Task Oriented Practice
(TOP)

AT&T 3B20D MODEL 1 COMPUTER

COMMON SYSTEMS

ACCEPTANCE AND ROUTINE TASKS

(DMERT GENERIC 1 AND 2)

(UNIX® RTR SYSTEM RELEASE 1)

Regional Technical Assistance Center
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TITLE PAGE	000

FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
Acceptance	NTP-002
Air Filters; 300-MB Moving Head Disk — Service	NTP-007
Air Filter: 340-MB Moving Head Disk — Service	NTP-041
Alarm; 300-MB Moving Head Disk Frame — Test	NTP-030
Alarm; 340-MB Moving Head Disk — Test	NTP-040
Alarms; Control Unit — Test	NTP-023
Alarms; DC Power Distribution Frame — Test	NTP-032
Alarms; Peripheral Control Frame — Test	NTP-027
Control Unit Alarms — Test	NTP-023
Control Unit Power and Cooling — Test	NTP-022
Cooling Unit Filter — Replace	DLP-500
DC Power Distribution Frame Alarms — Test	NTP-032
Demand Diagnostics; KS-22762 Tape Transport — Perform	NTP-038
Demand Diagnostics; System — Perform	NTP-024
Disk Drive; 340-MB — Replace	DLP-643
Disk Pack — Install	DLP-511
Disk Pack — Remove	DLP-510
Hot Spare Moving Head Disk — Swap Into Service	NTP-033
KS-22091 Tape Transport — Clean	NTP-003
KS-22091 Tape Transport — Diagnose	NTP-009
KS-22091 Tape Transport — Inspect	NTP-004
KS-22091 Tape Transport Diagnostic Test Tape — Prepare	NTP-010

FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
Printer Fault — Clear	TAP-105
Printer Paper — Install	DLP-590
Printer Ribbon — Install	DLP-595
Replace 340-MB Disk Drive	DLP-643
Replace 340-MB Disk Drive Power Supply	DLP-644
Ribbon; Printer — Install	DLP-595
SCSI Disk Unit Package — Check Signal Distributor Points	NTP-028
SCSI Disk Unit Package — Install	DLP-653
SCSI Disk Unit Package — Remove	DLP-652
SCSI Disk Unit Package — Swap Warm Spare Units	NTP-014
SCSI Disk Unit Package Sub Units — Replace	DLP-654
SCSI Disk Unit Package — Test Disk Cabinet Alarms	NTP-015
SCSI Disk Unit Package — Troubleshoot	TAP-111
System Demand Diagnostics — Perform	NTP-024
Tape (KS-22091) — Mount	DLP-505
Tape (KS-22762 or KS-23113) — Mount	DLP-630
Tape (KS-22091) — Remove	DLP-504
Tape (KS-22762 or KS-23113) — Remove	DLP-629
Tape Transport Diagnostic Test Tape; KS-22091 — Prepare	NTP-010
Tape Transport; KS-22091 — Clean	NTP-003
Tape Transport; KS-22091 — Diagnose	NTP-009
Tape Transport; KS-22091 — Inspect	NTP-004

FIND YOUR JOB IN THE LIST BELOW . . . . . THEN GO TO

OVERVIEW

Acceptance activities are performed following installation of a new office. Acceptance activities consist of verifying craft interface, visual inspection, power and alarm checks, and diagnostic tests.

ASSUMPTIONS

1. Any troubles encountered during the performance of these procedures are referred to the installation team for resolution.
2. All test equipment is functioning properly.
3. The terminal and printer, upon completion of acceptance tests, are considered test equipment.
4. The craft is familiar with terminal operations to include mode changing, page manipulation, and message conventions.
5. Audible alarms are retired without instruction.

SEQUENCE

A preferred sequence for performing acceptance is shown in TABLE A.

SUPPORTING DOCUMENTS

SD-4C049 Input/Output Processor Growth Unit Circuit
SD-4C050 Control Frame Circuit
SD-4C051 Disk File Controller Circuit
SD-4C052 Input/Output Processor Circuit
SD-4C053 AC and DC Power Distribution Circuit
SD-4C054 Interframe Cabling Circuit
SD-4C056 Moving Head Disk Frame Circuit
SD-4C057 Disk File Inverter Circuit

SUPPORTING DOCUMENTS (Continued)

SD-4C058 Tape Transport Frame Application Circuit
SD-4C059 Peripheral Control Frame Circuit
SD-4C065 Port Switch Circuit
SD-4C070 Power Control Panel Circuit
SD-82518 Power Distributing Bay Circuit
Moving Head Disk Drive Vender Manuals
Tape Transport Drive Vender Manuals
Input Message Manual for Application
Output Message Manual for Application

TABLE A

TITLE	PROCEDURE
Verify Operation Interface	NTP-011
Accept DC Power Distribution Frame	NTP-031
Accept Control Unit Frame	NTP-021
Accept Peripheral Control Frame	NTP-025
Accept Moving Head Disk Frame	NTP-016
Accept Tape Unit Frame Using A or B:	
A. With KS-22091 Tape Transport	NTP-017
B. With KS-22762 Tape Transport	NTP-034
Accept Tape/Disk Cabinet	NTP-039
Test Micro Level Test Set Local Functions	NTP-019

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Obtain the Following Support Apparatus: • Vacuum Cleaner — LS-14377,L5 • Lint-Free Cloth — KS-2423 • Cotton Swabs • Solvent — Isopropyl Alcohol (91% Uncontaminated) or TEXPAD	—
2	Remove Tape	DLP-504
3	Clean KS-22091 Tape Transport Assembly	DLP-506
4	Mount Tape Removed in Step 2	DLP-505

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
1	Obtain the Following Support Apparatus: • Digital Multimeter	—
2	Remove Tape If Mounted	DLP-504
3	Inspect KS-22091 Tape Transport Assembly	DLP-507
4	Mount Scratch Tape	DLP-505
5	Check KS-22091 Tape Transport Operation	DLP-508
6	Remove Scratch Tape	DLP-504
7	Mount Tape Removed in Step 2	DLP-505

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	NOTE: Performed monthly per equipment test list or more often if conditions dictate	
1	Obtain Support Apparatus Listed Below:	—
	A. If Equipped With KS-22072,L1 or KS-22707,L1 300-Megabyte (300-MB) MHD Drives: • Vacuum Cleaner • Minihelic Airflow Meter Capable of Measuring 0 to 1.0 Inches of Water (Dywer Instruments, Inc., Model Number 5001C or Equivalent)	—
	B. If Equipped With KS-22072,L2 or KS-22707,L2 300-MB MHD Drives: • Vacuum Cleaner • Minihelic Airflow Meter Capable of Measuring 0 to 3.0 Inches of Water (Dywer Instruments, Inc., Model Number 2003C or Equivalent) • Quick Connect Connector (Hofmann Engineering Co., Part Number S1-M, Type H-52 or Equivalent)	—
2	Verify Mate MHD	DLP-565
3	Remove MHD From Service Via Frame Controls	DLP-599
4	Remove Power From MHD	DLP-603
5	At Front of Disk File Inverter, Slide Both Air Filters Out and Inspect for Dust	—
6	Clean Air Filters With Vacuum Cleaner or Replace Air Filters and Re-install	—
7	Service MHD Air Filters	DLP-513
8	Restore Power to MHD	DLP-604
9	Restore MHD to Service Via Frame Controls	DLP-601
10	Repeat Items 2 Through 9 for Each Remaining MHD	—

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Remove Tape if Mounted	DLP-504
	Note: A tape transport diagnostic test tape should be available in the office	
2	Mount the Diagnostic Test Tape	DLP-505
	A. If a Diagnostic Tape is Not Available Make One Using the Following Steps:	
	1. Mount a Blank Tape	DLP-505
	2. Apply End-of-Tape (EOT) Marker 50 Inches From Beginning-of-Tape (BOT) Marker	DLP-569
	3. Rewind Tape to BOT Marker by Depressing **REWIND** Switch and Waiting for Tape to Stop	—
	4. Depress **ON LINE** Switch and Close Dust Cover	—
	5. Write the Diagnostic Test Tape	DLP-635
3	Diagnose Magnetic Tape Controller PH5	DLP-537
4	Remove the Diagnostic Test Tape	DLP-504
	Note: If a new diagnostic test tape was written in Item 2, label and store for future use	
5	Mount the Tape if Removed in Item 1	DLP-505

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Remove Tape If Mounted	DLP-504
2	Mount New Tape	DLP-505
3	Apply End of Tape (EOT) Marker on Blank Tape 50 Inches from BOT Marker	DLP-569
4	Rewind Tape to BOT Marker. Depress **REWIND** Switch and Wait for Tape to Stop	—
5	Depress **ON LINE** Switch and Close Dust Cover	—
6	At Terminal, Type COPY:TAPE:TEST, TD"/dev/mt08"!	—
7	Remove Test Tape	DLP-504
8	Label Tape and Retain in Office	—
9	Mount Tape Removed in Step 1	DLP-505

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Inspect Terminal	DLP-574
2	If Equipped With KS-22921, L1 or L2, go to Item 6	
3	Perform Terminal Self-Diagnostics	DLP-575
4	Check Terminal Features	DLP-559
5	Verify Terminal Video Option	DLP-576
6	Check KS-22921, L1 or L2 Terminal	DLP-640
7	Inspect Display Pages	DLP-580
8	Inspect Printer	DLP-581
9	Perform Printer Test Routine	DLP-582
10	Perform Printer Character Test	DLP-583
11	Test Terminal — Printer Interaction	DLP-584
12	Test Port Switch Unit	DLP-585
13	Test Terminal Port Switch Subunit (PSSU)	DLP-586
14	Test Printer PSSU	DLP-586

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	Warning: Only Disk Unit Package (DUP) units on the same Small Computer System Interface (SCSI) bus may be swapped.	
1	Obtain SCSI Disk File Controller (DFC) Hardware Configuration Information	DLP-662
2	Verify Moving Head Disks (MHDs) Being Swapped Are on Same SBUS	—
3	Verify Mate of Each MHD on SBUS Where MHD Is Being Replaced	DLP-667
4	Diagnose Warm-Spare MHD Unit	DLP-666
5	Remove From Service the SBUS Connecting the MHD Being Swapped	DLP-663
6	Remove Power From the MHD Being Replaced Via Power Switch	—
7	Remove Power From the Warm-Spare MHD Via Power Switch	—
8	Record Value of Identification (ID) Switch of the Warm-Spare MHD	—
9	Record Value of ID Switch of the MHD Being Replaced	—
10	Set ID Switch of the MHD Being Replaced to That of the Warm-Spare	—
11	Set ID Switch of the Warm-Spare MHD to That of the MHD Being Replaced	—
12	Change Scanner/Signal Distributor Data	DLP-641
13	Restore Power to Both MHDs	DLP-665
14	Restore the SBUS to Service	DLP-664
15	Wait for SBUS and MHDs to Restore to Service	—
16	Verify the Replacement MHD	DLP-667

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	Note: Depending on configuration, the SCSI Disk Cabinet may or may not contain SCSI Disk File Controllers (DFCs). If DFCs are present, they may be DFC 0 and 1, or they may be DFC 2 and DFC 3. Only when DFCs are present are there cooling units in the SCSI Disk Cabinet. The following procedure specifies DFC 0 and DFC 1, but DFC 2 and DFC 3 should be substituted if appropriate for the SCSI Disk Cabinet being tested.	
1	If Not Active, Make DFC 1 and Its Subunits Active	DLP-558
2	At DFC 0, Check DFC 0 LEDs	DLP-553
3	Remove DFC 0 From Service Via Power Switch	DLP-551
4	Test DFC 0 Power Switch Fuse Alarm	DLP-555
5	Restore Power to DFC	DLP-556
6	Restore DFC 0 to Service Via Power Switch	DLP-552
7	Repeat Items 2 Through 7, Substituting DFC 1 for DFC 0 as Appropriate	—
8	Test SCSI Disk Cabinet Cooling Unit Alarms	DLP-557

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	NOTE: Terminal common systems displays should be clear of trouble and indicate system 300-megabyte (MB) MHDs are active (ACT)	
1	Verify Mate MHD	DLP-565
2	Remove 300-MB MHD From Service Via Frame Controls	DLP-599
3	Check Power Control Unit LEDs	DLP-606
4	Remove Power From 300-MB MHD	DLP-603
5	Remove 300-MB MHD Source Voltages	DLP-624
6	Inspect 300-MB MHD Frame	DLP-610
7	Inspect Frame for Physical Integrity	DLP-613
8	Remove Disk Pack	DLP-510
9	Inspect MHD	DLP-528
10	At PD Frame, Test **CAP CHG** Circuit	DLP-625
11	Charge 50-Amp Fuse Filter Panel Circuit Corresponding to 300-MB MHD	DLP-626
12	Test **CAP CHG** Circuit	DLP-625
13	Charge Fuse Filter Panel Circuit Corresponding to 300-MB MHD Frame Number	DLP-547
14	Install Scratch Disk Pack	DLP-511
15	Diagnose MHD	DLP-605
16	At Operator Control Panel, Release **START** Switch and Wait for Lamp to Go Steady Off	—
17	Test 300-MB MHD Power Alarm	DLP-520
18	Remove Scratch Disk Pack	DLP-510
19	Install Disk Pack Removed in Item 8	DLP-511
20	Verify MHD Under Test	DLP-565
21	If MHD Being Tested is the Hot Spare, Restore Data Per Local Policy	—
22	Restore 300-MB MHD to Service Via Frame Controls	DLP-601
23	Repeat Items 1 Through 22 for Each Remaining 300-MB MHD Frame	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	NOTE: The tape transport should be off-line and stopped with all indicators off before starting this procedure	
1	If Mounted, Remove Tape	DLP-504
2	Set **POWER ON-OFF** Switch to **OFF**	—
3	Inspect TU Frame With KS-22091 Tape Transport	DLP-611
4	Set **POWER ON-OFF** Switch to **ON**	—
5	Inspect KS-22091 Tape Transport Assembly	DLP-507
6	Mount Scratch Tape	DLP-505
7	Check KS-22091 Tape Transport Operation	DLP-508
8	Remove Scratch Tape	DLP-504
	NOTE: A tape transport diagnostic test tape should be available in the office	
9	Mount Diagnostic Test Tape	DLP-505
10	Diagnose Magnetic Tape Controller (MTC)	DLP-537
11	Remove Diagnostic Test Tape	DLP-504
12	Mount Tape Removed in Item 1	DLP-505

DO THE ITEMS BELOW IN THE ORDER LISTED	FOR DETAILS, GO TO
1	Obtain Support Apparatus Listed Below: • Micro Level Test Set ED-4C199-30 • Model 43 Teletypewriter (TTY) or Equivalent • Two Modular Type Telephone Sets	—
2	Remove Front Cover	—
3	Verify MLTS **ON**/**OFF** switch **OFF**	—
4	At MLTS, Set **DATA SET/LOCAL** Switch to **LOCAL**	—
5	Set **ORIG/ANSWR** Switch to **ORIG**	—
6	Connect Model 43 TTY or Equivalent to **PORT 1** on Rear of MLTS	—
7	Set Model 43 TTY Switches for the Following: Depress **LOCAL/TALK**, **PARITY ON** (Down), **FULL DUPLEX** (Down), **30 CPS** (Up)	—
8	Set Model 43 TTY **ON/OFF** Switch to **ON**	—
9	If Acoustic Coupler Being Used, Set Power **ON/OFF** Switch to **ON**	—
10	Test MLTS Local Configuration	DLP-562
11	Check MLTS LEDs	DLP-564
12	Diagnose MLTS	DLP-563
13	If Acoustic Coupler Being Used, Set Power **ON/OFF** Switch to **OFF**	—
14	Set Model 43 TTY **ON/OFF** Switch to **OFF**	—
15	Set MLTS **ON/OFF** Switch to **OFF**	—
16	Set Up MLTS for Automatic Answer	DLP-561
17	Diagnose MLTS	DLP-563
18	Set MLTS **ON**/**OFF** Switch to **OFF**	—
19	If Acoustic Coupler Being Used, Set Power **ON**/**OFF** Switch to **OFF**	—
20	Set Model 43 TTY **ON**/**OFF** Switch to **OFF** and Disconnect Test Equipment	—
21	Install MLTS Front Cover	—

TEST MICRO LEVEL TEST SET (MLTS) LOCAL FUNCTIONS

FOR DETAILS, GO TO

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	NOTE: Terminal common systems displays should indicate all units active (ACT) and one CU standby (STBY) before starting this procedure	
1	Obtain Digital Multimeter	—
2	If Not Active, Make CU 1 Active. Type **SW:CU!** Response: **SW CU 1 CO/MPLETED**	—
3	At CU 0, Check LEDs	DLP-606
4	Remove CU 0 From Service Via Frame Controls	DLP-599
5	Remove Power From CU 0	DLP-602
6	Inspect CU 0 Frame	DLP-608
7	Inspect Frame For Physical Integrity	DLP-613
8	Restore Power to CU 0	DLP-604
9	Test Each 244-Type Power Unit	DLP-614
10	Test Reference Power Unit J1C129AE	DLP-539
11	Check Cooling Unit	DLP-534
12	Test Cooling Unit Alarms	DLP-517
13	Restore Power to CU 0	DLP-604
14	Test Circuit Pack Fuse Alarms	DLP-515
15	Test Each 244-Type Power Unit Failure Alarm	DLP-516
16	Restore Power to CU 0	DLP-604
17	Test Reference Power Unit Alarm	DLP-518
18	Test Power Switch (**ABB1**) Fuse Failure Alarm	DLP-519
19	Restore Power to CU 0	DLP-604
20	Diagnose CU 0	DLP-605
	NOTE: A craft assistant is required at CU to perform Item 21	
21	Diagnose Central Control (CC)	DLP-615
22	Diagnose Main Store Controller (MASC)	DLP-616

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
23	Diagnose Disk File Controller (DFC) 0	DLP-605
24	Diagnose DFC 0 Data Communication Channel	DLP-617
25	Restore DFC 0 to Service Via Input Message	DLP-600
26	If Necessary, Configure Application Equipment to Permit Removal of Input/Output Processor (IOP) 0 From Service	—
27	Diagnose IOP 0	DLP-605
28	Diagnose IOP 0 Data Communication Channel	DLP-617
29	Restore IOP 0 to Service Via Input Message	DLP-600
30	Restore Application Equipment, If Necessary	—
31	Diagnose DFC 1	DLP-605
32	Diagnose DFC 1 Data Communication Channel	DLP-617
33	Restore DFC 1 to Service Via Input Message	DLP-600
34	If Necessary, Configure Application Equipment to Permit Removal of IOP 1 From Service	—
35	Diagnose IOP 1	DLP-605
36	Diagnose IOP 1 Data Communication Channel	DLP-617
37	Restore IOP 1 to Service Via Input Message	DLP-600
38	Restore Application Equipment If Necessary	—
39	Diagnose Cache Store Unit (CSU)	DLP-618
40	Restore CU 0 to Service Via Frame Controls	DLP-601
41	At Terminal, Type O/P:O/O/S *Response:* O/P O/O/S CO/MPLETED NO/NE	—
42	At Active CU, Test Stop and Switch	DLP-639
43	Repeat Items 3 Through 42 Substitute CU 1 Where 0 is Indicated	—

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	NOTE: Terminal common system display should indicate all units active (ACT) and one CU standby (STBY) before starting this procedure	
1	Obtain Digital Multimeter	—
2	If Not Active, Make CU 1 Active. Type **SW:CU!** Response: **SW CU 1 CO/MPLETED**	—
3	At CU 0, Check LEDs	DLP-606
4	Remove CU 0 From Service Via Frame Controls	DLP-599
5	Test Each 244-Type Power Unit	DLP-614
6	Test Reference Power Unit J1C129AE	DLP-539
7	Check Cooling Unit	DLP-534
8	Restore CU 0 to Service Via Frame Controls	DLP-601
9	At Terminal, Type **SW:CU!** *Response:* **SW CU 0 CO/MPLETED**	—
10	Repeat Items 3 Through 8 Substitute CU 1 Where 0 is Indicated	—

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	NOTE: Terminal common system display should indicate all units active (ACT) and one CU standby (STBY) before starting this procedure	
1	If Not Active, Make CU 1 Active. Type **SW:CU!** *Response:* **SW CU 1 CO/MPLETED**	—
2	At CU 0, Check LEDs	DLP-606
3	Remove CU 0 From Service Via Frame Controls	DLP-599
4	Test Cooling Unit Alarms	DLP-517
5	Restore Power to CU 0	DLP-604
6	Test Circuit Pack Fuse Alarms	DLP-515
7	Test Each 244-Type Power Unit Failure Alarm	DLP-516
8	Restore Power to CU 0	DLP-604
9	Test Reference Power Unit Alarm	DLP-518
10	Test Power Switch (**ABB1**) Fuse Failure Alarm	DLP-519
11	Restore Power to CU 0	DLP-604
12	Restore CU 0 to Service Via Frame Controls	DLP-601
13	At Terminal, Type **SW:CU!** *Response:* **SW CU 0 CO/MPLETED**	—
14	Repeat Items 2 Through 12 Substitute CU 1 Where 0 is Indicated	—

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	NOTE: Terminal common systems displays should indicate all units active (ACT) and one control unit (CU) standby (STBY) before starting this procedure	
1	If Not Active, Make CU 1 Active. Type **SW:CU!** *Response:* **SW CU 1 CO/MPLETED**	—
2	Diagnose CU 0	DLP-605
	NOTE: A craft assistant is required at CU to perform Item 3	
3	Diagnose Central Control (CC)	DLP-615
4	Diagnose Cache Store Unit (CSU)	DLP-618
5	Diagnose Main Store Controller (MASC)	DLP-616
6	Diagnose Disk File Controller (DFC) 0	DLP-605
7	Diagnose DFC 0 Data Communication Channel	DLP-617
8	Diagnose DFC 0 Using Demand Diagnostics	DLP-623
9	Restore DFC 0 to Service Via Input Message	DLP-600
10	Diagnose Moving Head Disk (MHD) 0	DLP-605
11	Restore MHD 0 to Service Via Input Message	DLP-600
12	Repeat Items 10 and 11 for Each MHD on DFC 0	—
13	If Necessary, Configure Application Equipment to Permit Removal of Input/Output Processor (IOP) 0 From Service	—
14	Diagnose IOP 0	DLP-605
15	Diagnose IOP 0 Data Communication Channel	DLP-617
16	Diagnose IOP 0 Using Demand Diagnostics	DLP-621
17	Restore IOP 0 to Service Via Input Message	DLP-600
18	Restore Application Equipment, If Necessary	—
19	Diagnose DFC 1	DLP-605
20	Diagnose DFC 1 Data Communication Channel	DLP-617
21	Diagnose DFC 1 Using Demand Diagnostics	DLP-623

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
22	Restore DFC 1 to Service Via Input Message	DLP-600
23	Diagnose MHD 1	DLP-605
24	Restore MHD 1 to Service Via Input Message	DLP-600
25	Repeat Items 23 and 24 for Each MHD on DFC 1	—
26	If Necessary, Configure Application Equipment to Permit Removal of IOP 1 From Service	—
27	Diagnose IOP 1	DLP-605
28	Diagnose IOP 1 Data Communication Channel	DLP-617
29	Diagnose IOP 1 Using Demand Diagnostics	DLP-621
30	Restore IOP 1 to Service Via Input Message	DLP-600
31	Restore Application Equipment if Necessary	—
32	Restore CU 0 to Service Via Input Message	DLP-600
33	At Terminal, Type **O/P:O/0/S** *Response:* **O/P O/O/S CO/MPLETED NO/NE**	—
34	At Terminal, Type **SW:CU!** *Response:* **SW CU 0 CO/MPLETED**	—
35	Repeat Items 2 Through 33. Substitute CU 1 Where CU 0 is Indicated	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	NOTE: Terminal common systems displays should indicate all units active (ACT) and one control unit (CU) standby (STBY) before starting this procedure	
1	Obtain Digital Multimeter	—
2	If Not Active, Make CU 1 Active. Type **SW:CU!** Response: **SW CU 1 CO/MPLETED**	—
3	At Disk File Controller (DFC) 0, Check LEDs	DLP-606
4	Remove DFC 0 From Service Via Frame Controls	DLP-599
5	Remove Power From DFC 0	DLP-602
6	If Necessary, Configure Application Equipment to Permit Removal of Input/Output Processor (IOP) 0 From Service	—
7	At IOP 0, Check LEDs	DLP-606
8	Remove IOP 0 From Service Via Frame Controls	DLP-599
9	Remove Power From IOP 0	DLP-602
10	Inspect PC Frame	DLP-609
11	Inspect Frame for Physical Integrity	DLP-613
12	Restore Power to IOP 0	DLP-604
13	Check Cooling Unit	DLP-534
14	Test Cooling Unit Alarms	DLP-517
15	Restore Power to IOP 0	DLP-604
16	Test 136-Type Power Unit	DLP-541
17	Test 136-Type Power Unit Failure Alarm	DLP-620
18	Restore Power to IOP 0	DLP-604
19	Test IOP 0 Fuse Alarms	DLP-521
20	Restore Power to IOP 0	DLP-604
21	Remove CU 0 From Service Via Frame Controls	DLP-599
22	Diagnose IOP 0 Using Demand Diagnostics	DLP-621

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
23	Restore IOP 0 to Service Via Frame Controls	DLP-601
24	Restore Application Equipment if Necessary	—
25	If Necessary, Configure Application Equipment to Permit Removal of IOP 1 From Service	—
26	Diagnose IOP 1 Using Demand Diagnostics	DLP-621
27	Restore IOP 1 to Service Via Input Message	DLP-600
28	Restore Application Equipment if Necessary	—
29	Restore Power to DFC 0	DLP-604
30	Test 133-Type Power Unit	DLP-543
31	Test 133-Type Power Unit Failure Alarm	DLP-622
32	Restore Power to DFC 0	DLP-604
33	Test DFC 0 Fuse Alarms	DLP-523
34	Restore Power to DFC 0	DLP-604
35	Diagnose DFC 0 Using Demand Diagnostics	DLP-623
36	Restore DFC 0 to Service Via Frame Controls	DLP-601
37	Diagnose DFC 1 Using Demand Diagnostics	DLP-623
38	Restore DFC 1 to Service Via Input Message	DLP-600
39	Restore CU 0 to Service Via Frame Controls	DLP-601
40	At Terminal, Type **O/P:O/0/S** *Response:* **O/P O/O/S COMPLETED NO/NE**	—
41	At Terminal, Type **SW:CU!** *Response:* **SW CU 0 CO/MPLETED**	—
42	Repeat Items 3 Through 40. Substitute CU 1, DFC 1, and IOP 1 Where 0 is Indicated and DFC 0 and IOP 0 Where 1 is Indicated	_

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	NOTE: Terminal common systems displays should indicate all units active (ACT) and one control unit (CU) standby (STBY) before starting this procedure	
1	Obtain Digital Multimeter	—
2	At PC Frame 0, Remove Disk File Controller (DFC) 0 From Service Via Frame Controls	DLP-599
3	If Necessary, Configure Application Equipment to Permit Removal of Input/Output Processor (IOP) 0 From Service	—
4	Remove IOP 0 From Service Via Frame Controls	DLP-599
5	Check Cooling Units	DLP-534
6	Test 136-Type Power Unit	DLP-541
7	Restore IOP 0 To Service Via Frame Controls	DLP-601
8	Restore Application Equipment, If Necessary	—
9	Test 133-Type Power Unit	DLP-543
10	Restore DFC 0 to Service Via Frame Controls	DLP-601
11	Repeat Items 2 Through 10 At PC Frame 1. Substitute DFC 1 and IOP 1 Where 0 is Indicated	

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	NOTE: Terminal common systems displays should indicate all units active (ACT) and one control unit (CU) standby (STBY) before starting this procedure	
1	At PC Frame 0, Check Disk File Controller (DFC) 0 LEDs	DLP-606
2	Remove DFC 0 From Service Via Frame Controls	DLP-599
3	Check Input/Output Processor (IOP) 0 LEDs	DLP-606
4	If Necessary, Configure Application Equipment to Permit Removal of IOP 0 From Service	—
5	Remove IOP 0 From Service Via Frame Controls	DLP-599
6	Test IOP 0 Cooling Unit Alarms	DLP-517
7	Restore Power to IOP 0	DLP-604
8	Test 136-Type Power Unit Failure Alarm	DLP-620
9	Restore Power to IOP 0	DLP-604
10	Test IOP 0 Fuse Alarms	DLP-521
11	Restore Power to IOP 0	DLP-604
12	Restore IOP 0 to Service Via Frame Controls	DLP-601
13	Restore Application Equipment, If Necessary	—
14	Test DFC 0 Fuse Alarms	DLP-523
15	Restore Power to DFC 0	DLP-604
16	Test 133-Type Power Unit Failure Alarm	DLP-622
17	Restore Power to DFC 0	DLP-604
18	Restore DFC 0 to Service Via Frame Controls	DLP-601
19	Repeat Items 1 Through 18 at PC Frame 1. Substitute IOP 1 and DFC 1 Where 0 is Indicated	—

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Obtain SCSI Scan/Signal Distributor Test Box (ED-3TO___)	—
2	At DUP Front Panel, Check LEDs	DLP-553
3	Remove SCSI MHD From Service Via Power Switch	DLP-551
4	Press **OFF** Switch	—
5	Test DUP Scan/Signal Distributor Functions	DLP-645
6	Restore Power to SCSI MHD Via Power Switch	DLP-556
7	Restore SCSI MHD to Service Via Power Switch	DLP-552
8	Repeat Items 2 Through 7 for Each Equipped SCSI MHD	—

CHECK SCSI DUP/SIGNAL DISTRIBUTOR POINTS

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
	NOTE: Terminal display pages should be clear of trouble and indicate 300-megabyte (MB) MHDs are active (ACT)	
1	Verify Mate MHD	DLP-565
2	Remove 300-MB MHD From Service Via Frame Controls	DLP-599
3	Check Power Control Unit LEDs	DLP-606
4	At 300-MB MHD Operator Control Panel, Release **START** Switch and Wait for Lamp to go Steady Off	—
5	Test MHD Power Alarm	DLP-520
6	Restore Power to 300-MB MHD	DLP-604
7	Verify MHD Under Test	DLP-565
8	Restore 300-MB MHD to Service Via Frame Controls	DLP-601
9	Repeat Items 1 Through 8 for Each 300-MB MHD Frame	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	DANGER: −48V present on this frame	
1	Inspect DC PD Frame	DLP-612
2	Check DC PD Frame	DLP-545
3	Test PD Frame Alarms	DLP-524
4	Test PD Frame Filter Alarm	DLP-525
5	Test **CAP CHG** Circuit	DLP-625
6	Charge Filter Capacitor	DLP-547

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

	DANGER: −48V present on this frame	
1	Test PD Frame Alarms	DLP-524
2	Test PD Frame Filter Alarm	DLP-525
3	Test **CAP CHG** Circuit	DLP-625
4	Charge Filter Capacitor	DLP-547

TEST DC POWER DISTRIBUTION (PD) FRAME ALARMS

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	NOTE: 300-megabyte (MB) MHDs 0 and 2 are controlled by disk file controller (DFC) 0, likewise MHDs 1 and 3 when equipped are controlled by DFC 1; however, MHDs 0 and 1 are system boot devices, and MHD 2 and if equipped MHD 3 are hot spares	
1	Verify Mate of MHD Being Replaced	DLP-565
2	Diagnose Hot-Spare MHD to be Swapped Into Service	DLP-605
3	If in Service, Remove On-Line MHD From Service Via Frame Controls	DLP-599
4	Remove Power From On-Line MHD	DLP-603
5	Remove Power From Hot-Spare MHD	DLP-603
6	Remove Controlling DFC From Service Via Frame Controls	DLP-599
7	At DFC Connector Panel, Remove Two Screws From On-Line MHD and Hot-Spare MHD Connector Plugs **B00** and **B01** Respectively	—
8	Swap Cable Connectors Just Removed and Secure Both With Two Screws in Each Plug in Swapped Positions	—
9	At MHD Operator Control Panels, Swap On-Line Identification (ID) Plug With Hot-Spare ID Plug	—
10	Change Scanner Signal Distributor Data	DLP-641
11	Restore Power to Both MHDs Via Frame Controls	DLP-604
12	Restore DFC to Service Via Frame Controls	DLP-601
13	Wait for MHDs to Restore and Initialize	—
14	Verify Newly Designated On-Line MHD	DLP-565

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Obtain Flashlight	—
2	Remove Tape if Mounted	DLP-629
3	If **LOGIC OFF** LED Off, Touch **LOGIC OFF** Switch	—
4	Inspect Tape Unit (TU) Frame With KS-22762 Tape Transport	DLP-634
5	Inspect KS-22762 Tape Transport Assembly	DLP-631
6	Diagnose KS-22762 Tape Transport	DLP-633
	NOTE: A diagnostic test tape should be available in the office	
7	Mount Diagnostic Test Tape	DLP-630
8	Diagnose Magnetic Tape Controller (MTC)	DLP-537
9	Remove Diagnostic Test Tape	DLP-629
10	Mount Tape if Removed in Item 2	DLP-630

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
1	Obtain Flashlight	—
2	Remove Tape if Mounted	DLP-629
3	Inspect KS-22762 or KS-23113 Tape Transport Assembly	DLP-631
4	Diagnose KS-22762 or KS-23113 Tape Transport	DLP-633
5	Mount Tape if Removed in Item 2	DLP-630

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Obtain Support Apparatus Listed Below: • Lint-Free Cloth • Foam Swabs • Tape Cleaning Solvent – # 95961030 (Computer Peripherals, Inc.) or Equivalent • Small Mechanic's Mirror	–
2	Remove Tape if Mounted	DLP-629
3	Clean KS-22762 or KS-23113 Tape Transport Assembly	DLP-632
4	Mount Tape if Removed in Item 2	DLP-630

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Remove Tape if Mounted	DLP-629
	NOTE: A 6-inch reel of new tape is recommended for item 2 since only 60 inches are written	
2	Mount New Tape	DLP-630
3	Write Diagnostic Test Tape	DLP-635
4	Remove Diagnostic Test Tape	DLP-629
5	Label and Store Diagnostic Test Tape For Future Use	—
6	Mount Tape if Removed in Item 1	DLP-630

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Remove Tape if Mounted	DLP-504
	Note: A tape transport diagnostic test tape should be available in the office	
2	Mount the Diagnostic Test Tape	DLP-505
	A. If a Diagnostic Tape is Not Available Make One Using the Following Steps:	
	1. Mount a Blank Tape	DLP-630
	2. Apply End-of-Tape (EOT) Marker 50 Inches From Beginning-of-Tape (BOT) Marker	DLP-569
	3. Rewind Tape to BOT Marker by Depressing **REWIND** Switch and Waiting for Tape to Stop	—
	4. Depress **ON LINE** Switch and Close Dust Cover	—
	5. Write the Diagnostic Test Tape	DLP-635
3	Diagnose Magnetic Tape Controller PH5	DLP-537
4	Remove the Diagnostic Test Tape	DLP-629
	Note: If a new diagnostic test tape was written in Item 2, label and store for future use	
5	Mount the Tape if Removed in Item 1	DLP-630

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
	DANGER: −48 Vdc and 120 Vac present on this frame.	
1	If Tape/disk Cabinet is not Equipped With Tape Drive, go to Item 12	−
2	Obtain Flashlight	−
3	Remove Tape if Mounted	DLP-629
4	If LOGIC OFF LED Off, Touch LOGIC OFF Switch	−
5	Inspect Tape/Disk Cabinet	DLP-636
6	Inspect KS-22762 or KS-23113 Tape Transport Assembly	DLP-631
7	Diagnose KS-22762 or KS-23113 Tape Transport	DLP-633
	NOTE: A diagnostic test tape should be available in the office	
8	Mount Diagnostic Test Tape	DLP-630
9	Diagnostic Magnetic Tape Controller (MTC)	DLP-537
10	Remove Diagnostic Test Tape	DLP-629
11	Mount Tape if Removed in Item 3	DLP-630
12	Check Light Emitting Diodes (LEDs)	DLP-606
	NOTE: Even numbered moving head disks (MHDs) 0, 2, 4, etc, contain the same data as their odd numbered mates 1, 3, 5, etc	
13	Verify Mate of First 340-Megabyte (340-MB) MHD	DLP-565
14	Remove First 340-MB MHD From Service Via Frame Controls	DLP-599
15	Test First 340-MB MHD Alarm	DLP-637
16	Restore Power to 340-MB MHD	DLP-604
17	Diagnose MHD	DLP-605
18	Verify MHD Under Test	DLP-565
19	Restore MHD to Service Via Frame Controls	DLP-601
20	Repeat Item 12 Through Item 19 for Each Remaining 340-MB MHD	−

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Check Light Emitting Diodes (LEDs)	DLP-606
2	Remove 340-MB From Service Via Frame Controls	DLP-599
3	Release **START** Switch	—
4	Test 340-MB MHD Alarm	DLP-637
5	Restore Power to 340-MB MHD	DLP-604
6	Restore 340-MB MHD to Service Via Frame Controls	DLP-601
7	Repeat Item 1 Through Item 6 For Each Remaining MHD	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
1	Remove 340-Megabyte (340-MB) MHD From Service Via Frame Controls	DLP-599
2	Operate **OFF** Switch to Remove Power	—
3	Replace 340-MB MHD Air Filter	DLP-642
4	Restore Power to 340-MB MHD	DLP-604
5	Restore 340-MB MHD to Service Via Frame Controls	DLP-601
6	Repeat Items 1 Through 5 for Each Equipped 340-MB MHD	—

GENERAL

Maintenance in this volume is limited to procedures for replacing easily identifiable faulty circuit packs and power units. In some instances, trouble locating procedures (TLPs) options are used in routine diagnostic tests. In these instances, when the diagnostics fail, the output message will list the causes of the fault with the most likely cause first. Circuit packs are replaced one at a time in the order listed. The diagnostic is repeated after each replacement. If the TLP output message indicates the same fault, the last circuit pack is reinstalled and the next circuit pack is replaced. If the TLP output message indicates new faults, the new circuit pack could be worse than the original circuit pack. In this case, reinstall the original and proceed with the next circuit pack on the original list.

