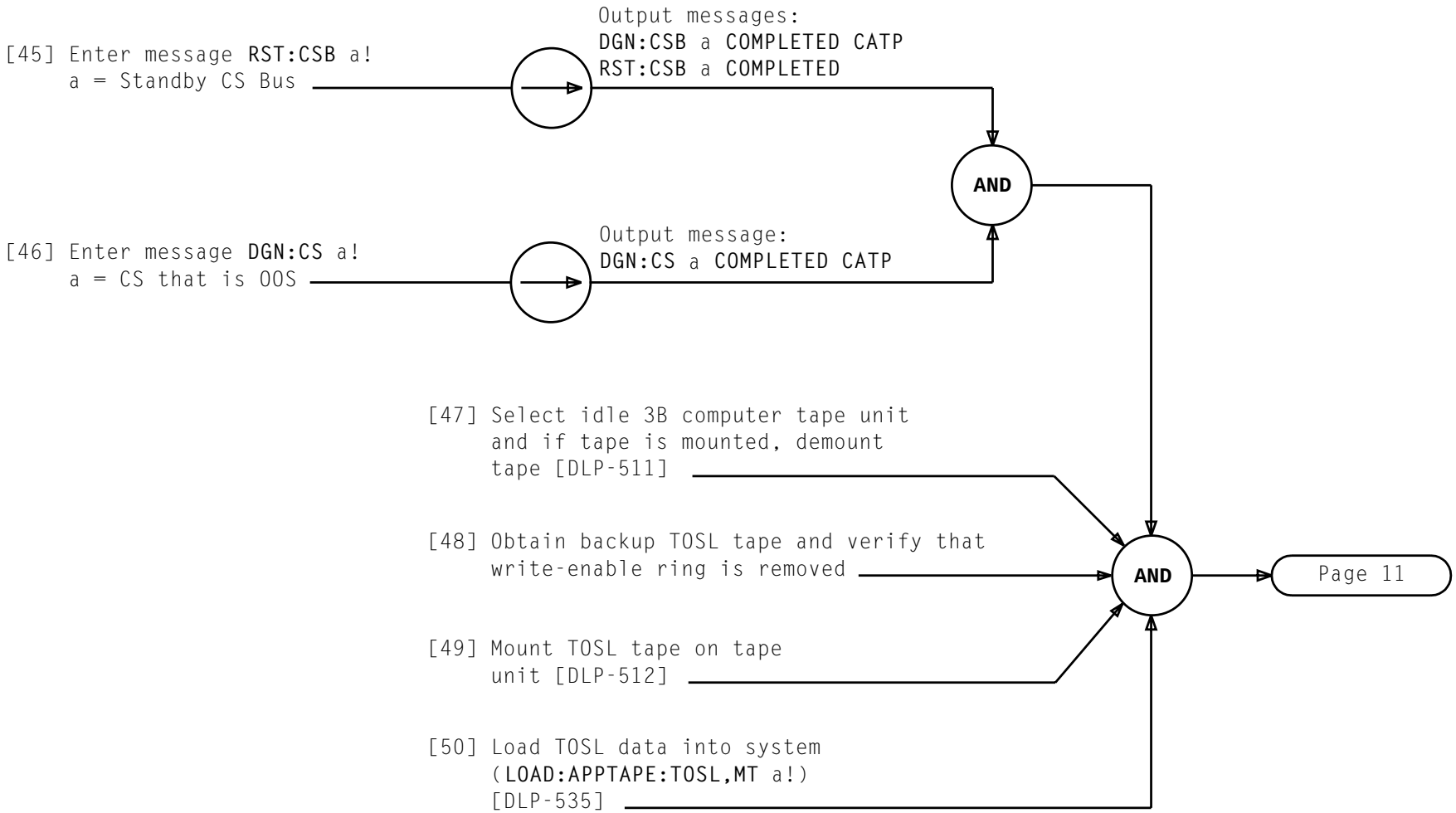
NOTE

It takes approximately 20 minutes for ODA load to complete. ODA load is successful if **ADDR** display does not light after addresses stop changing

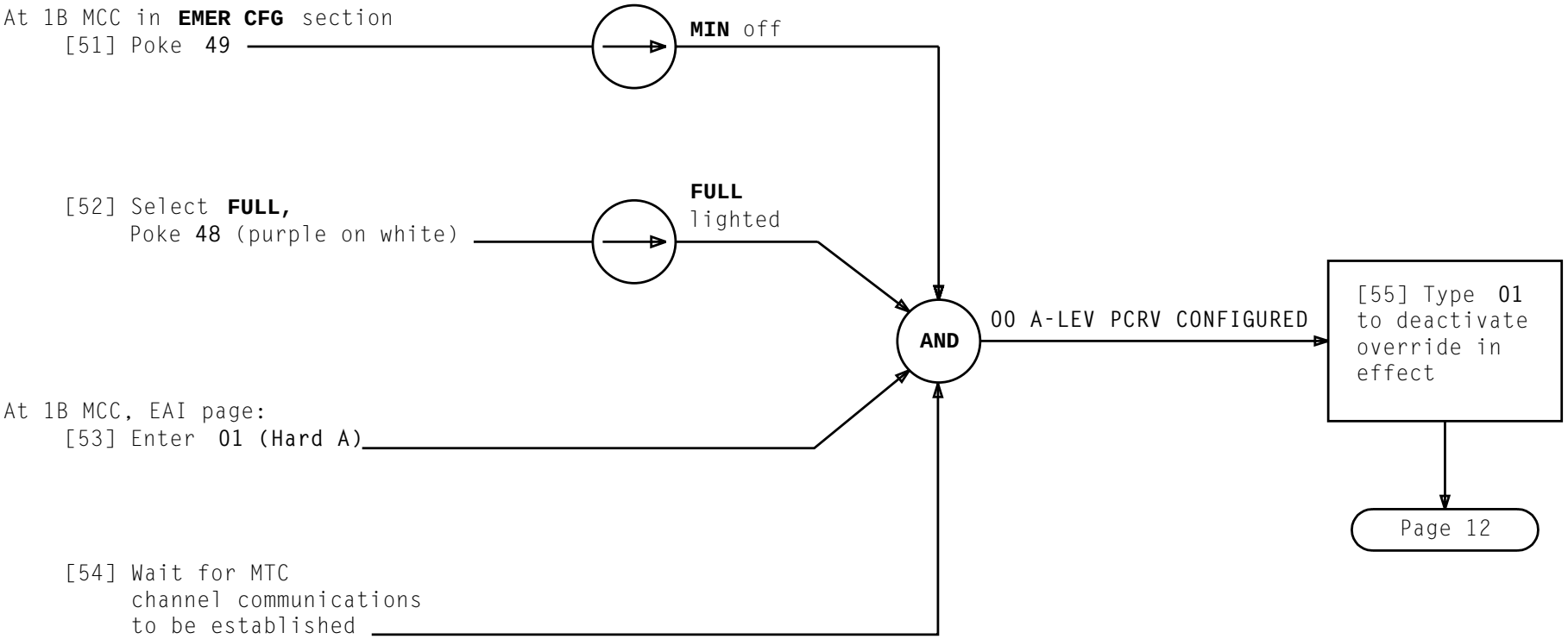
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



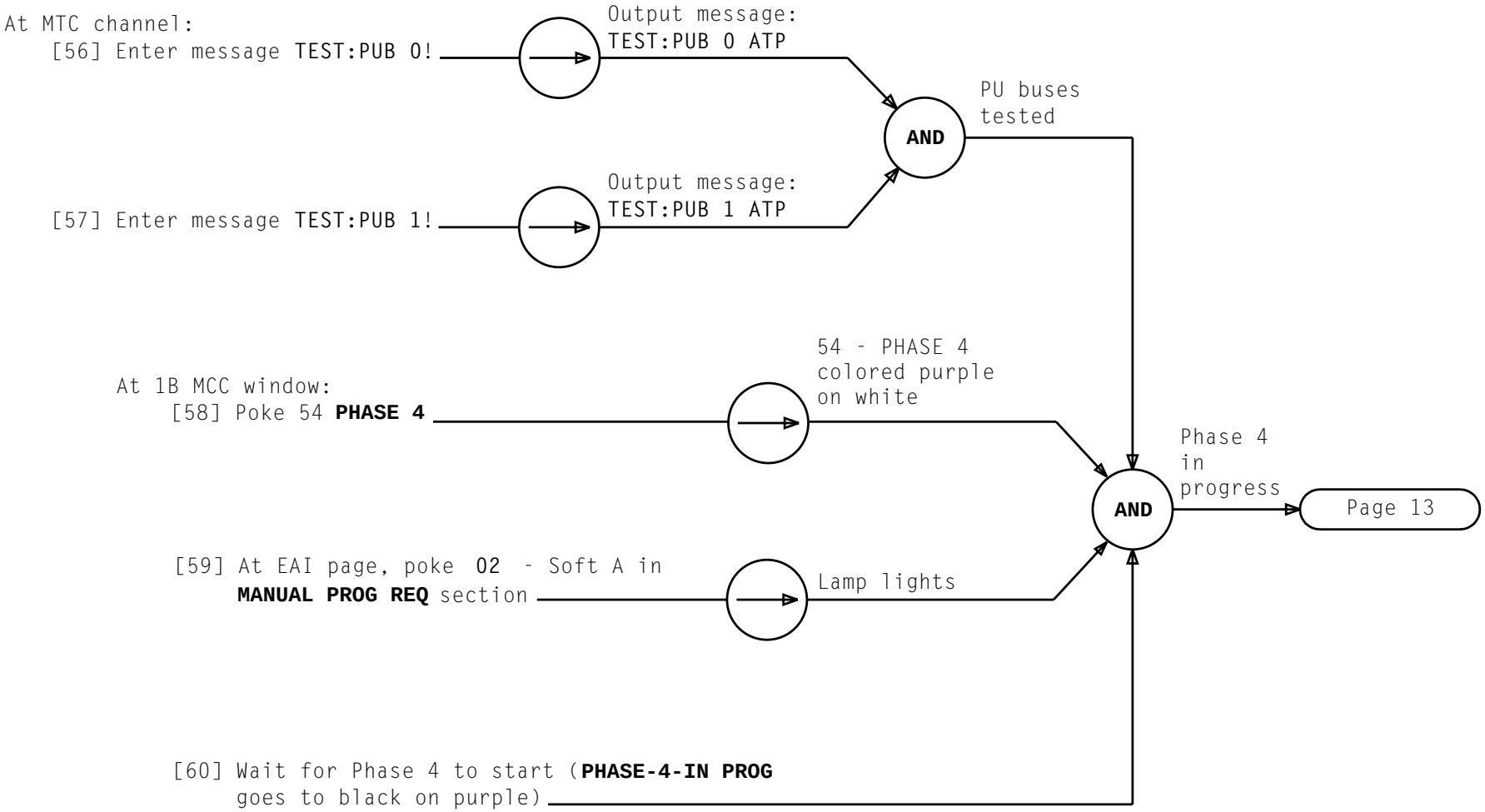
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



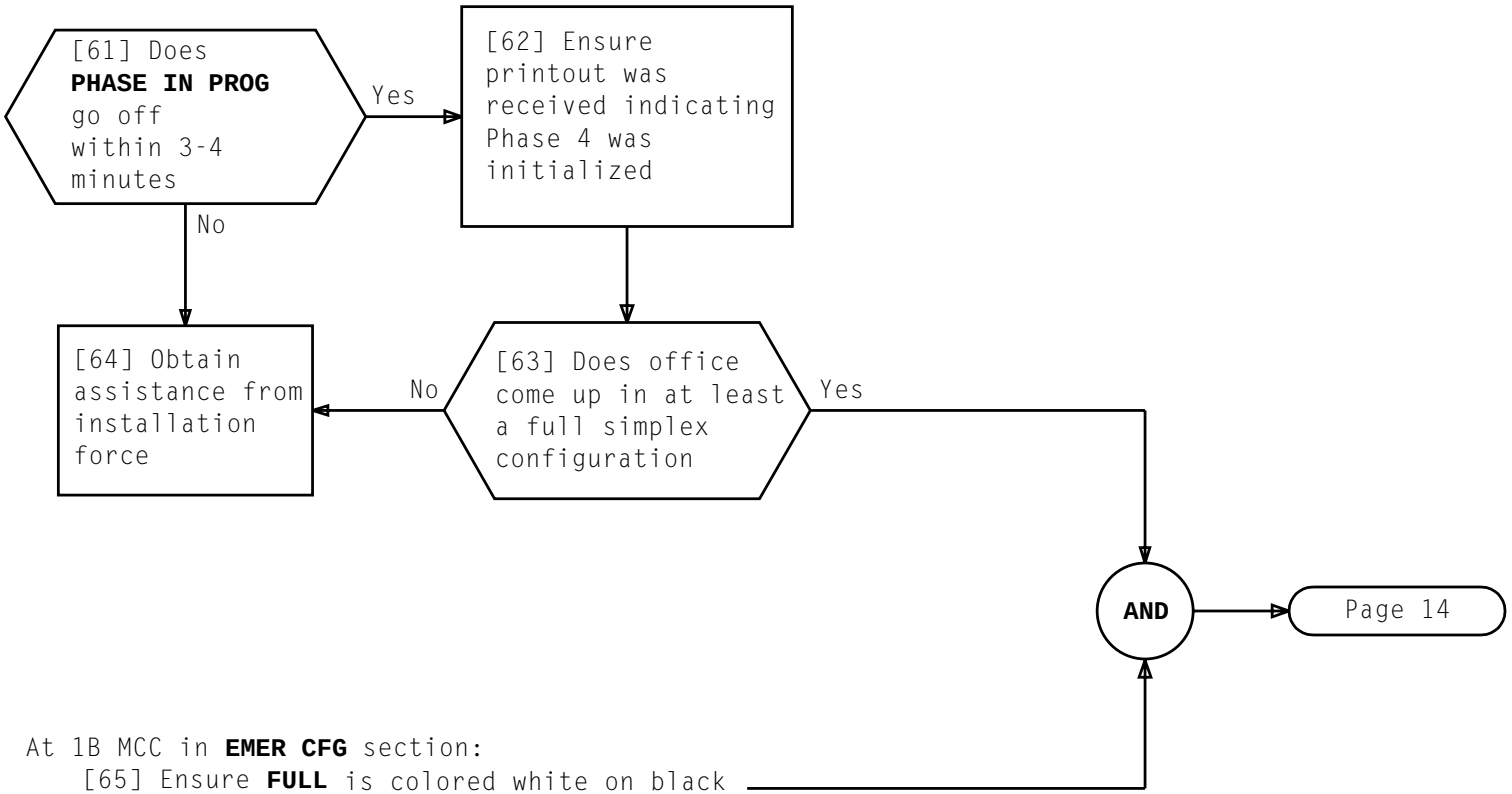
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



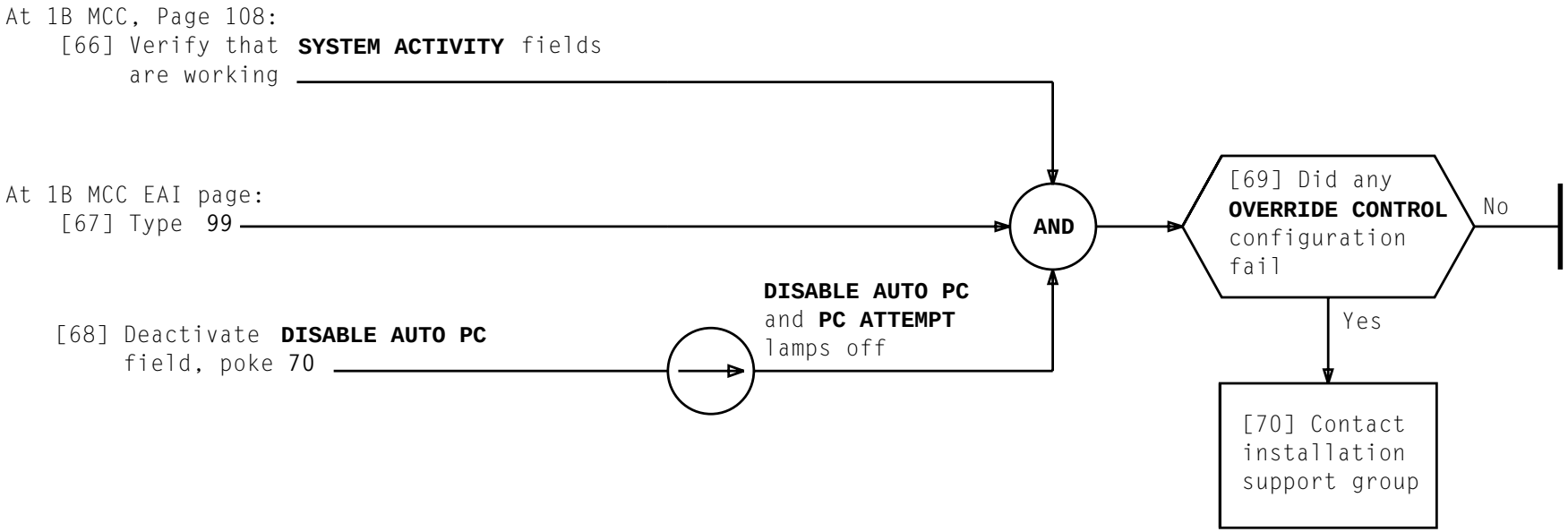
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION

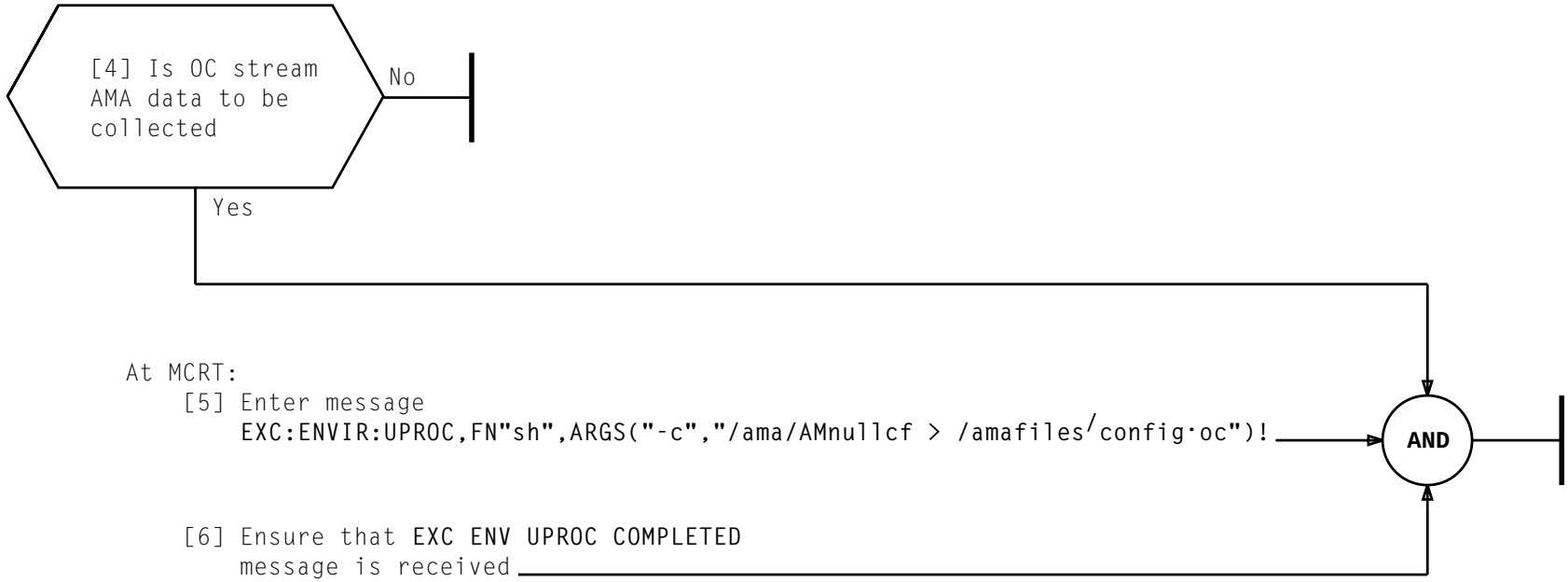


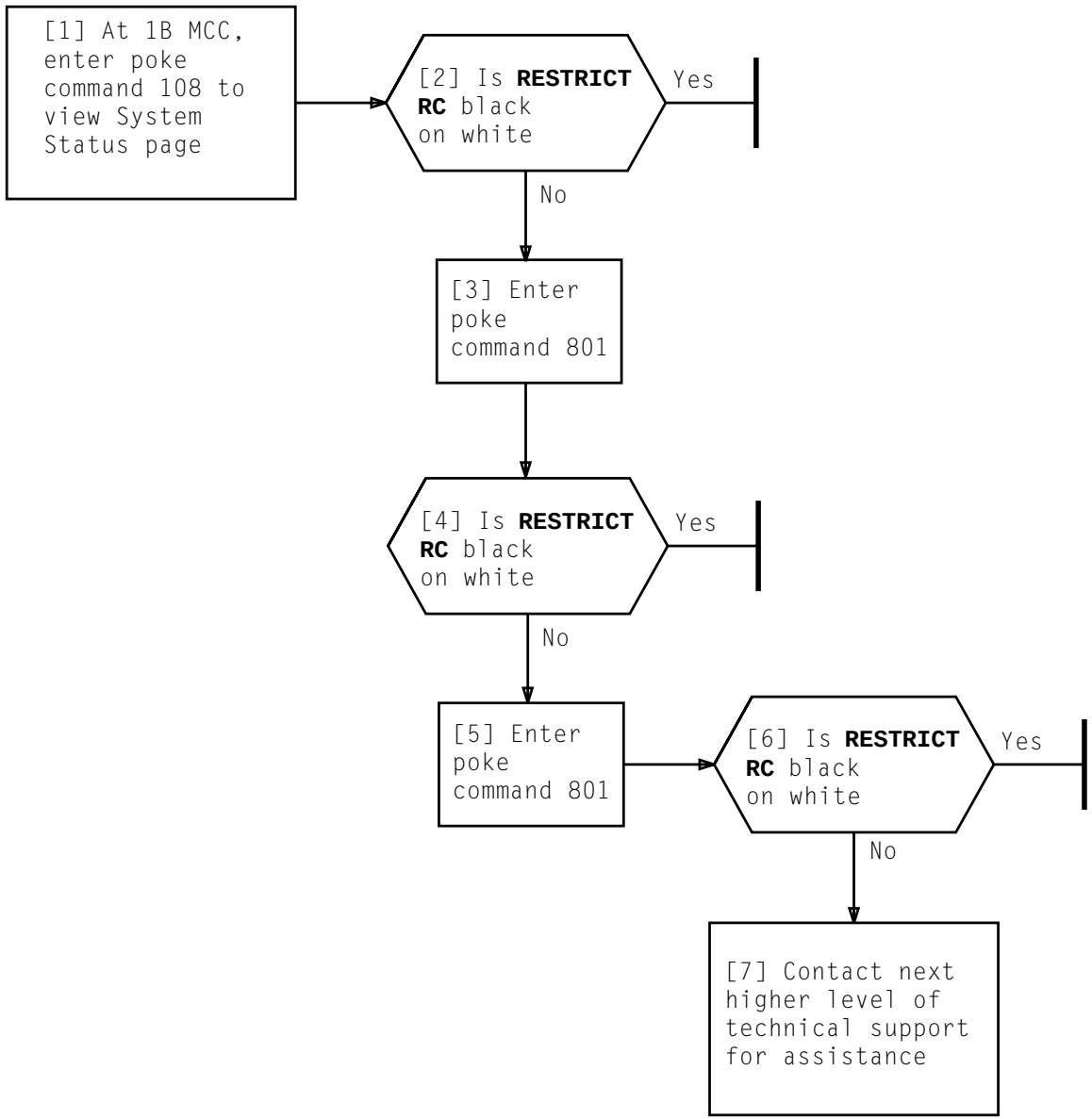
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION



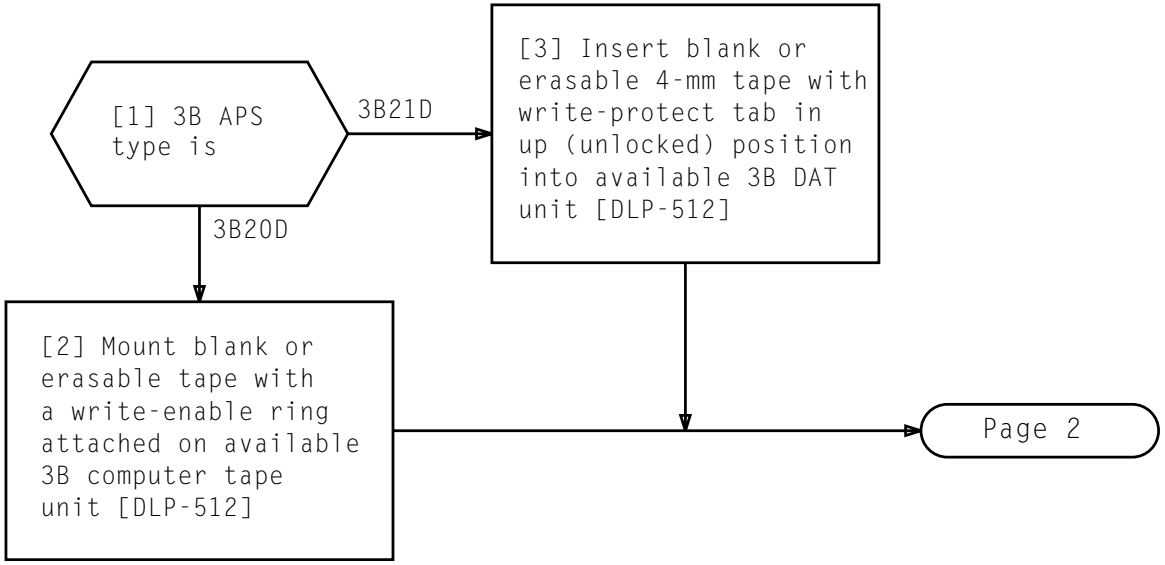
PERFORM ZERO START WITH EMERGENCY MODE — MINIMUM CONFIGURATION OPTION

ZERO AMA CONFIGURATION FILES

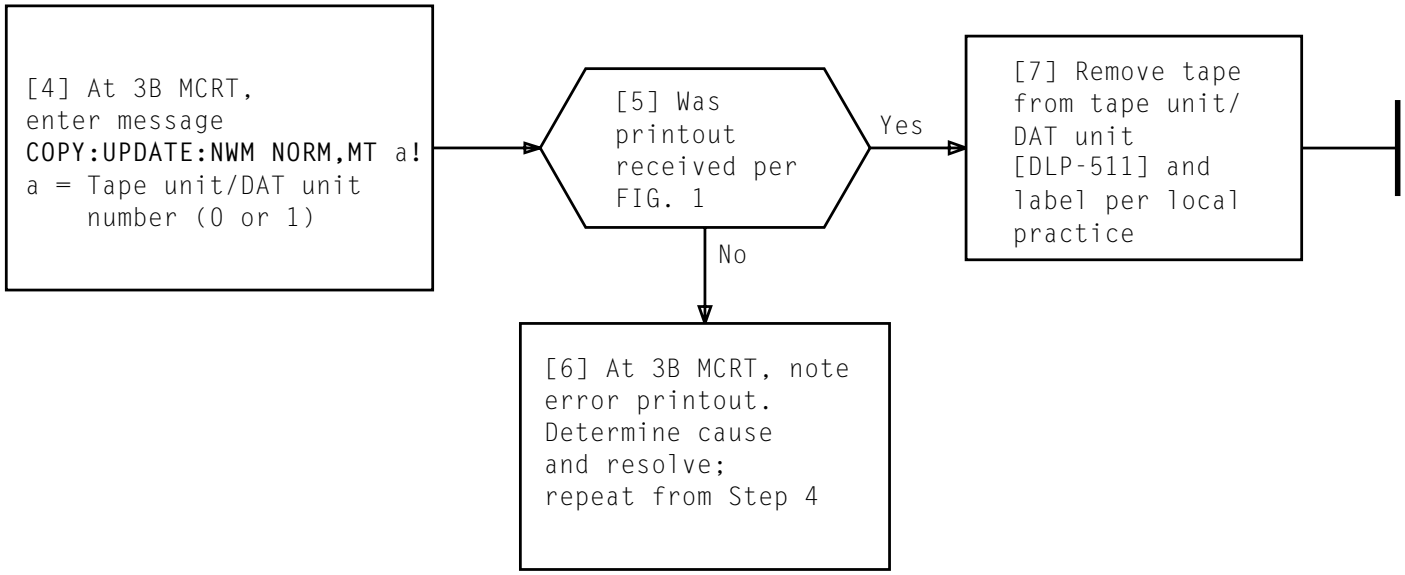

[4] Is OC stream AMA data to be collected
No
Yes
At MCRT:
[5] Enter message
EXC:ENVIR:UPROC,FN"sh",ARGS("-c","/ama/AMnullcf > /amafiles/config·oc")!
AND
[6] Ensure that EXC ENV UPROC COMPLETED message is received



VERIFY THAT RESTRICT RC IS ON



WRITE NETWORK MANAGEMENT (NWM) TAPE




```
COPY NWM FROM NORMAL FILE

TAPE FILE 10 WRITTEN FROM FS*

NWM TAPE WRITTEN

* MAY NOT BE RECEIVED
```

FIG. 1 — Sample NWM Tape Write Printout

WRITE NETWORK MANAGEMENT (NWM) TAPE

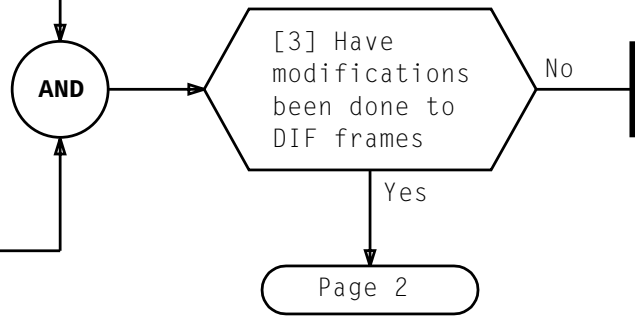
SUMMARY

This procedure may take about 3 hours to perform. It describes how to perform the low voltage tests for one +24 Volt Battery Plant. After completion of the +24 Volt "A" Battery Plant, it must be repeated for the +24 Volt "B" Battery Plant.

[1] Obtain the following:

1 Calibrated Ammeter – Clamp-on
1 AVTRON Load Box or equivalent
4 Calibrated Multimeters (Voltage)

[2] See WARNING before proceeding. At DIF frames, ensure that the appropriate modifications for operating on +24 volt plant have been done



WARNING
If modifications have not been done, service interruption will occur due to the powering down of the DIF frames

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PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT

Calibrate ammeters on Lineage Plant Controller bay:

[4] On calibrated 4 1/2-digit digital voltmeter, set meter to the millivolt scale

[5] At Power Plant return bus bar, measure voltage across the power plant shunt (use the two terminals with leads connected to them)

[6] Divide voltage measured in Step 5 by the **millivolt** rating stamped on end of shunt

[7] Multiply the result of Step 6 by the **current** rating stamped on end of shunt

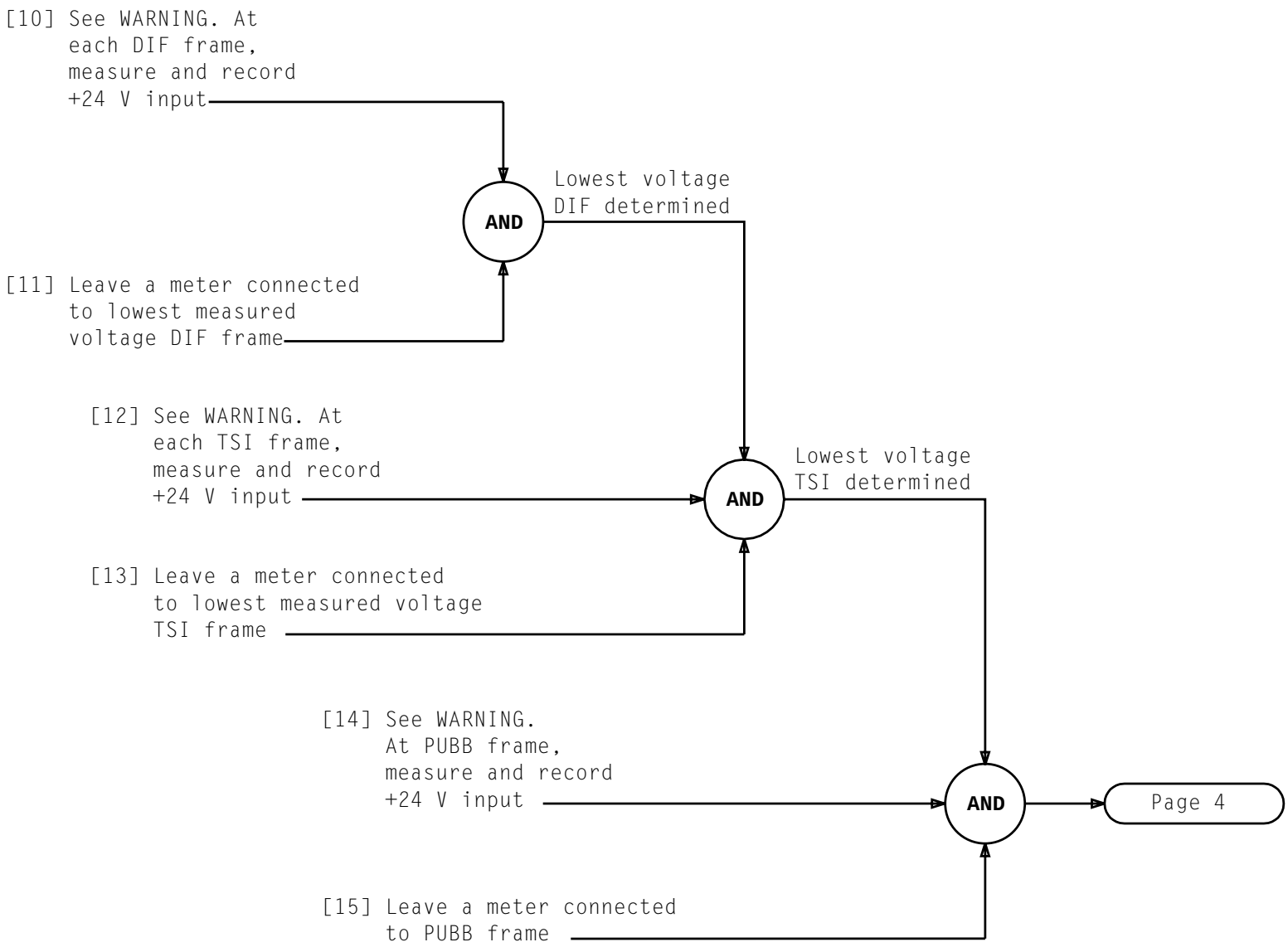
[8] Calibrate Lineage Plant Controller bay ammeter using the value calculated in Step 7

AND

[9] At common voltage source (Bus Bar located over the first battery string), connect all voltage meters, tag and note any difference in voltage readings of meters

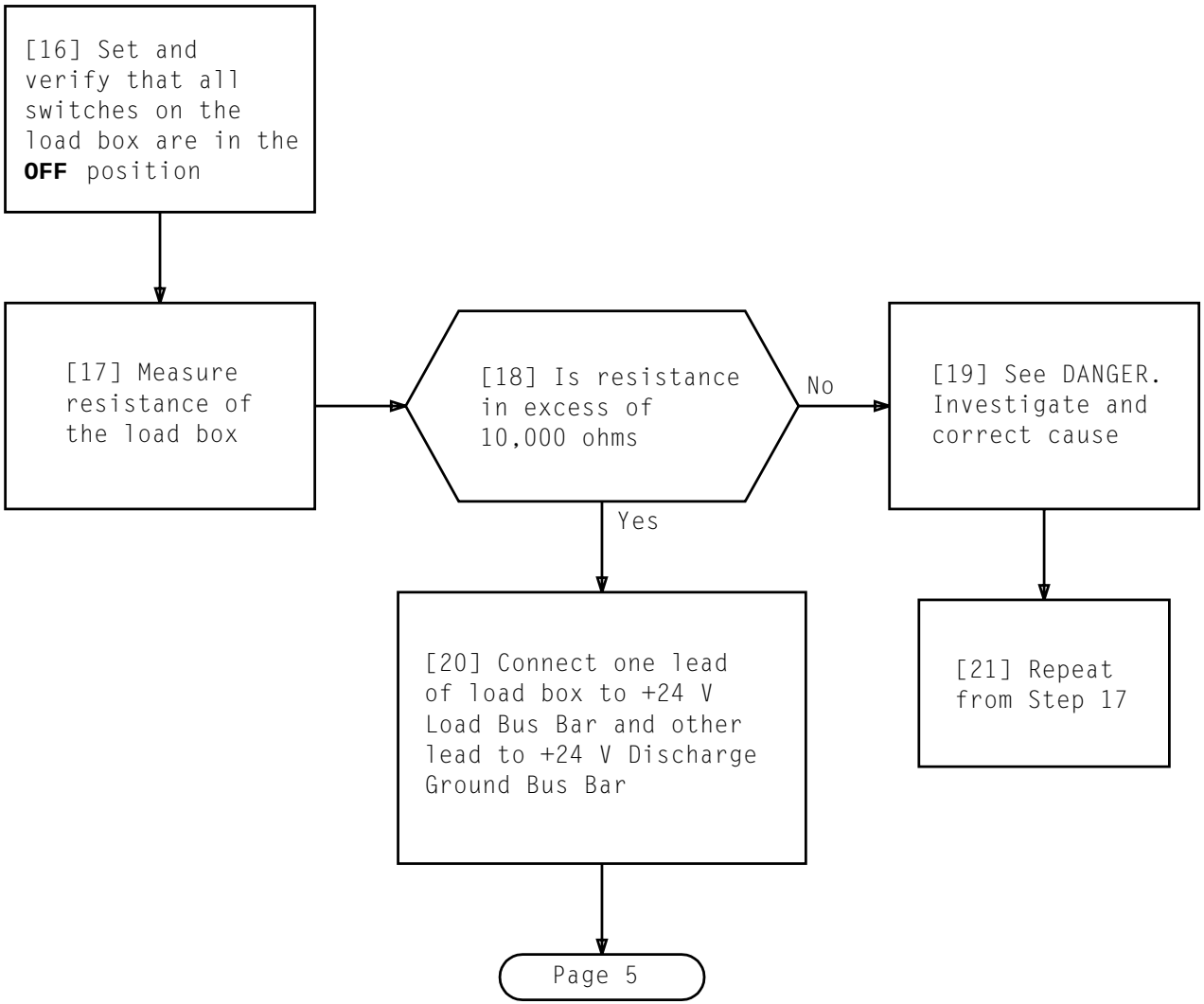
Page 3

PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT



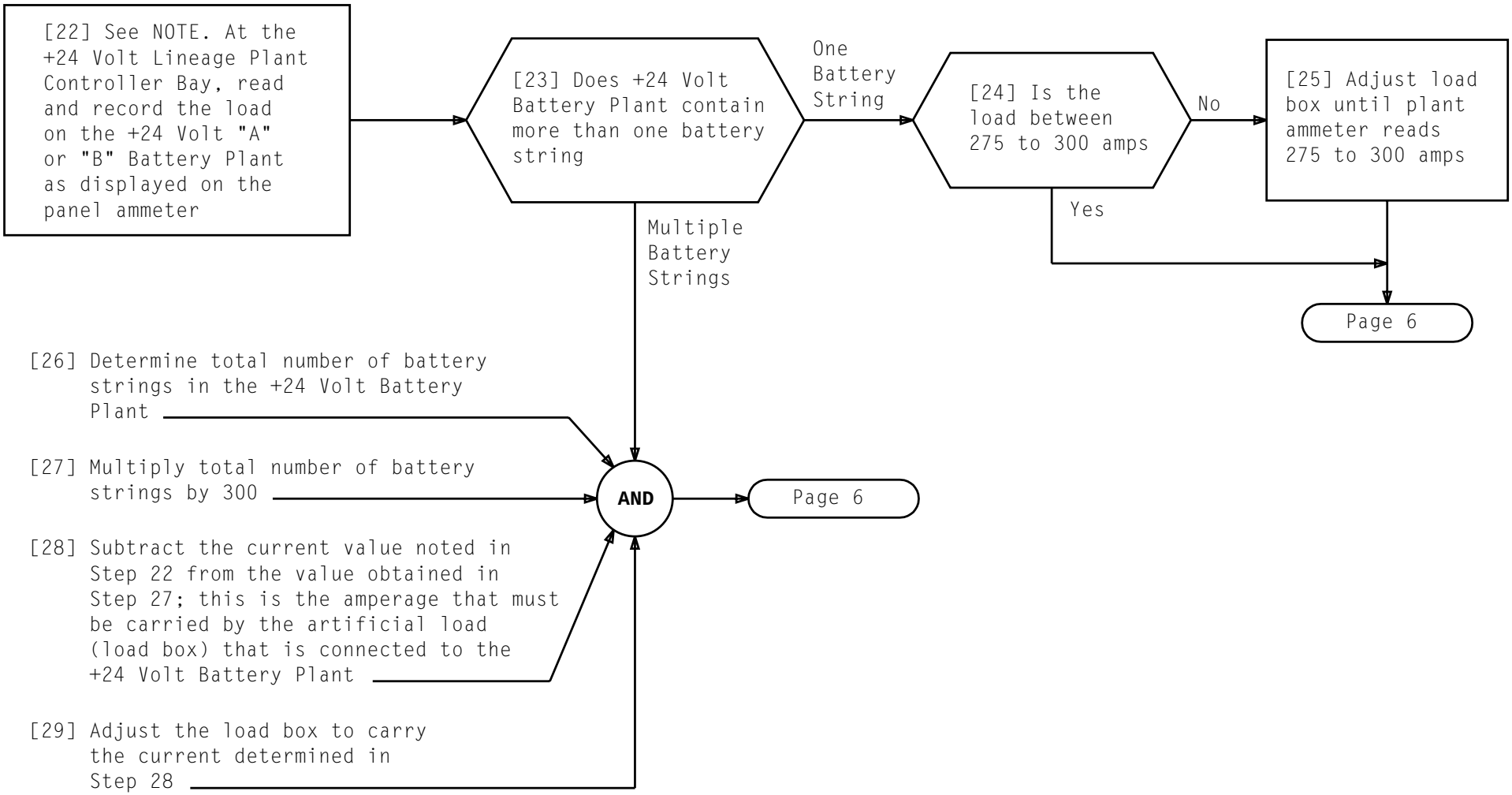
WARNING
If office is equipped with both "A" and "B" +24 volt plants, make certain that the output being monitored is fed from the plant being tested

PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT



DANGER
If resistance is less than 10,000 ohms, arcing will occur when leads are connected to +24 V Load Bus Bar and the +24 V Discharge Ground Bus Bar

PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT



NOTE
A drain of 275 to 300 amps per battery string is required

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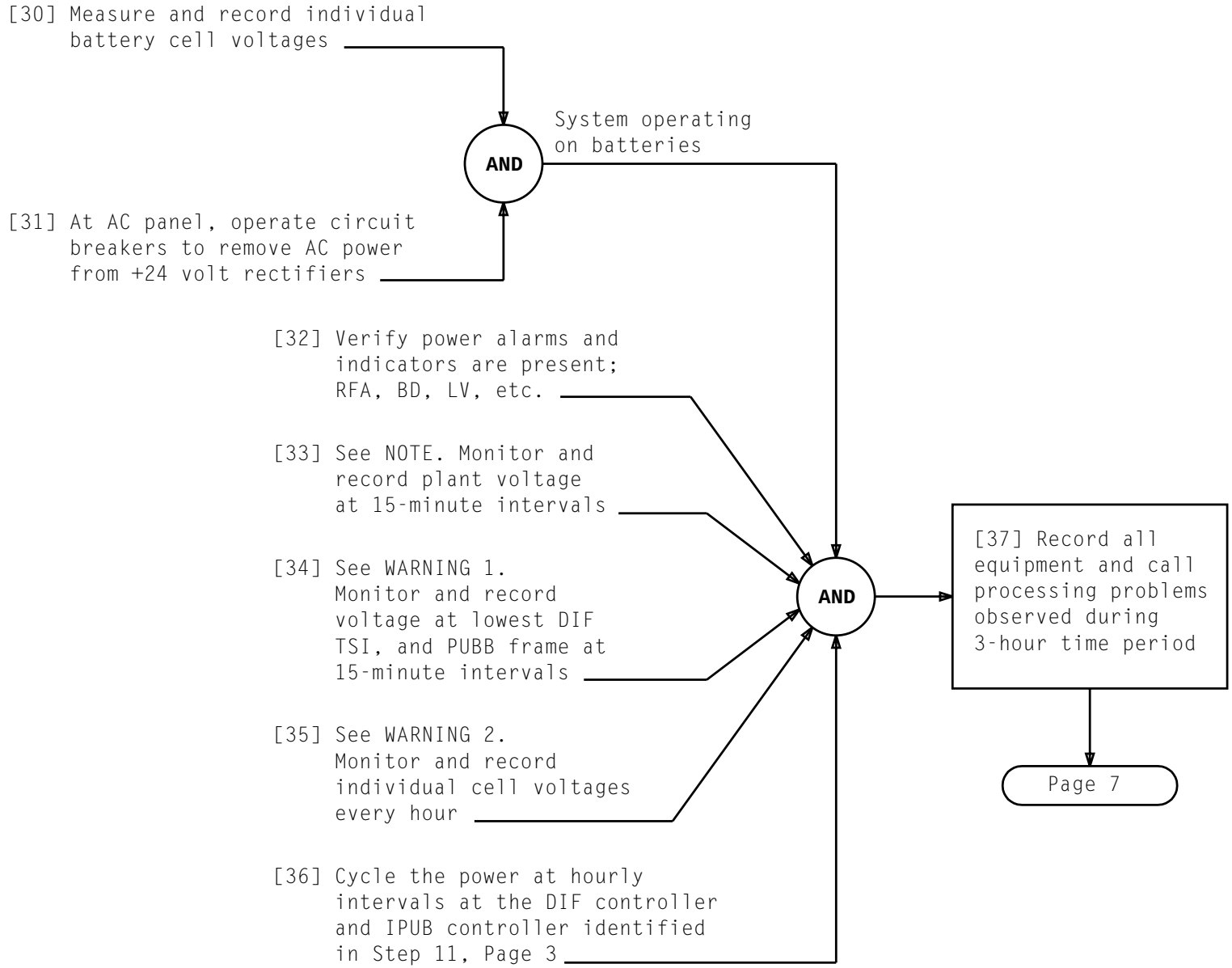
PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT

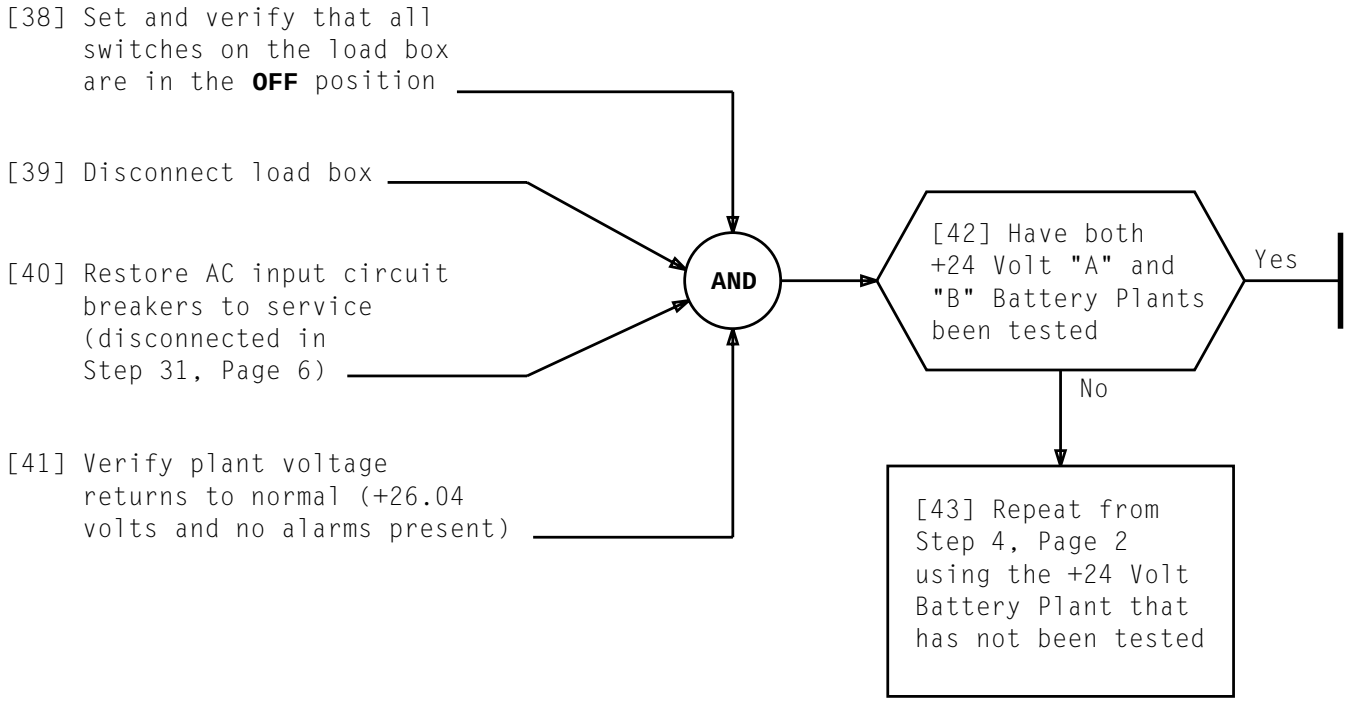


NOTE
Monitoring and measurements will be done over a 3-hour time period

WARNINGS

1. *If Plant Voltage drops to, or below 21.0 volts at equipment, terminate test immediately and recharge batteries at 26.04 volts for 12 hours before restarting this test*
2. *If any cell drops to 1.75 volts, terminate test immediately and recharge batteries at 26.04 volts for 12 hours before restarting this test*

PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT



PERFORM LOW VOLTAGE TEST ON +24 VOLT BATTERY PLANT

SUMMARY

This procedure may take about 3 hours to perform. After completion of the –48 Volt "A" Battery Plant, it must be repeated for the –48 Volt "B" Battery Plant.

It describes the low voltage tests for one –48 Volt Battery Plant.

[1] Obtain the following:
1 Calibrated Clamp-on Ammeter
1 AVTRON Load Box or equivalent
4 Calibrated Multimeters (Voltage)

Calibrate ammeters on Lineage Plant Controller bay:

[2] On calibrated 4 1/2-digit digital voltmeter, set meter to the millivolt scale

[3] At Power Plant return bus bar, measure voltage across the power plant shunt (use the two terminals with leads connected to them)

[4] Divide voltage measured in Step 3 by the **millivolt** rating stamped on end of shunt

[5] Multiply the result of Step 4 by the **current** rating stamped on end of shunt

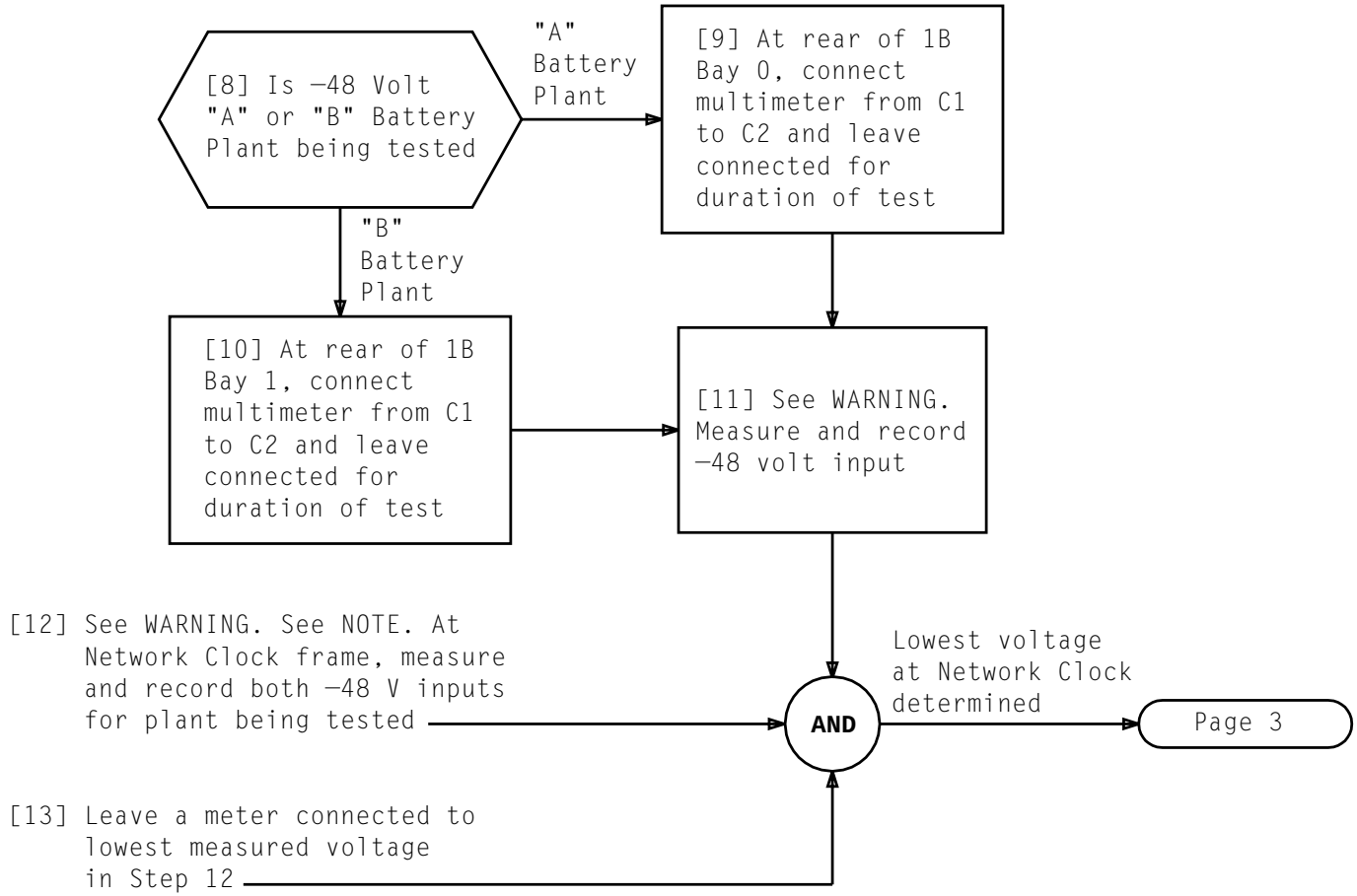
[6] Calibrate Lineage Plant Controller bay ammeter using the value calculated in Step 5

AND

[7] At common voltage source (Bus Bar located over the first battery string), connect all voltage meters, tag and note any difference in voltage readings of meters

Page 2

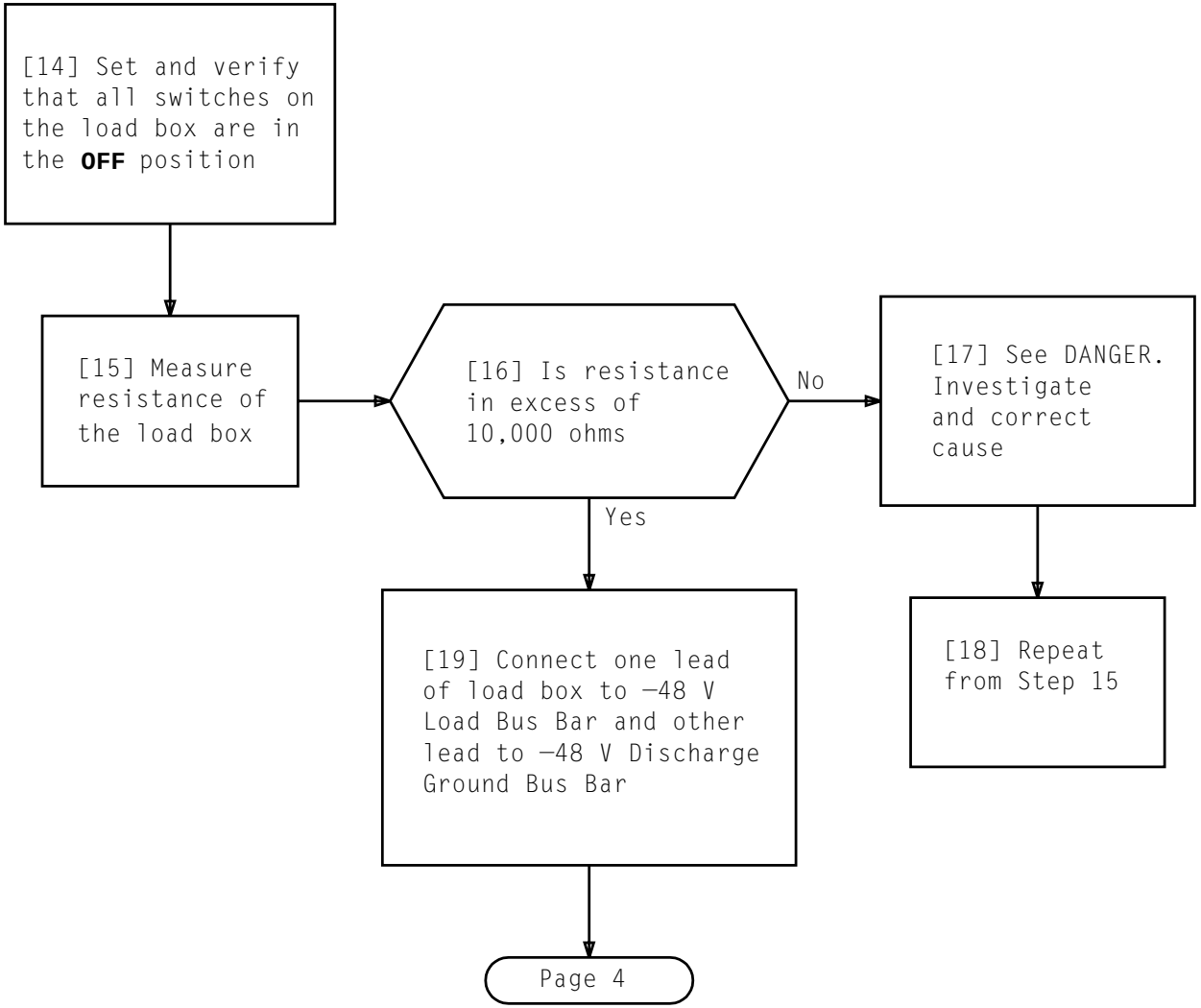
PERFORM LOW VOLTAGE TEST ON –48 VOLT BATTERY PLANT



NOTE
If "A" Battery Plant is being tested, measure both –48 V "A" inputs. If "B" Battery Plant is being tested, measure both –48 V "B" inputs

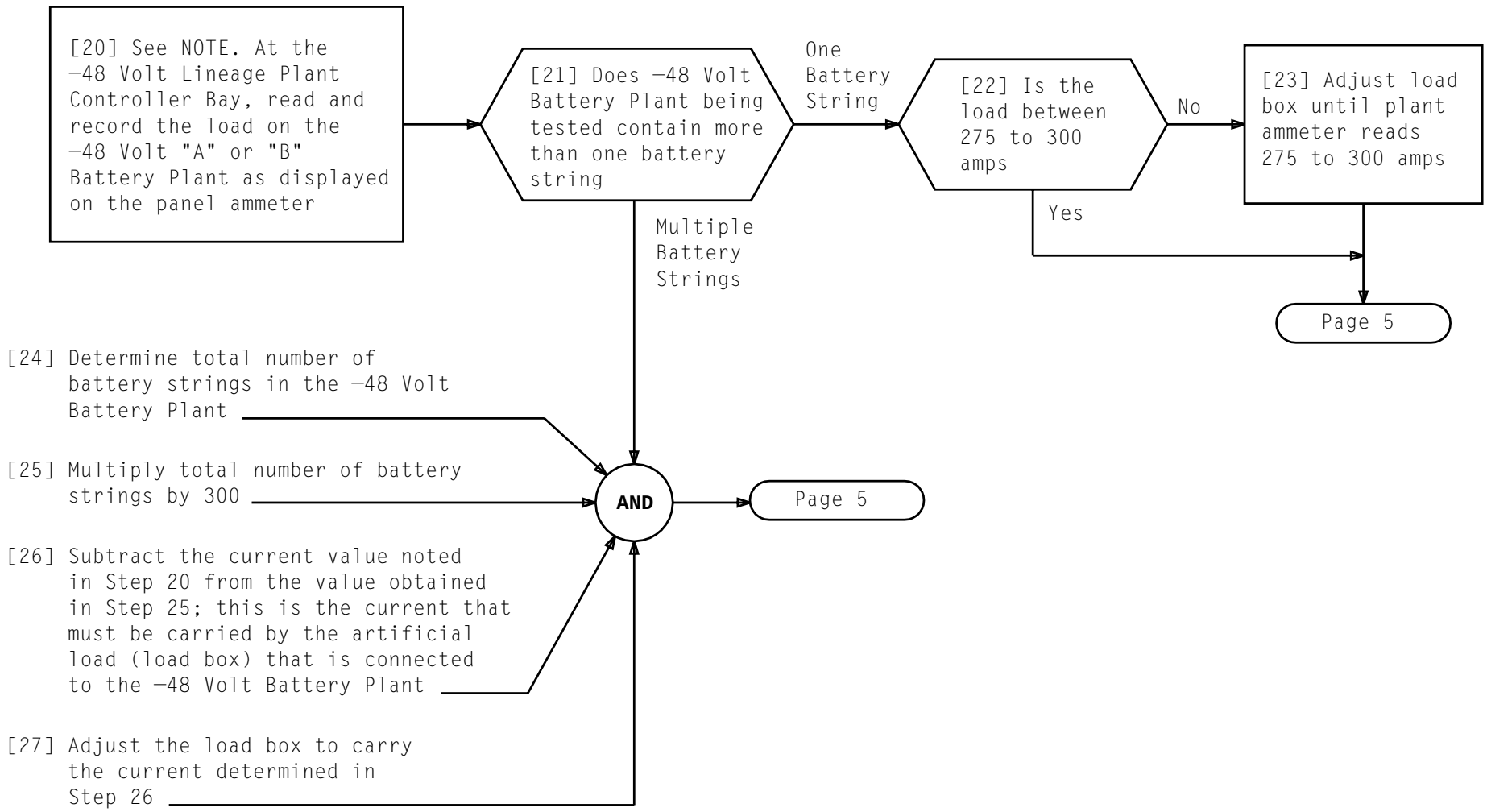
WARNING
If office is equipped with both "A" and "B" –48 V plants, make certain that the output being monitored is fed from the plant being tested