ASSUMPTIONS

It is assumed that the operator is familiar with the following subjects and activities.

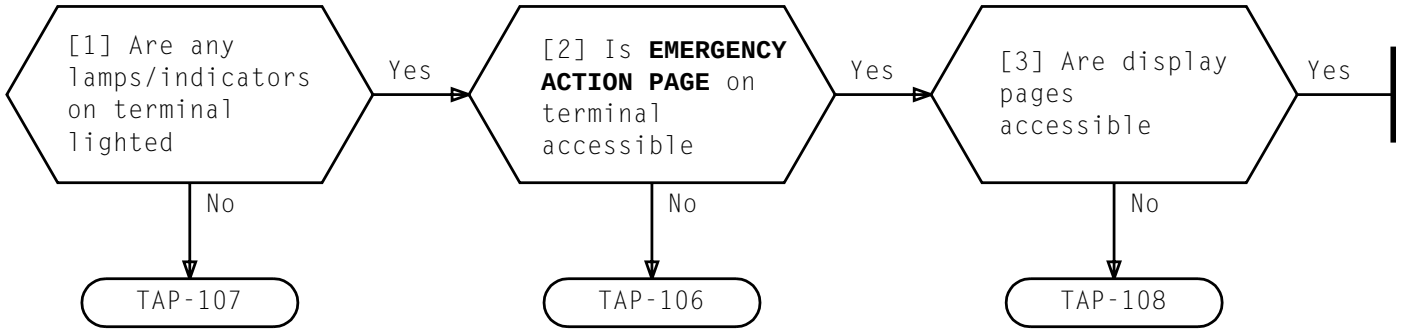
1. Replacing one circuit pack at a time by first powering down the unit, replacing the circuit pack, powering up the unit, and repeating diagnostics.
2. Wearing a properly grounded antistatic wrist strap when installing or removing circuit packs.
3. Handling circuit packs by edges and faceplate to avoid damaging contacts and deforming components.
4. Operation of the terminal to include mode changing, page manipulation, and message conventions.
5. Tagging faulty circuit packs with office location, cabinet or frame number, mounting location, diagnostic phase and test that failed, and date removed.
6. All test equipment is functioning properly.
7. A replacement unit or circuit pack is known to be good.
8. Burned out LEDs are replaced when found.
9. Audible alarms are retired without instruction.

PREVENTIVE MAINTENANCE

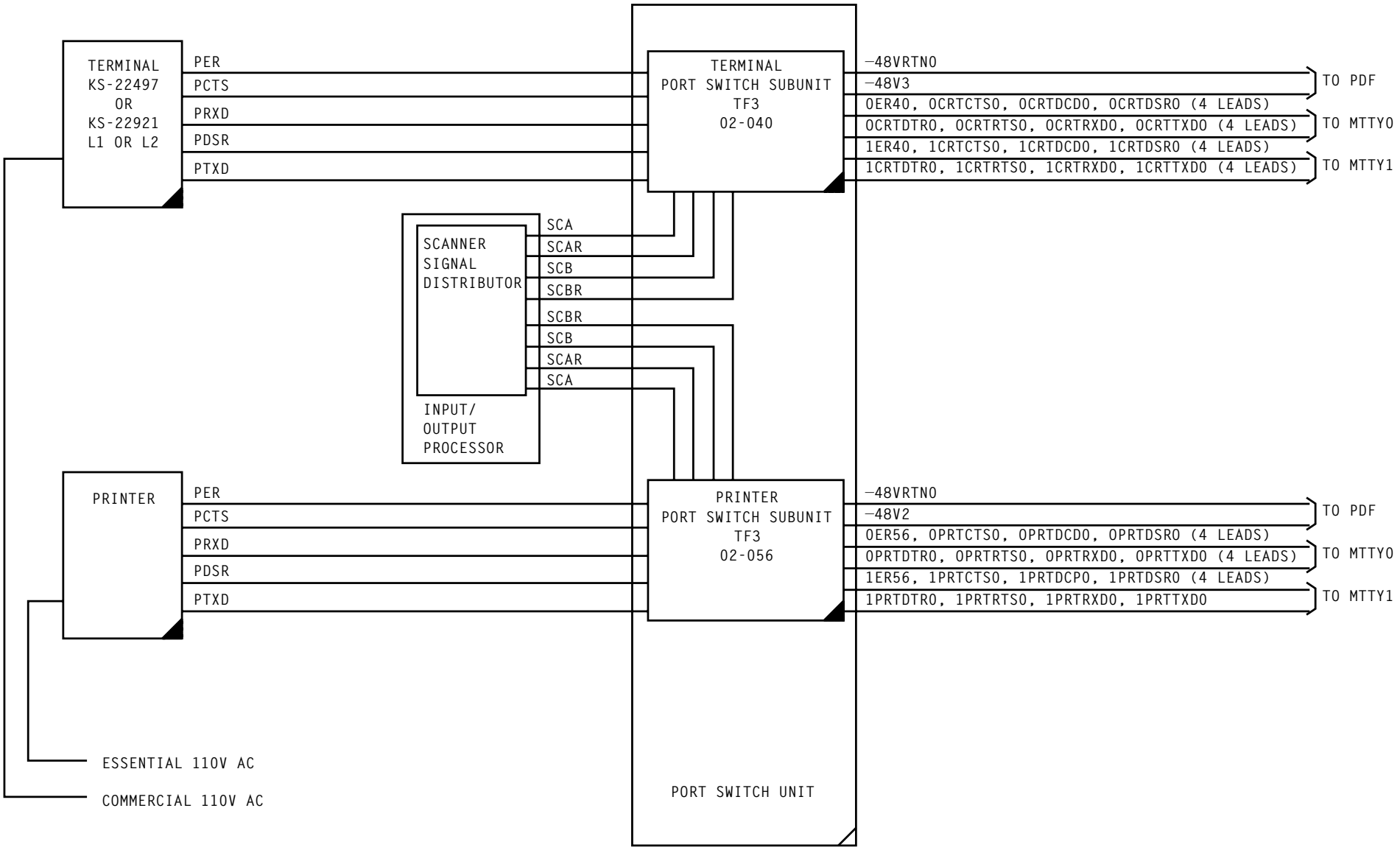
Preventive (routine) maintenance is performed on a specific schedule to ensure the system continues to operate properly. These routine procedures should be performed during periods of light processor activity since most procedures require the unit to be removed from service which leaves the system in simplex operation. The recommended schedule is shown in TABLE A.

MAINTENANCE PHILOSOPHY AND PREVENTIVE MAINTENANCE

TABLE A		
TASK	**PROCEDURE**	**FREQUENCY**
Inspect/Clean Tape Drive	NTP-003/004 NTP-036	After 8 hours of operation or Monthly
Perform System Demand Diagnostics [less Disk File Controllers (DFCs) and Moving Head Disks (MHDs)]	NTP-024	Monthly
Perform DFC and MHD Demand Diagnostics	NTP-024	When DFCs and MHDs are removed from service for other reasons
Service 300-MB MHD Air Filter	NTP-007	Quarterly
Service 340-MB MHD Air Filter	NTP-041	Quarterly
Verify Processor Power and Cooling Units	NTP-022	Quarterly
Test Power Distribution Alarm	NTP-032	Annually
Test Processor Control Cabinet Alarms	NTP-027	Annually
Test SCSI Disk Cabinet Alarms	NTP-015	Annually
Test 300-MB MHD Alarm	NTP-030	Annually
Test 340-MB MHD Alarm	NTP-040	Annually
Check SCSI DUP LEDs	DLP-553	Annually
Test Micro Level Test Set Local Functions	NTP-019	As required
Clean Printer	NTP-020	As required
Prepare Diagnostic Test Tape	NTP-010/037	As required
Swap Warm Spare MHD Into Service	NTP-014	As required
Verify Operator Interface	NTP-011	Only when problems occur
Perform Tape Demand Diagnostics	NTP-038	Prior to writing a tape



ANALYZE TERMINAL FAULT



CRAFT POSITION INTERFACE

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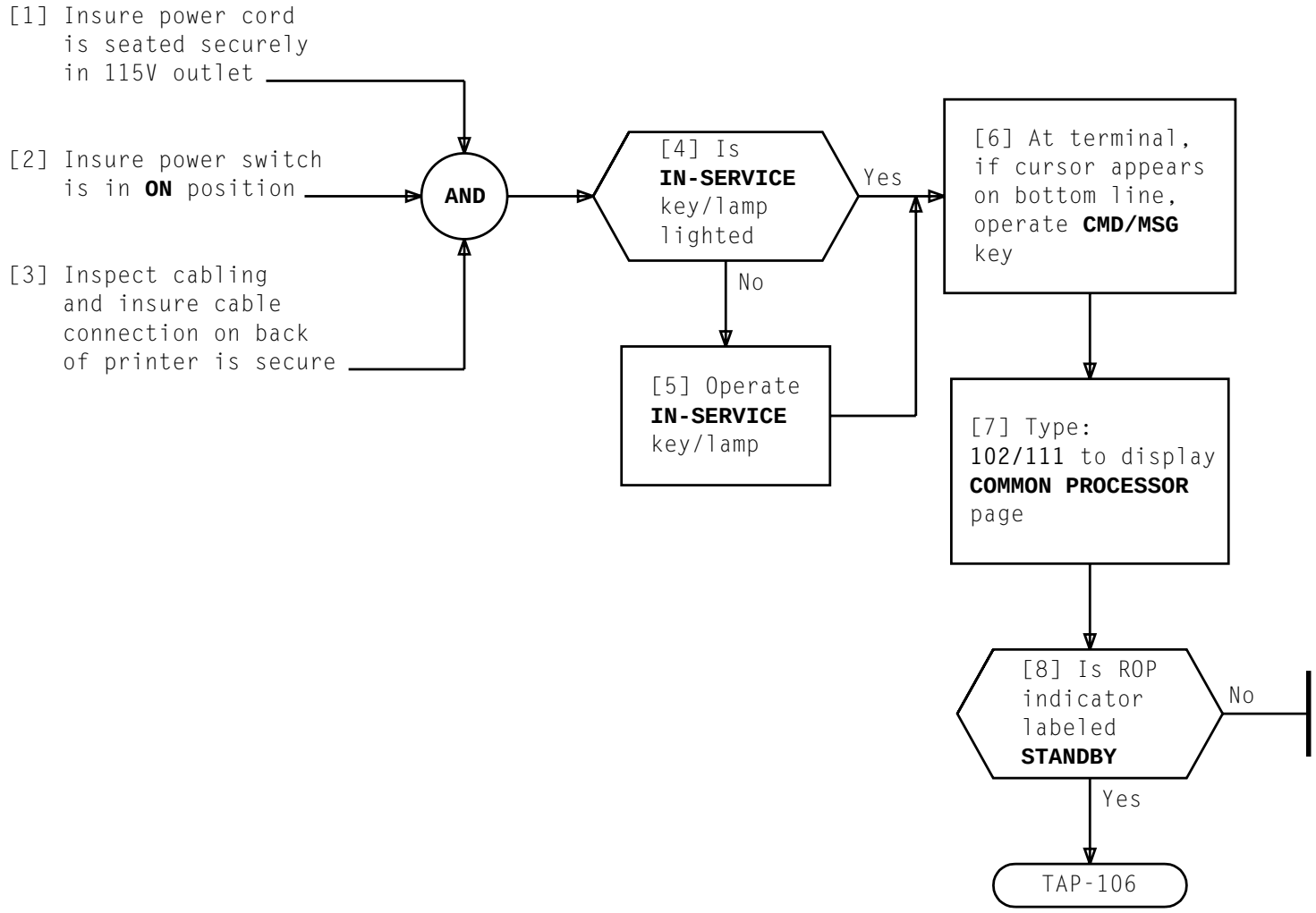
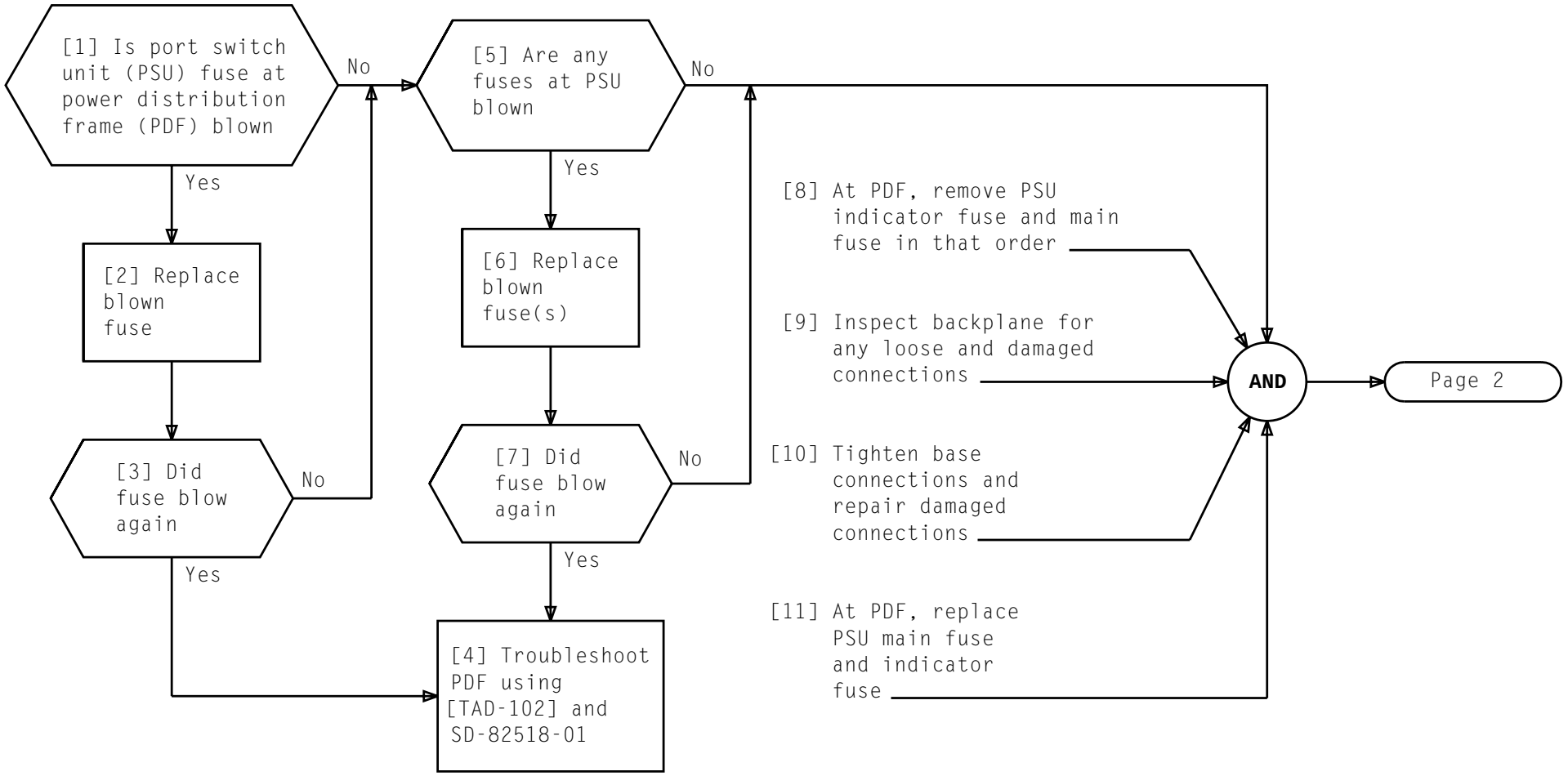
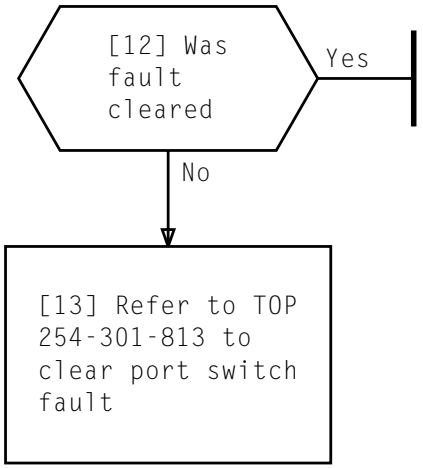


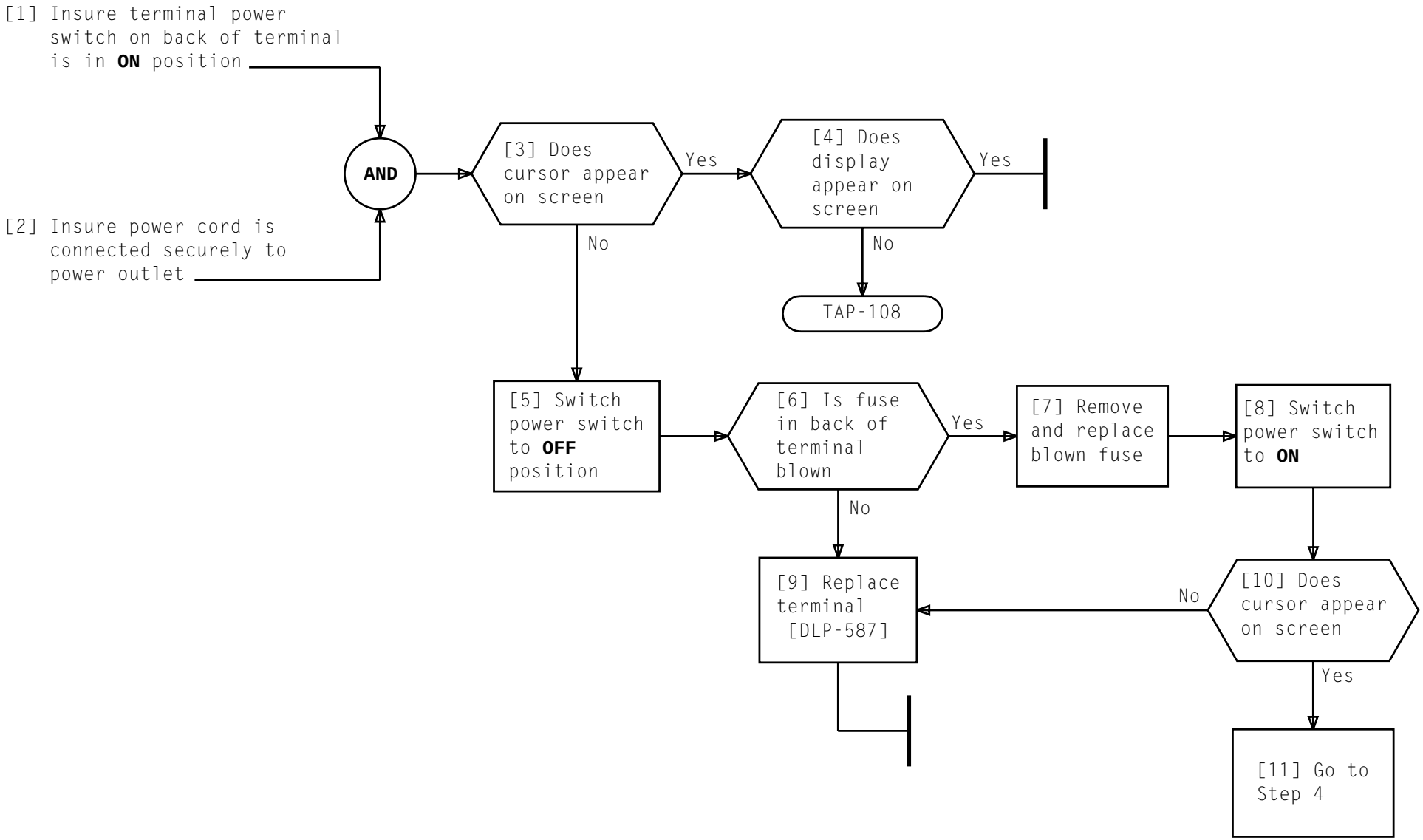
CLEAR PRINTER FAULT



CLEAR PORT SWITCH FAULT



CLEAR PORT SWITCH FAULT



CLEAR TERMINAL POWER PROBLEM

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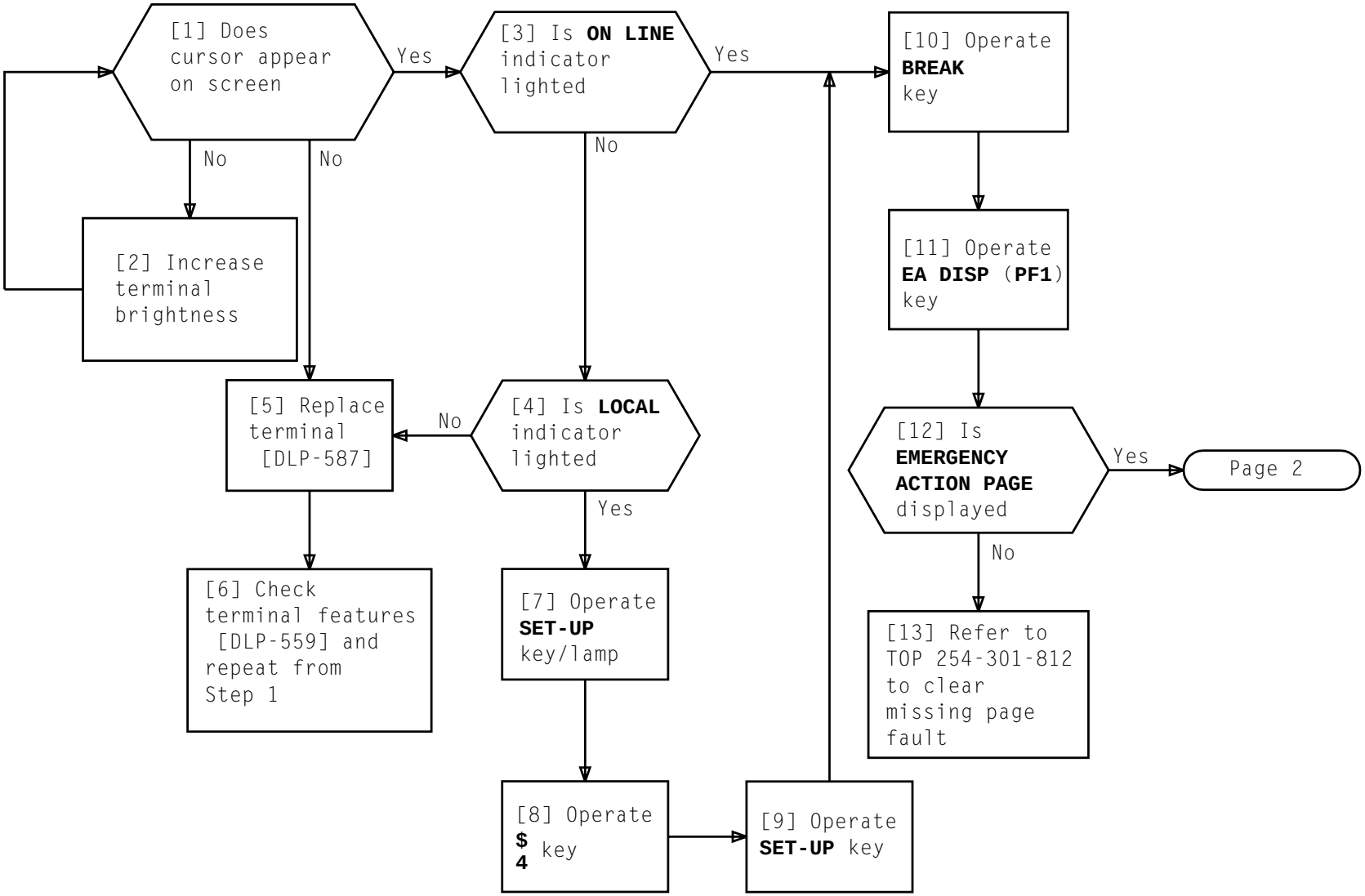
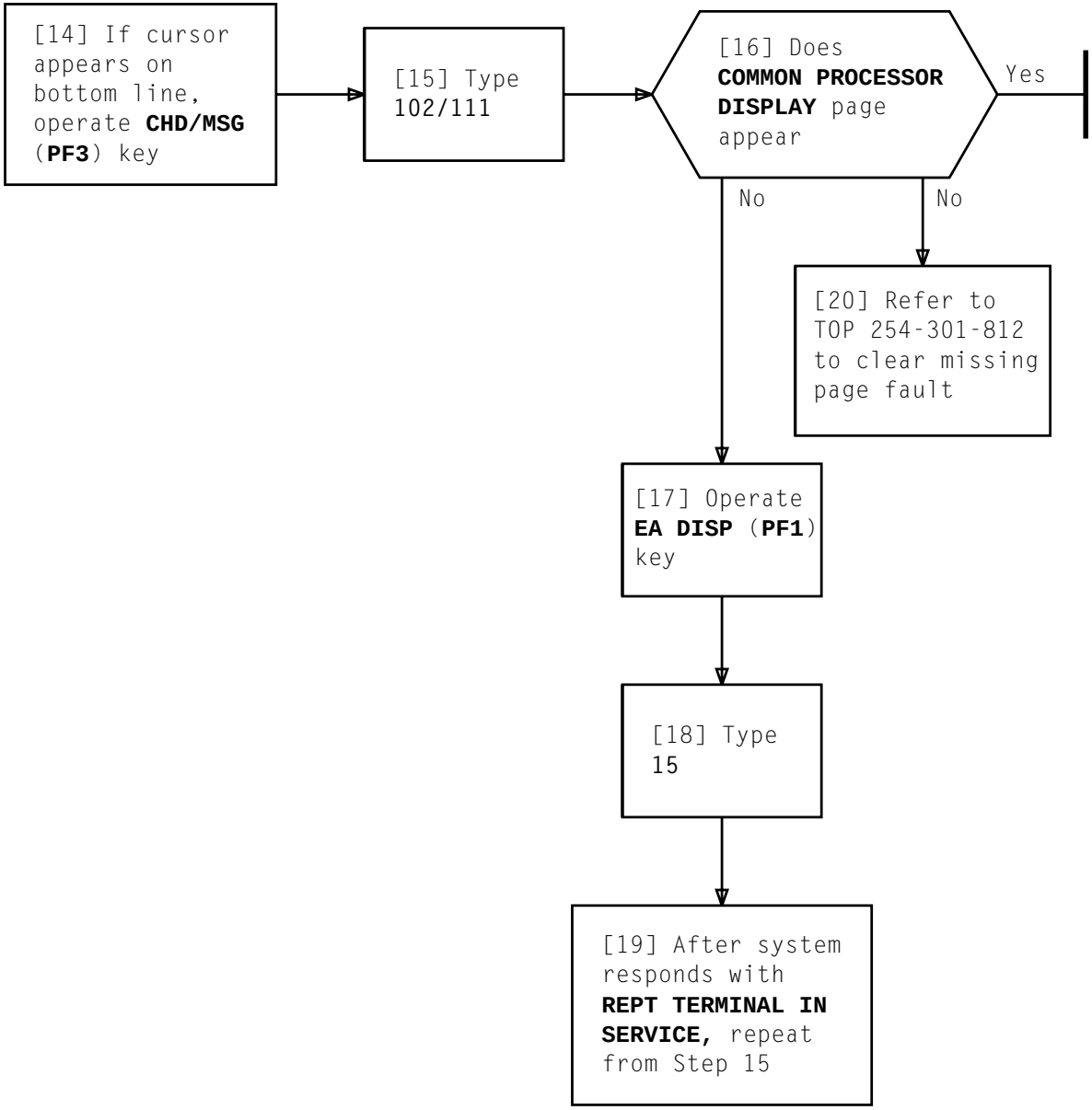
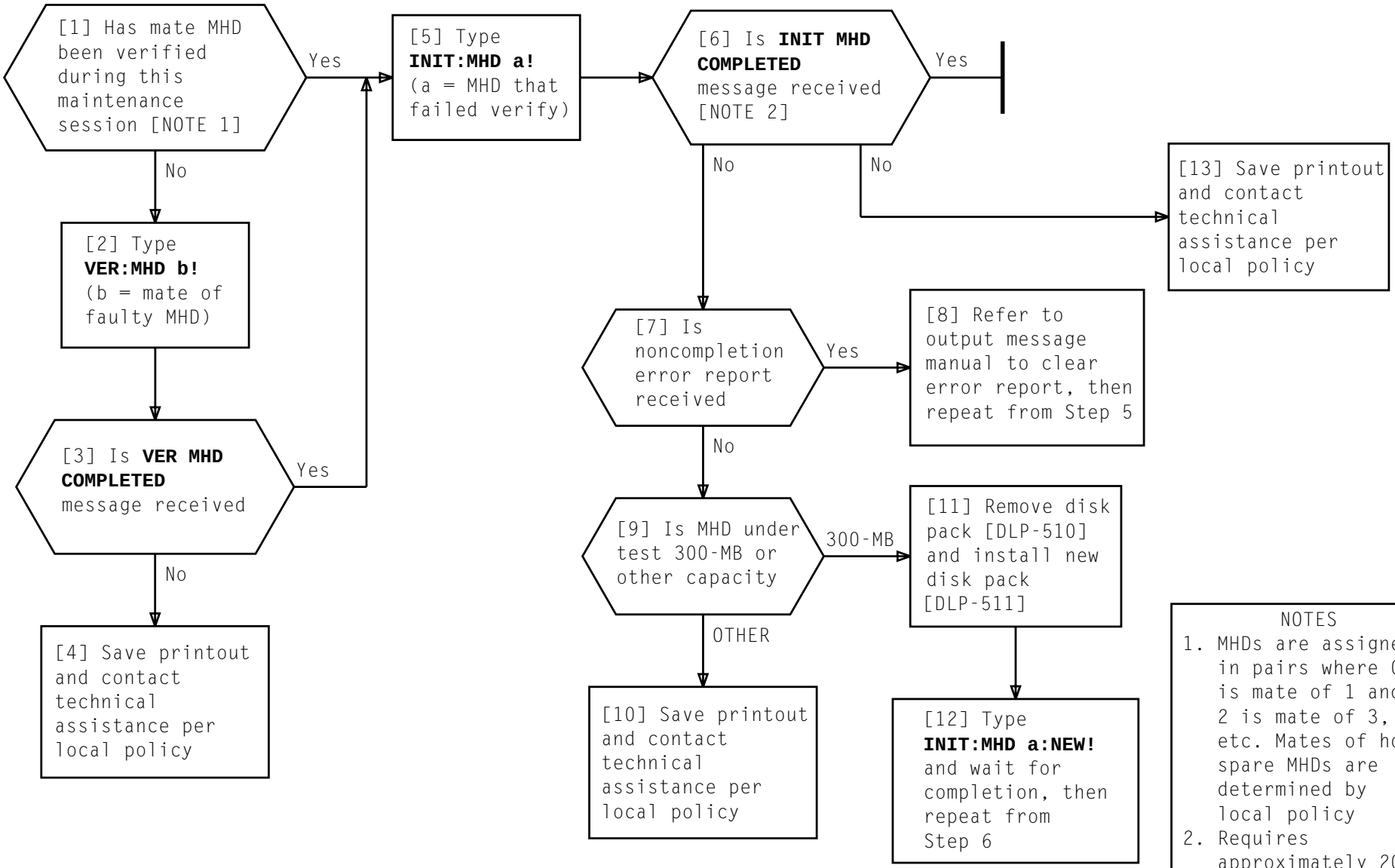