PERFORM LOW VOLTAGE TEST ON –48 VOLT BATTERY PLANT



DANGER
If resistance is less than 10,000 ohms, arcing will occur when leads are connected to –48 V Load Bus Bar and the –48 V Discharge Ground Bus Bar

PERFORM LOW VOLTAGE TEST ON –48 VOLT BATTERY PLANT



NOTE
A drain of 275 to 300 amps per battery string is required

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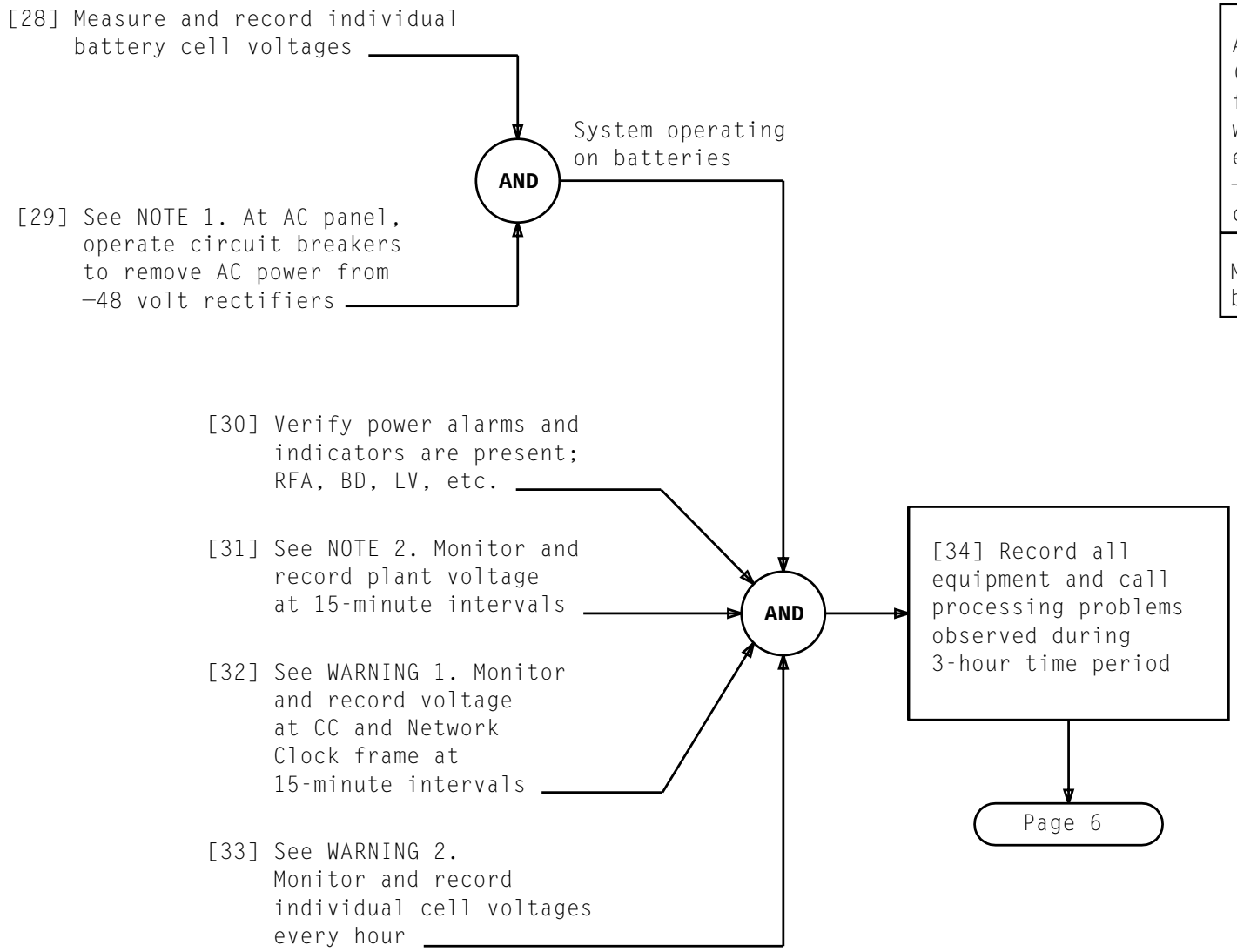
PERFORM LOW VOLTAGE TEST ON −48 VOLT BATTERY PLANT



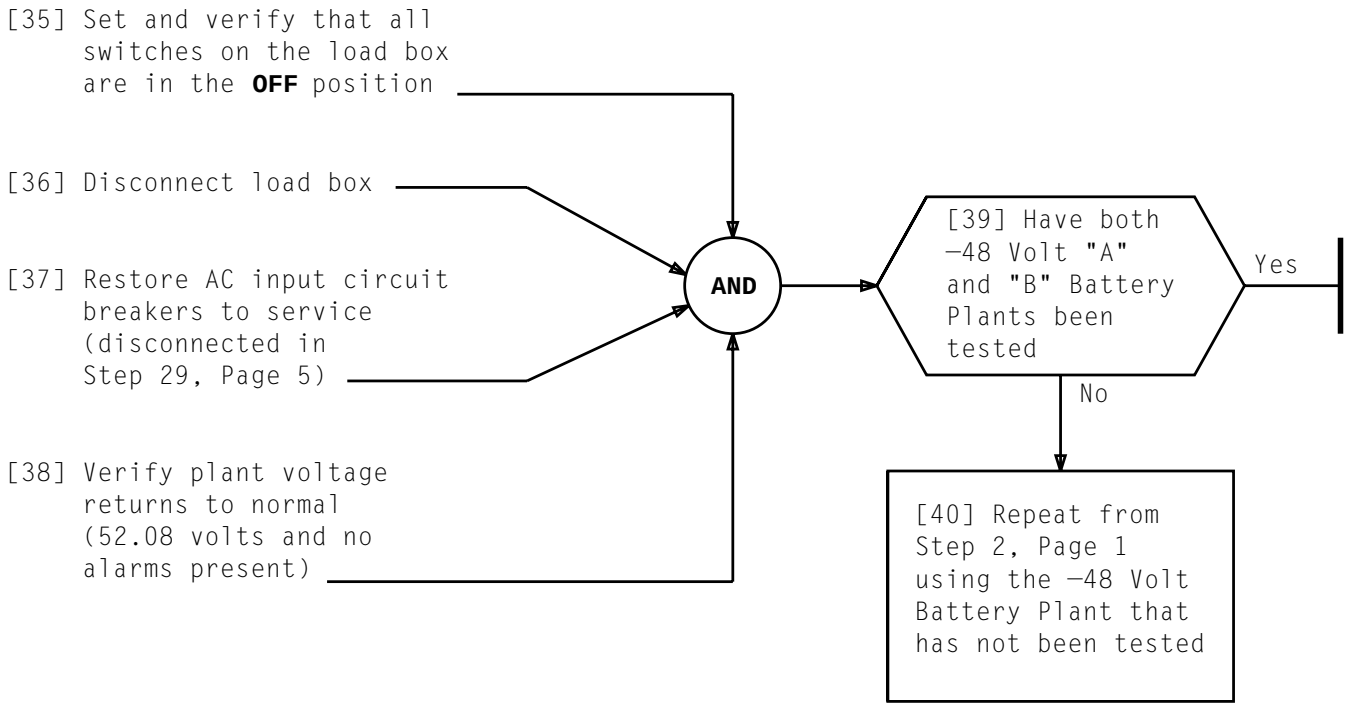
NOTE 1
A load shift to the alternate ("A" or "B") plant, resulting from "ORing" diode operation within the same loads, may be experienced when discharging –48V plants; plant tests should continue

NOTE 2
Monitoring and measurements will be done over a 3-hour time period

WARNINGS

1. *If Plant Voltage drops to, or below 43.0 volts at the equipment, terminate test immediately and recharge batteries at 52.08 volts for 12 hours before restarting this test*
2. *If any cell drops to 1.75 volts, terminate test immediately and recharge batteries at 52.08 volts for 12 hours before restarting this test*

PERFORM LOW VOLTAGE TEST ON –48 VOLT BATTERY PLANT



PERFORM LOW VOLTAGE TEST ON –48 VOLT BATTERY PLANT

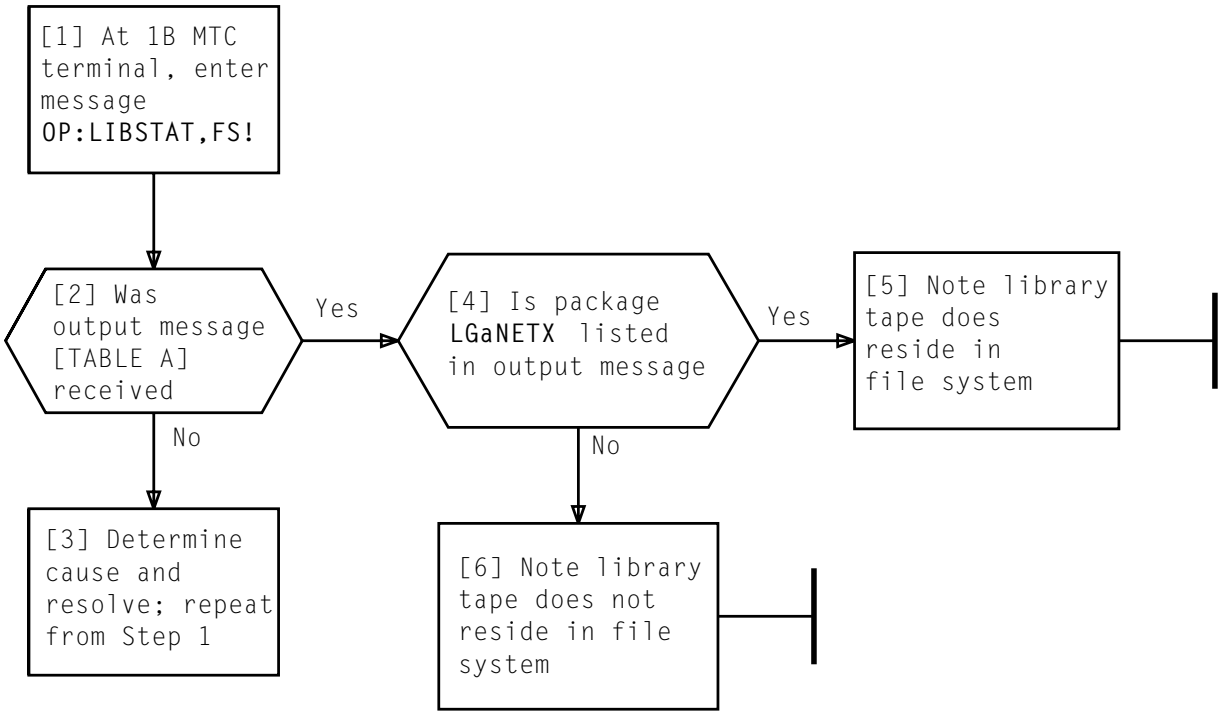


TABLE A

MESSAGE NUMBER	OUTPUT MESSAGE
1	OP:LIBSTAT FS PF OP:LIBSTAT COMPLETED FS LIBRARY DIRECTORY PKG NAME ADDRESS LENGTH . . . .

DETERMINE IF LIBRARY TAPE CONTAINING PROGRAM TO BE USED RESIDES IN FILE SYSTEM

Added

[1] If tape is to be written, attach write-enable ring on supply reel

[2] If **LOGIC OFF** LED lighted, touch **LOGIC ON** switch

[3] Open dust cover and verify circuit breaker at side 1

[4] See FIG. 2. Place supply reel on hub and depress hub latch

[5] Thread tape from bottom of supply reel along path as shown in FIG. 2

[6] Hold end of tape against take-up reel and wrap several turns clockwise by rotating reel; then close dust cover

[7] At control panel, touch **LOAD/REWIND** switch

AND

[8] Does tape move and stop, and is **BOT** LED lighted

Yes

[11] Touch **ON LINE** switch

No

[9] Touch **RESET** switch, attach beginning of tape (BOT) marker, and repeat from Step 18

No

[10] To clear fault, refer to TOP 254-301-812

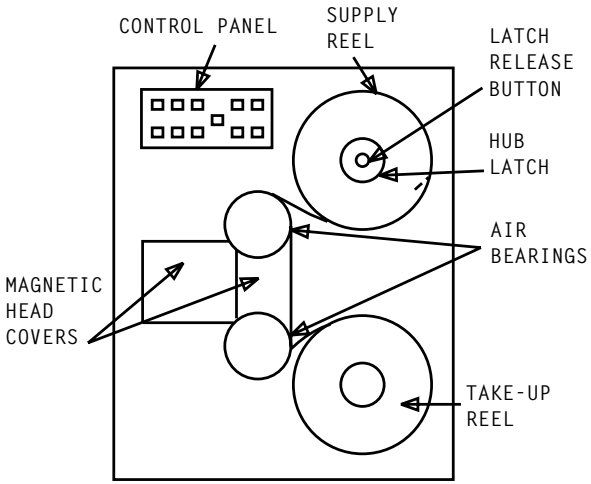
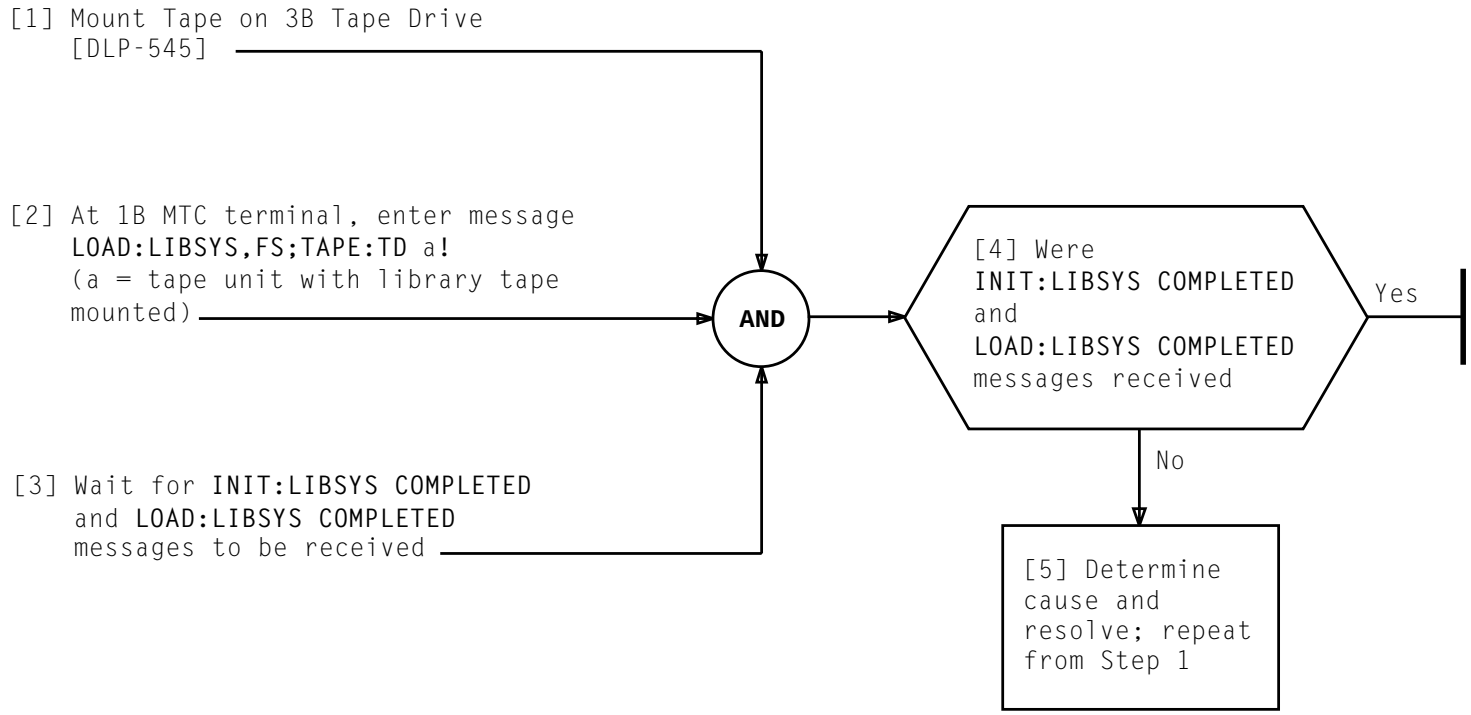
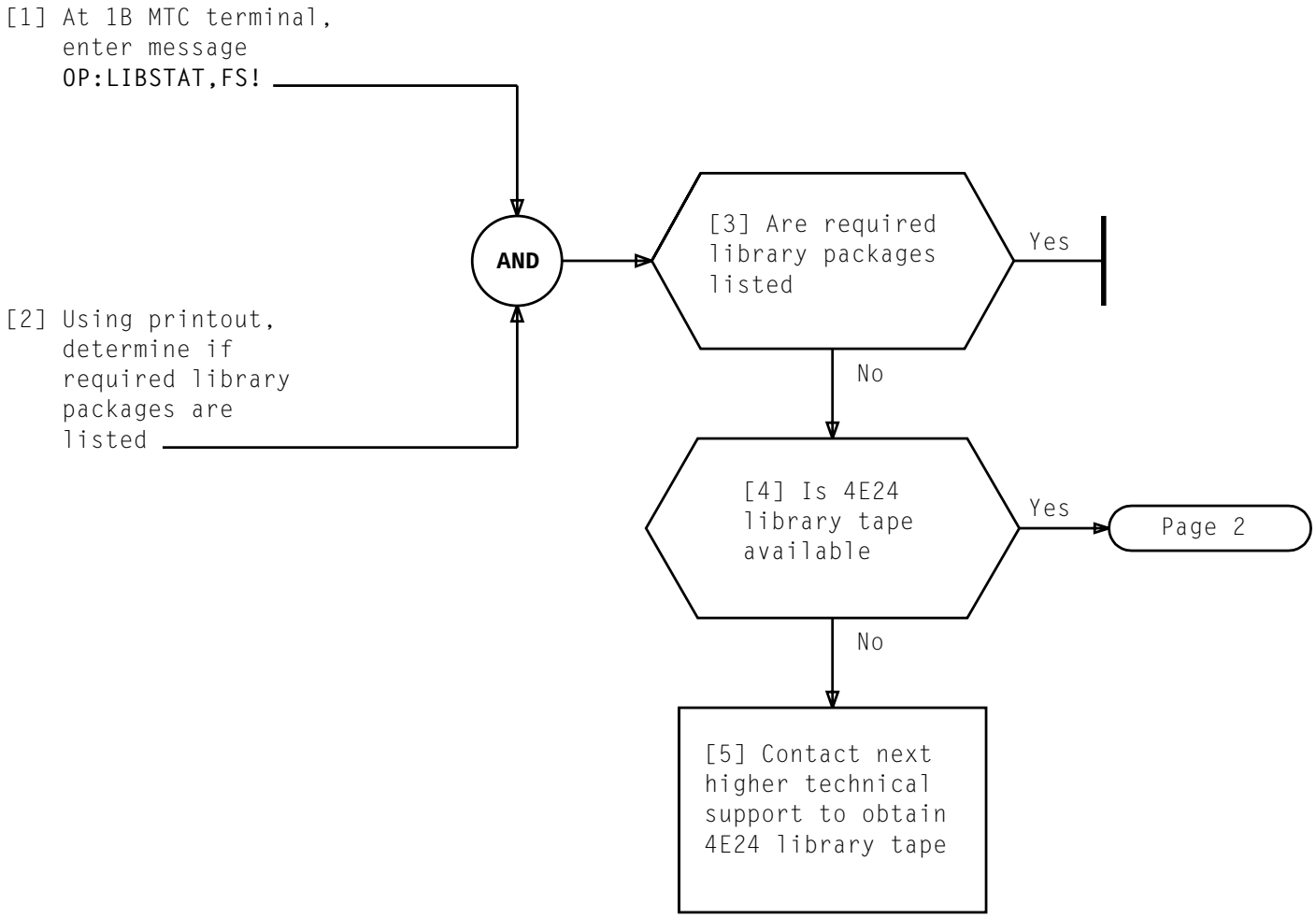


FIG. 1

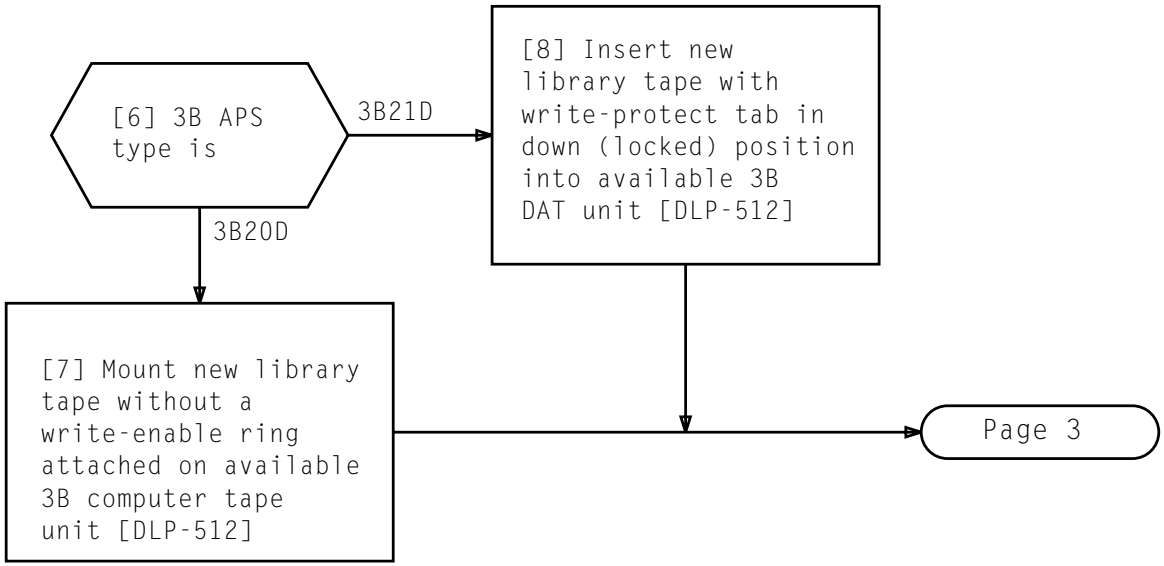
MOUNT TAPE ON 3B TAPE UNIT



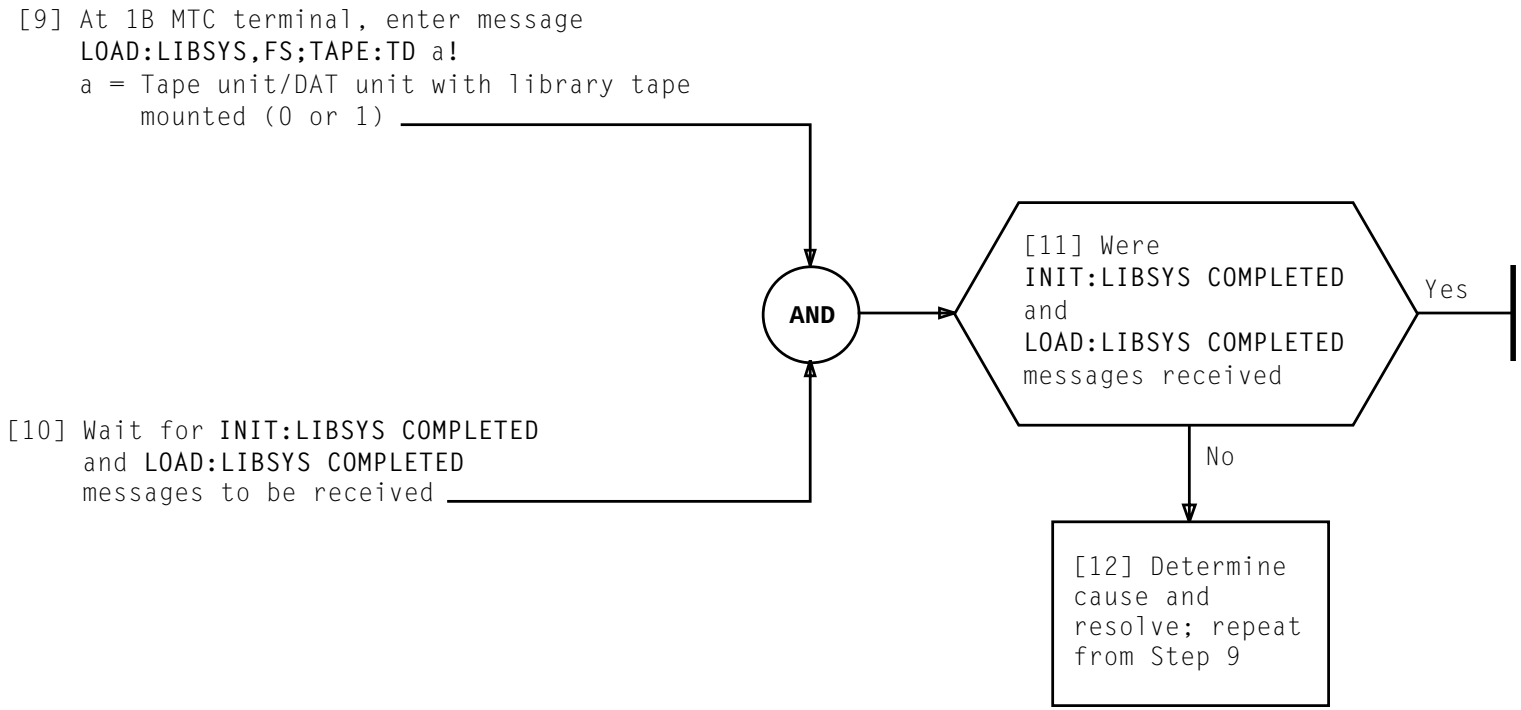
LOAD LIBRARY PROGRAM PACKAGES FROM ORIGINAL TAPE ONTO DISK



LOAD LIBRARY PROGRAM PACKAGES FROM BACKUP TAPE ONTO DISK



LOAD LIBRARY PROGRAM PACKAGES FROM BACKUP TAPE ONTO DISK



LOAD LIBRARY PROGRAM PACKAGES FROM BACKUP TAPE ONTO DISK

1. Enter Message **SET:NETROUT;**xxxx**:MEMN** a!

   xxxx = network routing path to be tested (NORM, RTSI, TTSI, and BOTH)

   Note: Member number entered must be an even number; for example, member numbers ten and eleven are used if ten is entered in conjunction with this message. An error message will be printed if the companion number is entered.

   a = even member number of XTSI to be tested

   Response: SET: NETROUT; xxxx: MEMN a COMPLETED
   NETWORK ROUTING TABLE UPDATED
   TSI RESTORE REQUESTED.

2. Step 1 must be repeated for each pair of member numbers (XTSI frame) to be tested.

End of procedure

SET NETWORK ROUTING

1.0 Copy NETEX from file store to program store and begin executing idle loop; enter message
EX:LIBSYS:PKG LGxNETX,PGM NETX,TASK 0,CLIENT 0!
x = current generic program

Response: Prompt output message indicating office status

2.0 Observe prompt output message and note if office translations indicate precut or in-service office status

2.1 If precut status is indicated:

1. Enter message to terminate program **(IN:LIBSYS:CLIENT 0,ASC(NO)!)**

2. Contact support group or NESAC for applicable overwrites.

3. Execute overwrites to set office status to in-service.

4. Repeat from 1.0.

2.2 Enter message **IN:LIBSYS:CLIENT 0,ASC(YES)!**

End of procedure

EXECUTE NETX LIBRARY PROGRAM AND SET OFFICE TRANSLATIONS TO IN-SERVICE

Added

1. Observe following prompt output message:
   NETX ENTER AVERAGE OCCUPANCY ON SPCS DESIRED — DEC(50-960)
   RANGE 841-960 IS APPLICABLE TO XTSI

2. Enter message IN:LIBSYS:CLIENT 0,DEC(xxx)!
   xxx = occupancy level desired

   NOTE 1: NETX should be set to 200 connect level during initial NETX testing; however occupancy level requested must be less than the number of trunks available on growth XTSI.

   NOTE 2: If NETX testing is terminated to run audits, restart NETX program at the same connect level before termination unless otherwise instructed.

   Response: NETX ENTER TSI MEMBER NUMBERS — DEC(0-63)
   NETX CAUTION, CAN ONLY ENTER NEWLY GROWN TSI MEMNS

   NOTE: Member numbers entered must be an even number; for example, member numbers ten and eleven are used if a ten is entered in conjunction with use message. An error message will be printed if companion number is entered.

3. Enter Message IN:LIBSYS:CLIENT 0,DEC(a)!
   a = even-numbered growth XTSI

   Response: NETX ENTER RUN TO START THE EXERCISE - ASC(RUN)

Continued on Page 2

INPUT INITIAL NETX PROGRAM EXECUTION DATA

4. Enter message: IN:LIBSYS:CLIENT 0,ASC(RUN)!

Response: NETX EXERCISE IN PROGRESS
NETX TRUNK AUDIT IS RUNNING.
NETX IO WILL BE LOCKED OUT UNTIL AUDIT IS COMPLETE.
REPT:NETX TRUNK AUDIT COMPLETE. NETX IO IS UNLOCKED.
REPT: NETX THE FOLLOWING AUDITS HAVE BEEN INHIBITED BY NETEX:
8 16 19 27 28 29 32 33 34 36 46 48 52
DO NOT RELEASE THESE AUDITS WHILE NETEX IS RUNNING.
THESE AUDITS MUST BE RELEASED AFTER NETEX HAS BEEN TERMINATED.
and additional output messages indicating
XTSI/SPC and number of trunks available for
testing

End of procedure

[15] At digital audio tape (DAT) unit that contains tape to be removed, depress eject button [FIG. 1]

[16] Was tape just written

No

Yes

[17] Put write-protect tab in the down (locked) position [FIG. 2]

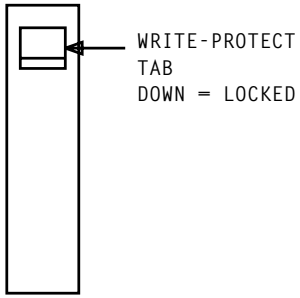


FIG. 2 — 4-mm Tape

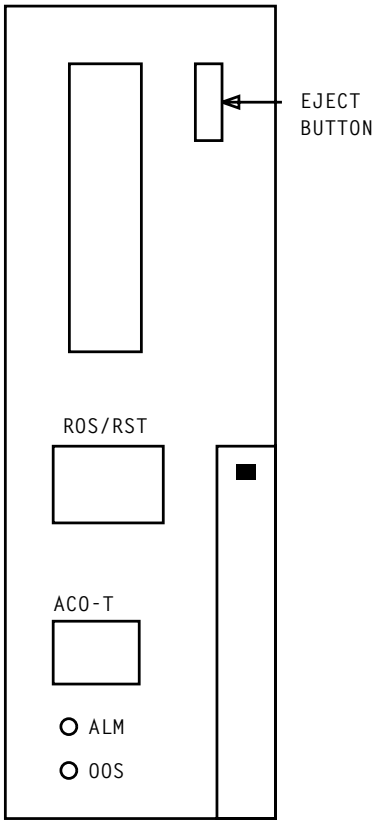


FIG. 1 — DAT Unit

REMOVE TAPE FROM 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT

1. Enter message to terminate NETX
   IN:LIBSYS:CLIENT 0,ASC(TRM)!

2. Wait for message
   EX: LIBSYS: PKG LGxNETX, PGM NETX, CLIENT 0
    COMPLETED

3. Enter message to allow audits
   ALW:AUD:NUM(8,16,19,27,28,29,32,33,34,36,46,48,52)!

4. Enter message to run audits and ensure no errors
   received
   AUD:NUM(8,16,27,28,29,32,36,46,48)!

5. Enter message to run audit 19 and ensure
   no errors received
   AUD:NUM 19!

6. Enter message to run audit 34 and
   ensure no errors received
   AUD:NUM 34!

7. Enter message OP:PERIFINH;UCL! and ensure that no
   additional pests are set. Investigate any errors
   and clear as appropriate

End of procedure

TERMINATE NETX AND RUN AUDITS

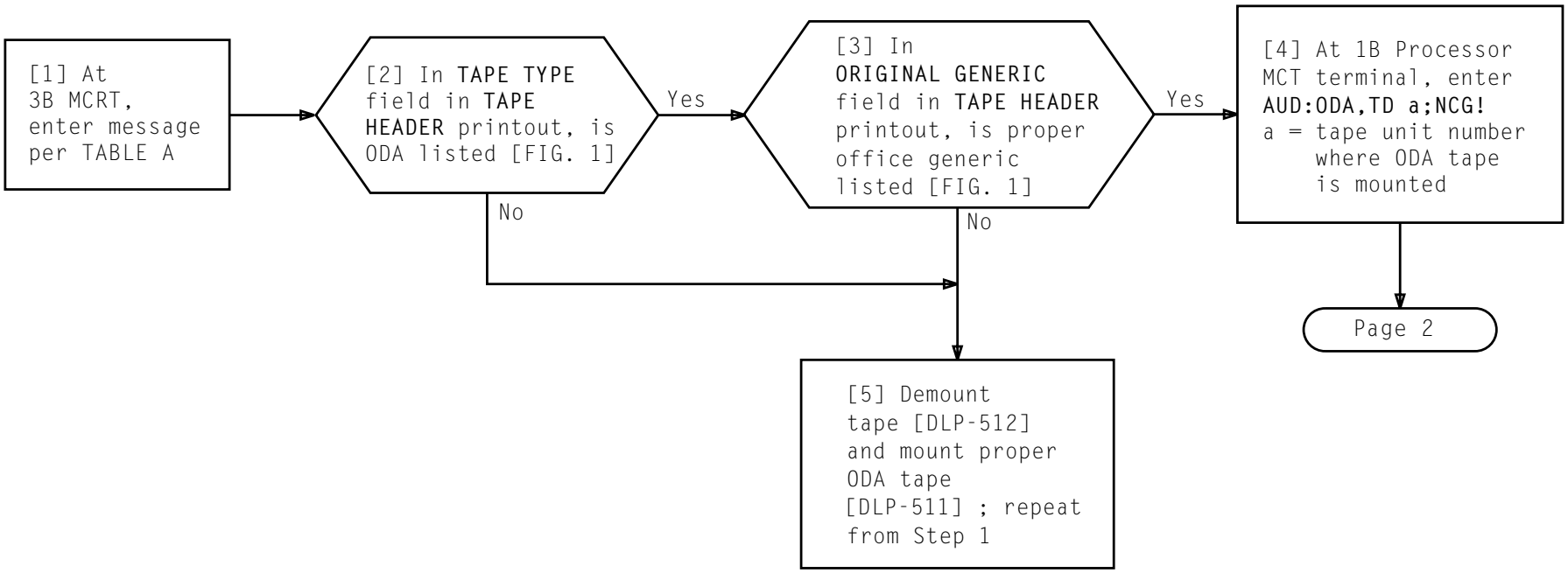
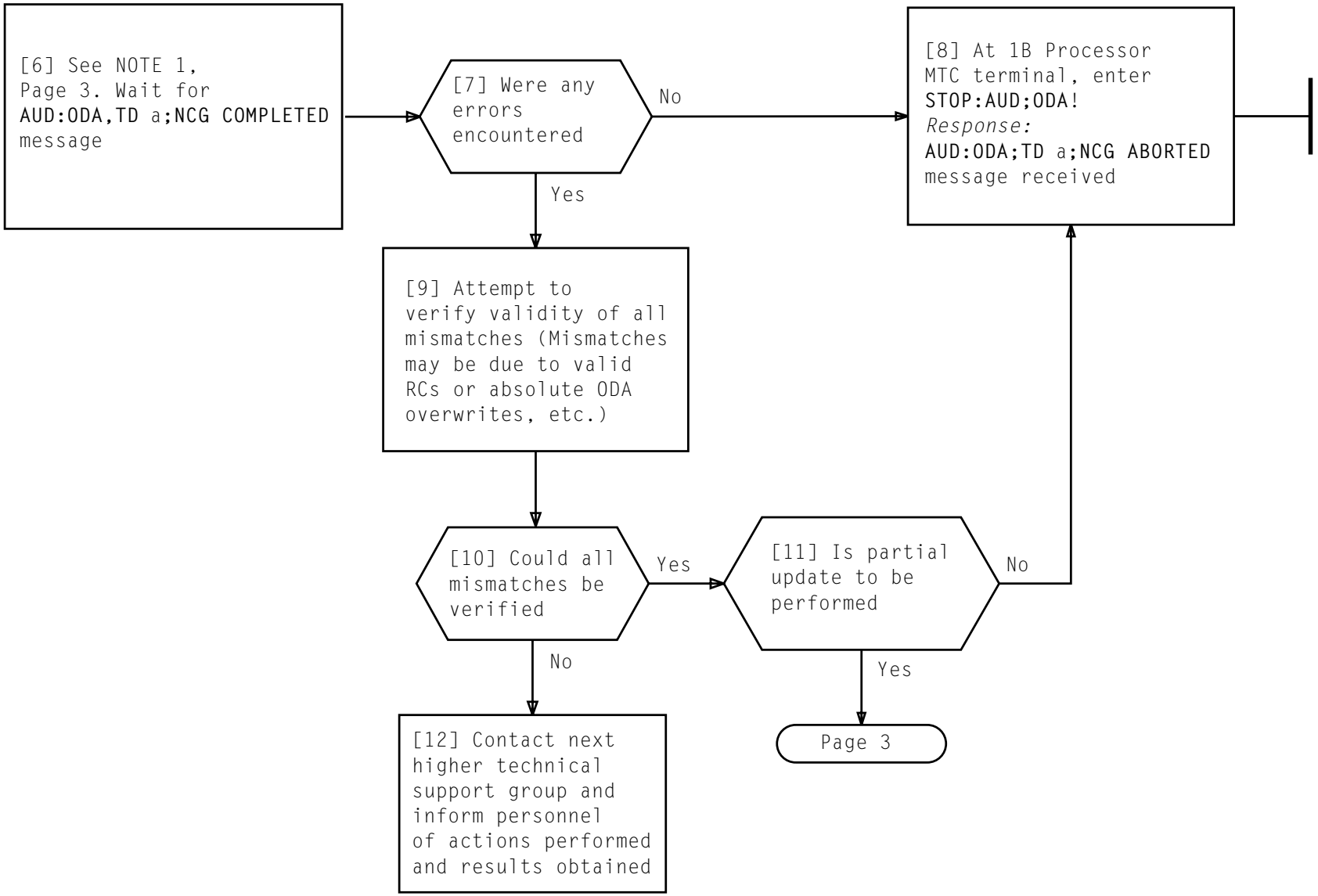


TABLE A	
MESSAGE NUMBER	**INPUT MESSAGE**
1	VER:UPDATE:TAPE,MT a
a = Tape unit number that ODA tape is mounted	

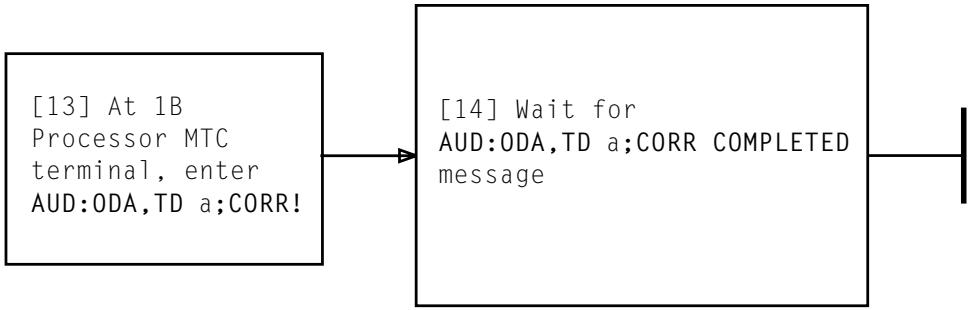
```
                                    THIS VALUE MUST BE
TAPE HEADER                         SAME AS GENERIC OFFICE
                                    IS RUNNING ON
TAPE TYPE: ODA
ORIGINAL GENERIC 4E<(24)>5A.00 R1
MOST RECENT OFL GENERATION: . . . . .
THIS TAPE WRITTEN: . . . . .
FS IDS: . . . . .
PARTL UPD FLG: . . . . .
```

FIG. 1 - Example of TAPE HEADER Printout

PERFORM 1B PROCESSOR ODA SYSTEM AUDIT OF STORES (SAST)



PERFORM 1B PROCESSOR ODA SYSTEM AUDIT OF STORES (SAST)