CLEAR TERMINAL COMMUNICATION FAULT



CLEAR TERMINAL COMMUNICATION FAULT



NOTES

1. MHDs are assigned in pairs where 0 is mate of 1 and 2 is mate of 3, etc. Mates of hot spare MHDs are determined by local policy
2. Requires approximately 20 minutes for 300-MB MHD

CLEAR MOVING HEAD DISK (MHD) VERIFY FAULT

4ESS™ SWITCH SCSI APPLICATION
(J3T058A-1)

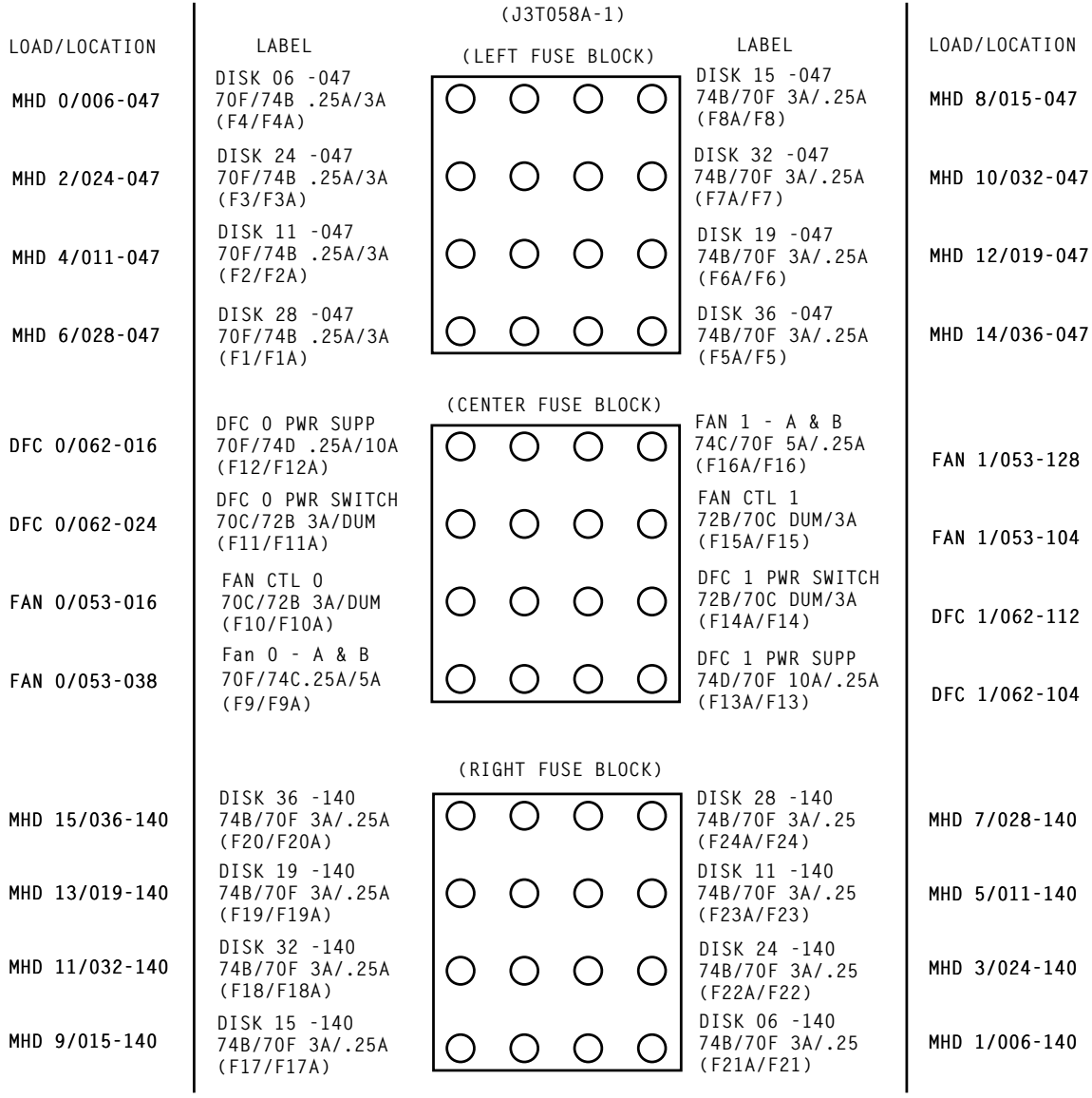
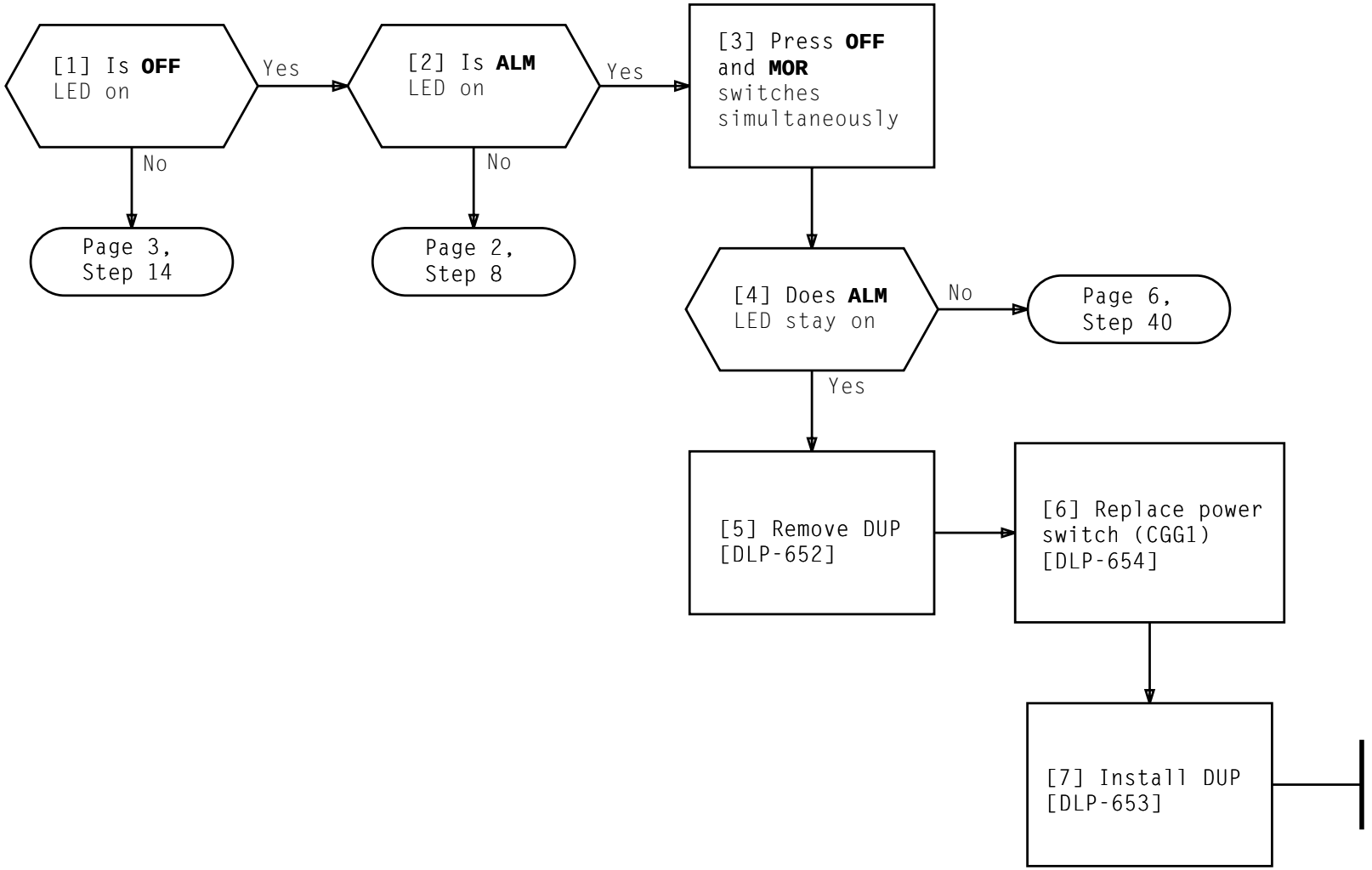
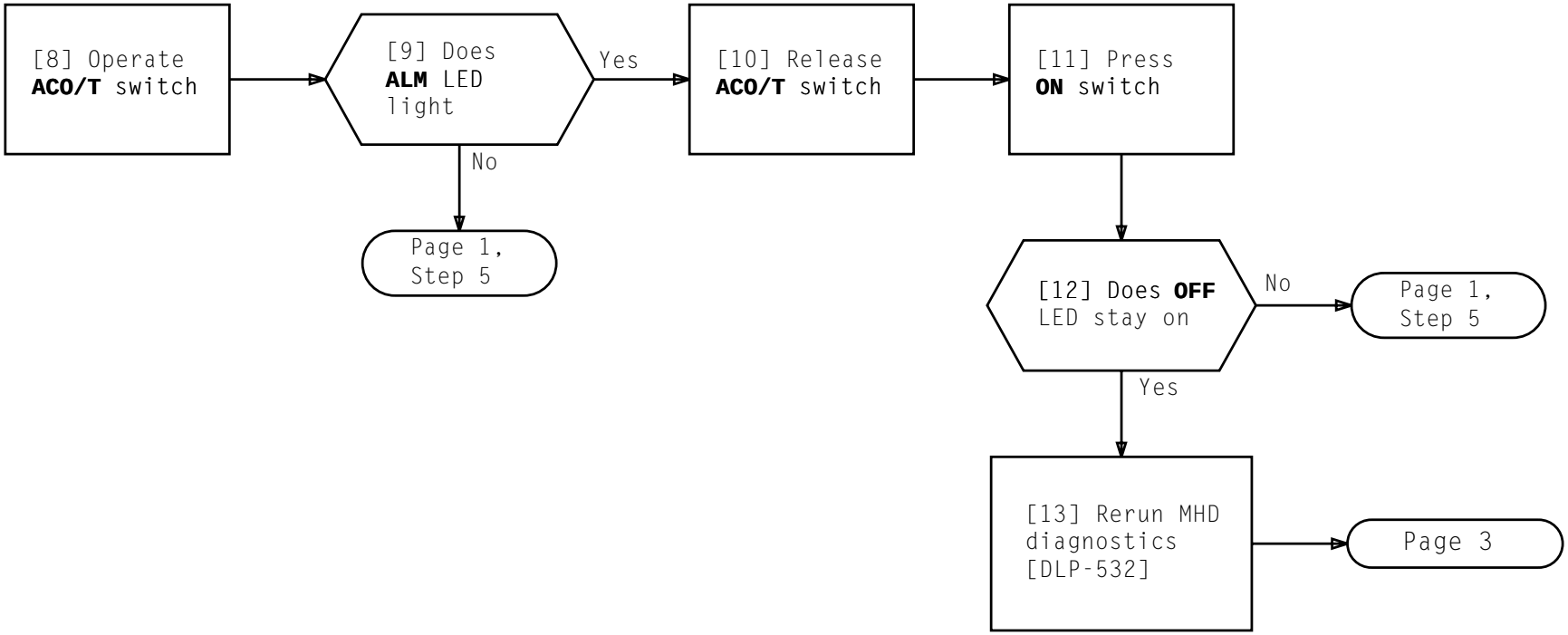


FIG. 1 - SCSI Disk Cabinet Fuse Assignments

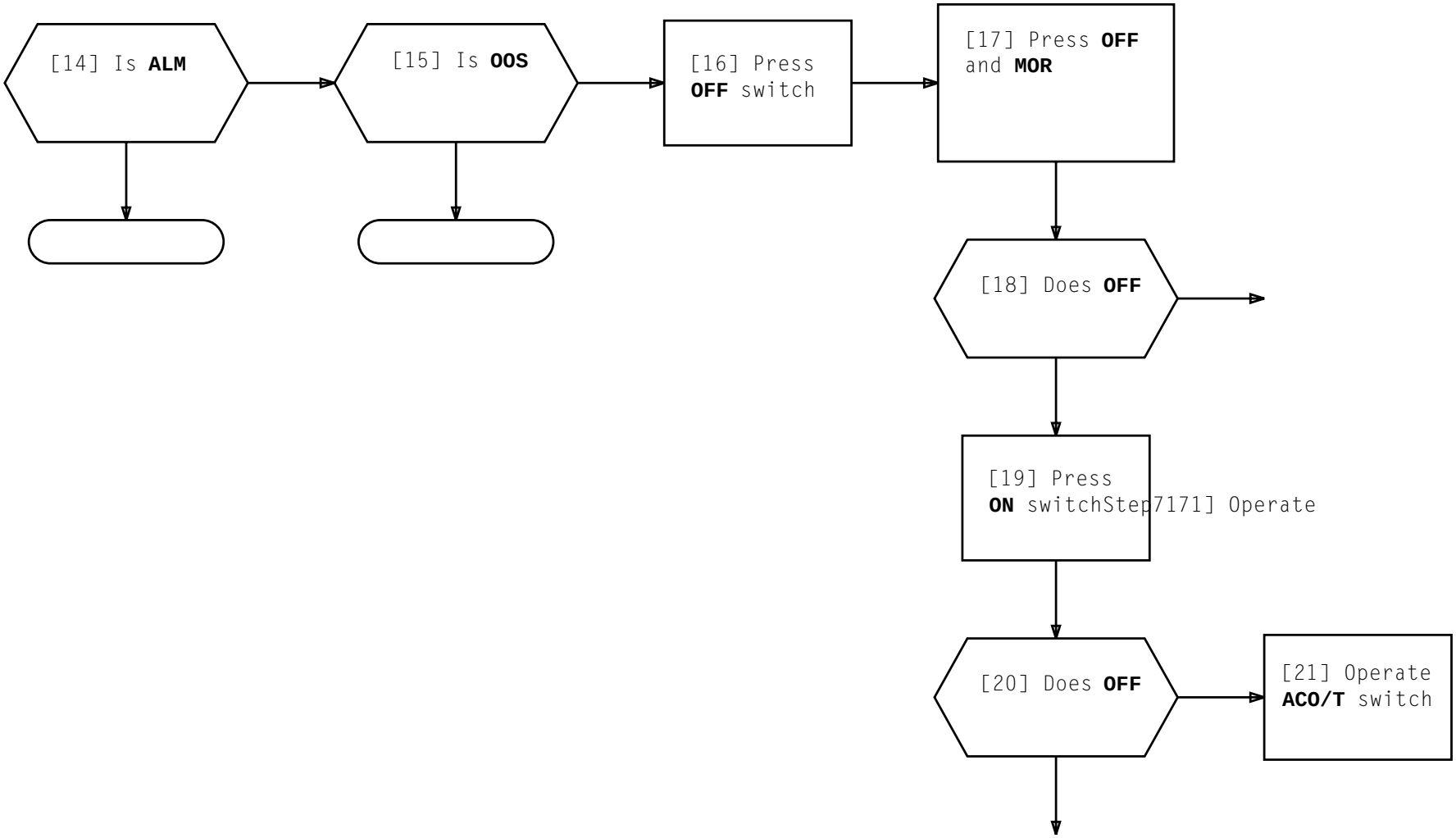
FUSE DATA

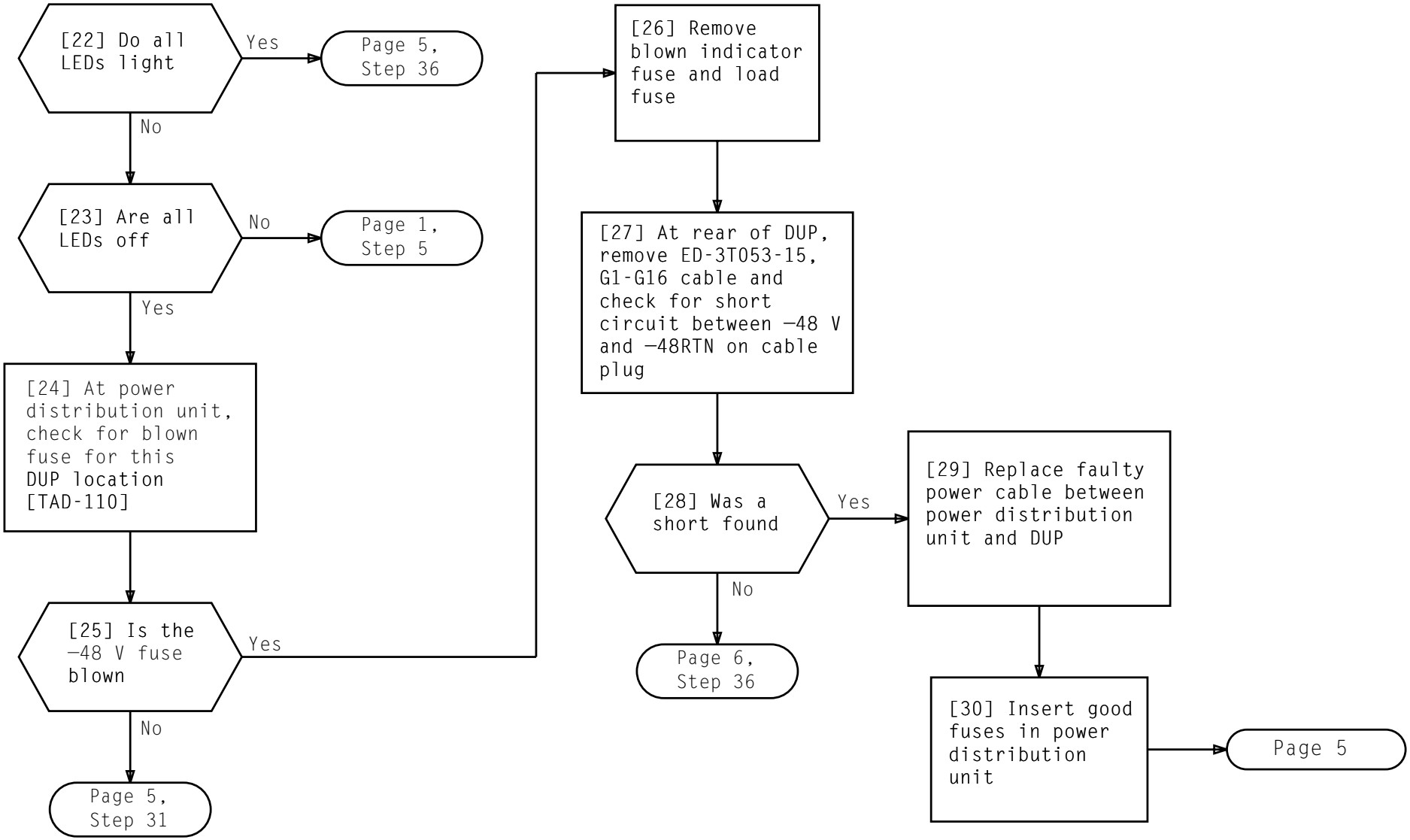


TROUBLESHOOT SCSI DISK UNIT PACKAGE (DUP)

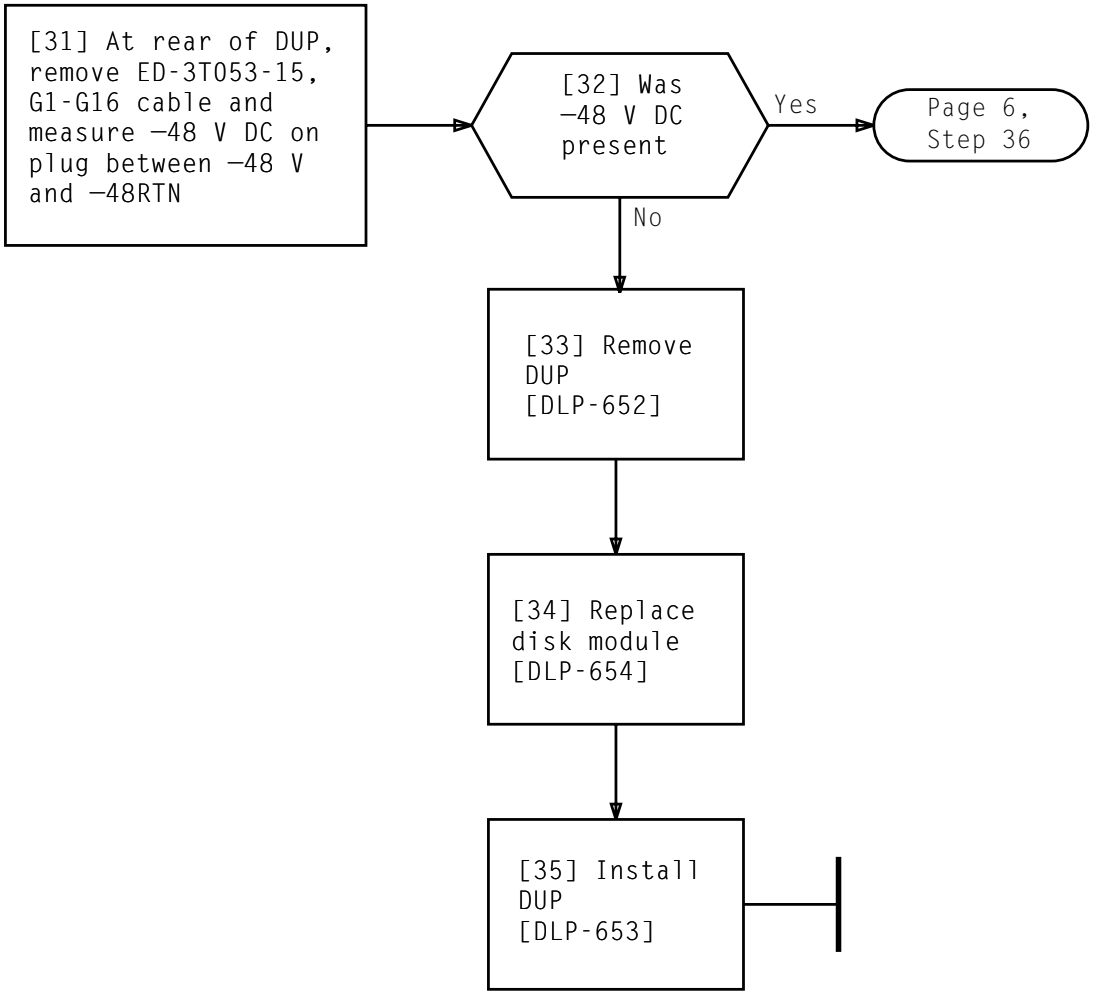


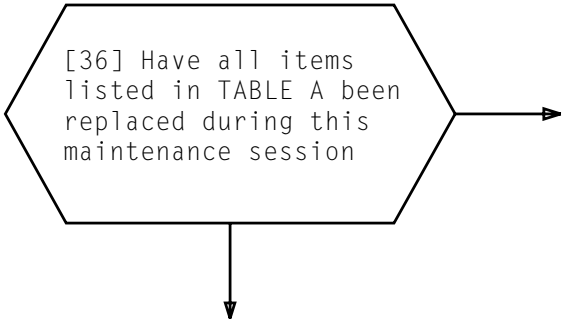
TROUBLESHOOT SCSI DISK UNIT PACKAGE (DUP)

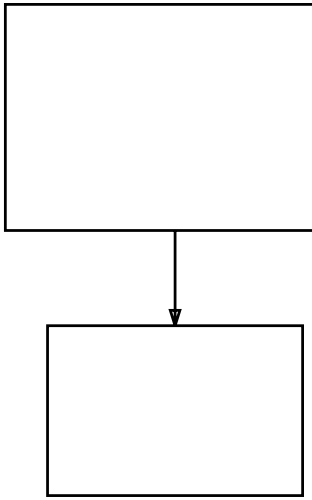

[14] Is **ALM**
[15] Is **OOS**
[16] Press **OFF** switch
[17] Press **OFF** and **MOR**
[18] Does **OFF**
[19] Press **ON** switchStep7171] Operate
[20] Does **OFF**
[21] Operate **ACO/T** switch

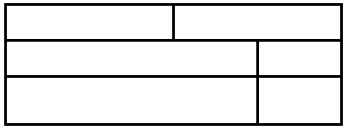


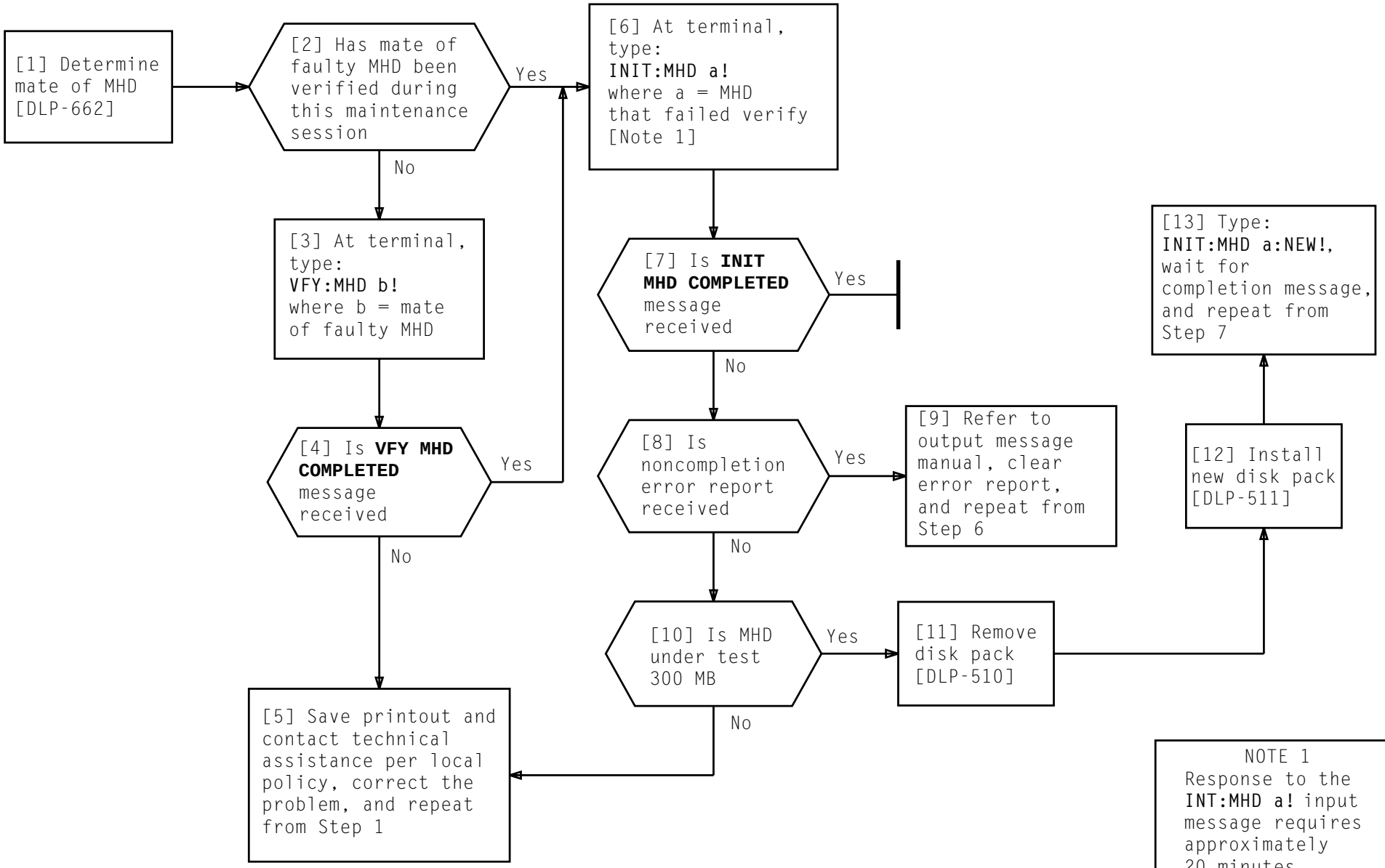
TROUBLESHOOT SCSI DISK UNIT PACKAGE (DUP)


[31] At rear of DUP, remove ED-3TO53-15, G1-G16 cable and measure –48 V DC on plug between –48 V and –48RTN
[32] Was –48 V DC present
Yes
Page 6, Step 36
No
[33] Remove DUP [DLP-652]
[34] Replace disk module [DLP-654]
[35] Install DUP [DLP-653]


[36] Have all items
listed in TABLE A been
replaced during this
maintenance session







NOTE 1
Response to the **INT:MHD a!** input message requires approximately 20 minutes

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CLEAR MOVING HEAD DISK (MHD) VERIFY FAULT

[1] Obtain new filter and cut to size [FIG. 1] [NOTE 1]

[2] Pull out filter tray assembly from cooling unit housing

[3] Remove screen and filter material from tray assembly

[4] Place new filter with smooth side up in tray assembly

[5] Place screen into tray assembly over smooth side of filter

[6] Push filter tray assembly into cooling unit housing

AND

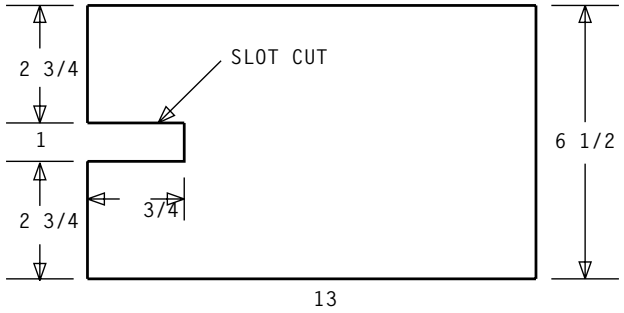

FIG. 1 – Filter Dimensions

NOTE 1
Filter material type is Cambridge Filter Corp. 6 1/2 inch by 13 inch by 1/2 inch stores number 9010667 or equivalent

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REPLACE COOLING UNIT FILTER

REMOVE TAPE (KS-22091)

On tape transport control panel:

[1] If **ON LINE** lamp lighted, press and release **ON LINE** switch until **ON LINE** lamp off

[2] Depress **REWIND** switch → Tape rewinds off take-up reel and stops

[3] On tape transport, open dust cover

[4] Rotate supply (upper) hub knob counterclockwise until all of tape is rewound. See FIG. 1

AND

[5] On supply (upper) hub, raise hub tab and remove tape reel

[6] Return hub tab to locked down position, then close dust cover

AND

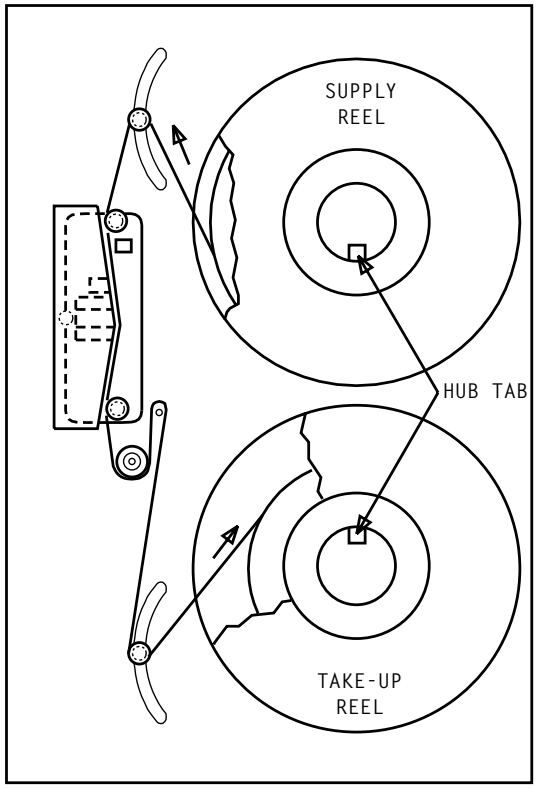

FIG. 1

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SUMMARY

Verify **ON LINE** lamp off; then place reel on supply hub with write enable ring, if required, and close hub tab. Thread tape through head assembly and onto take-up reel. Depress **LOAD** switch and verify tape stops at **BOT** marker. Insure **ON LINE** lamp off.

[1] If tape is to be written, install write-enable ring onto tape reel

[2] On control panel, depress and release **ON LINE** switch until **ON LINE** lamp is off

[3] Open tape transport dust cover

[4] Lift supply (upper) reel hub tab. Place tape reel, with write-enable ring against flange, onto supply (upper) reel hub

[5] Verify tape reel is against hub flange

AND

[6] Press hub tab to normal down position

AND

Page 2

[7] Thread tape along tape path as shown in FIG. 1

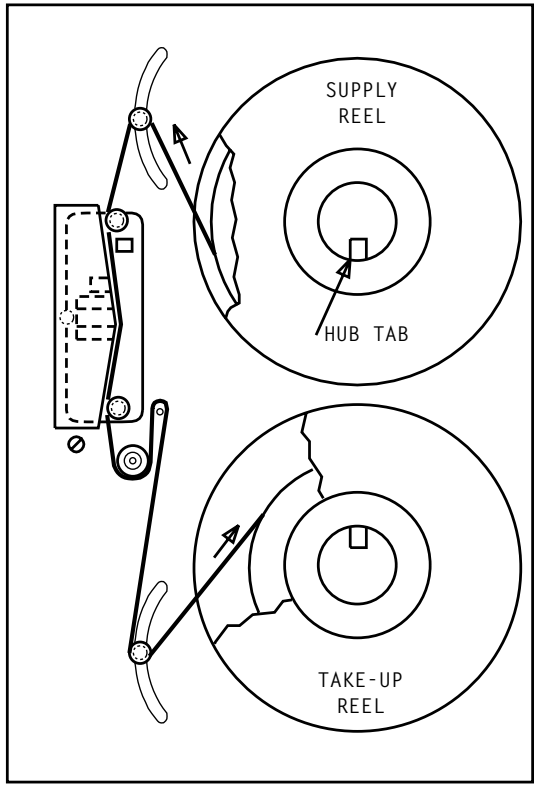
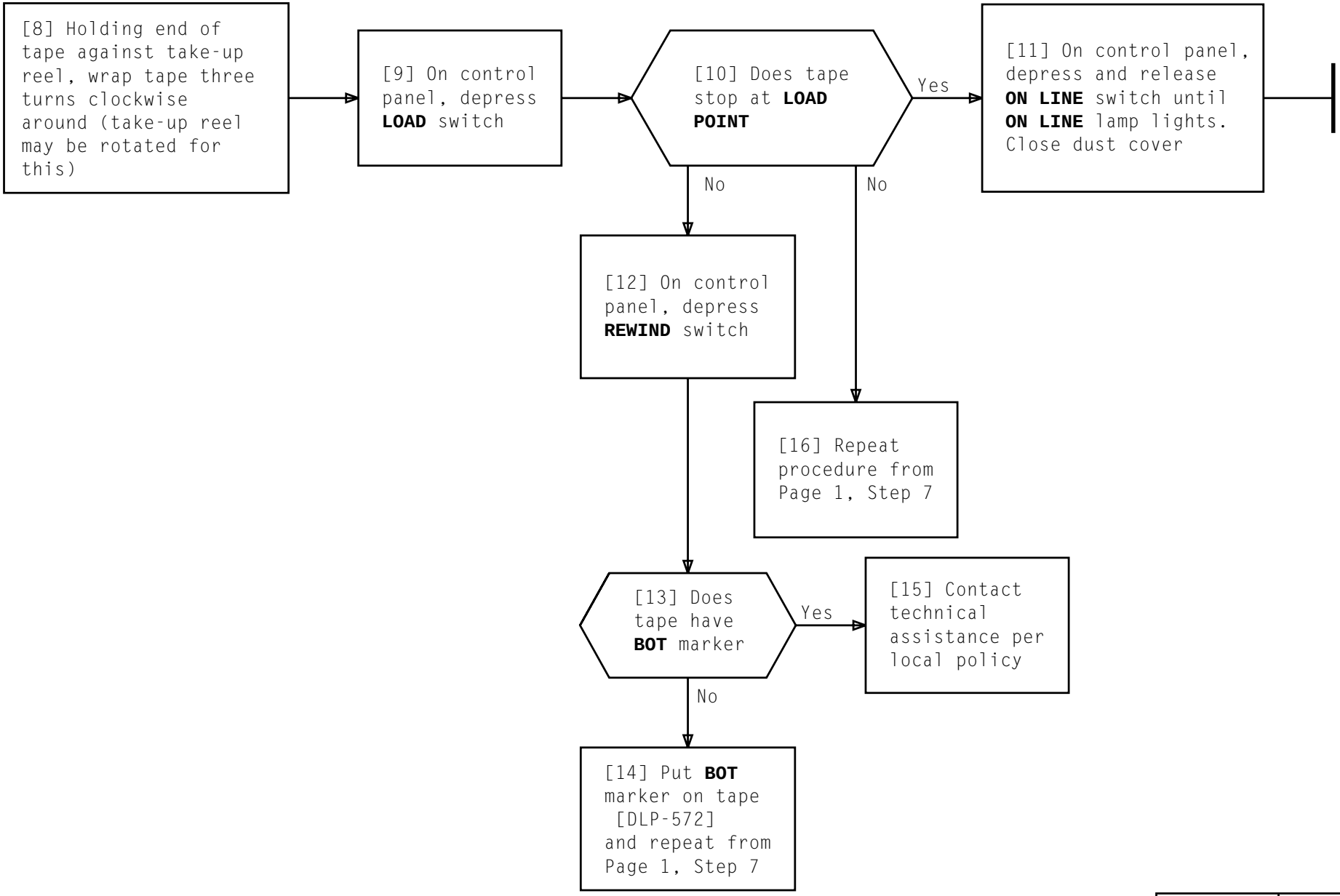


FIG. 1

MOUNT TAPE (KS-22091)



MOUNT TAPE (KS-22091)

CLEAN KS-22091 TAPE TRANSPORT ASSEMBLY

[1] Depress and release **ON LINE** switch until **ON LINE** lamp goes off

[2] Open dust cover

[3] Using vacuum cleaner, carefully clean inside dust cover and outside deck assembly

[4] See FIG. 1. Gently push head shield away from tape head

[5] See CAUTION 1. Using cotton swab with solvent, clean tape head assembly

[6] Return head shield to normal position

AND

[7] Using cotton swab or lint-free cloth with solvent, clean tape guides and tape path along head assembly

[8] Using lint-free cloth with solvent or TEXPAD, carefully clean tension rollers, tape guides, capstan, and take-up reel

[9] Using lint-free cloth, clean inside dust cover and outside deck assembly

[10] Close dust cover

AND

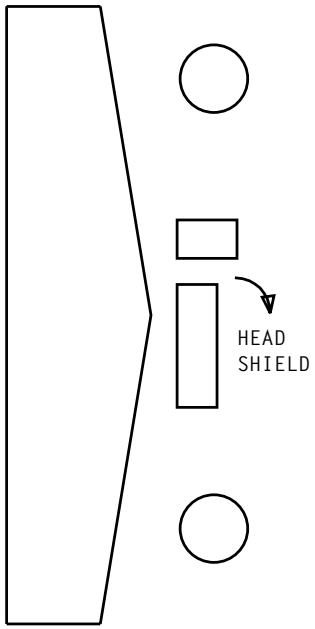


FIG. 1

CAUTION 1
Solvent can damage bearings on rollers or motor

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SUMMARY	
Verify **ON LINE** lamp off, then open and inspect assembly, check for OV between pins **E**(−) and **F**(+), close assembly.	Inspect for dirt and for worn guides and tape heads. Check hubs for looseness. Verify clearance between head and shield.

[1] At tape transport control panel, press and release **ON LINE** switch until **ON LINE** lamp is off

[2] Fully open dust cover

[3] See FIG. 1. Loosen deck assembly screw and open deck assembly

[4] See DANGER 1. Inspect and correct any mechanical defects inside tape transport

[5] See Page 2, FIG. 2. Connect digital multimeter between test points **E**(−) and **F**(+) on sensor/amplifier module

AND

[6] Can **R16** be adjusted for multimeter indication of OV

Yes

No

[7] Contact technical assistance per local policy

[8] Remove digital multimeter and close deck assembly

AND

Page 2

[9] See FIG. 1. Gently push back head shield and inspect head assembly for wear and dirt or oxide

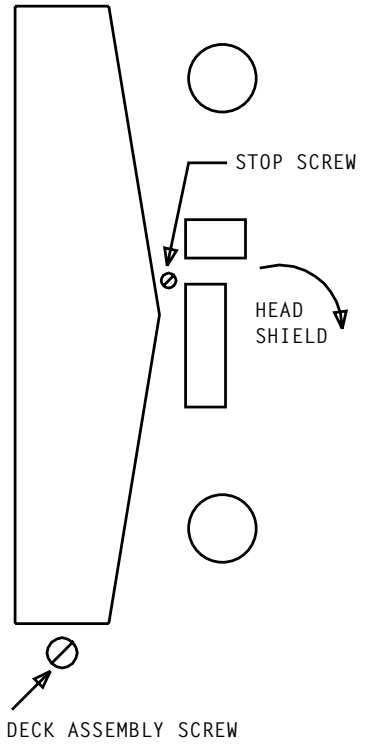

FIG. 1

DANGER 1
48V present inside tape transport

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INSPECT KS-22091 TAPE TRANSPORT ASSEMBLY

[10] Return head shield to normal position

[11] Was head assembly worn with visible grooves

No

Yes

[12] Contact technical assistance per local policy

[13] Check tape guides for wear

[14] Were tape guides worn with visible grooves

No

Yes

[15] Rotate take-up and supply reel hubs

Page 3

[16] For all worn tape guides, loosen tape guide mounting screw. Rotate tape guide to unworn position and tighten mounting screw

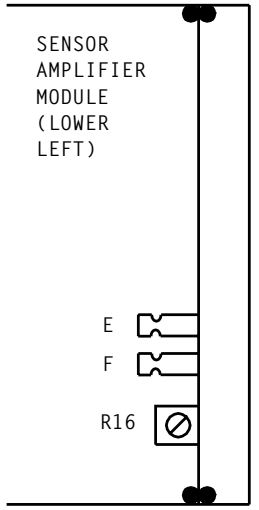
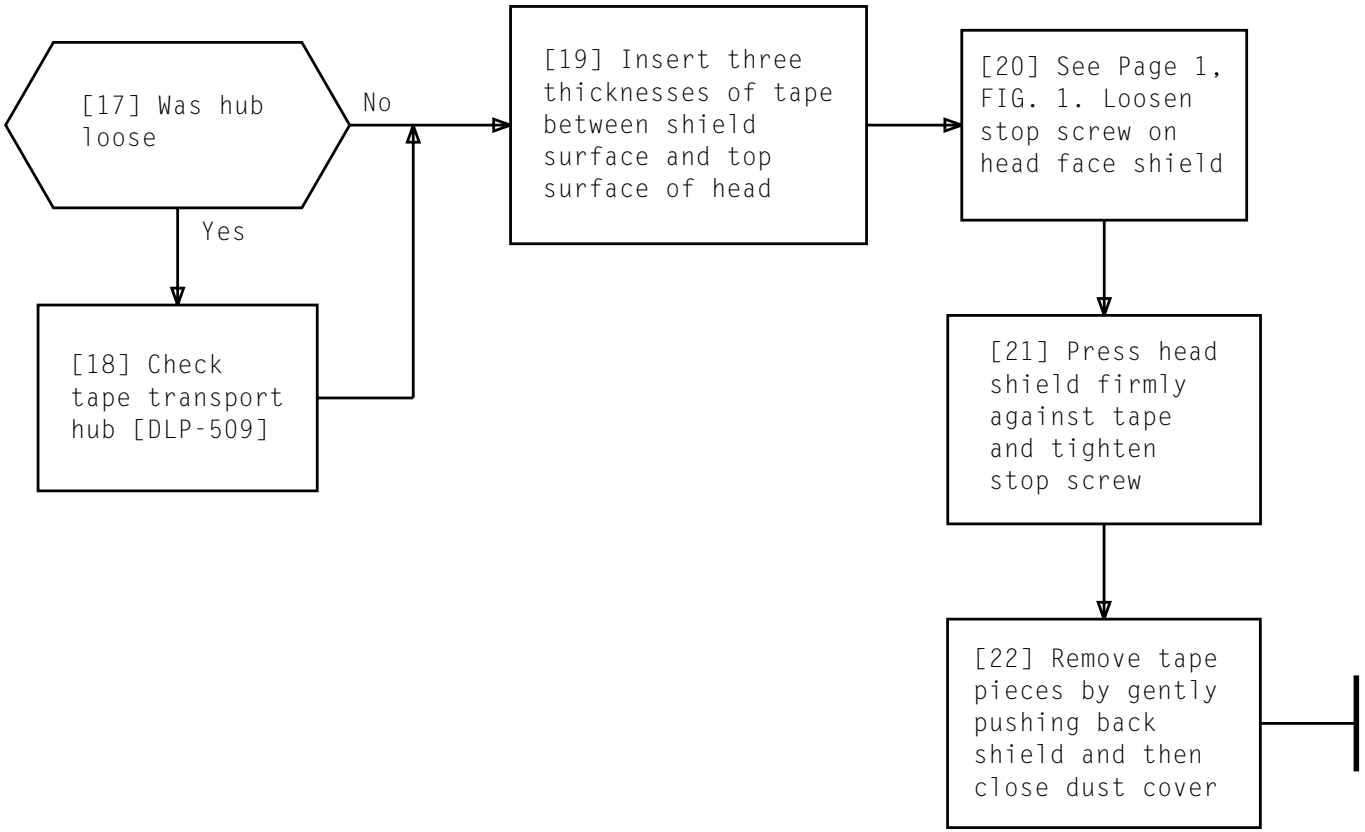


FIG. 2

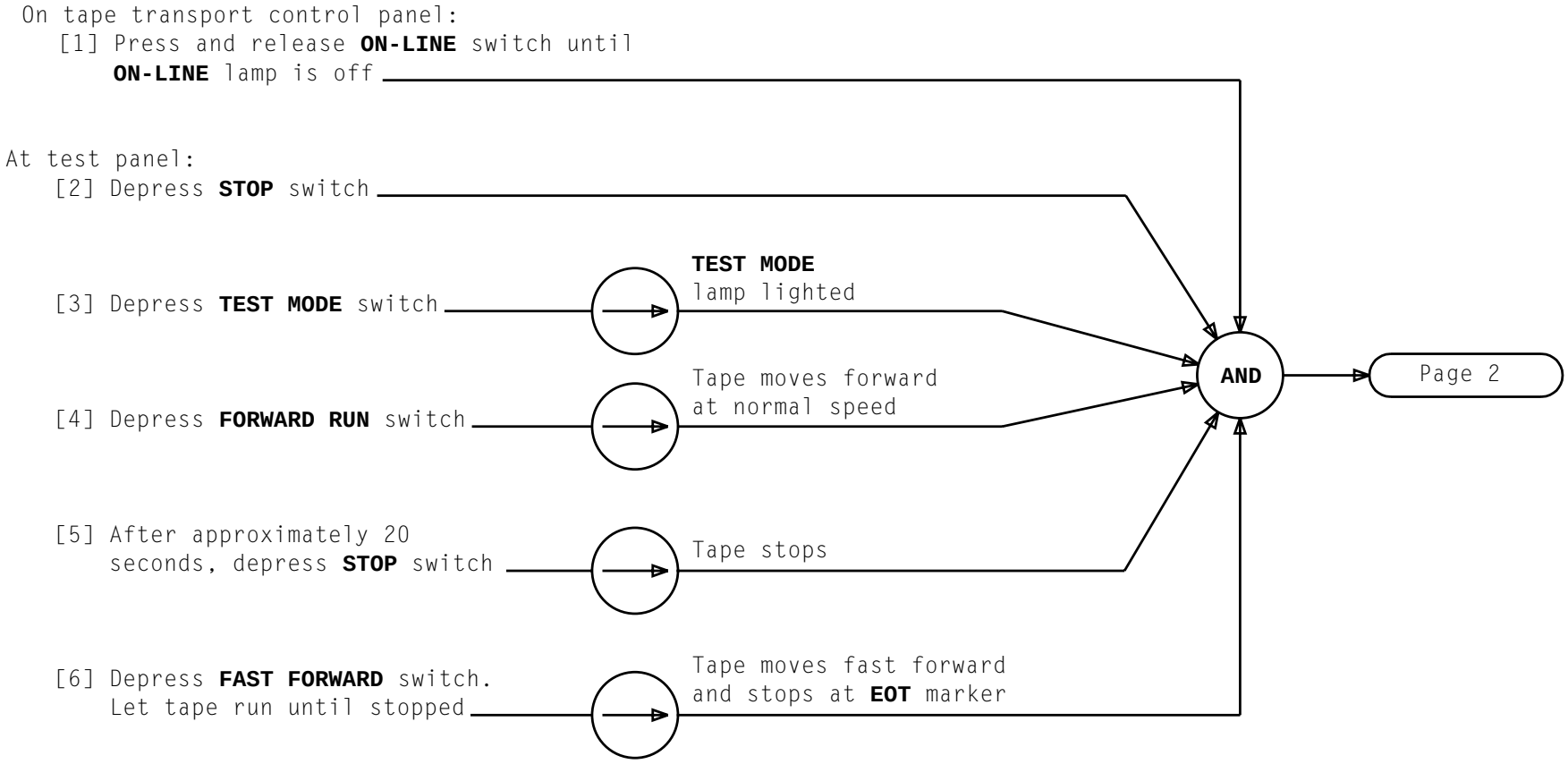
INSPECT KS-22091 TAPE TRANSPORT ASSEMBLY



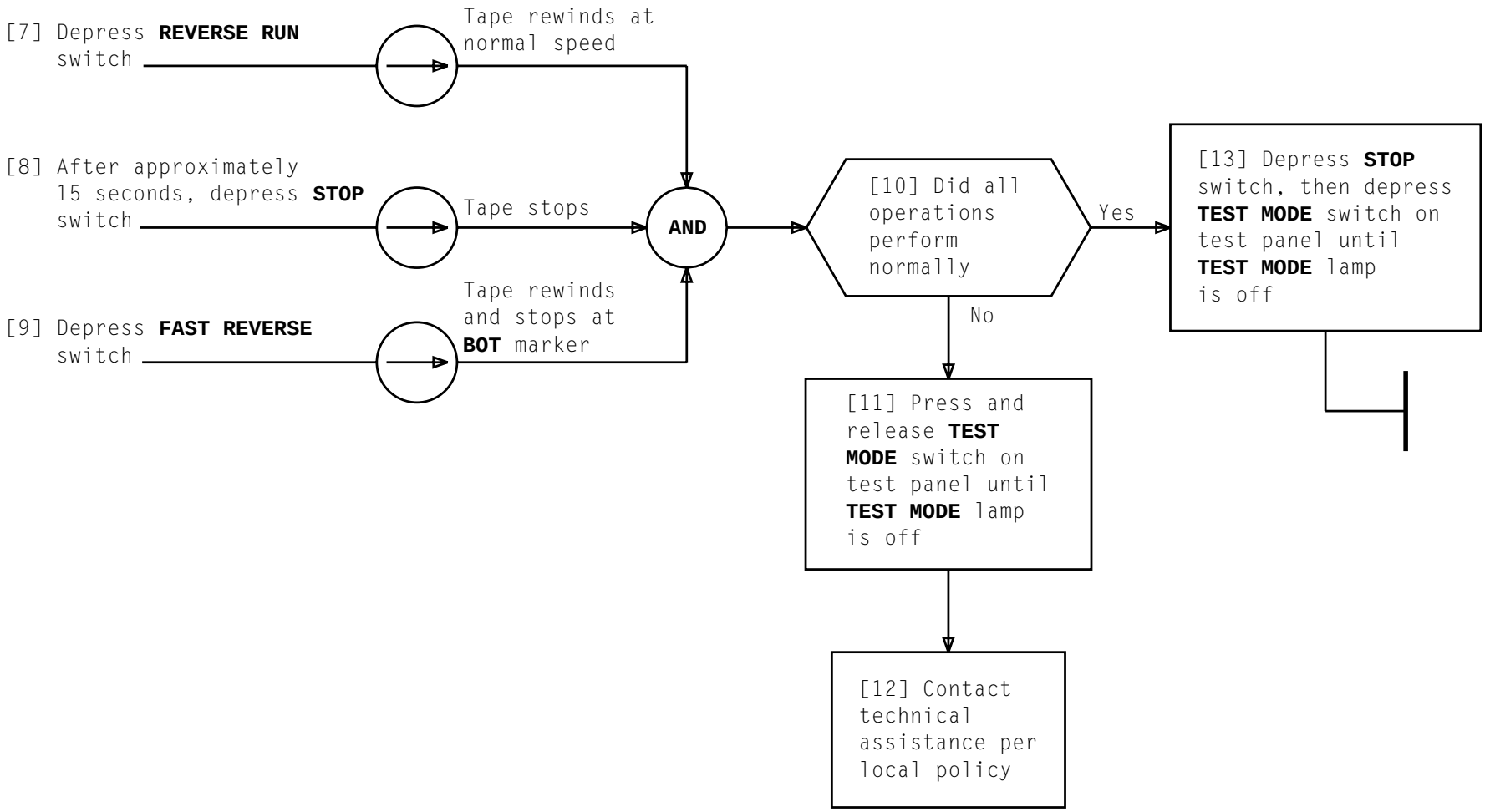
INSPECT KS-22091 TAPE TRANSPORT ASSEMBLY

SUMMARY

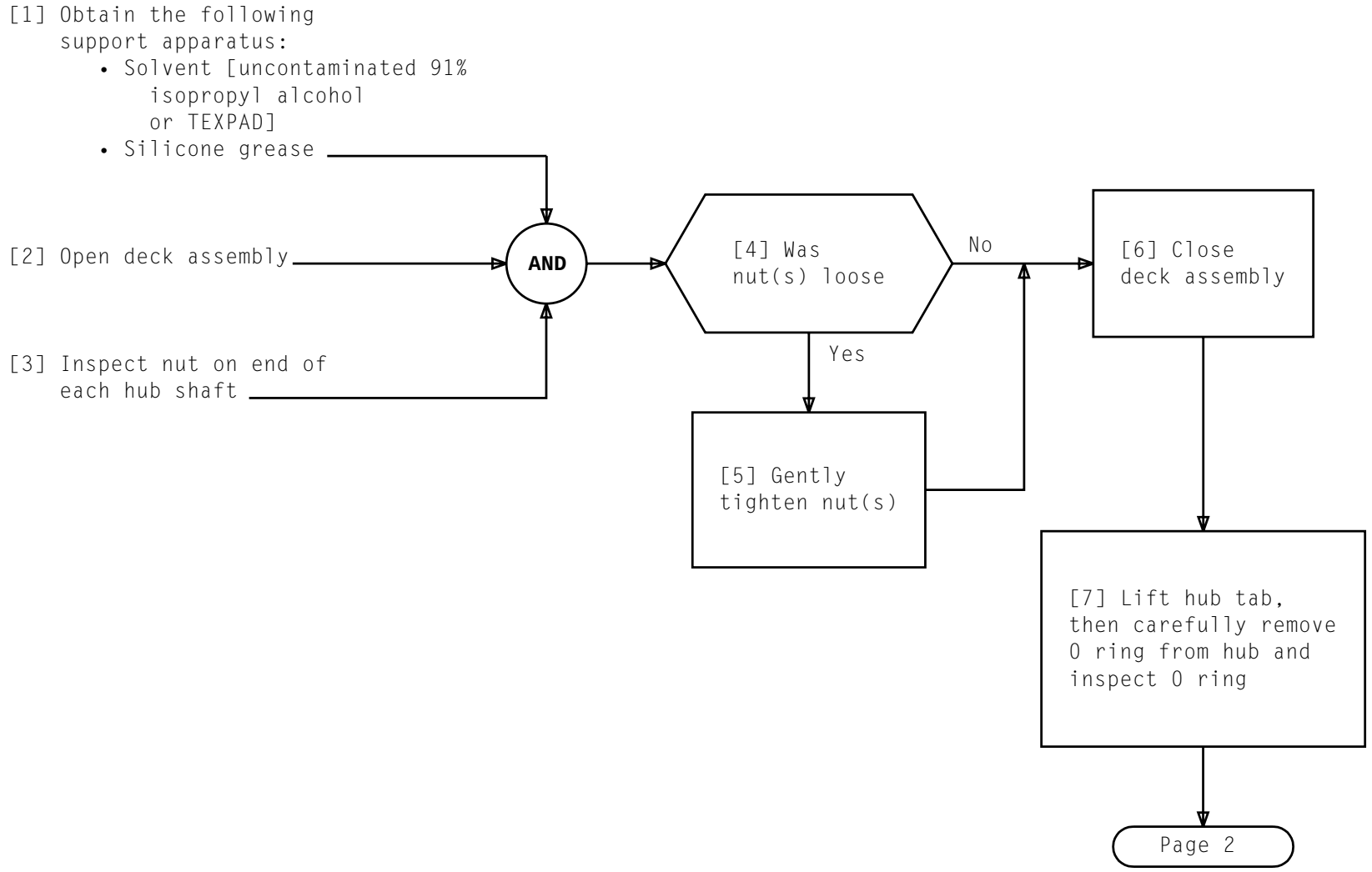
Verify **ON LINE** lamp off; then depress controls on tape transport in sequence and verify that respective functions are performed. Insure **TEST MODE** lamp off when finished.



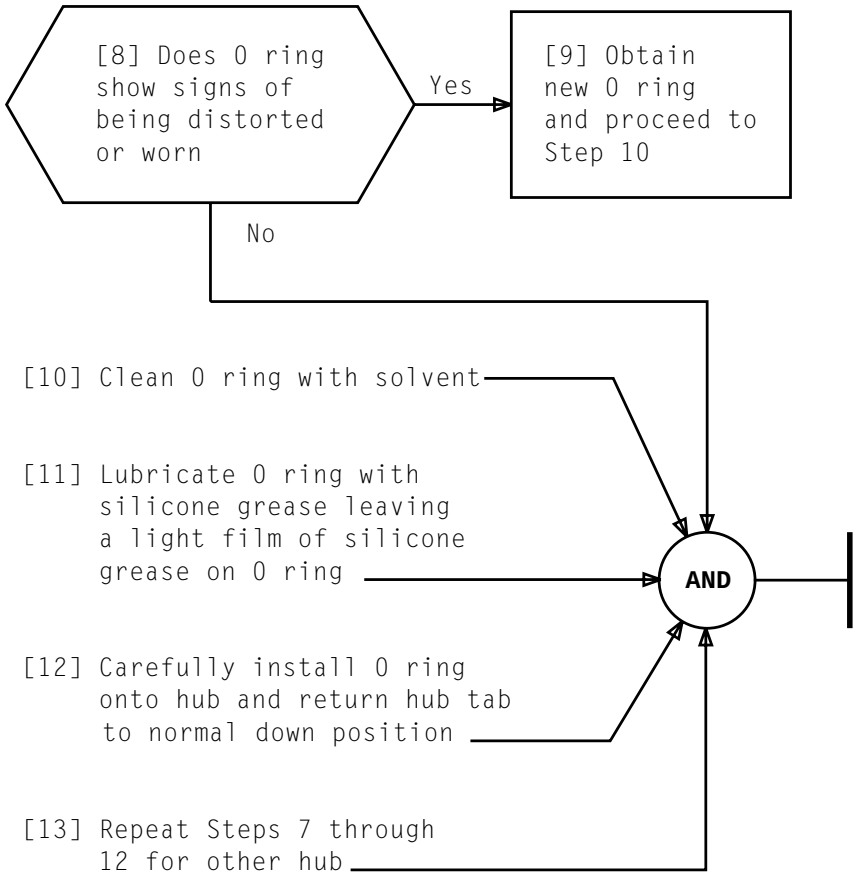
CHECK KS-22091 TAPE TRANSPORT OPERATION



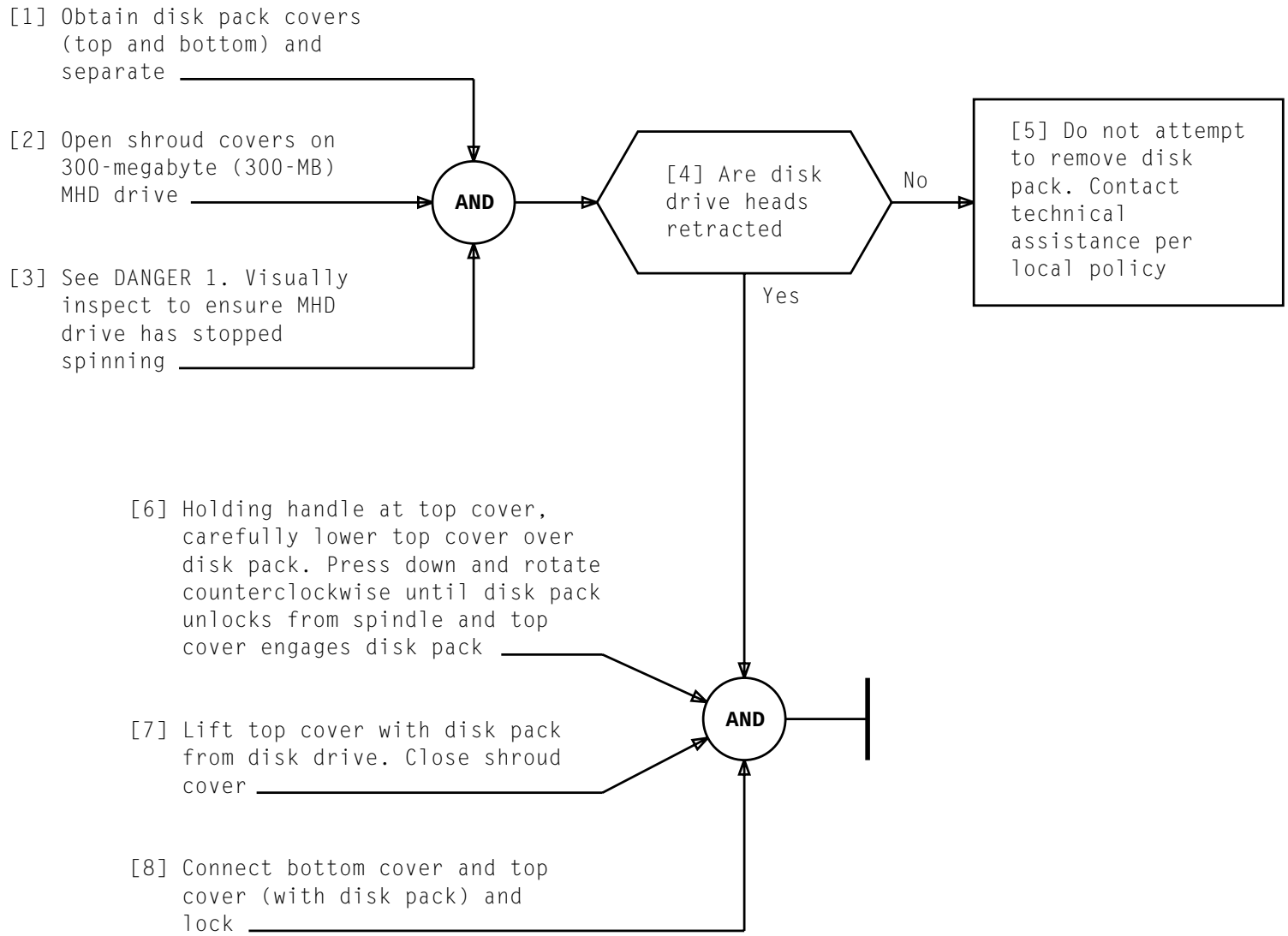
CHECK KS-22091 TAPE TRANSPORT OPERATION



CHECK KS-22091 TAPE TRANSPORT HUBS



CHECK KS-22091 TAPE TRANSPORT HUBS



DANGER 1
Failure to follow this procedure could result in injury

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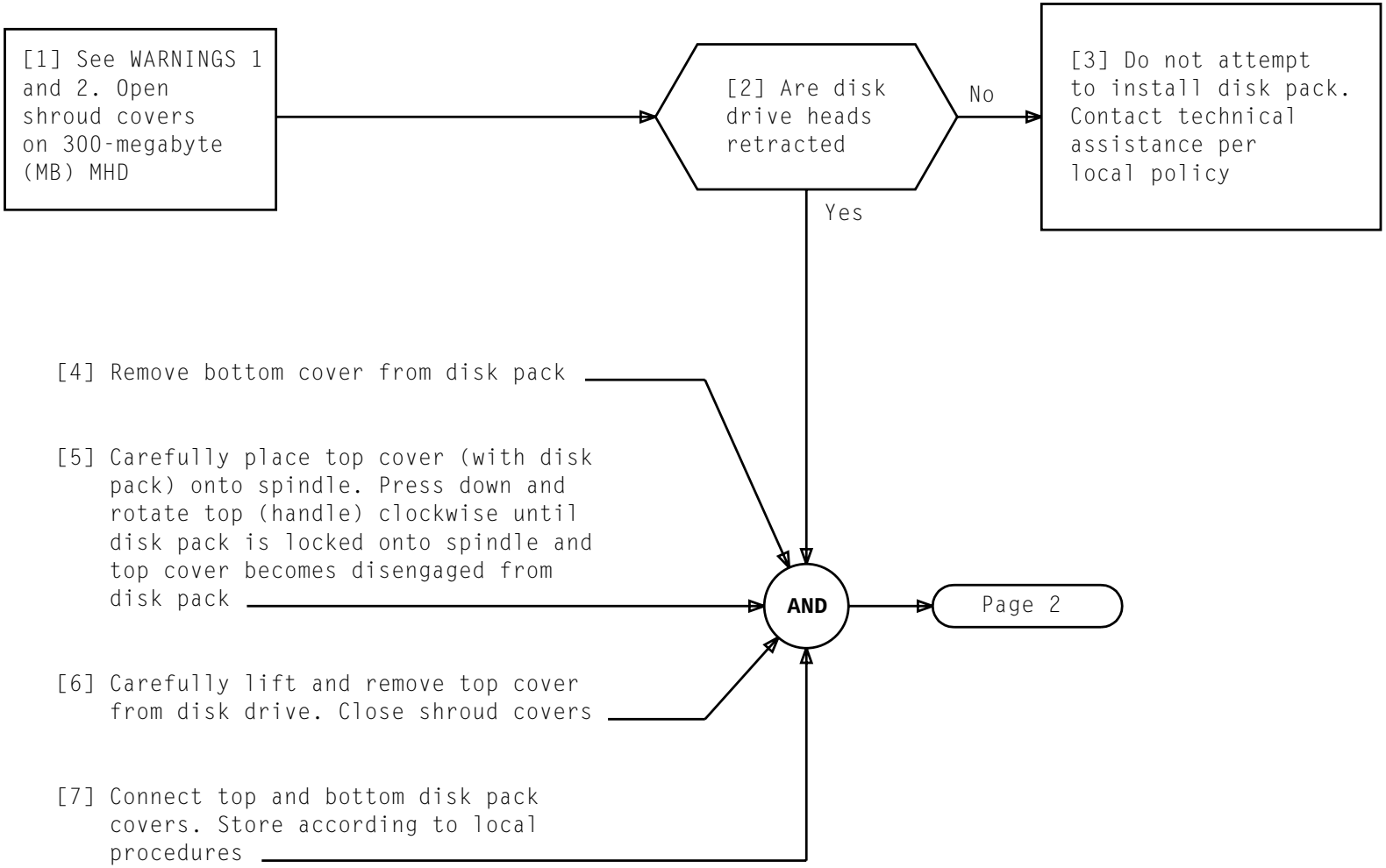
REMOVE DISK PACK