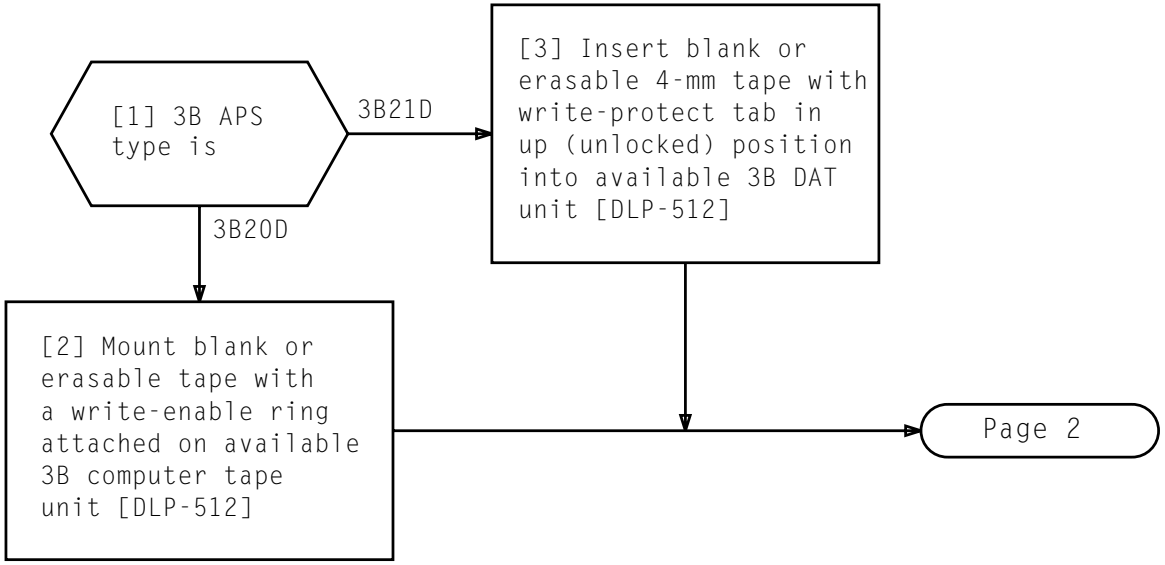


NOTE 1

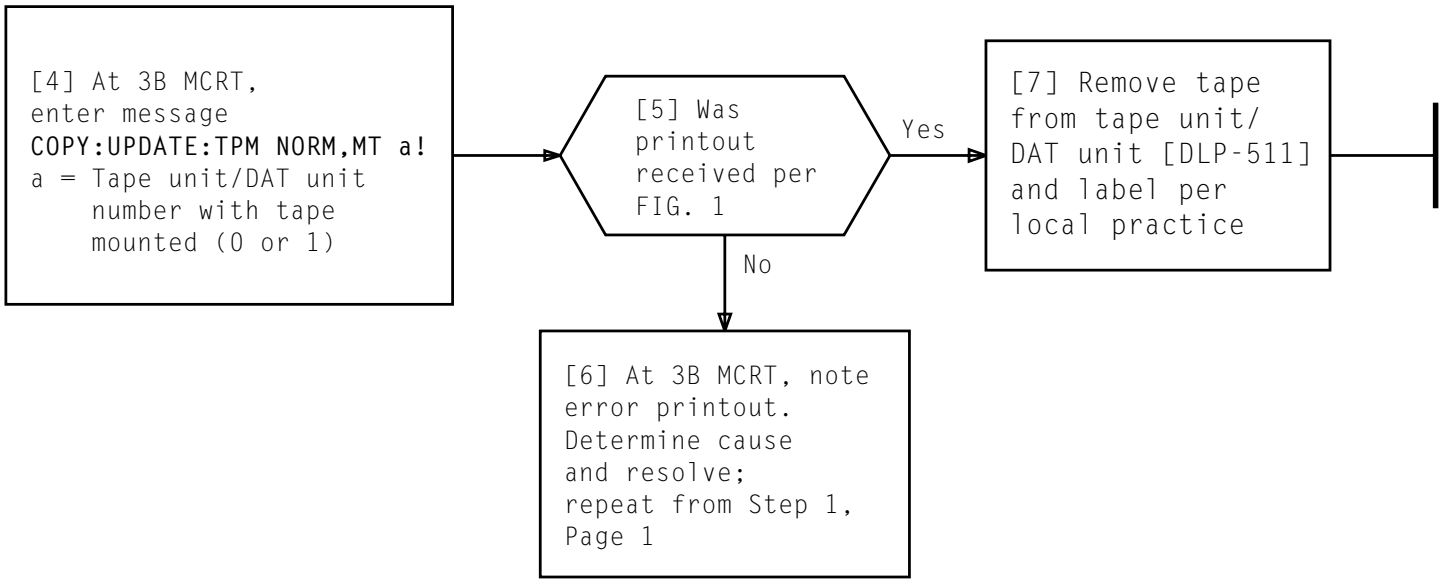
SAST will time out 30 minutes after noncorrecting audit completes. As audit is being run, the following messages will be printed if no errors are encountered:

```
AUD:ODA,TD a;NCG IN PROGRESS
 0 ERROR(S) IN CS2FS MAP DETECTED
AUD:ODA,TD a;NCG IN PROGRESS
 0 ERROR(S) IN ID2SEG MAP DETECTED
AUD:ODA,TD a;NCG IN PROGRESS
 0 ERROR(S) IN SEGPTRS MAP DETECTED
AUD:ODA,TD a;NCG IN PROGRESS
0 ERROR(S) IN ID2FS MAP DETECTED
AUD:ODA,TD a;NCG IN PROGRESS
0 ERROR(S) IN HASH TABLES DETECTED
AUD:ODA,TD a;NCG IN PROGRESS TAPE DONE
AWAITING INSTRUCTIONS
REPT:DEMOUNT TAPE FROM TD a
```


PERFORM 1B PROCESSOR ODA SYSTEM AUDIT OF STORES (SAST)



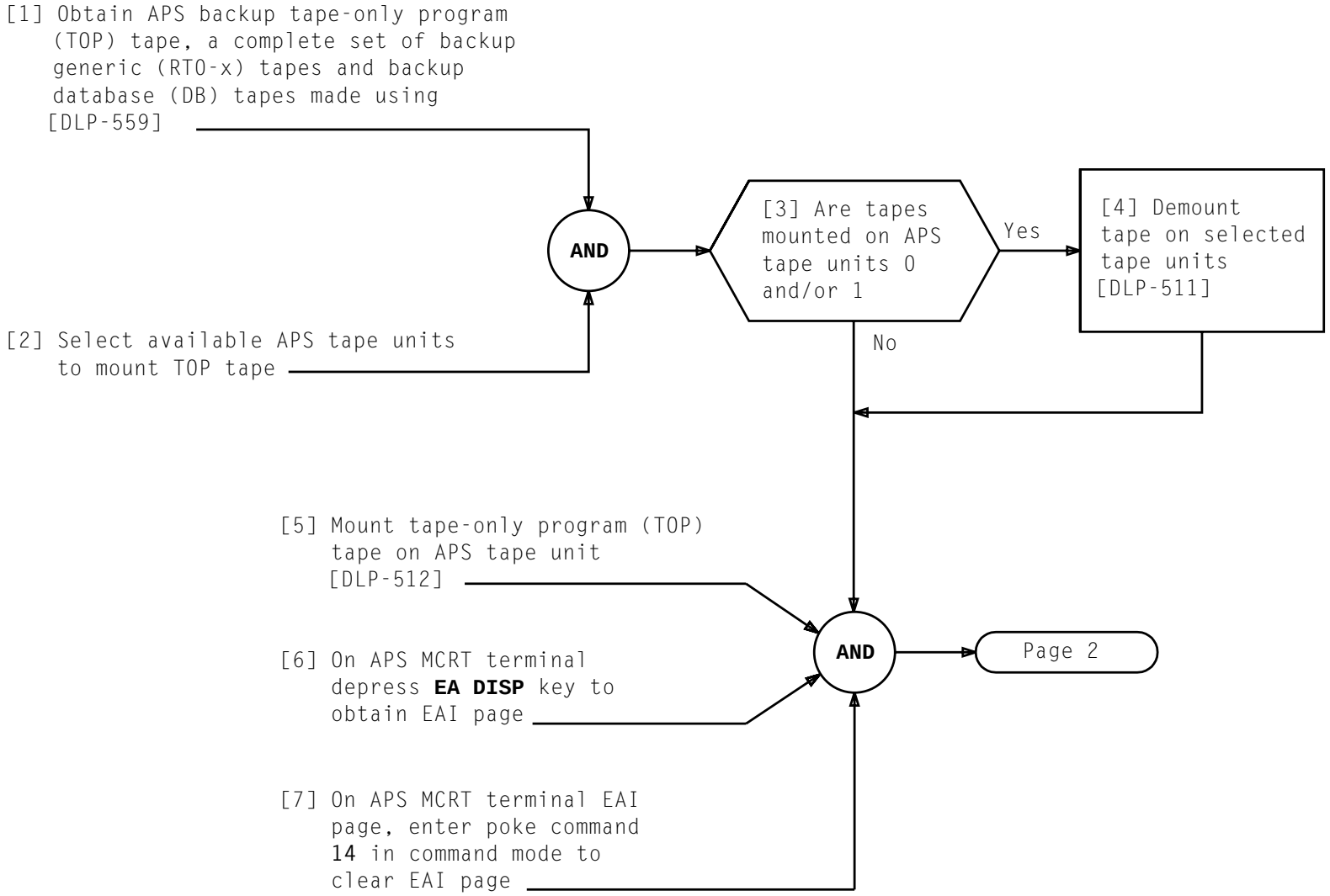
WRITE TRAFFIC AND PLANT MEASUREMENT (TPM) TAPE




```
COPY TPM FROM NORMAL FILE

TAPE FILE 10 WRITTEN FROM FS*

TPM TAPE WRITTEN

* MAY NOT BE RECEIVED
```

FIG. 1 — Sample TPM Tape Write Printout

WRITE TRAFFIC AND PLANT MEASUREMENT (TPM) TAPE



PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

NOTE
TOP tape is provided with original Generic tape

Added

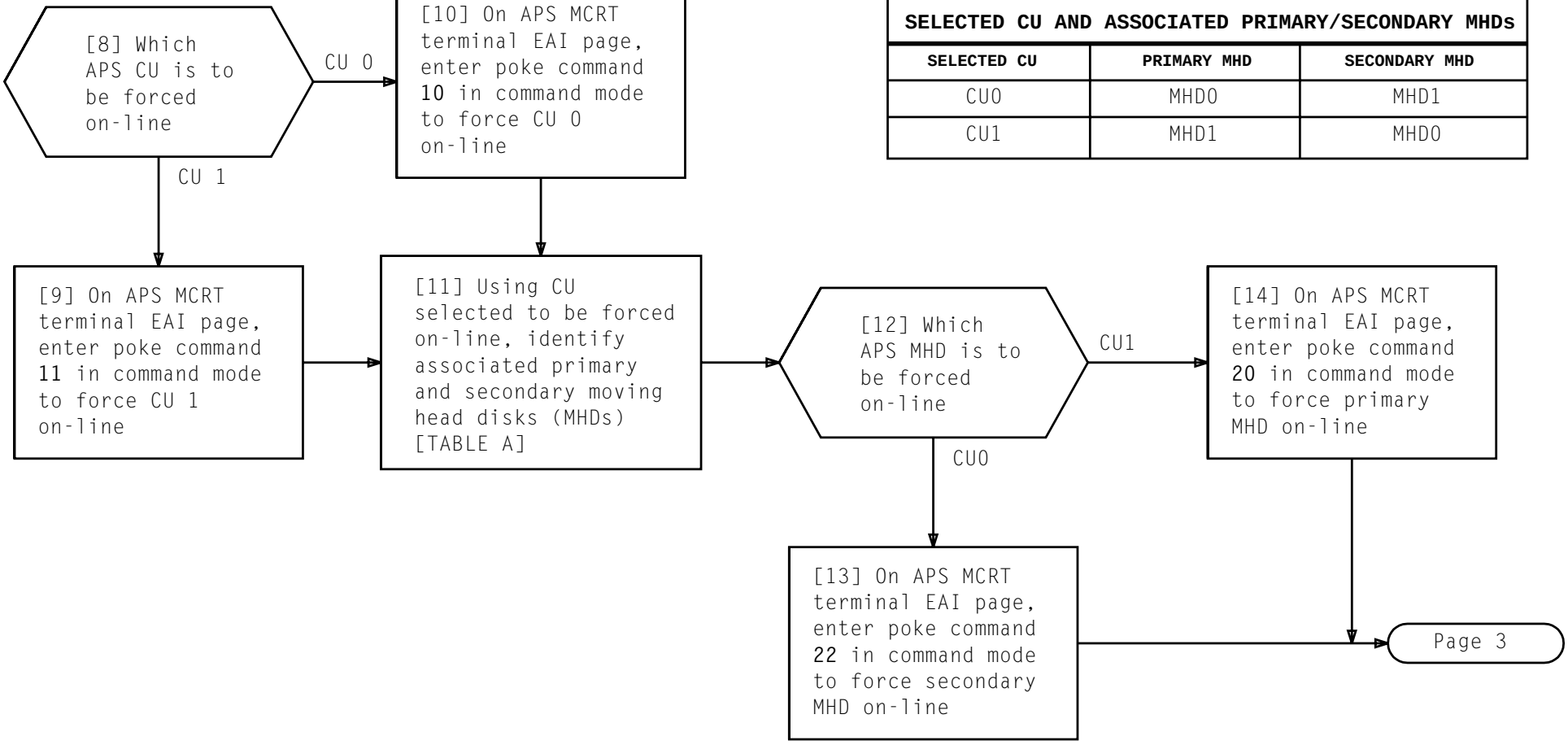


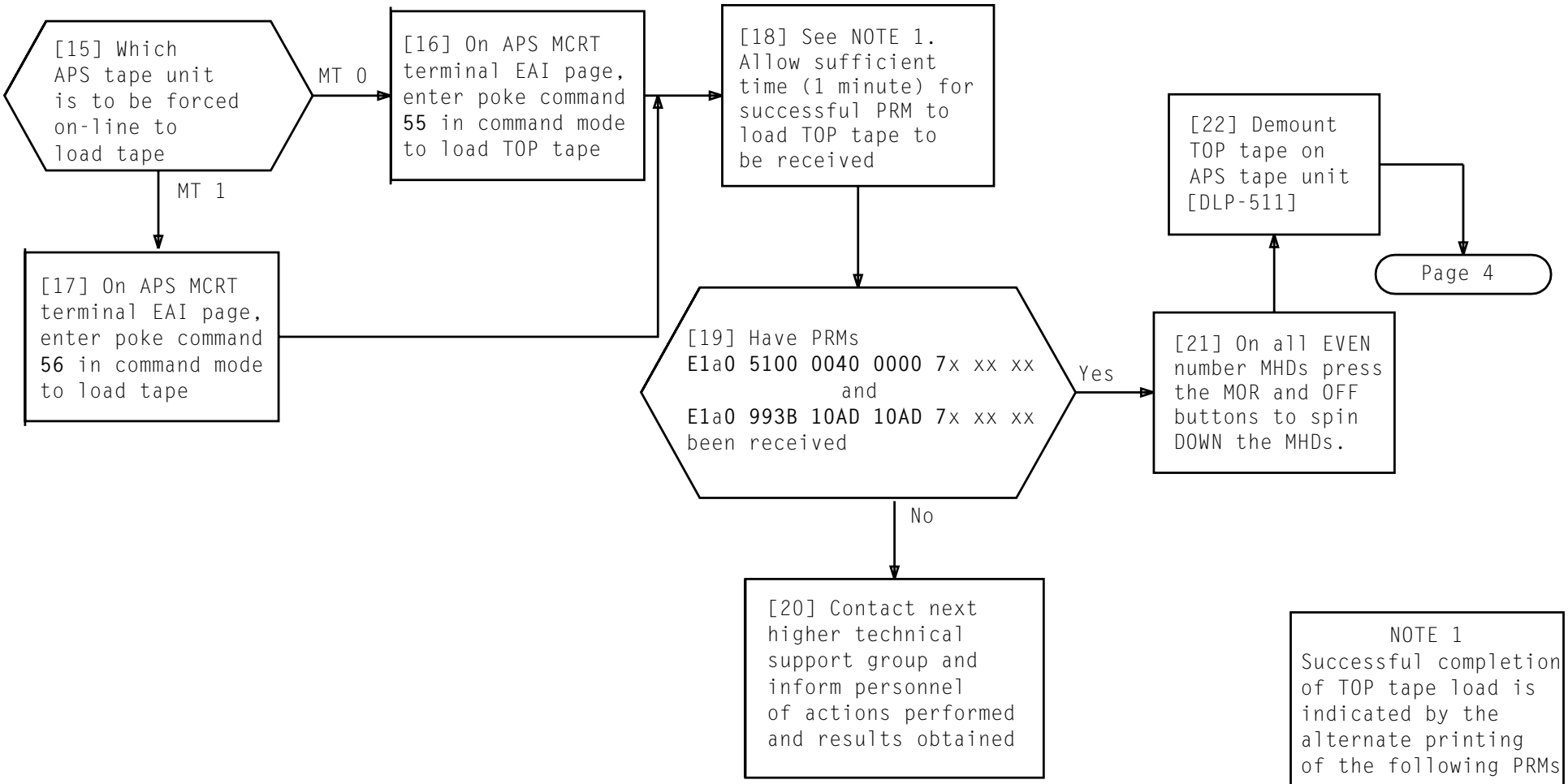
TABLE A

SELECTED CU AND ASSOCIATED PRIMARY/SECONDARY MHDs

SELECTED CU	PRIMARY MHD	SECONDARY MHD
CU0	MHD0	MHD1
CU1	MHD1	MHD0

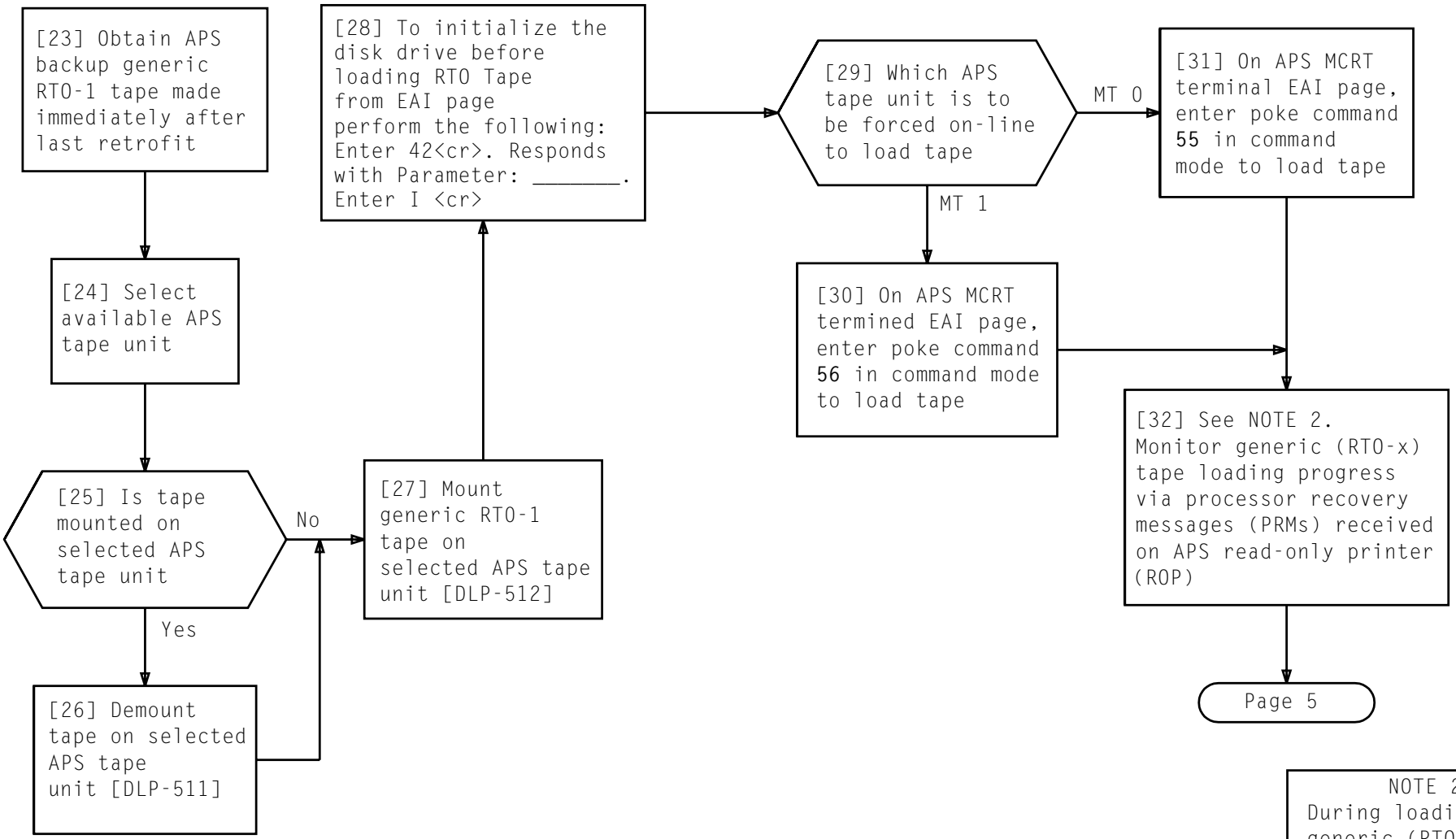
PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