WARNINGS

1. *Installation of unauthorized (non-KS) disk packs constitutes equipment abuse and may crash system*
2. *Disk pack will be damaged if not warmed to ambient temperature prior to installation*

INSTALL DISK PACK

[8] At rear of disk drive, operate **SERVO ENABLE/DISABLE** switch to **DISABLE** position

[9] At power control panel, operate **ON** switch

[10] At operator control panel, depress **START** switch

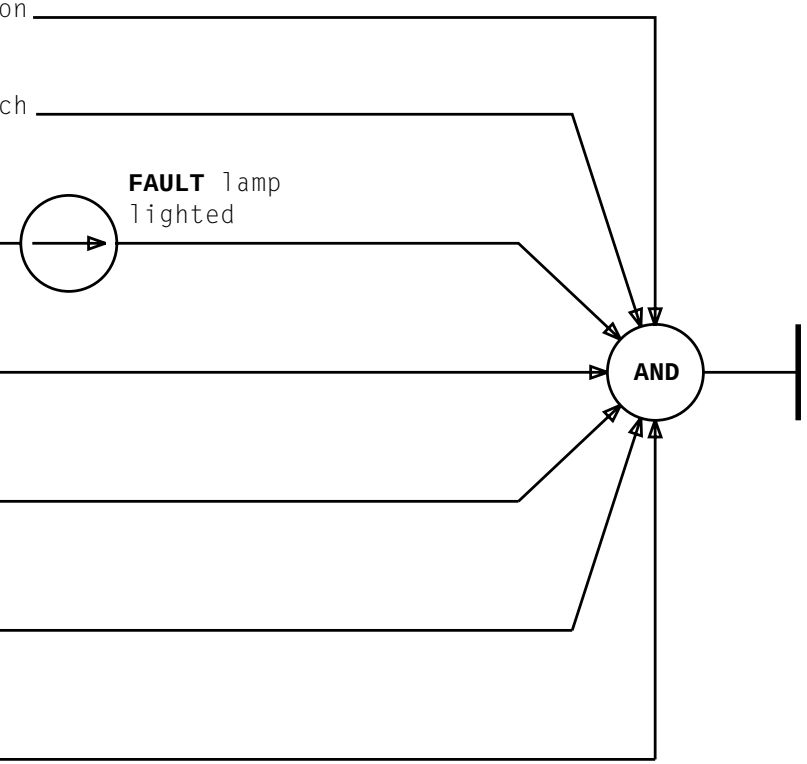
FAULT lamp lighted

[11] Wait 5 minutes to purge dirt and dust from disk

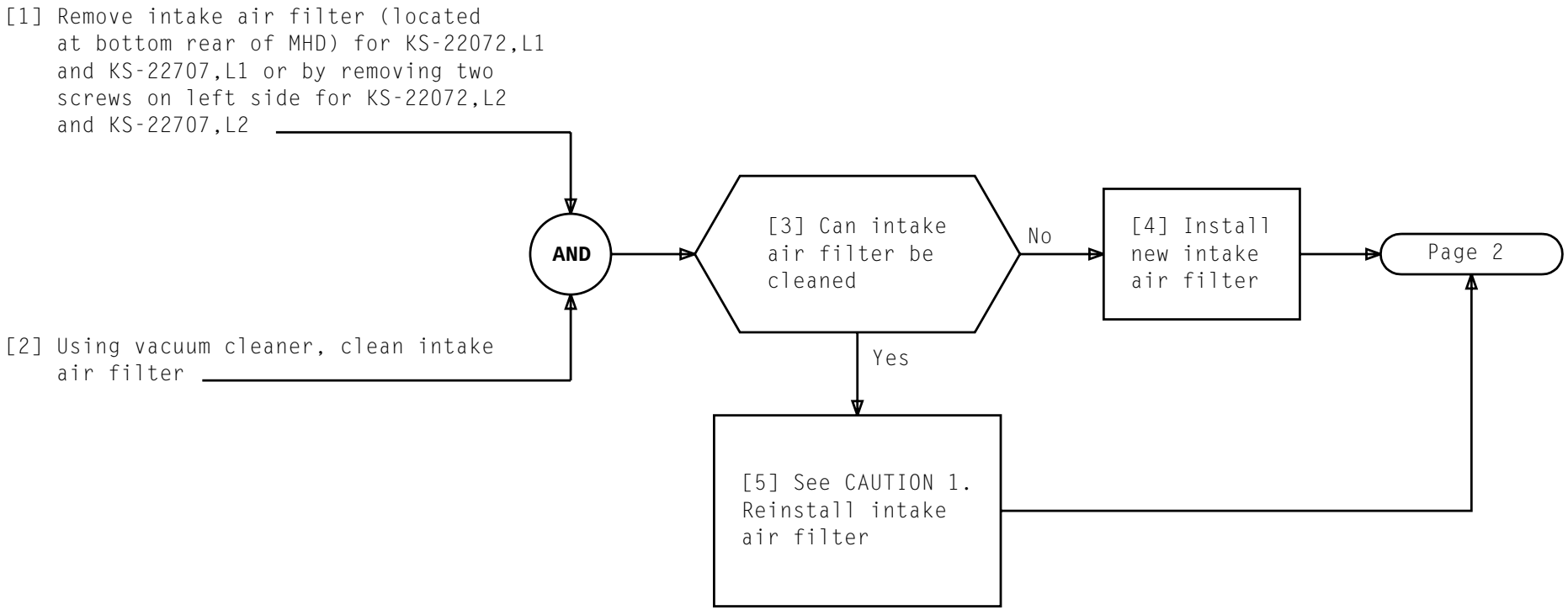
[12] Release **START** switch and wait for lamp to go steady off

[13] Operate **SERVO ENABLE/DISABLE** switch to **ENABLE** position

[14] Operate **START** switch and wait for lamp to go steady on



INSTALL DISK PACK



CAUTION 1
Intake air filter must be installed with the same side out

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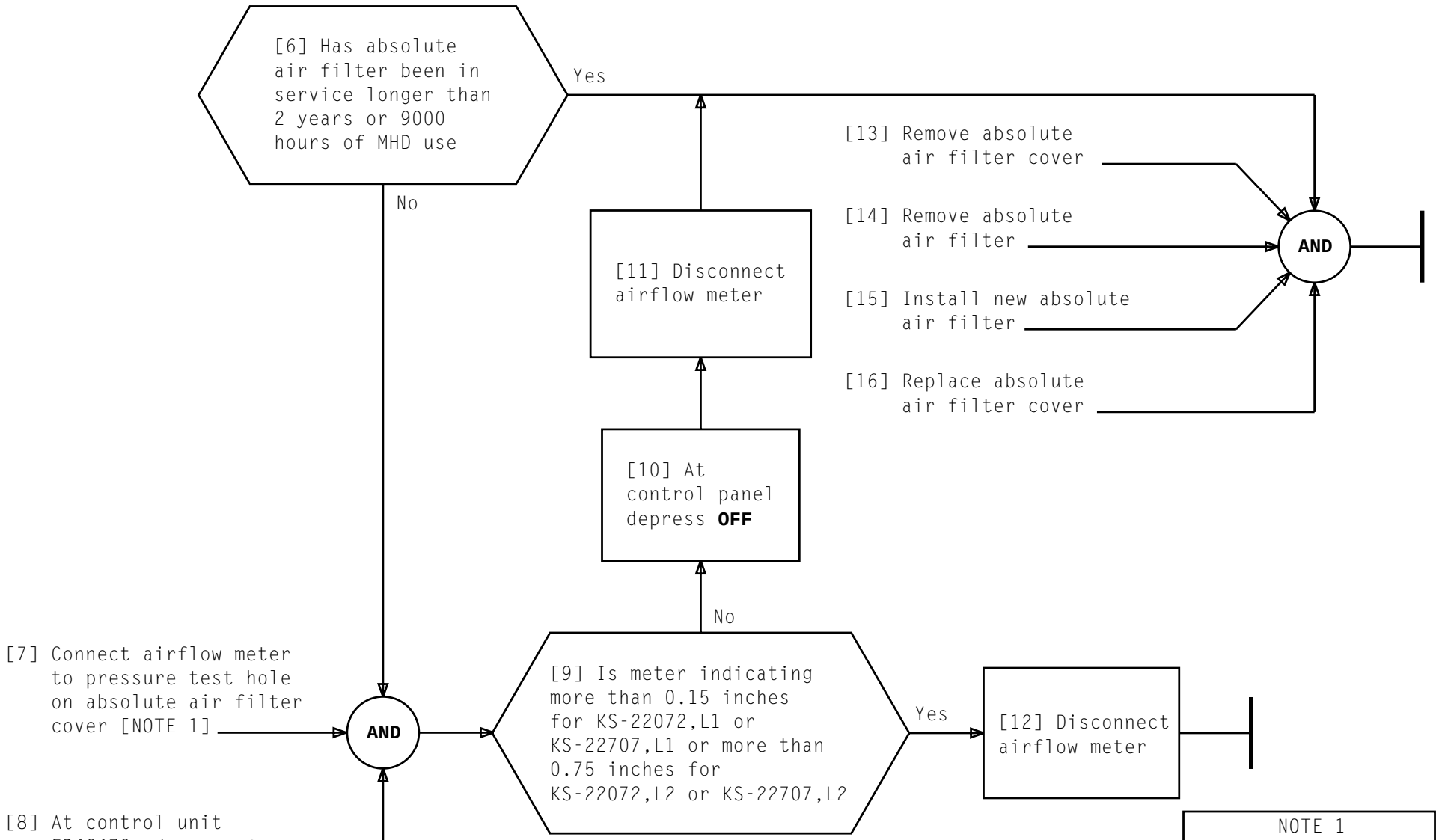
SERVICE MOVING HEAD DISK (MHD) AIR FILTERS



NOTE 1
Quick connector used with KS-22072, L2 and KS-22707,L2

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SERVICE MOVING HEAD DISK (MHD) AIR FILTERS

[1] See FIG. 1 for control unit. Remove **–48V** fuse for faulty cooling unit. For IOP remove **–48V FAN**

[2] Remove faulty cooling unit by removing filter panel and pulling down handle, then install new cooling unit

[3] Replace **–48V** fuse removed in Step 1

[4] On **ABB1**, depress **OFF** switch

[5] On **ABB1**, depress **ON** switch

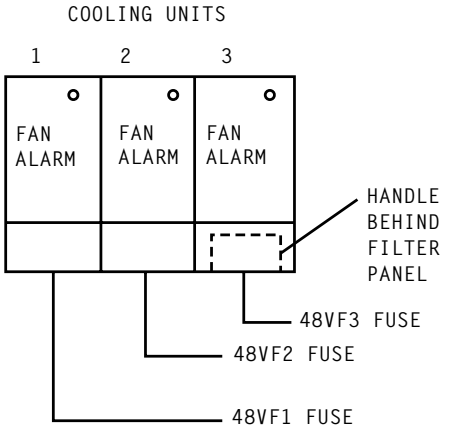


FIG. 1 – Cooling Unit Fuse Assignment

REPLACE COOLING UNIT

SUMMARY

Swap designated fuse with tripped fuse. Verify **ALM** LEDs, major audible alarm, and output message. Replace original fuse.

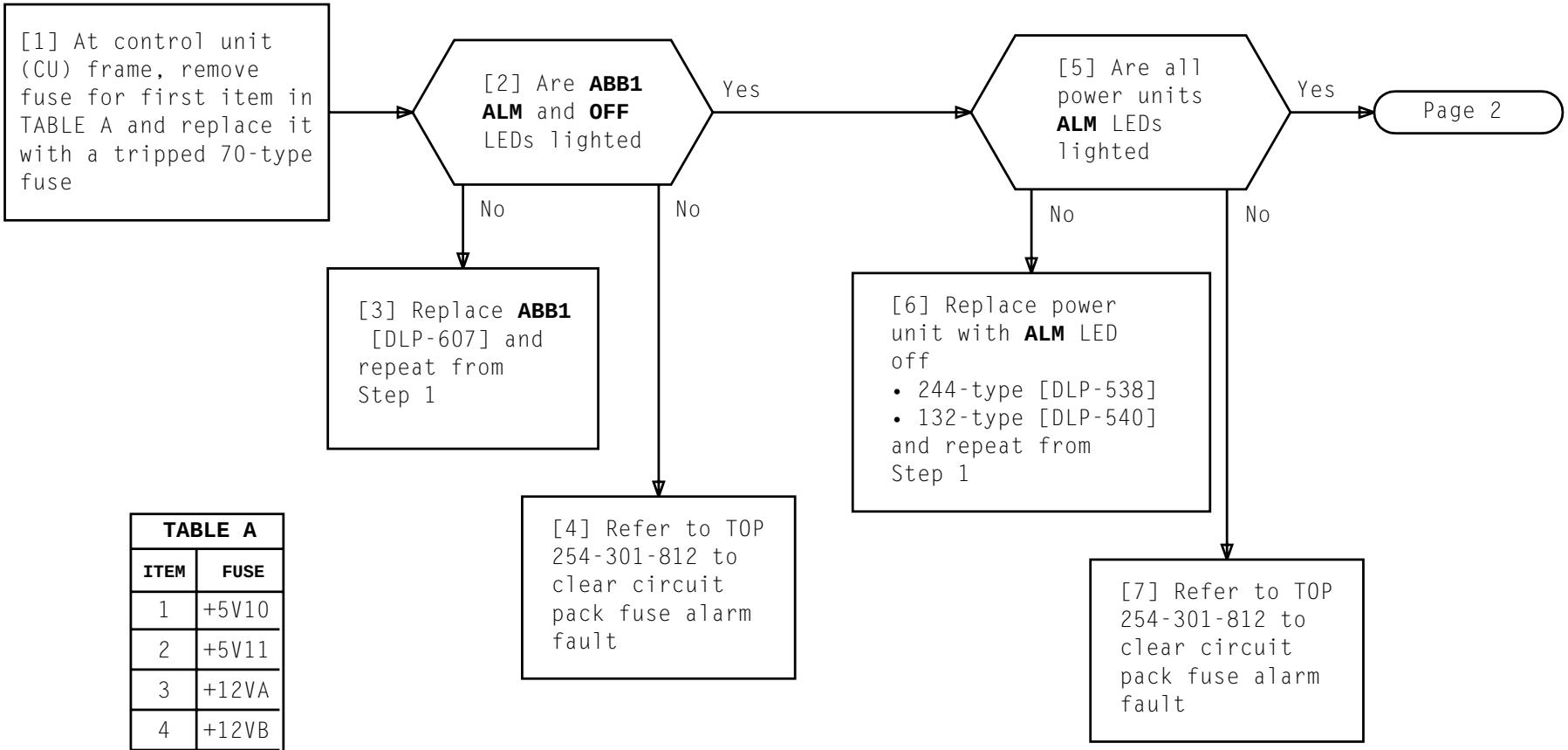
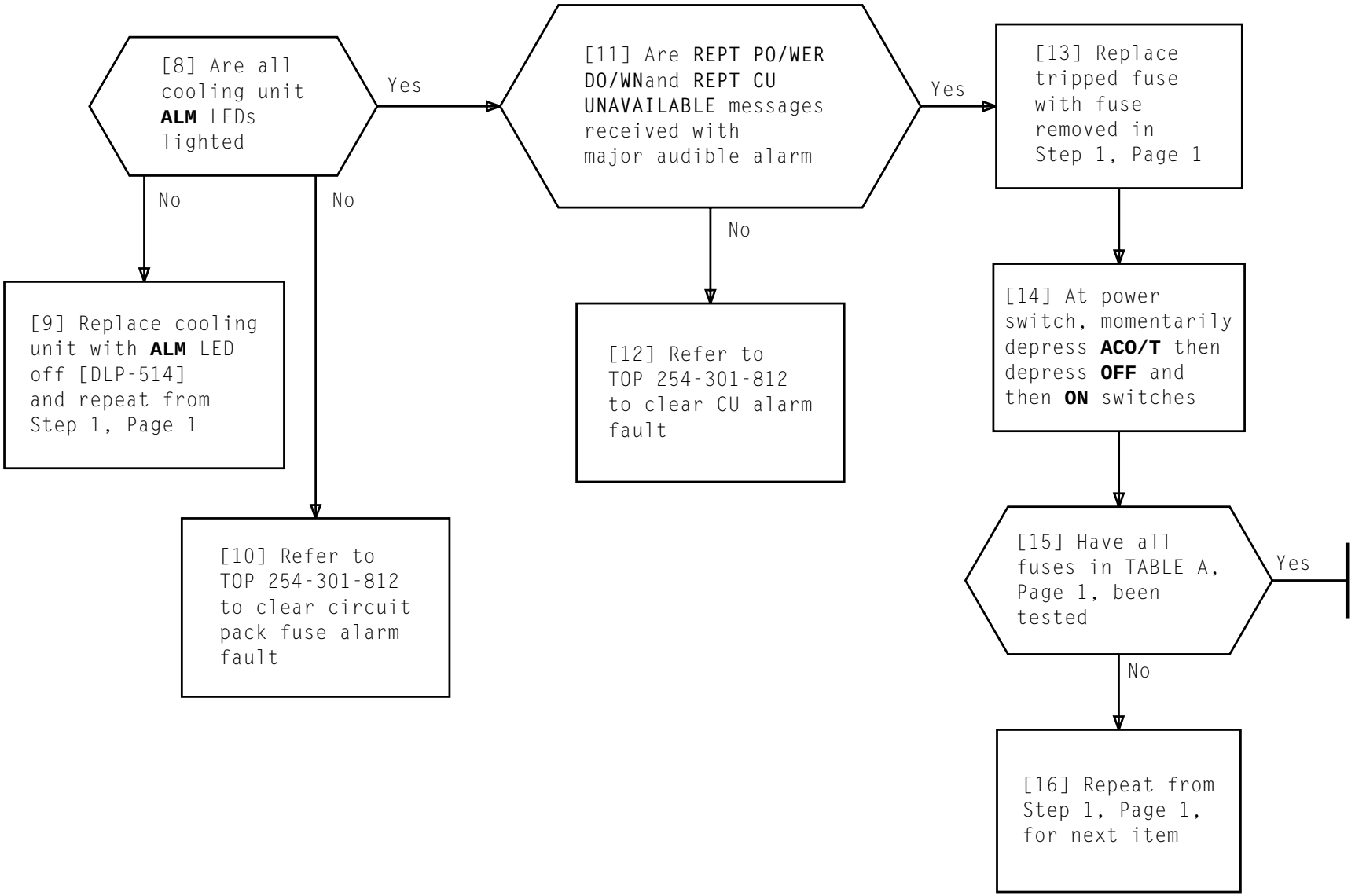


TABLE A

ITEM	FUSE
1	+5V10
2	+5V11
3	+12VA
4	+12VB
5	+12VC
6	+12VD

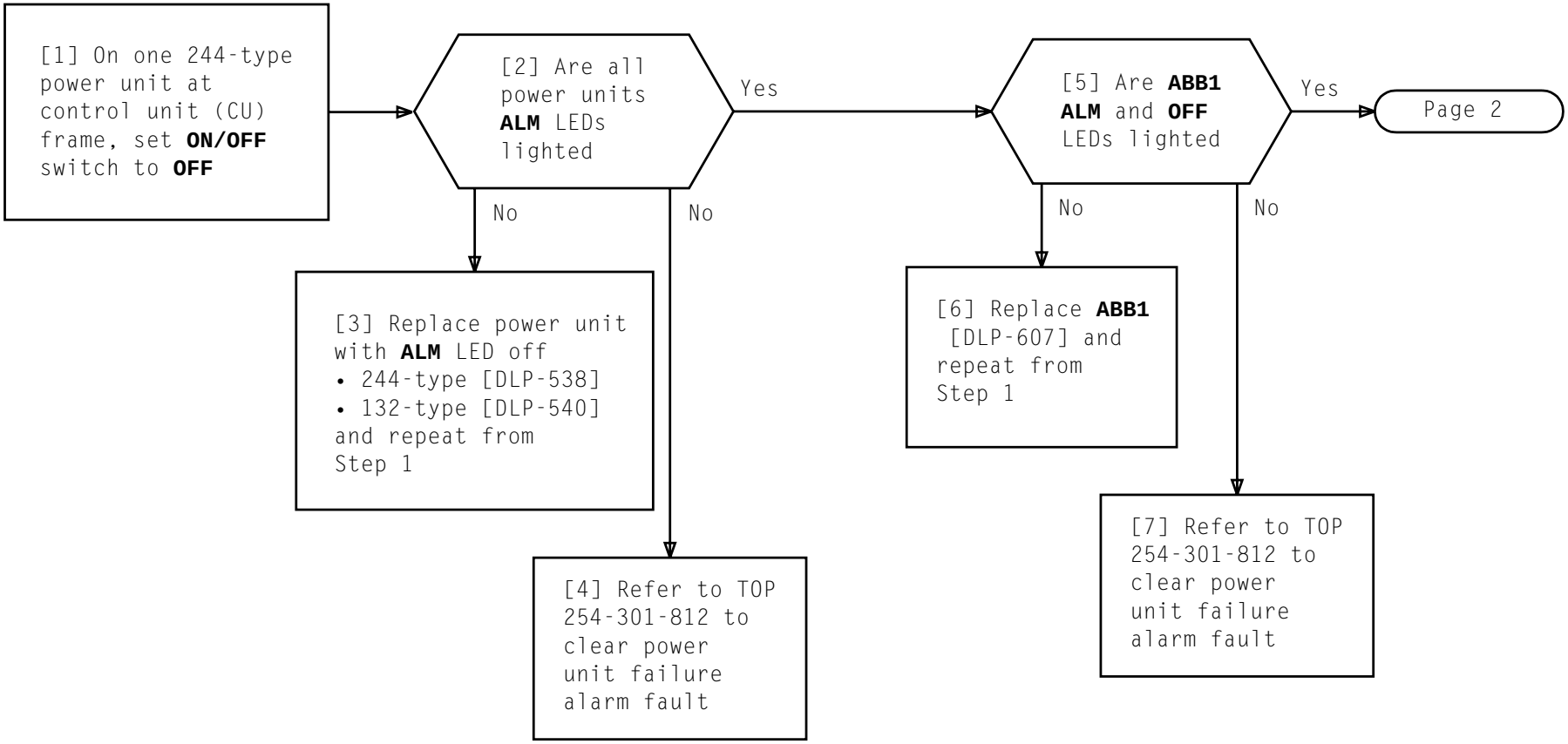
TEST CIRCUIT PACK FUSE ALARMS



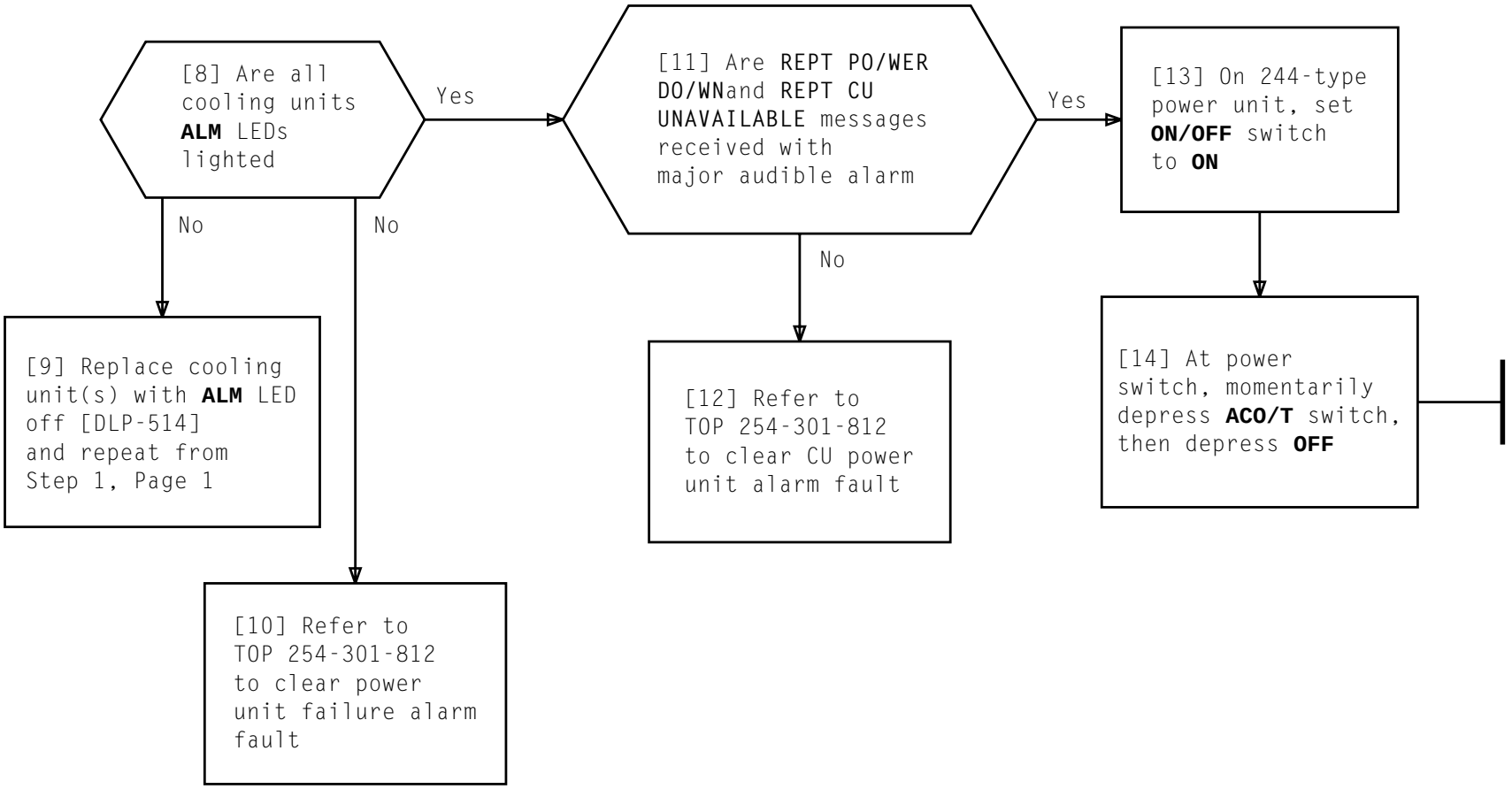
TEST CIRCUIT PACK FUSE ALARMS

SUMMARY

Set power unit **ON/OFF** switch to **OFF**. Verify **ALM** LEDs, major audible alarm, and output message. Set switch to **ON**.



TEST EACH 244-TYPE POWER UNIT FAILURE ALARM



TEST EACH 244-TYPE POWER UNIT FAILURE ALARM

SUMMARY

Remove a selected fuse. Verify **ALM** LEDs, major audible alarm, and output message. Replace fuse and verify cooling unit **ALM** LED lighted.

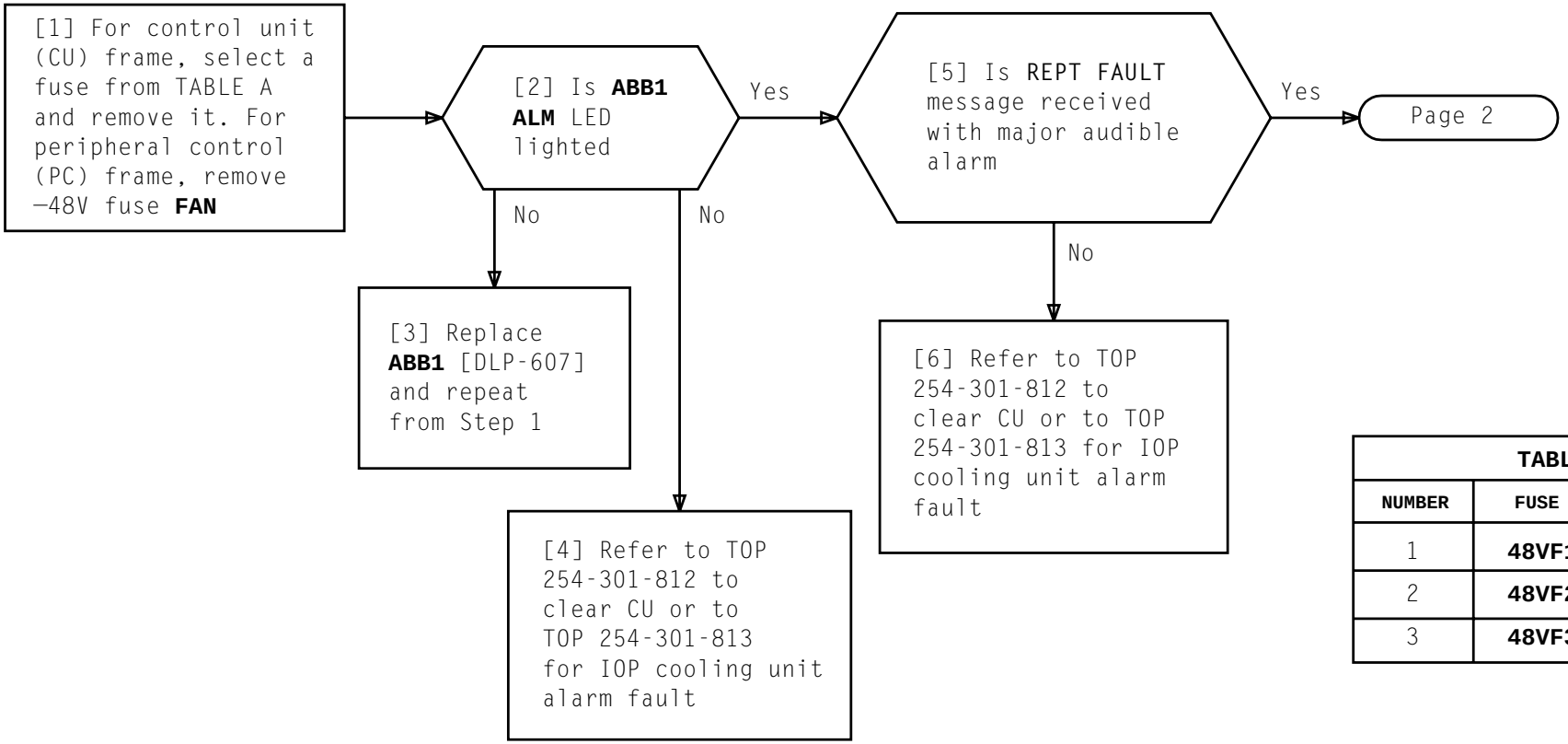
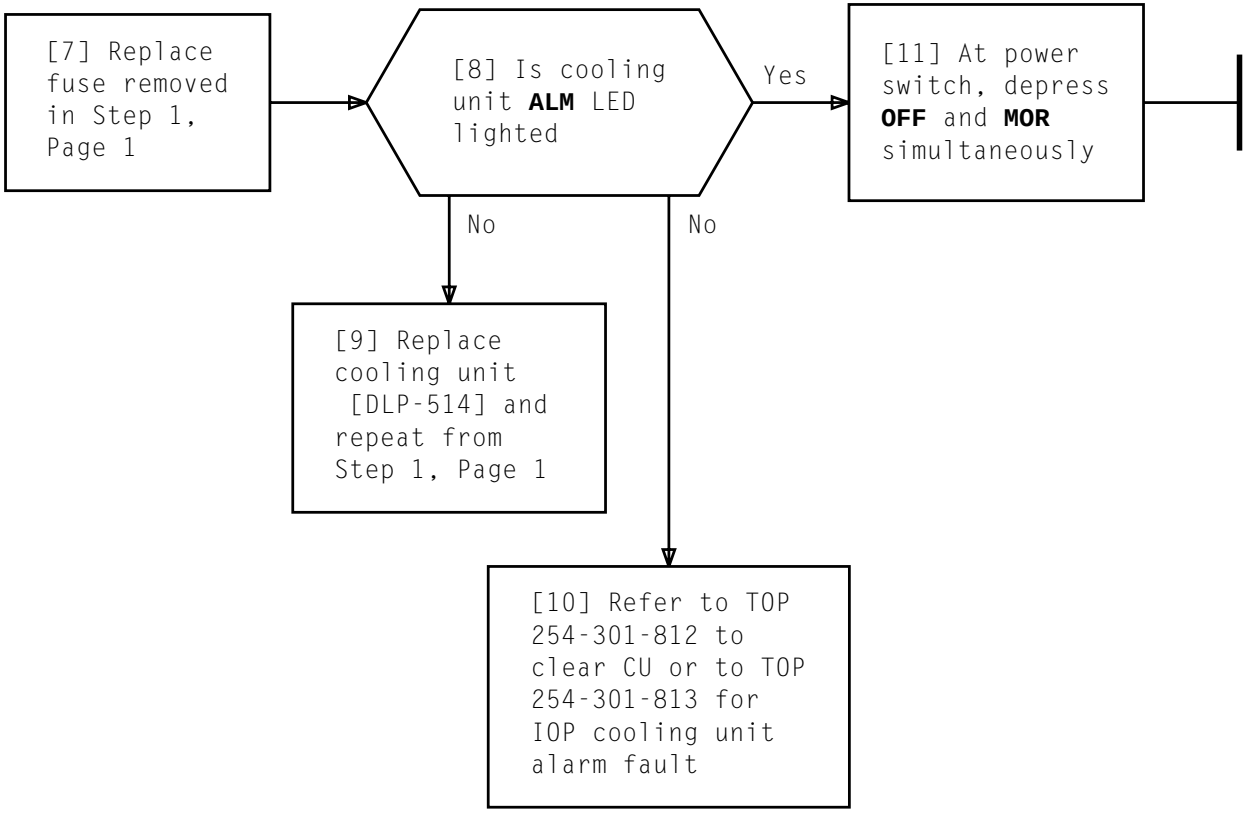


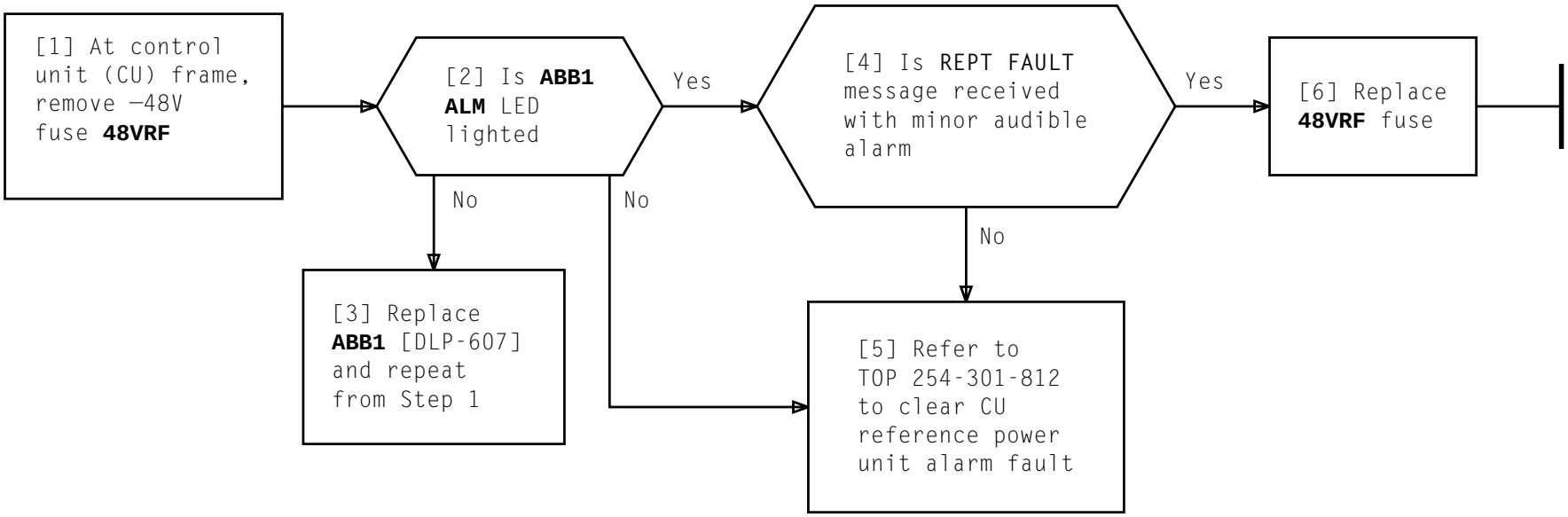
TABLE A

NUMBER	FUSE	COOLING UNIT
1	**48VF1**	1
2	**48VF2**	2
3	**48VF3**	3

TEST COOLING UNIT ALARMS



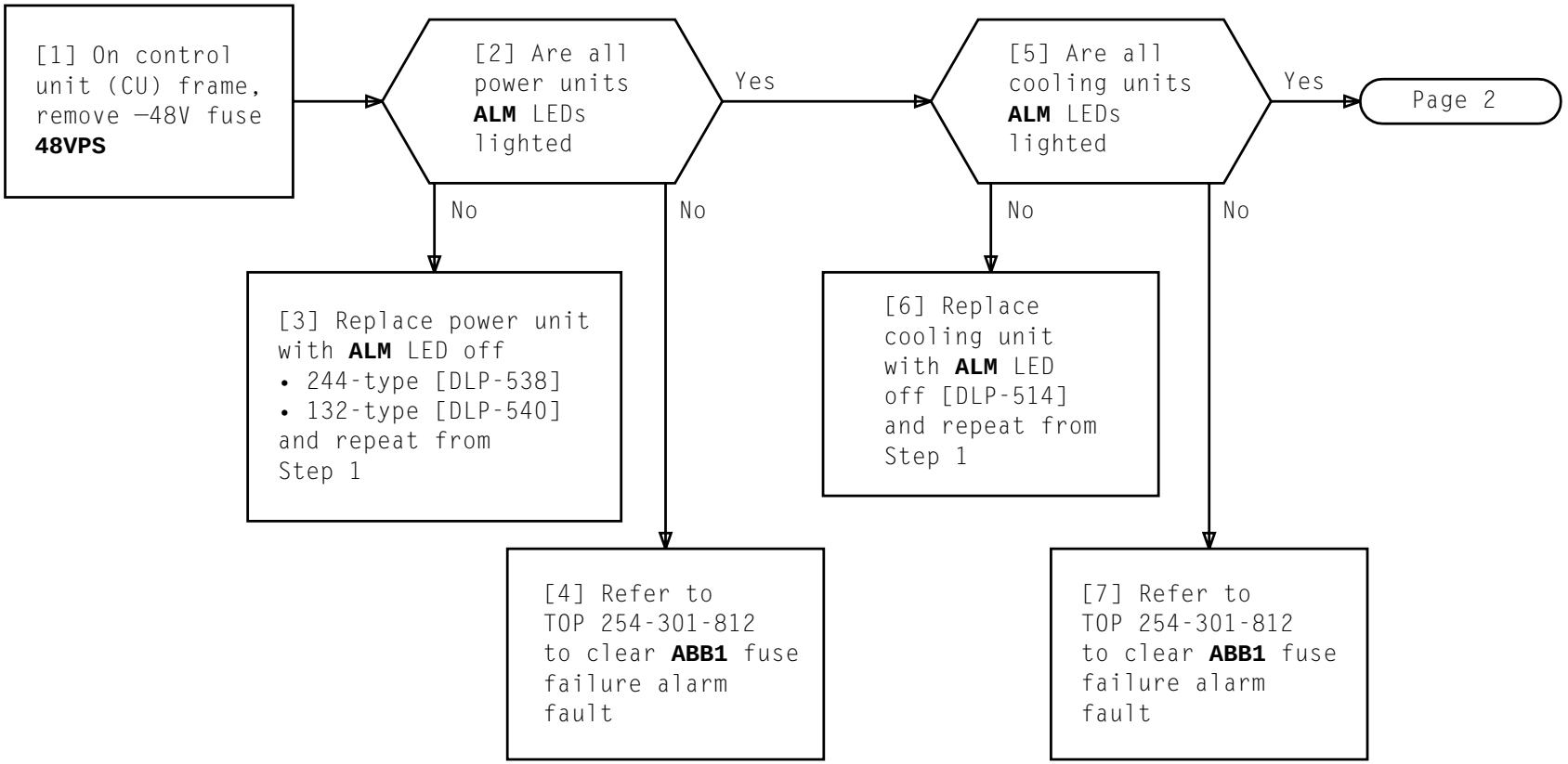
TEST COOLING UNIT ALARMS



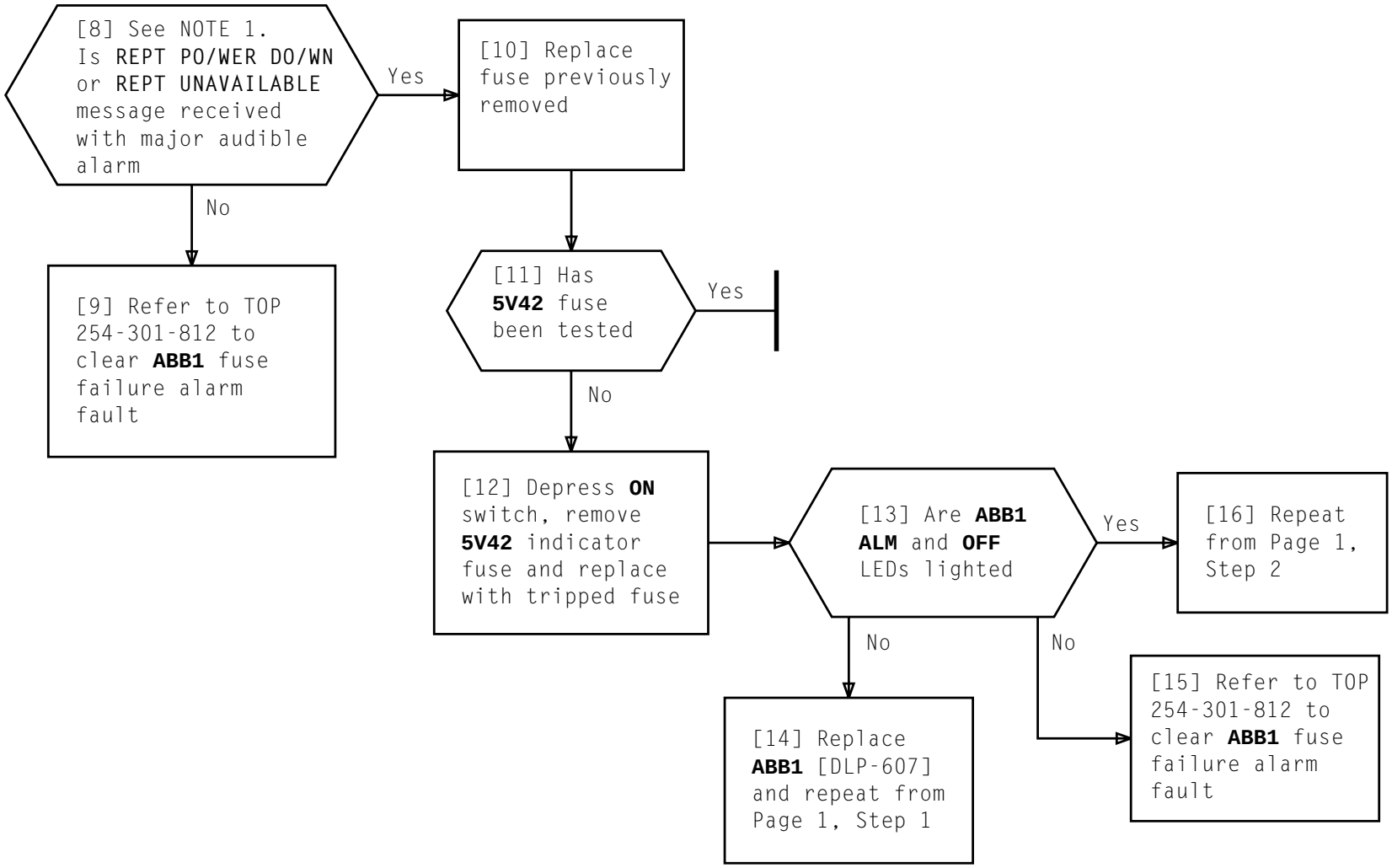
TEST REFERENCE POWER UNIT ALARM

SUMMARY

Remove **48VPS** fuse. Verify **ALM** LEDs, output message, and major audible alarm. Replace fuse. Repeat procedure with **5V42** fuse.



TEST POWER SWITCH (ABB1) FUSE FAILURE ALARM



NOTE 1
Other messages may also occur

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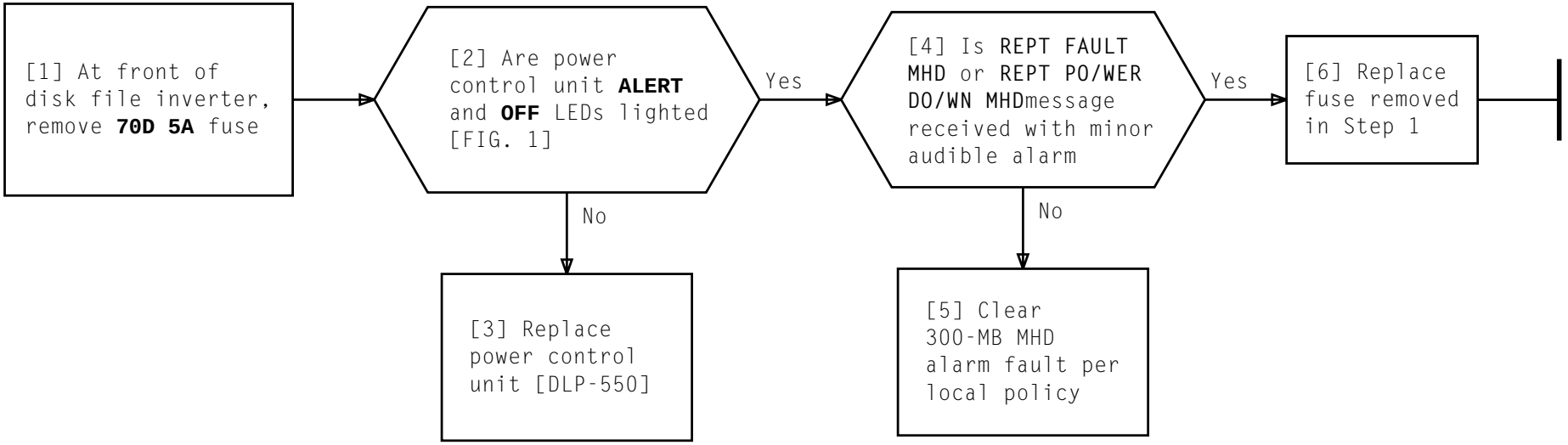
TEST POWER SWITCH (ABB1) FUSE FAILURE ALARM



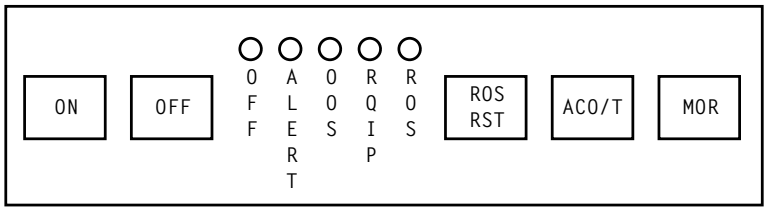


FIG. 1

TEST 300-MB MOVING HEAD DISK (MHD) POWER ALARM

SUMMARY

Test **TN71** LEDs. Swap designated fuse with tripped fuse. Verify LEDs, output message, and major audible alarm. Replace fuse.

[1] At **ABB1** on IOP, momentarily operate **ACO/T** switch, observe all **TN71** LEDs, and return **ACO/T** switch to normal position

[2] See FIG. 1. Did all LEDs on all **TN71** circuit packs light

Yes

[5] Substitute tripped fuse for fuse selected from TABLE A

Page 2

No

[3] Replace **TN71** circuit pack [DLP-607] and repeat from Step 1

No

[4] Refer to TOP 254-301-813 to clear **TN71** LED test fault

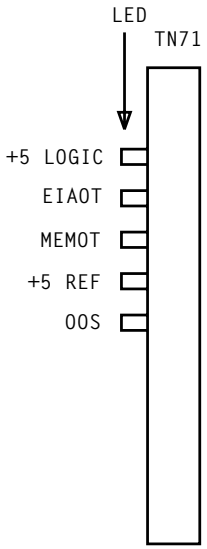


FIG. 1

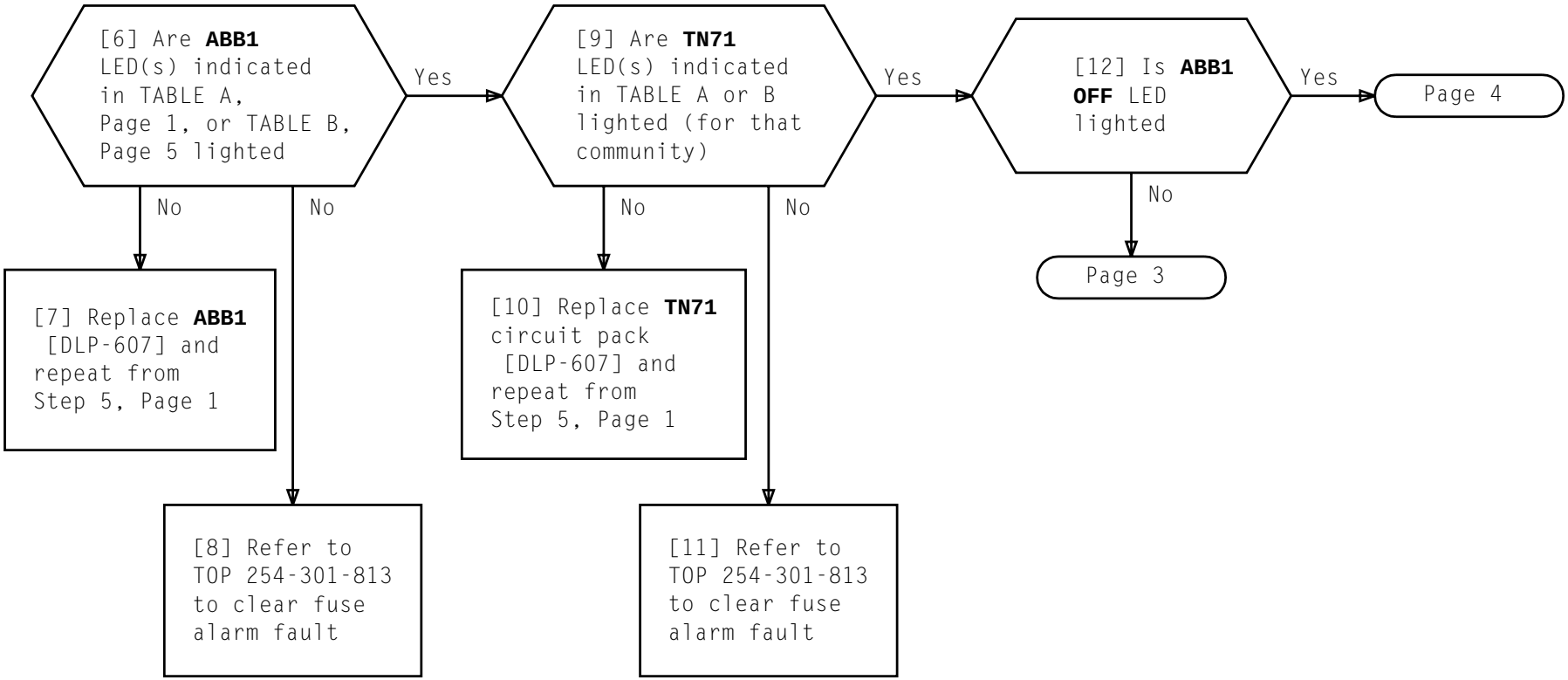
TABLE A

ITEM	FUSE	LAMP(S) LIGHTED	
		ABB1	TN71 (COMMUNITY)
1	**+5V0**	**OFF, ALM***	**+5LOGIC, MEMOT, EIAOT†**
2	**+12E0**	**ALM**	**EIAOT**
3	**–12E0**	**ALM**	**EIAOT**
4	**+12E1**	**ALM**	**EIAOT**
5	**–12E1**	**ALM**	**EIAOT**
6	**–48VC**	**ALM**	**+5LOGIC, MEMOT, EIAOT**
7	**–48VD**	**ALM**	**+5LOGIC, MEMOT, EIAOT**
8	**+5V7**	**ALM**	**–**
9	**+5V10**	**ALM**	**–**

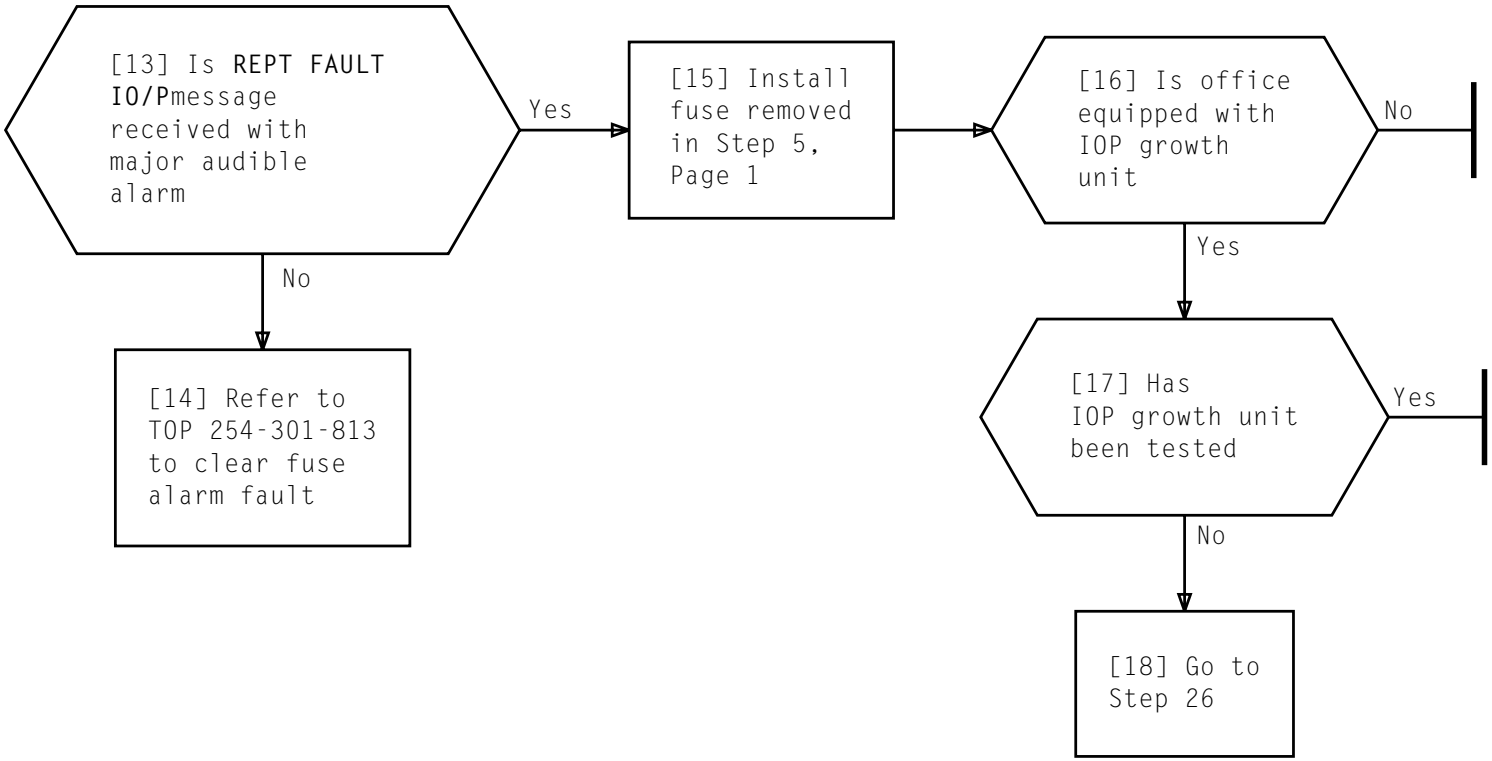
* Power down sequence will take approximately 2 seconds

† Both communities

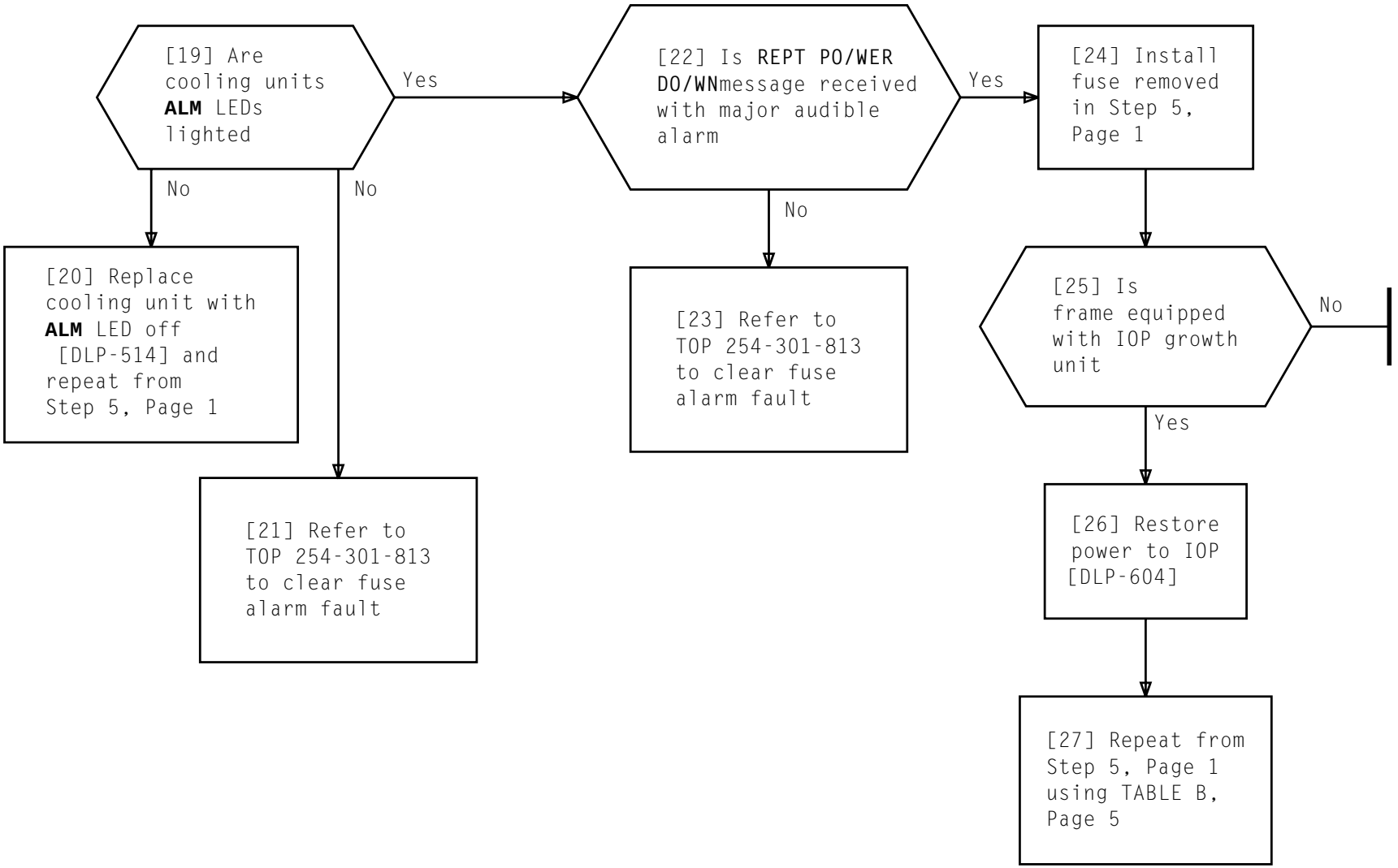
TEST INPUT/OUTPUT PROCESSOR (IOP) FUSE ALARMS



TEST INPUT/OUTPUT PROCESSOR (IOP) FUSE ALARMS



TEST INPUT/OUTPUT PROCESSOR (IOP) FUSE ALARMS



TEST INPUT/OUTPUT PROCESSOR (IOP) FUSE ALARMS

TABLE B			
ITEM	FUSE	LEDs LIGHTED	
		ABB1	TN71 (COMMUNITY)
1	+12E2	ALM	EIAOT
2	+5V13	ALM	+5 LOGIC, MEMOT
3	−48VE	ALM	+5 LOGIC, MEMOT, EIAOT
4	+12E3	ALM	EIAOT
5	+5V16	ALM	+5 LOGIC MEMOT
6	−12E3	ALM	EIAOT
7	−48VF	ALM	+5 LOGIC, MEMOT, EIAOT

TEST INPUT/OUTPUT PROCESSOR (IOP) FUSE ALARMS

SUMMARY

Test **TN73** LEDs. Swap designated fuse with tripped fuse. Verify LEDs, output message, and major audible alarm. Replace fuse.