Added



NOTE 1
Successful completion of TOP tape load is indicated by the alternate printing of the following PRMs on APS read-only printer (ROP):
PRM_0 E1a0 5100 0040 0000 7x xx xx
PRM_0 E1a0 993B 10AD 10AD 7x xx xx
a = 6 or 7

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



NOTE 2
During loading of generic (RTO-x) tape, a series of PRMs will be printed that contain status information pertaining to load

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

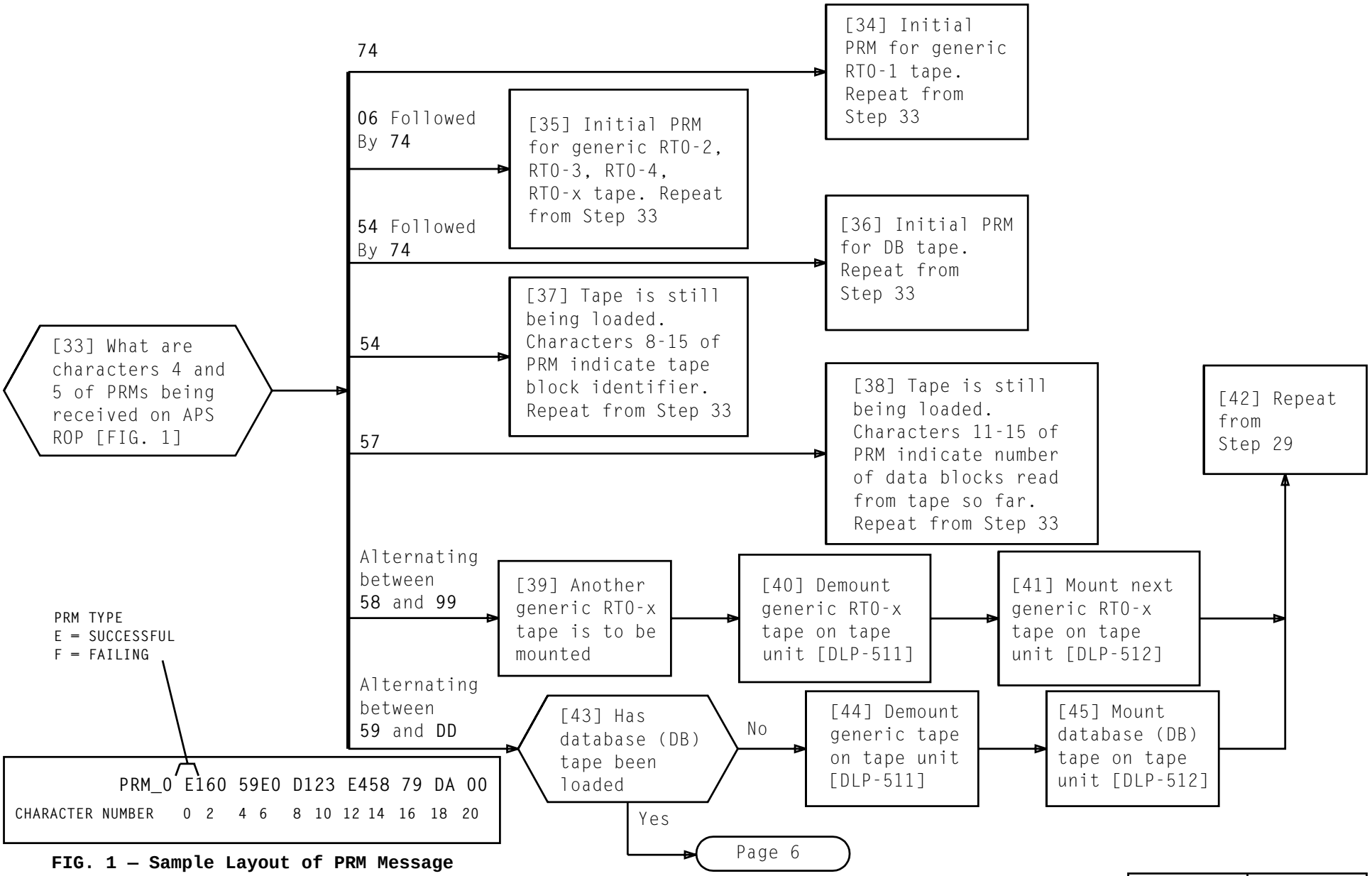
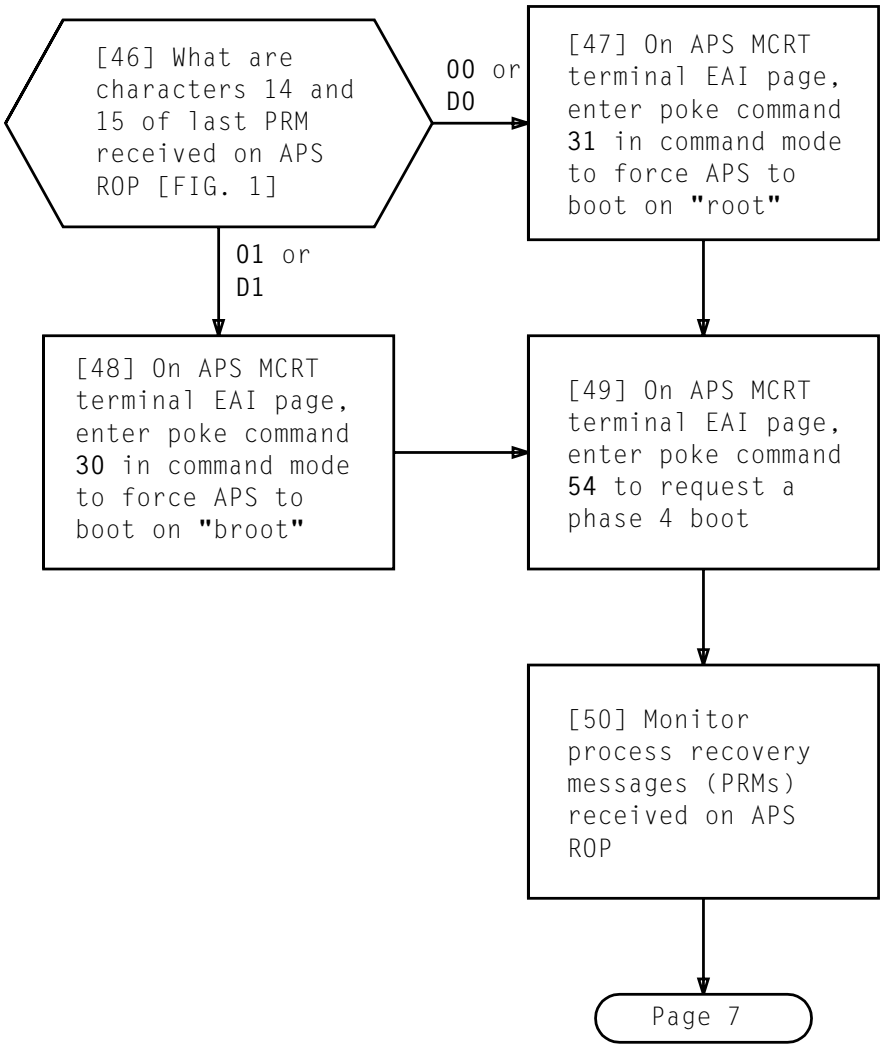
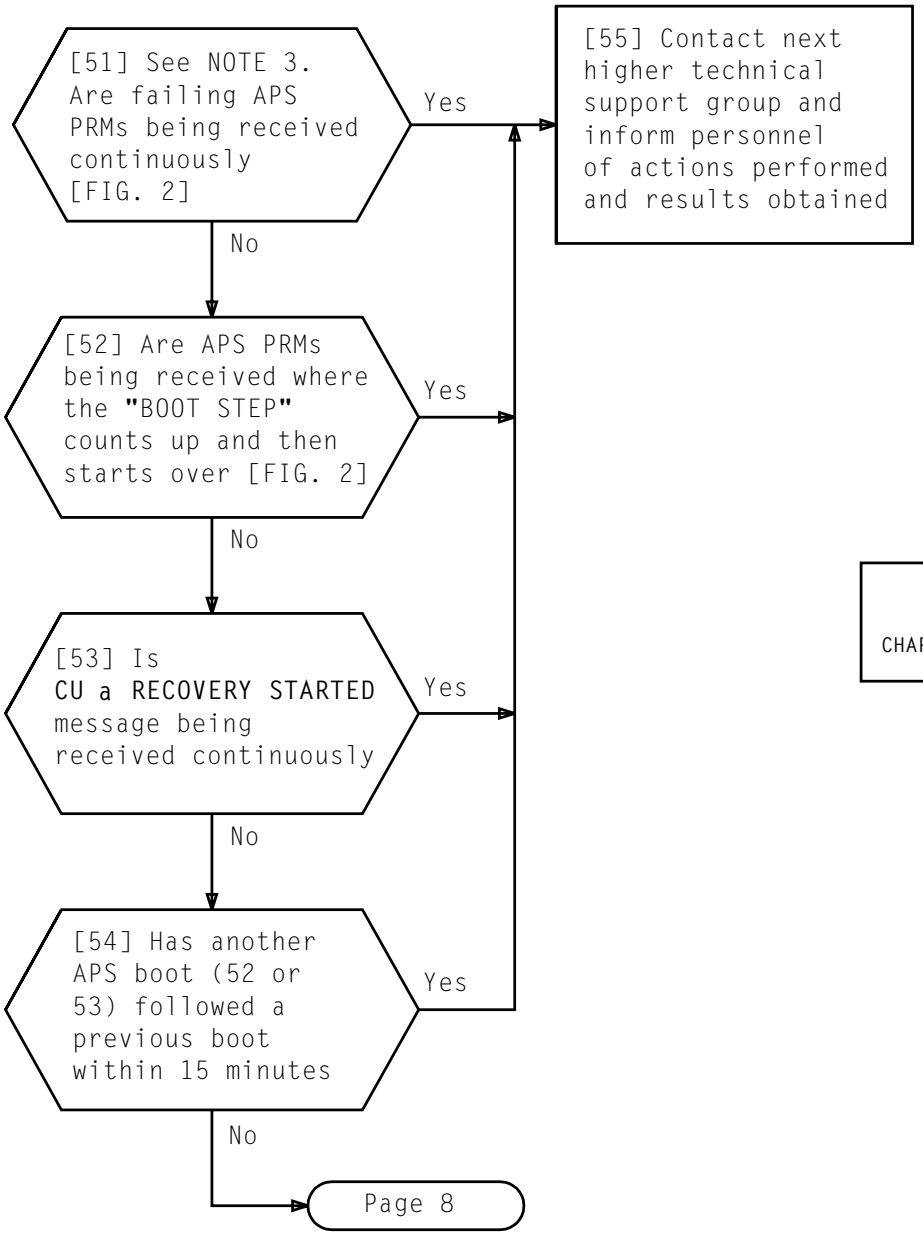


FIG. 1 – Sample Layout of PRM Message

PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)



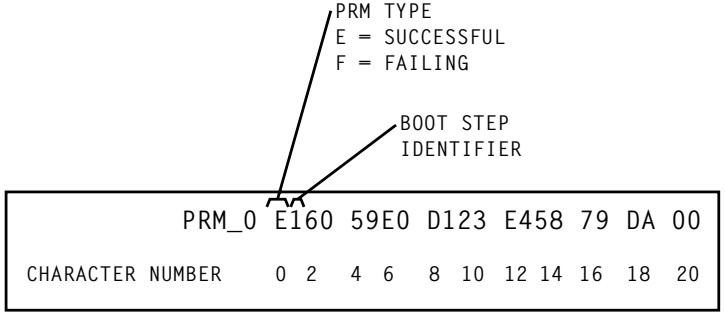
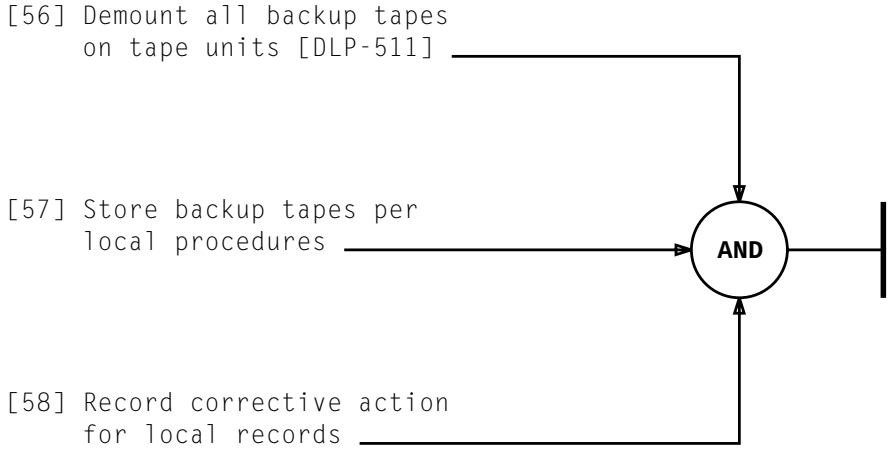


FIG. 2 – Sample Layout of PRM Message

NOTE 3
One or two failing PRMs among many successful PRMs does not indicate system sanity is in jeopardy

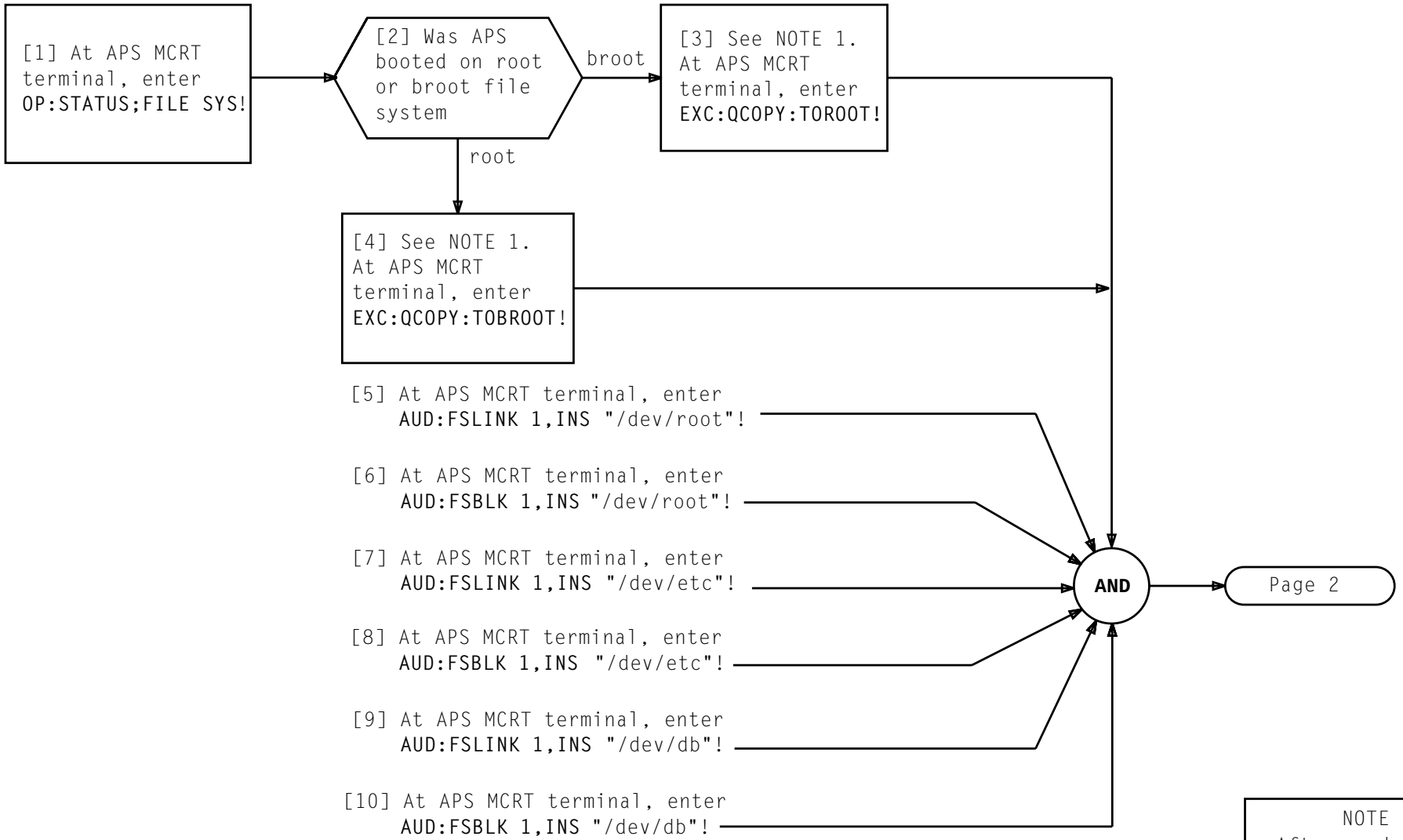
PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

Added



PERFORM ATTACHED PROCESSOR SYSTEM (APS) SYSTEM REINITIALIZATION (SR)

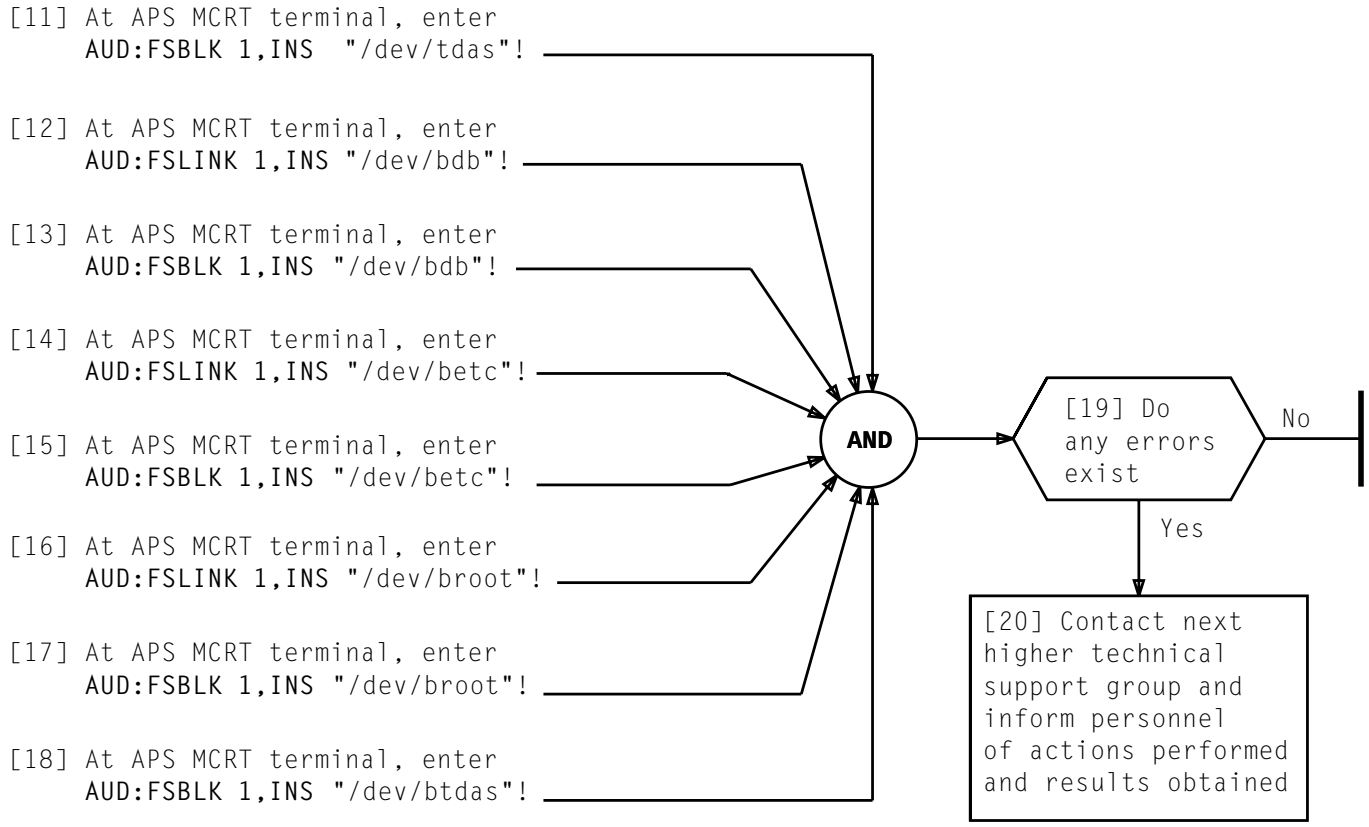
Added



NOTE 1
After each input message, wait for COMPLETED message before proceeding to next step