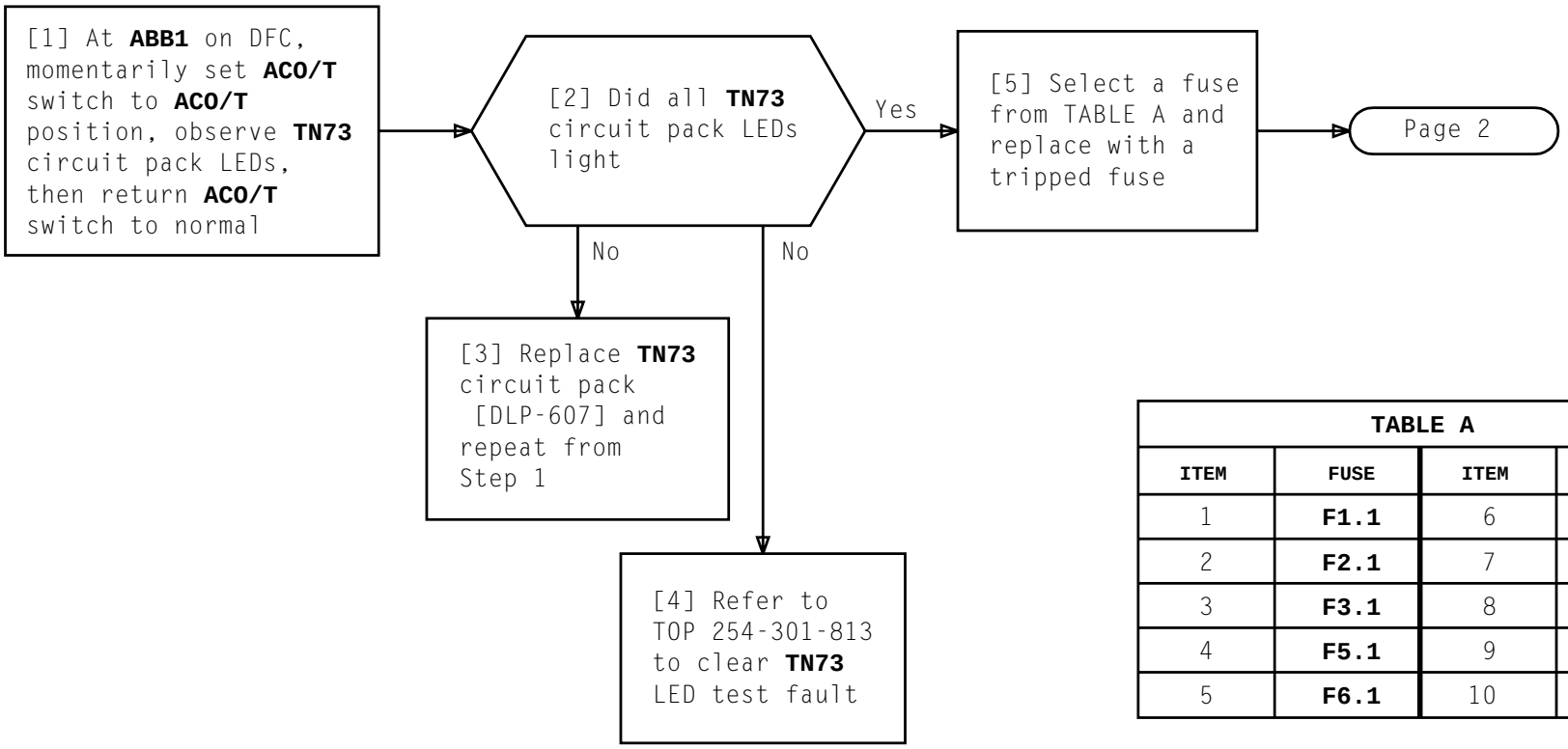
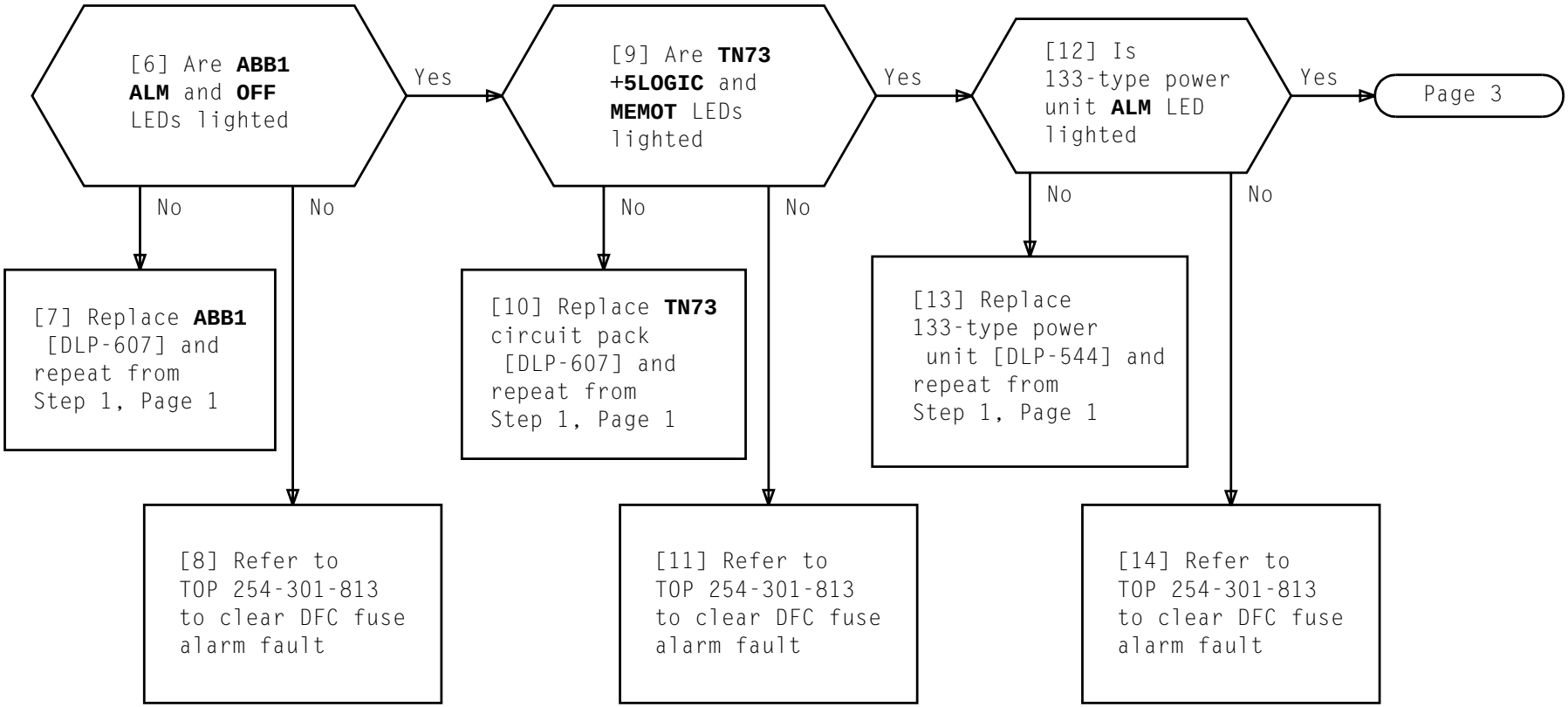


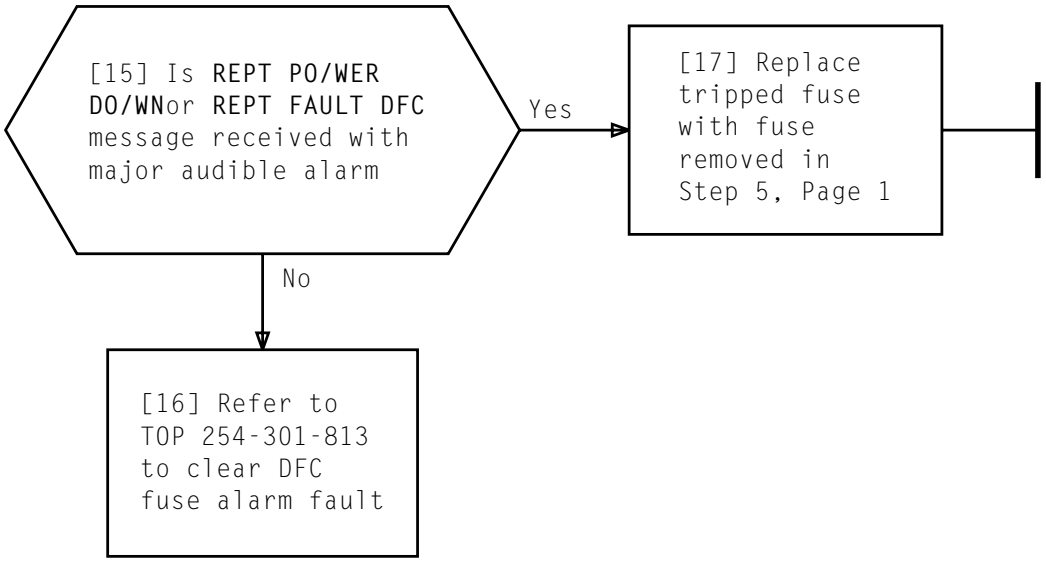
TABLE A

ITEM	FUSE	ITEM	FUSE
1	**F1.1**	6	**F7.1**
2	**F2.1**	7	**F9.1**
3	**F3.1**	8	**F10.1**
4	**F5.1**	9	**F11.1**
5	**F6.1**	10	**F14.1**

TEST DISK FILE CONTROLLER (DFC) FUSE ALARMS



TEST DISK FILE CONTROLLER (DFC) FUSE ALARMS



TEST DISK FILE CONTROLLER (DFC) FUSE ALARMS

SUMMARY

Select fuse for test and remove assigned unit from service. Swap selected fuse with tripped fuse. Verify **ALARM** lamp, LED, output message, and major audible alarm. Install original fuse and restore assigned unit to service.

[1] Select item from TABLE A and determine from fuse assignment panel the unit type and member number assigned as load for selected fuse

→

[2] Remove from service the equipment assigned to corresponding fuse [DLP-599]

→

[3] See WARNING 1. Remove **indicator** fuse and install tripped fuse

→

Page 2

TABLE A

ITEM	FUSE
1	**F1**
2	**F5**
3	**F9**
4	**F13**
5	**F17**
6	**F21**

WARNING 1
Removal of load fuse may damage circuit packs

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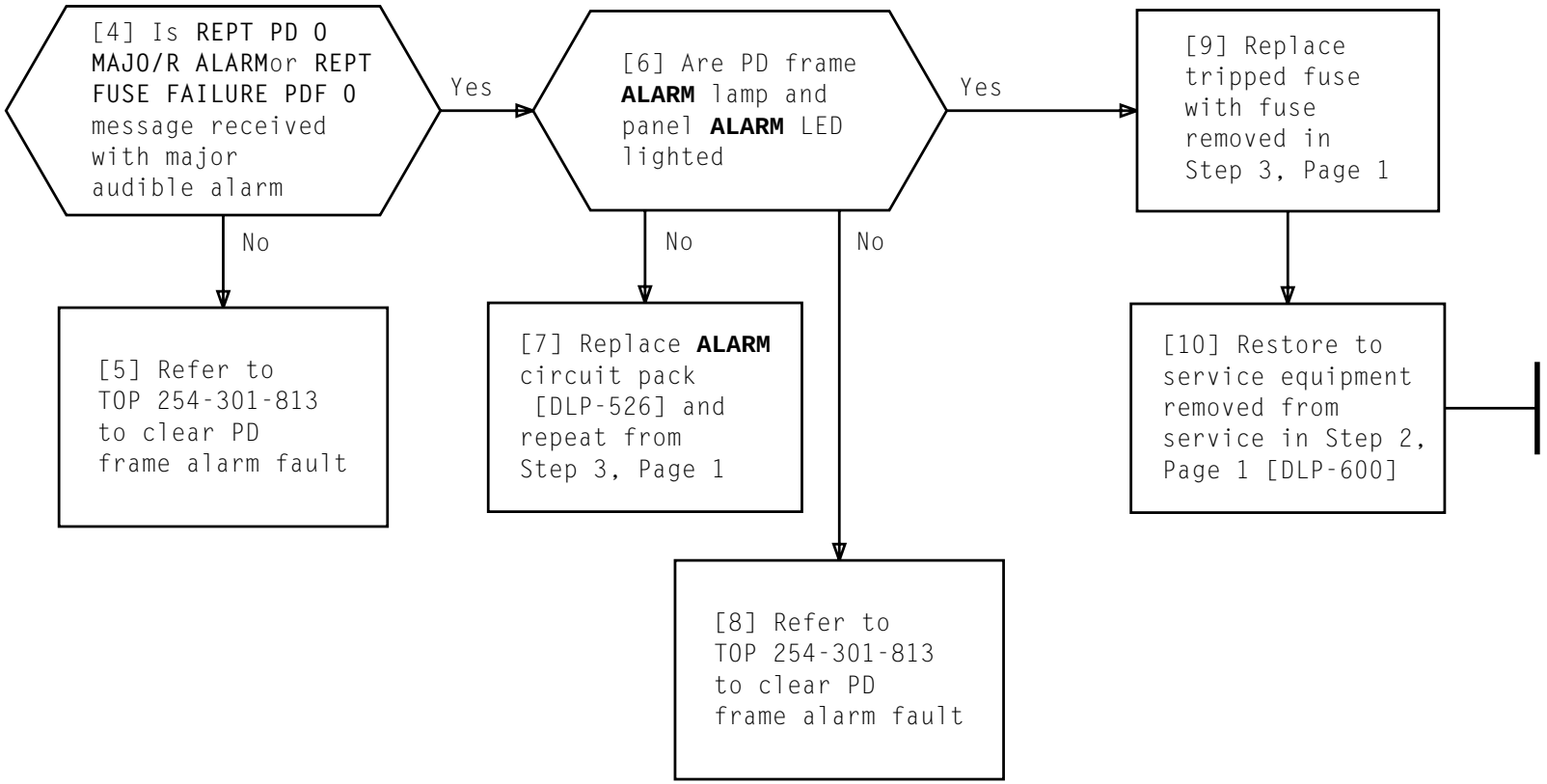
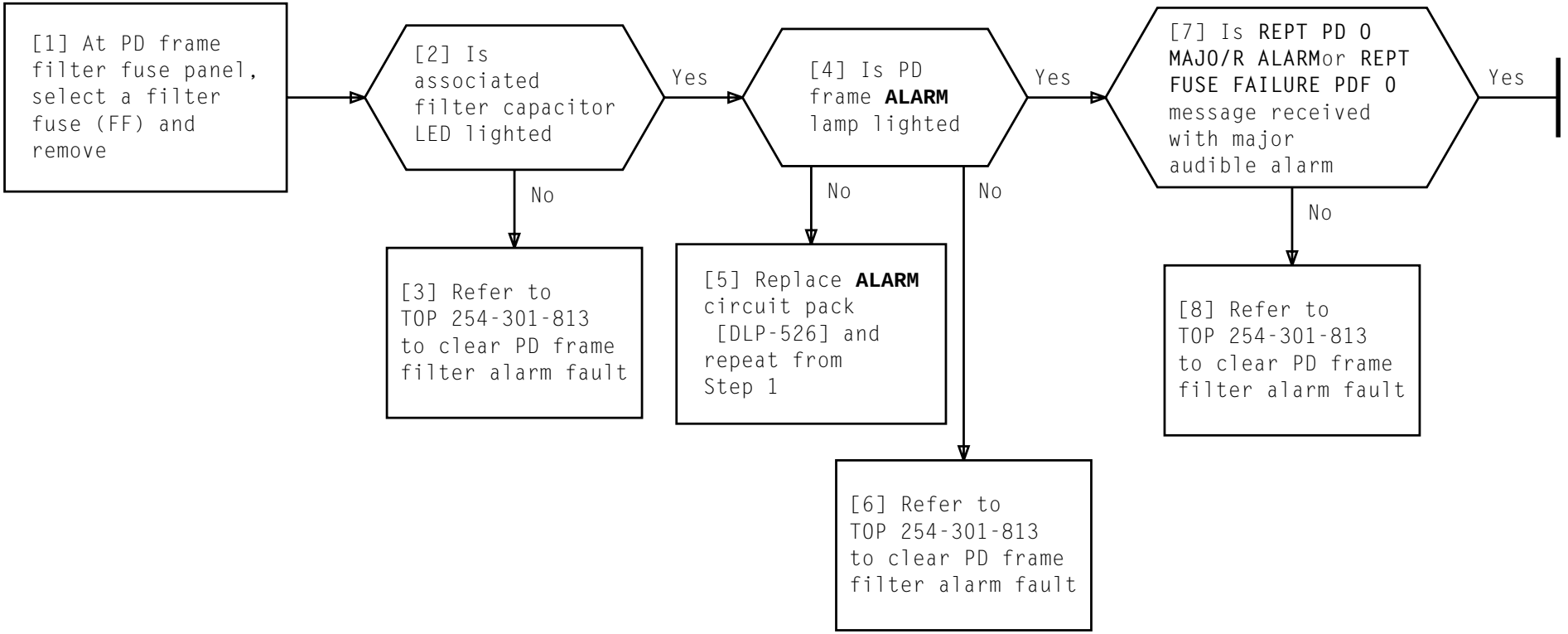
TEST POWER DISTRIBUTION (PD) FRAME ALARMS



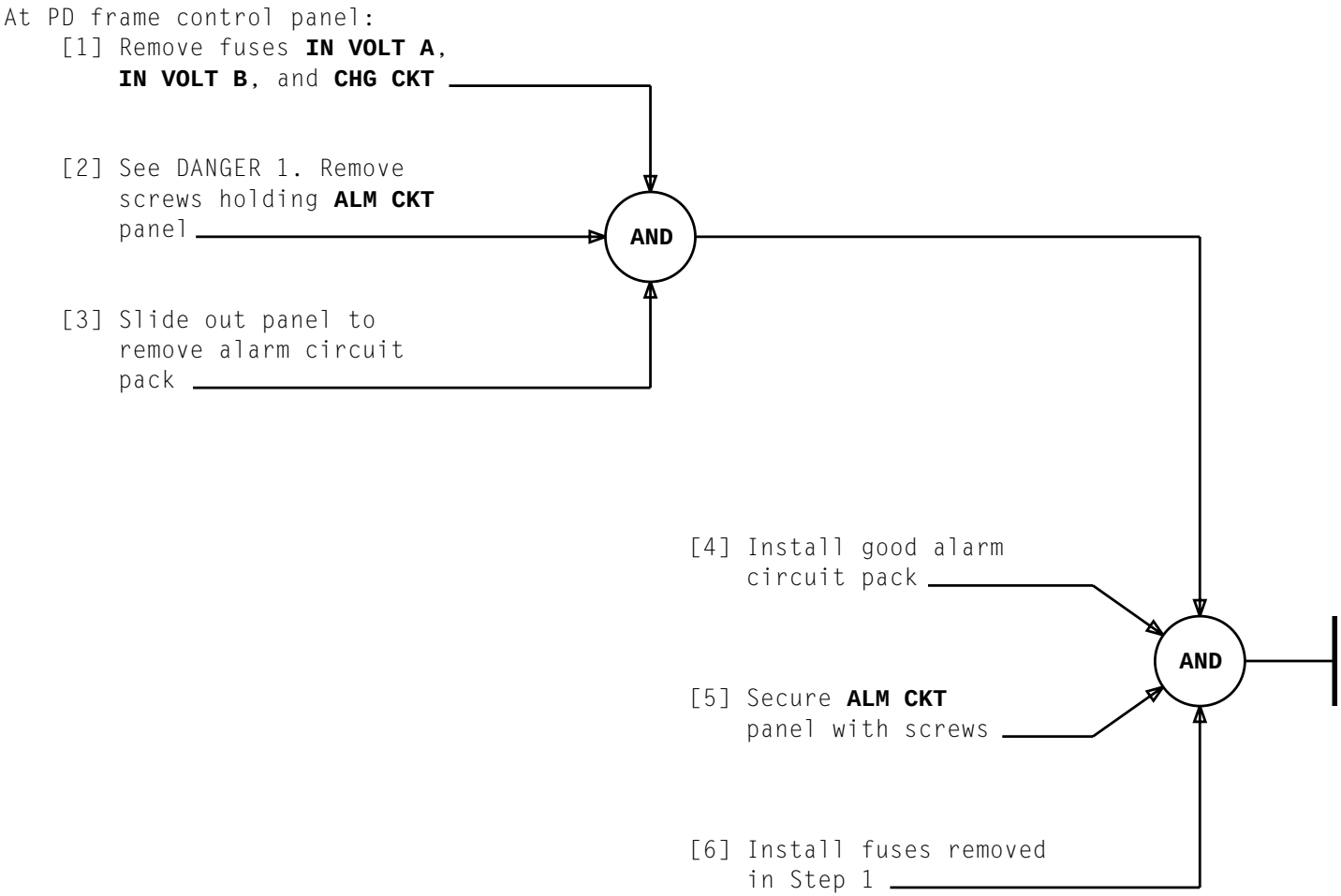
TEST POWER DISTRIBUTION (PD) FRAME ALARMS

SUMMARY

Remove any filter fuse. Verify LED, **ALARM** lamp, and output message.



TEST POWER DISTRIBUTION (PD) FRAME FILTER ALARM



DANGER 1
–48V battery supply present inside frame

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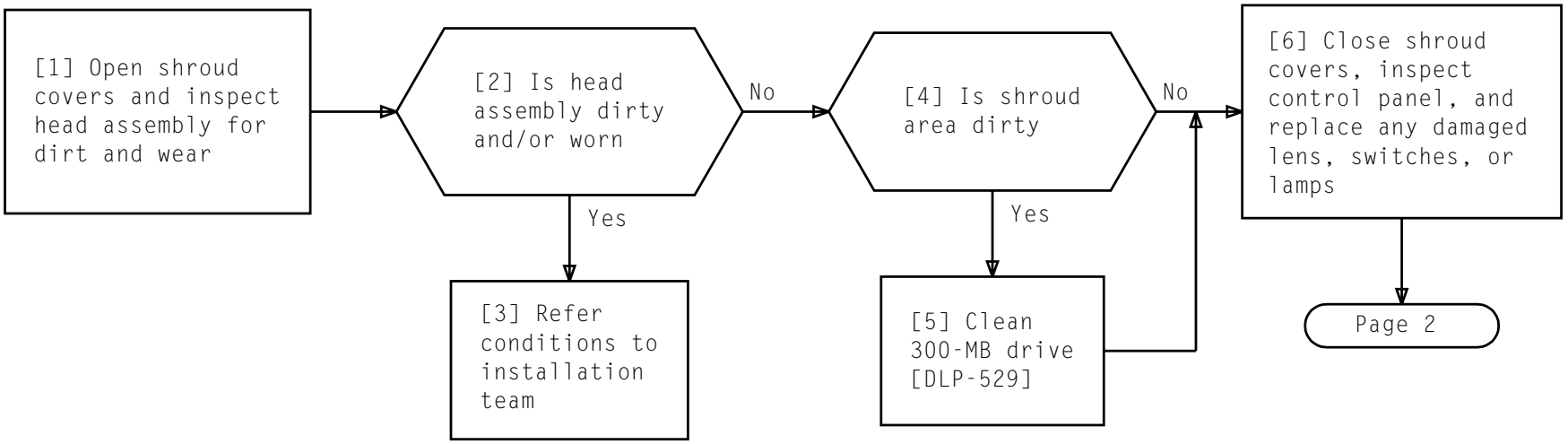
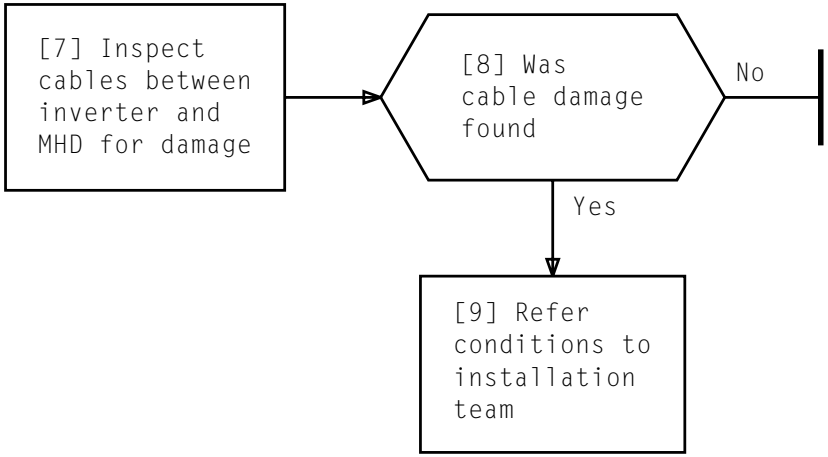
REPLACE ALARM CIRCUIT PACK

SUMMARY

Inspect head assembly and control panel for damage, wear, and dirt. Inspect cables for damage.



INSPECT MOVING HEAD DISK (MHD) DRIVE



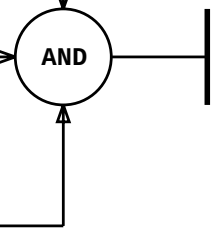
INSPECT MOVING HEAD DISK (MHD) DRIVE

On moving head disk (MHD):

[1] With lint-free cloth, clean outside panels and top of MHD

[2] With vacuum cleaner, carefully clean inside shroud area avoiding any contact with head assembly

[3] With lint-free cloth, clean area of shroud cover and close shroud cover



CLEAN MOVING HEAD DISK (MHD)

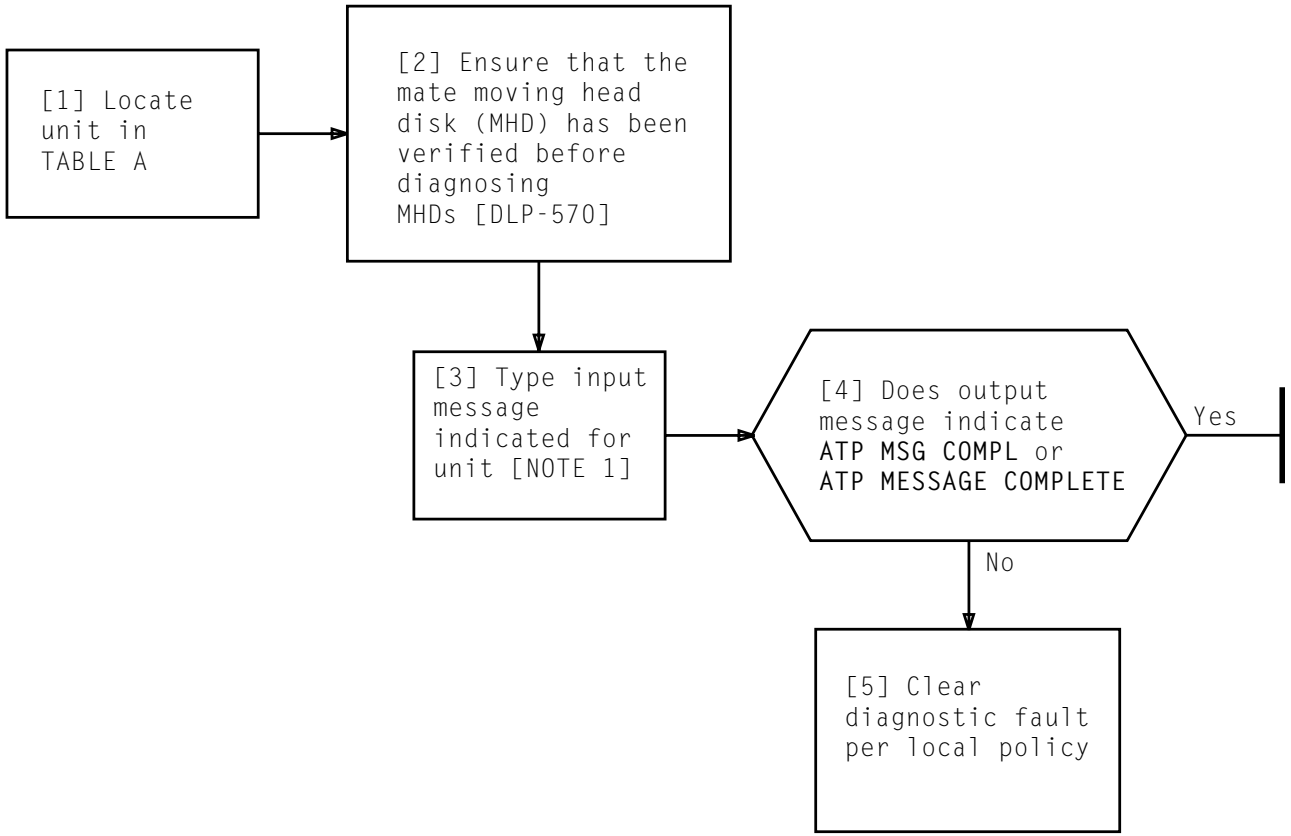


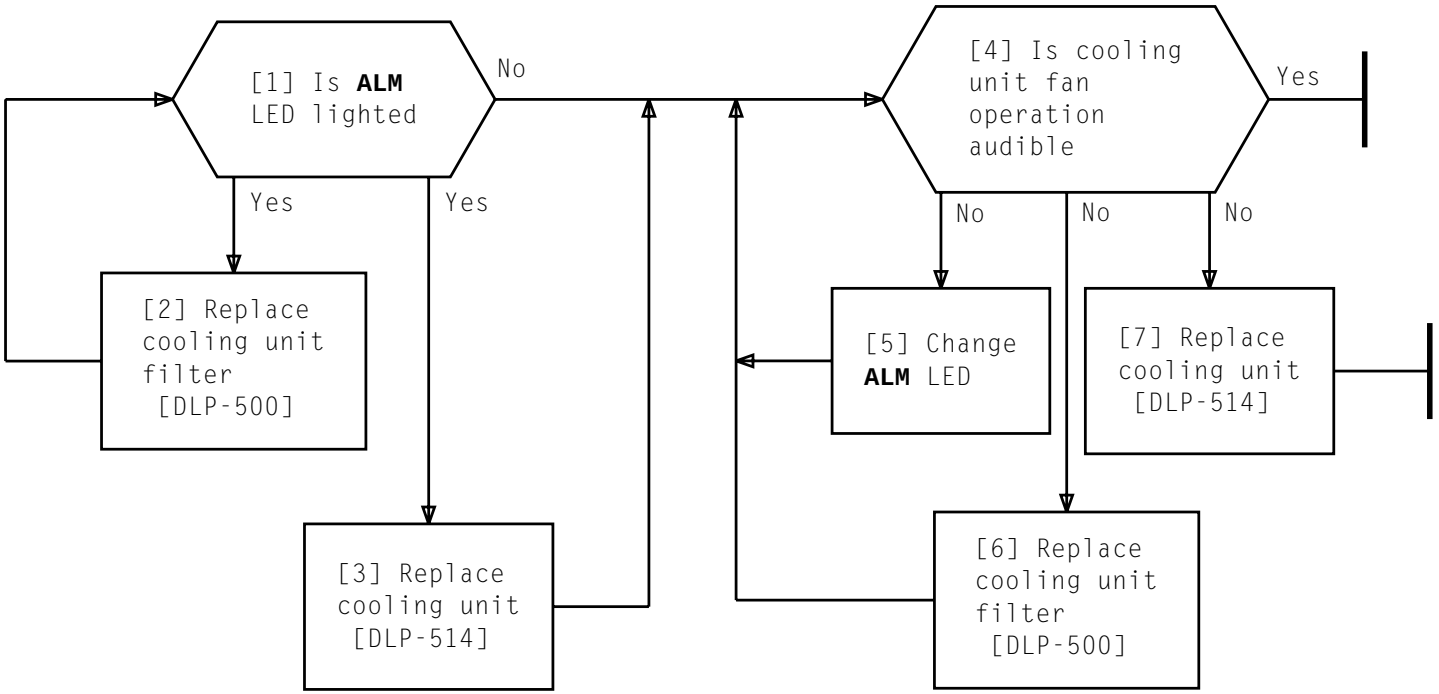
TABLE A
DIAGNOSTIC MESSAGES

UNIT	INPUT MESSAGE
CU	DGN:CU a;RAW,DEX!
DFC	DGN:DFC a;RAW,DEX:CONT!
IOP	DGN:IOP a;RAW,DEX:CONT!
MHD	DGN:MHD b;RAW,DEX!