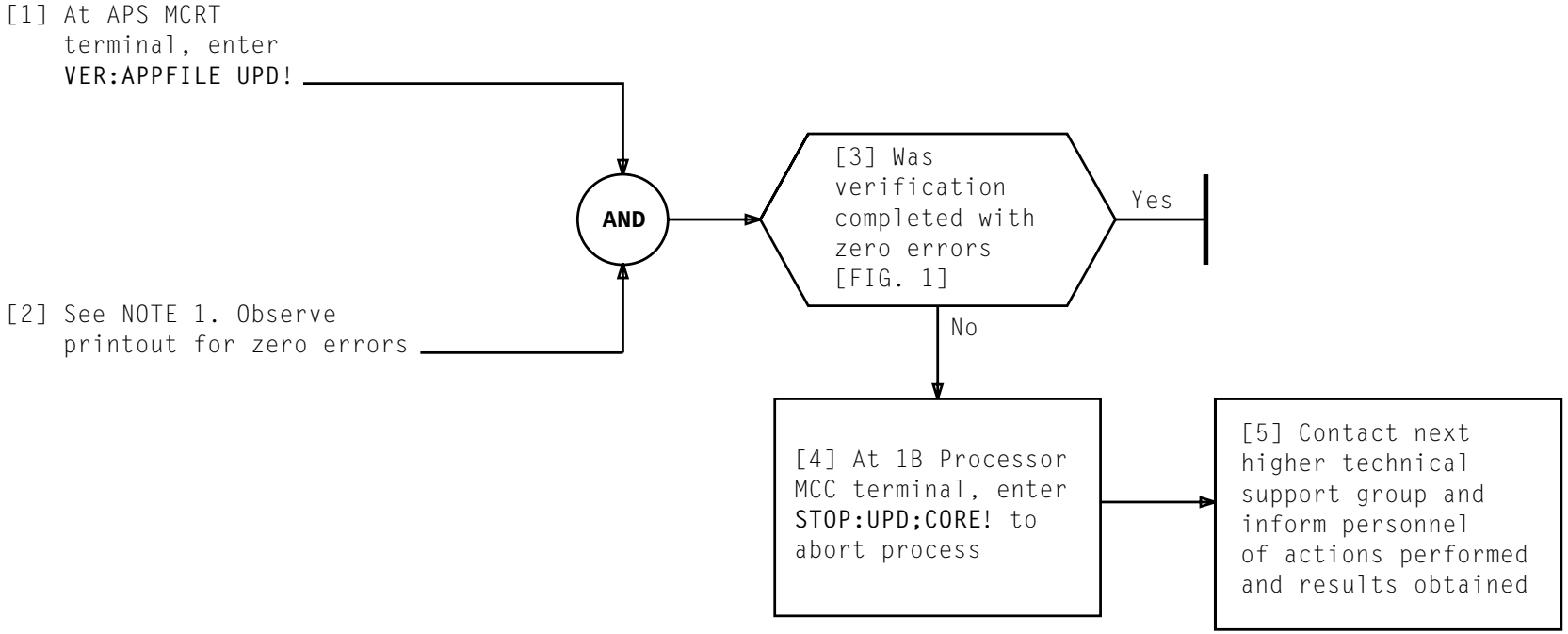
Added

COPY ATTACHED PROCESSOR SYSTEM (APS) ROOT TO BROOT OR BROOT TO ROOT



COPY ATTACHED PROCESSOR SYSTEM (APS) ROOT TO BROOT OR BROOT TO ROOT

Added




```
VER:APPFILE STARTED, /dev/lafileX (X = 0 or 1)
VER:APPFILE /dev/lafileX MERGE AREA, MSG IP, 0 ERRORS DETECTED
VER:APPFILE /dev/lafileX ID 1, MSG IP, 0 ERRORS DETECTED (Generic Area)
VER:APPFILE /dev/lafileX ID 2, MSG IP, 0 ERRORS DETECTED (Library Area)
VER:APPFILE /dev/lafileX ID 3, MSG IP, 0 ERRORS DETECTED (ODA Area)
VER:APPFILE /dev/lafileX ID 7, MSG IP, 0 ERRORS DETECTED (Network Management Area)
VER:APPFILE /dev/lafileX ID 11, MSG IP, 0 ERRORS DETECTED (RC Rollback Area)
VER:APPFILE /dev/lafileX ID 12, MSG IP, 0 ERRORS DETECTED (Traffic and Plant Management Area)
VER:APPFILE /dev/lafileX ID 17, MSG IP, 0 ERRORS DETECTED (Paged Program Area)
VER:APPFILE /dev/lafileX COMPLETED, 0 ERRORS DETECTED
```

FIG. 1 – Sample Printout of Verification Output Messages Indicating Zero Errors

Added

NOTE 1
It takes approximately 30 minutes for verification to complete

VERIFY ATTACHED PROCESSOR SYSTEM (APS) 1B FILE HASHED AREAS

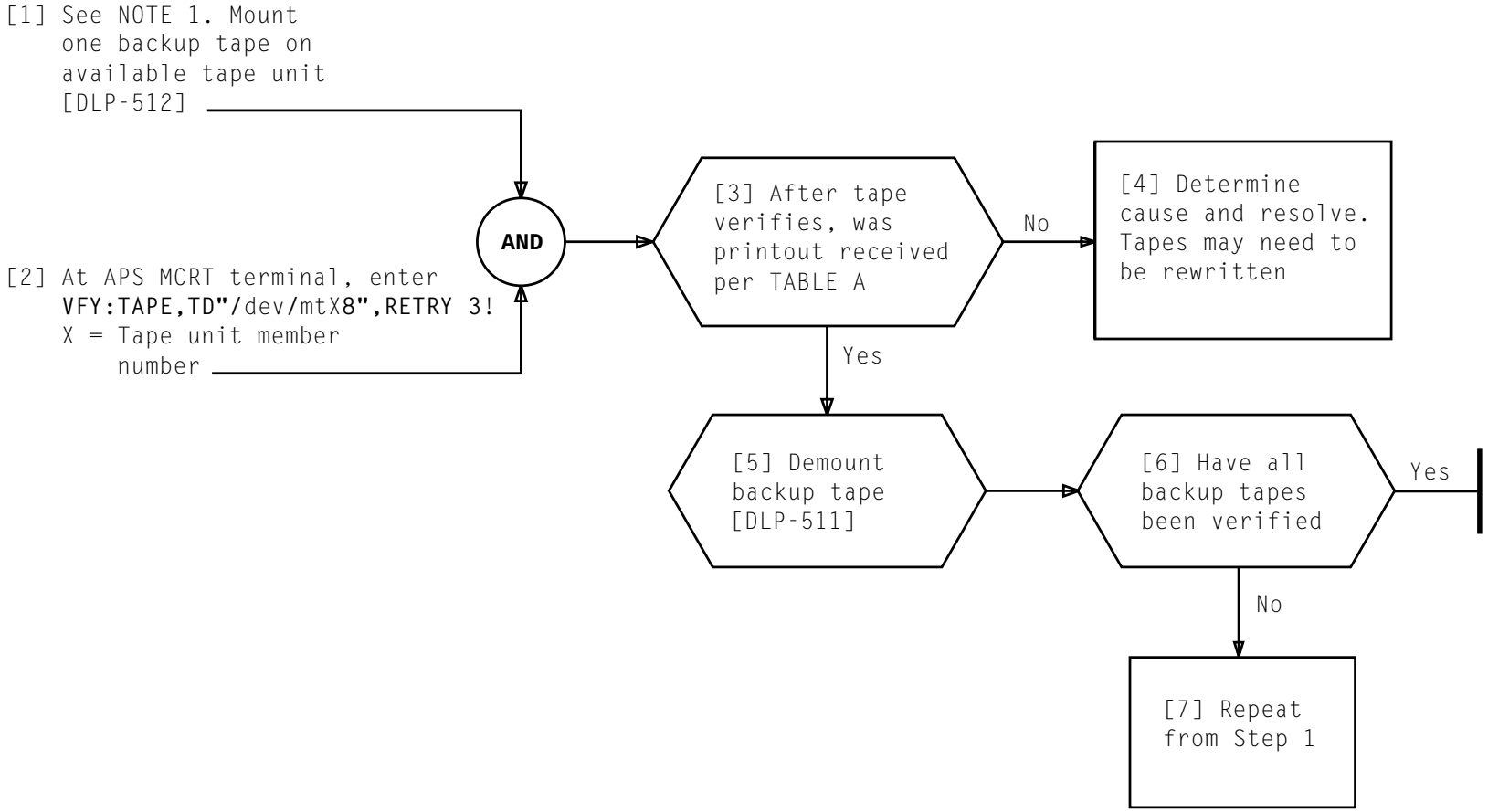


TABLE A

MESSAGE NUMBER	OUTPUT MESSAGE
1	VFY TAPE STARTED VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0 DATA MISMATCHES 0

NOTE 1

Verify backup generic tapes from lowest to highest rt0 number; then backup db tape

Added

VERIFY ATTACHED PROCESSOR SYSTEM (APS) BACKUP TAPES

[1] Mount 2400-foot tape on available tape drive (write enable ring attached) [DLP-512]

[2] At 3B MCRT, enter message **OP:STATUS:FILESYS!**

[3] At MCRT, enter message **EXC:ENVIR:UPROC,FN"/**tools/bootaud**"!**

[4] Wait for **EXC ENV UPROC /**tools/bootaud **COMPLETED** message and ensure no errors received. Do not continue until errors, if received, are corrected

[5] Enter message **DUMP:FILE:ALL,FN"/**etc/pdtspec**"!** and ensure that printout in TABLE A is received

[6] Enter message **COPY:BKDISK;START:SRC"/**dev/vtoc**",TD"/**dev/mtX**8",TPSIZE 2200!** X = tape drive number (Step 1)

[7] Wait for **COPY BKDISK DISMOUNT GENERIC TAPE LABEL AND MOUNT NEXT TAPE** message

[8] Demount tape [DLP-511], label **rt0 1** tape per local practice, and remove write ring from tape

AND

Page 2

TABLE A

MESSAGE NUMBER	OUTPUT MESSAGE
1	DUMP FILE ALL COMPLETED /dev/lboot /dev/vtoc /dev/boot /dev/bboot /dev/root /dev/etc /dev/db /dev/amafiles /dev/amabfiles

NOTE
Retain this data for use when SR'ing the 3B at Step 45 of [DLP-555]

Added

WRITE ATTACHED PROCESSOR SYSTEM (APS) BACKUP TAPES

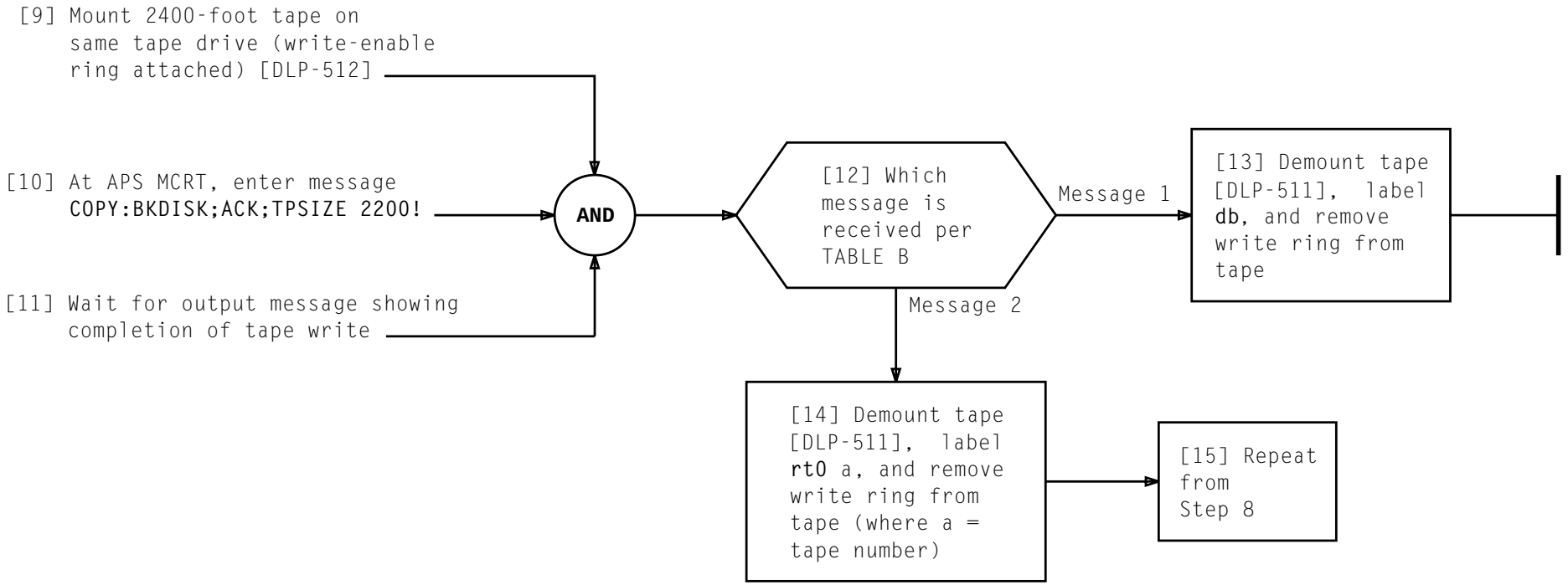
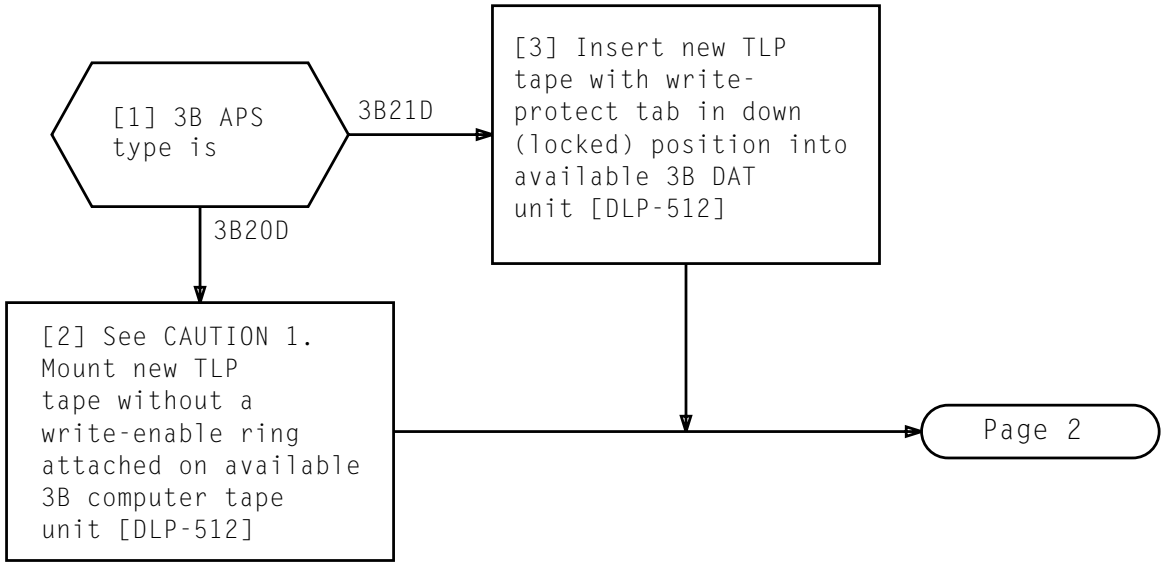


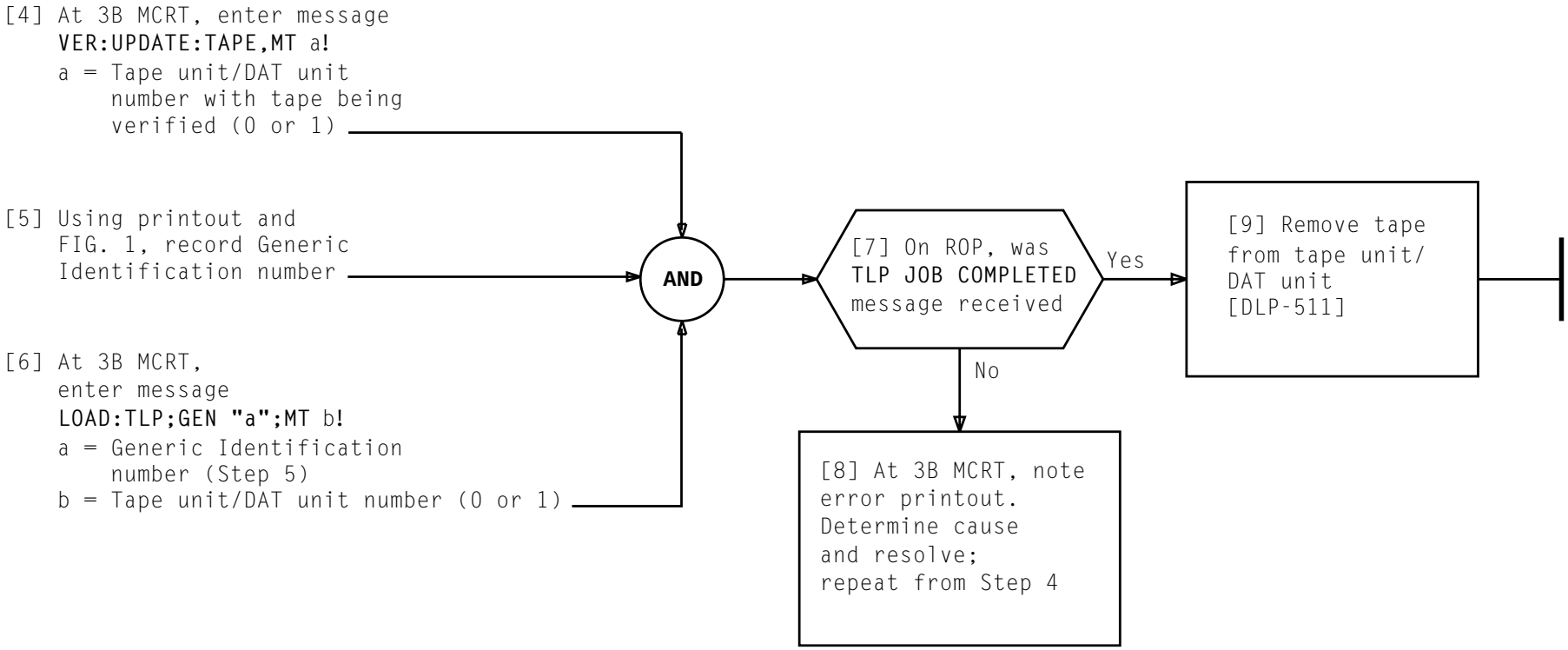
TABLE B

MESSAGE NUMBER	OUTPUT MESSAGE
1	COPY BKDISK COMPLETED, DISMOUNT DATABASE TAPE AND LABEL
2	COPY DISMOUNT GENERIC TAPE LABEL AND MOUNT NEXT TAPE

WRITE ATTACHED PROCESSOR SYSTEM (APS) BACKUP TAPES



LOAD NEW TLP FROM TAPE ONTO DISK




```
TAPE TYPE: TLP
GENERIC (4E<24>5A.01 R1) <-- Record This Value
MOST RECENT OFL GENERATION: YR 98,MON 10,DAY 04 AT 11:28
THIS TAPE WRITTEN: YR 98,MON 11,DAY 04 AT 17:19
FS IDS: 0000000000000010,TAPE IDS: 0000000011111111
PARTL UPD FLG: 0,PHASE REQD: 0001000
```

FIG. 1 – Sample TLP Tape Header Printout

LOAD NEW TLP FROM TAPE ONTO DISK

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
IXL-001		DLP-526		CKL-891							
NTP-002		DLP-527		TNG-893							
NTP-003		DLP-528									
NTP-004		DLP-529									
NTP-005		DLP-530									
NTP-006		DLP-531									
NTP-007		DLP-532									
NTP-008		DLP-533									
TAD-100		DLP-534									
DLP-500		DLP-535									
DLP-501		DLP-536									
DLP-502		DLP-537									
DLP-503		DLP-538									
DLP-504		DLP-539									
DLP-505		DLP-540									
DLP-506		DLP-541									
DLP-507		DLP-542									
DLP-508		DLP-543									
DLP-509		DLP-544									
DLP-510		DLP-545									
DLP-511		DLP-546									
DLP-512		DLP-547									
DLP-513		DLP-548									
DLP-514		DLP-549									
DLP-515		DLP-550									
DLP-516		DLP-551									
DLP-517		DLP-552									
DLP-518		DLP-553									
DLP-519		DLP-554									
DLP-520		DLP-555									
DLP-521		DLP-556									
DLP-522		DLP-557									
DLP-523		DLP-558									
DLP-524		DLP-559									
DLP-525		DLP-560									