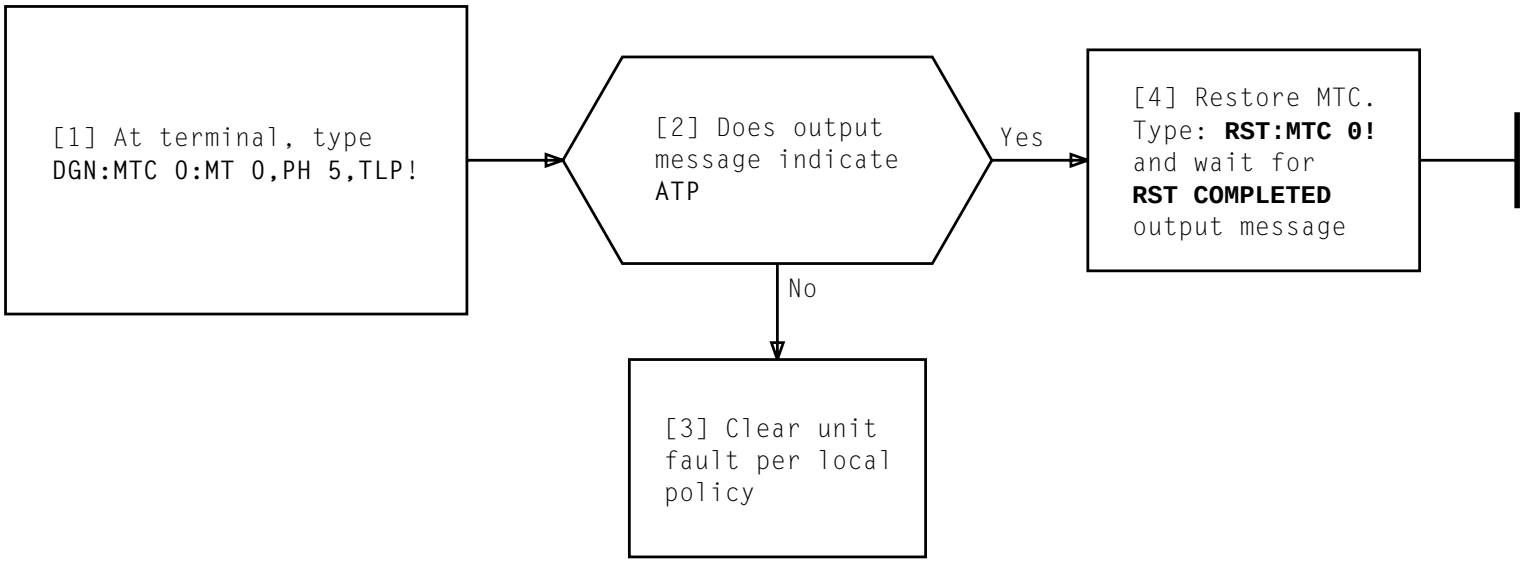
a = 0 or 1
b = MHD number

NOTE 1
Output message received when all subunits are removed from service and diagnosed

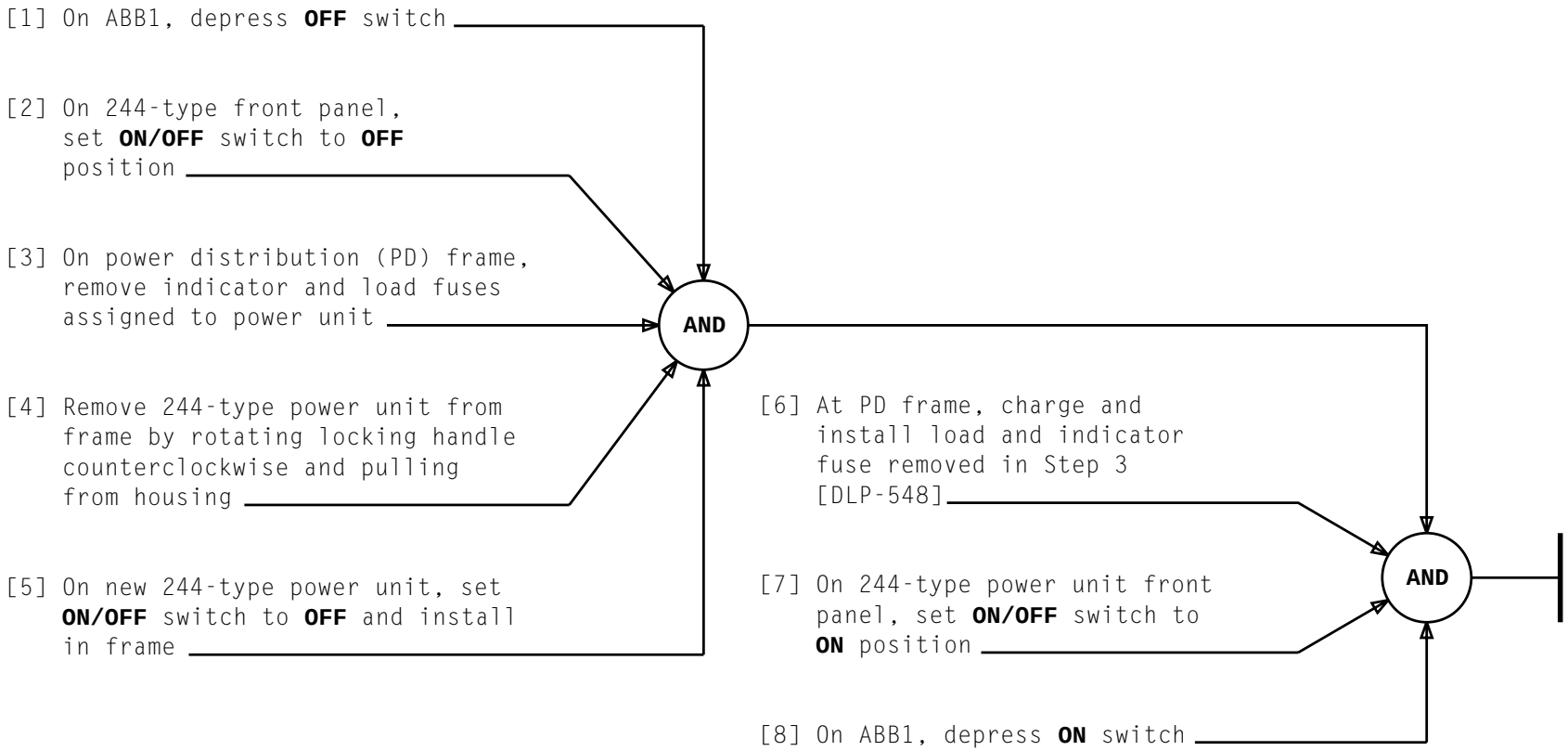
DIAGNOSE UNIT



CHECK COOLING UNIT



DIAGNOSE MAGNETIC TAPE CONTROLLER (MTC)



REPLACE 244-TYPE POWER UNIT

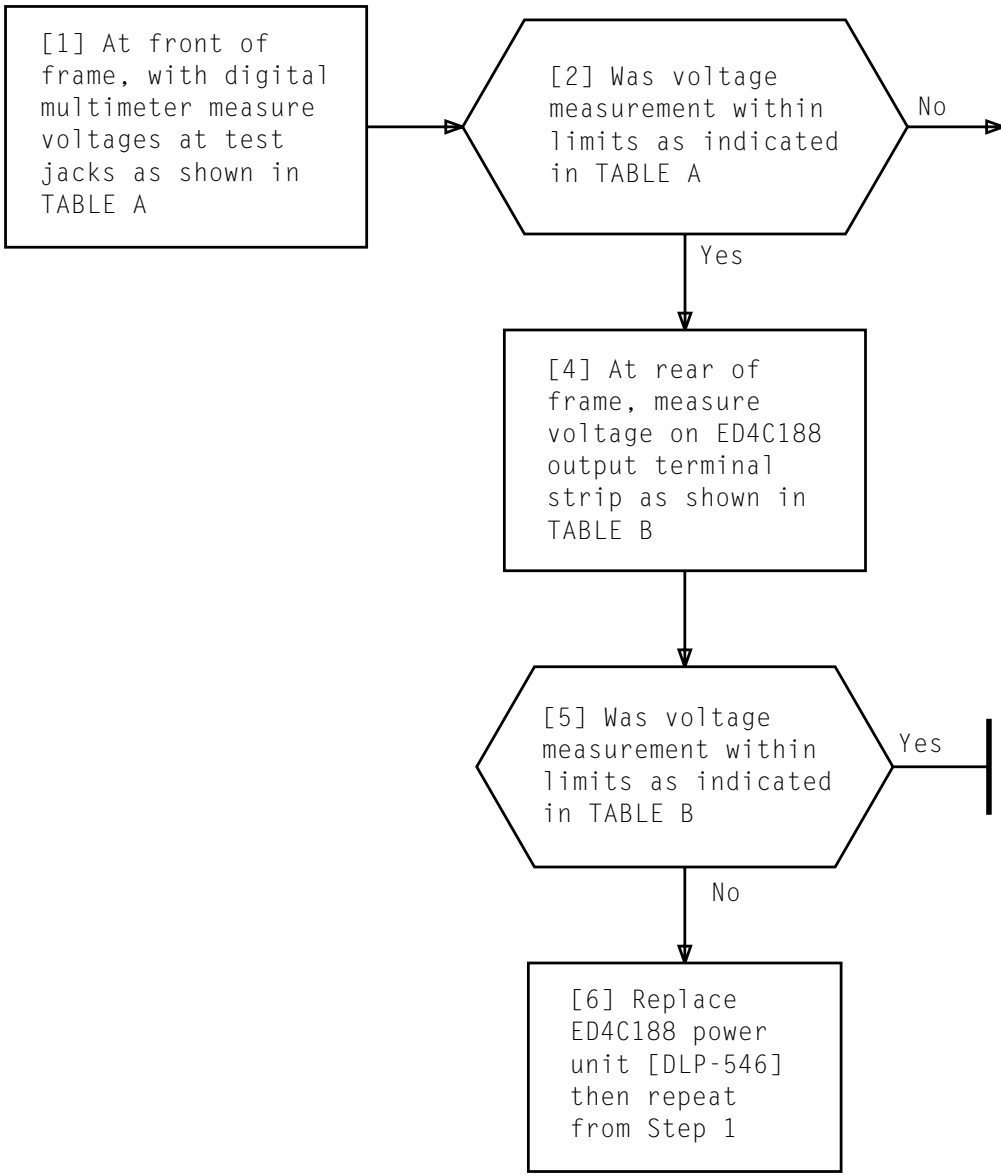


TABLE A

132-TYPE MEASURE VOLTAGE ACROSS TEST JACKS	LIMIT
4(−) and 2(RTN)	−4.75 to −5.25 volts
3(+) and 2(RTN)	+11.4 to +12.6 volts

TABLE B

ED4C188 MEASURE VOLTAGE ACROSS OUTPUT TERMINAL STRIP POINTS (EQL24-056)	LIMIT
5 and 4	+4.75 to +5.25 volts
3 and 4	−11.4 to −12.6 volts
7 and 4	+11.4 to +12.6 volts

TEST REFERENCE POWER UNIT J1C129AE

[1] On ABB1, depress **OFF** switch

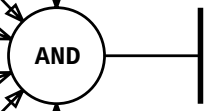
[2] On 132-type power unit front panel, set **ON/OFF** switch to **OFF** position

[3] Remove power unit from frame

[4] On new 132-type power unit, set **ON/OFF** switch to **OFF** and install in frame

[5] Set **ON/OFF** switch to **ON** position

[6] On ABB1, depress **ON** switch



REPLACE 132-TYPE POWER UNIT

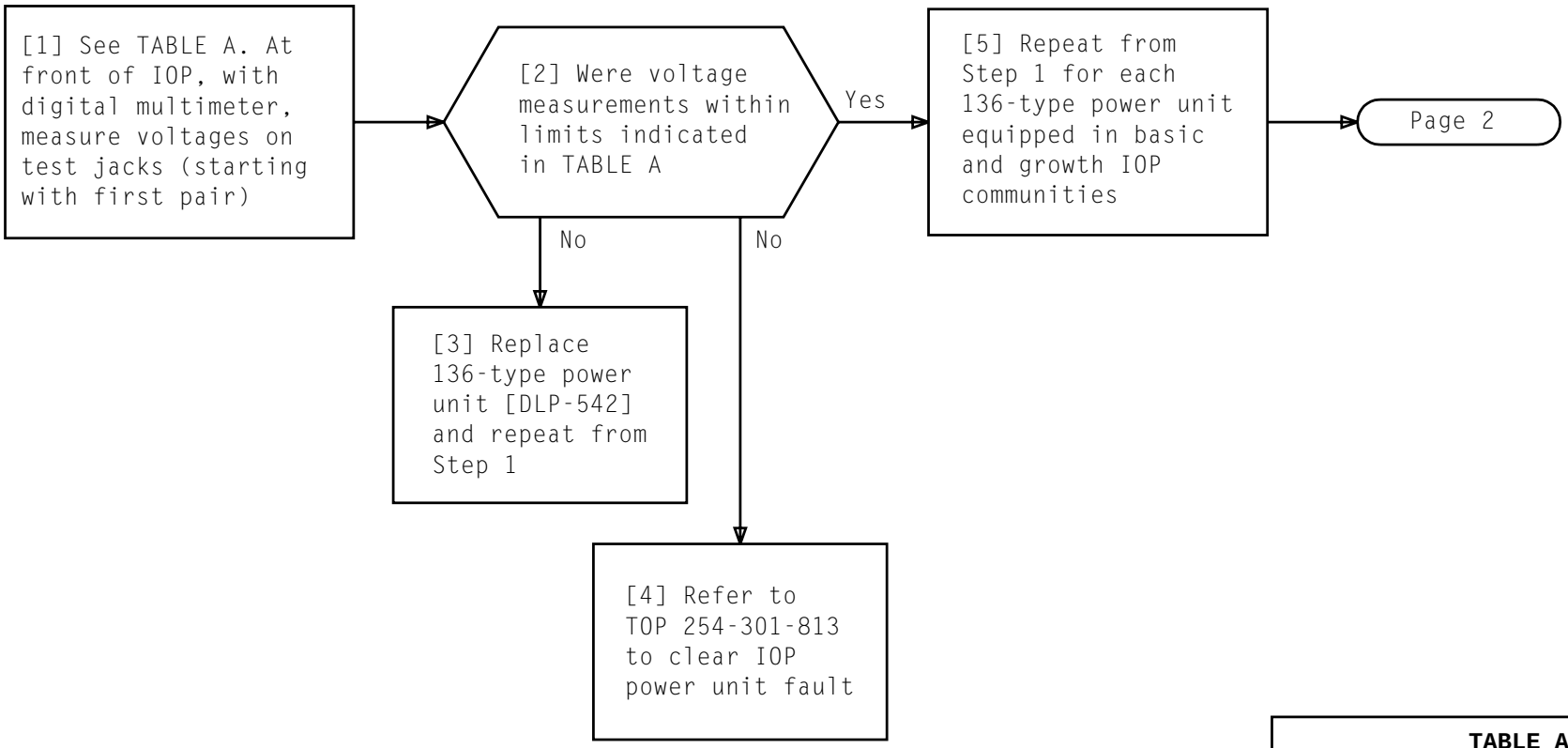


TABLE A

OUTPUT TEST JACKS TO BE MEASURED	VOLTAGE LIMIT
6(+) and **5(RTN)**	+8.4 to +15.6
4(–) and **5(RTN)**	–8.4 to –15.6

TEST 136-TYPE POWER UNIT

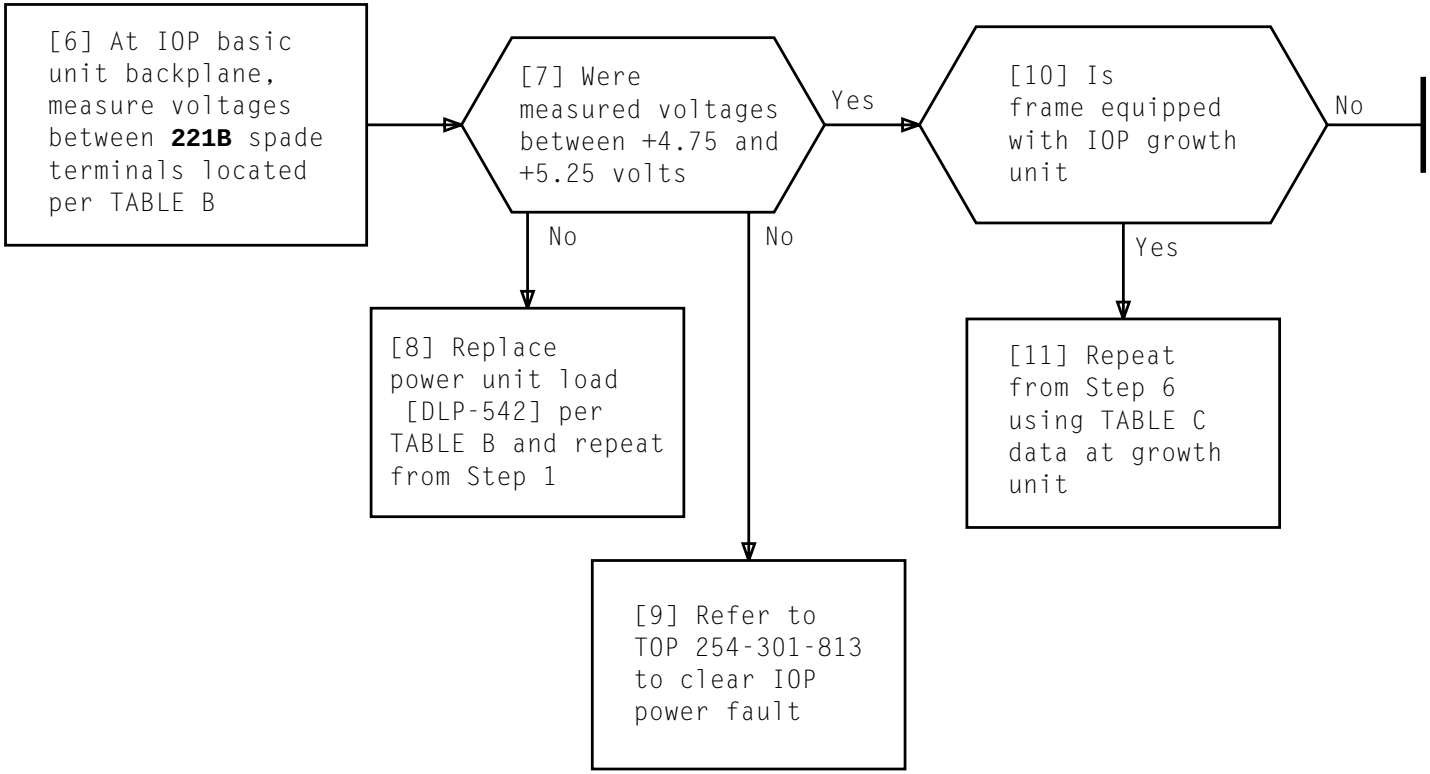


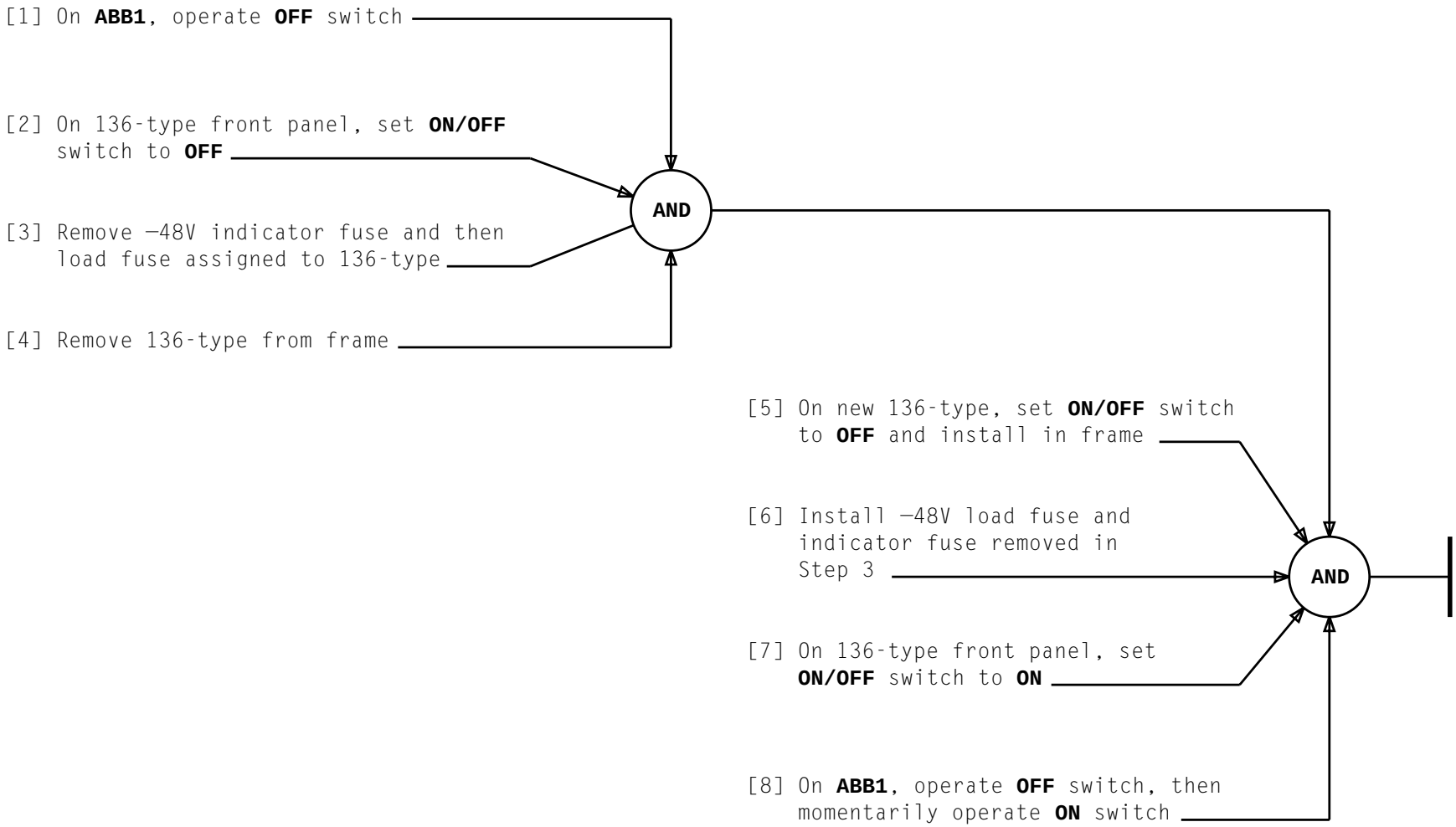
TABLE B

TERMINAL LOCATION		136-TYPE POWER UNIT	
(+) +5V	(–) GRD	LOAD	LOCATION
168	142	Controller	127
115	142	Community 0	067
056	142	Community 1	008

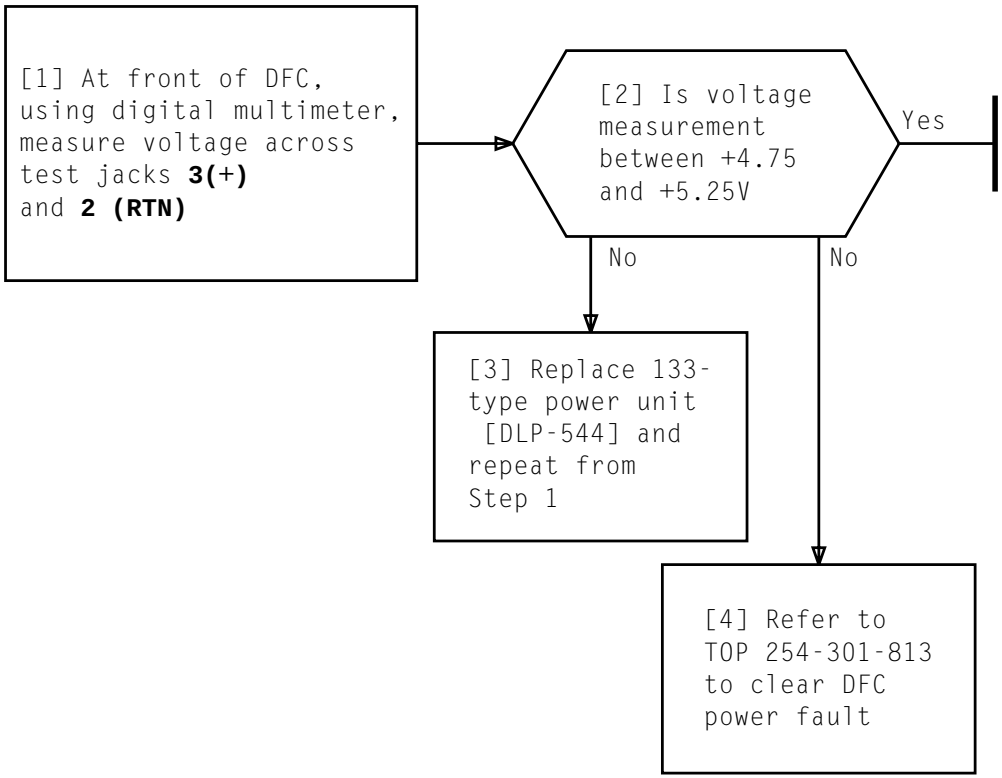
TABLE C

TERMINAL LOCATION		136-TYPE POWER UNIT	
(+) +5V	(–) GRD	LOAD	LOCATION
116	100	Community 2	127 Level 04
046	100	Community 3	127 Level 08

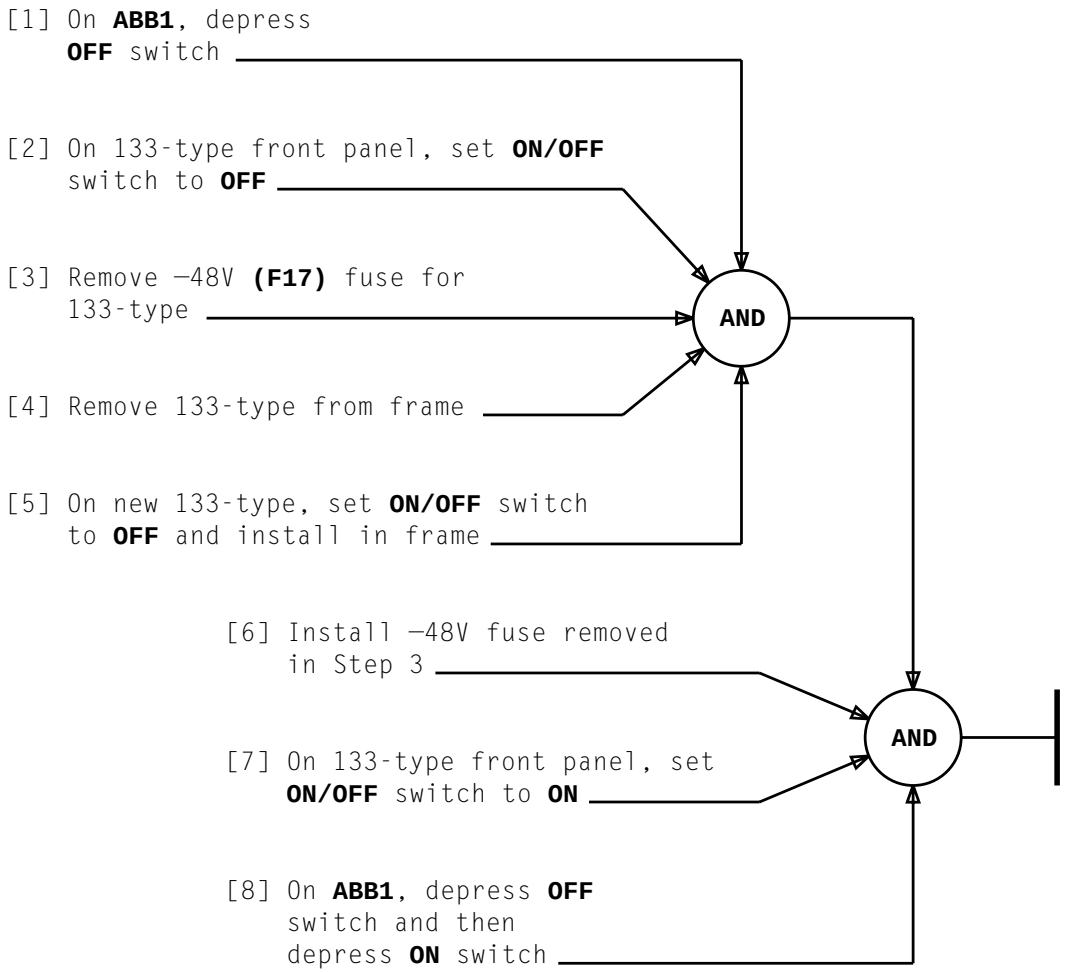
TEST 136-TYPE POWER UNIT



REPLACE 136-TYPE POWER UNIT



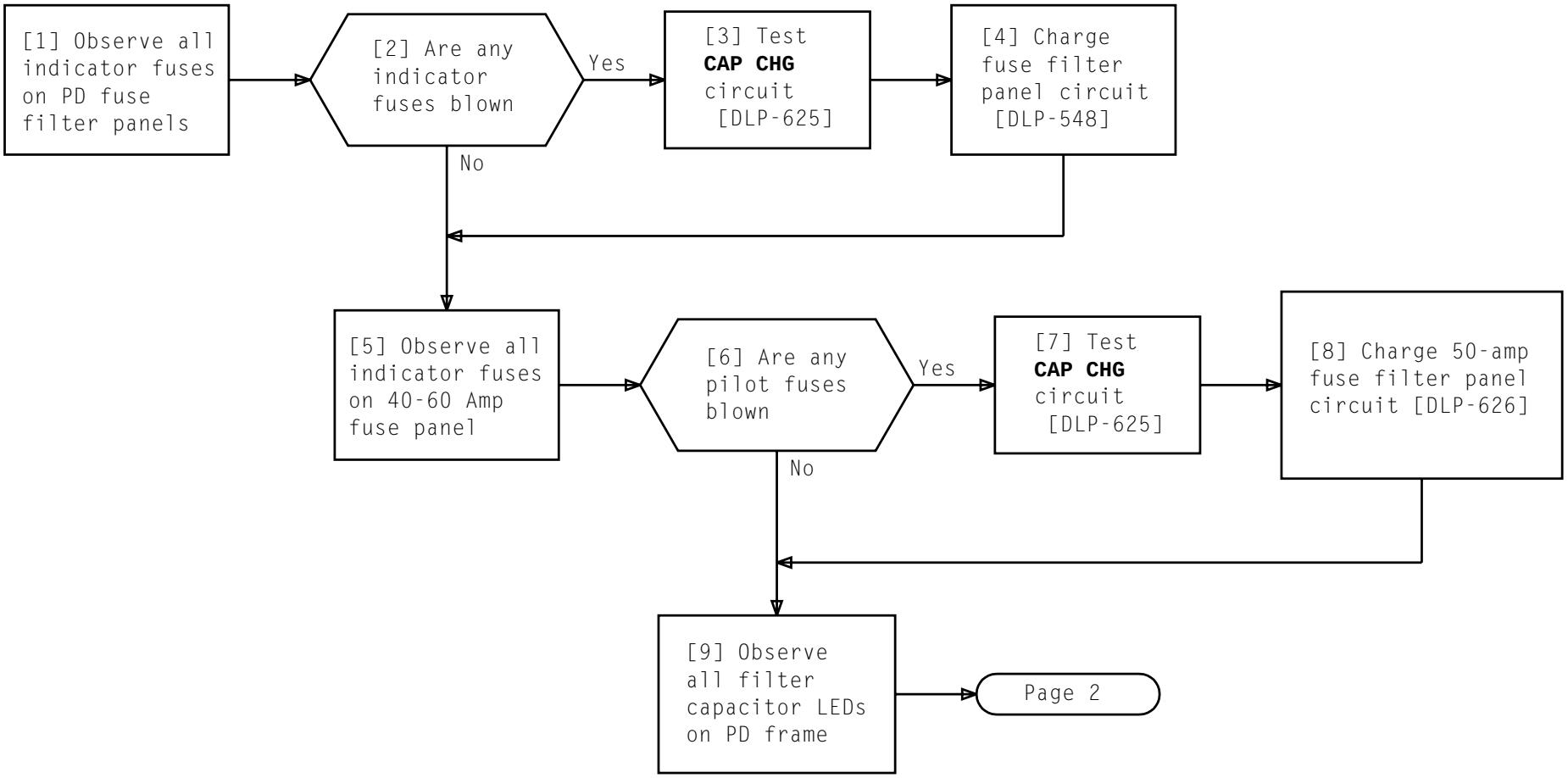
TEST 133-TYPE POWER UNIT



REPLACE 133-TYPE POWER UNIT

SUMMARY

Observe panels for blown indicator fuses and lighted filter capacitor LEDs. If either condition exists, test **CAP CHG** circuit and then charge respective filter.



CHECK POWER DISTRIBUTION (PD) FRAME

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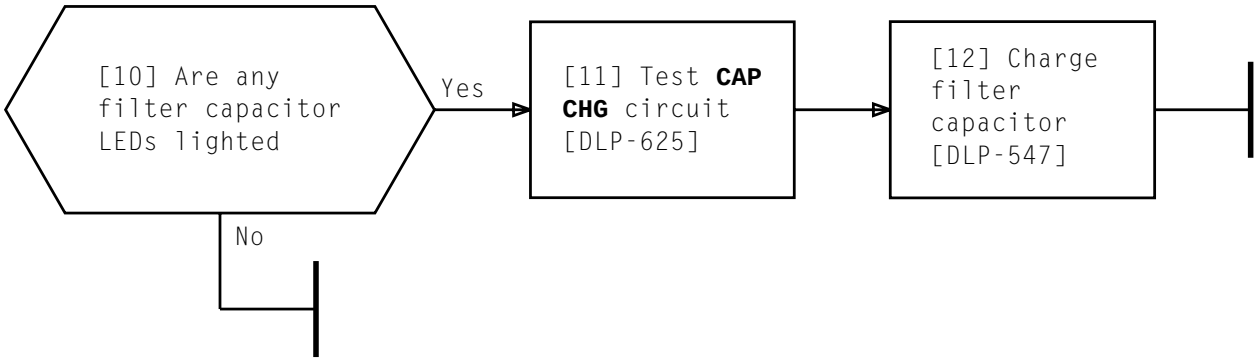

CHECK POWER DISTRIBUTION (PD) FRAME

[1] On ABB1, depress **OFF** switch

[2] Remove –48 volt fuse **48VRF** for Reference Power Unit J1C129AE ED4C188

[3] See FIG. 1. At rear of frame, tag and remove wires from ED4C188 terminal strip

[4] Support ED4C188, remove 4 retaining screws and remove ED4C188 from frame

[5] Install new ED4C188 in frame and install 4 retaining screws

AND

[6] At rear of frame, connect wires to ED4C188 terminal strip removed in Step 3

[7] Install –48 volt fuse **48VRF** removed in Step 2

AND

[8] On ABB1, depress**ON** switch

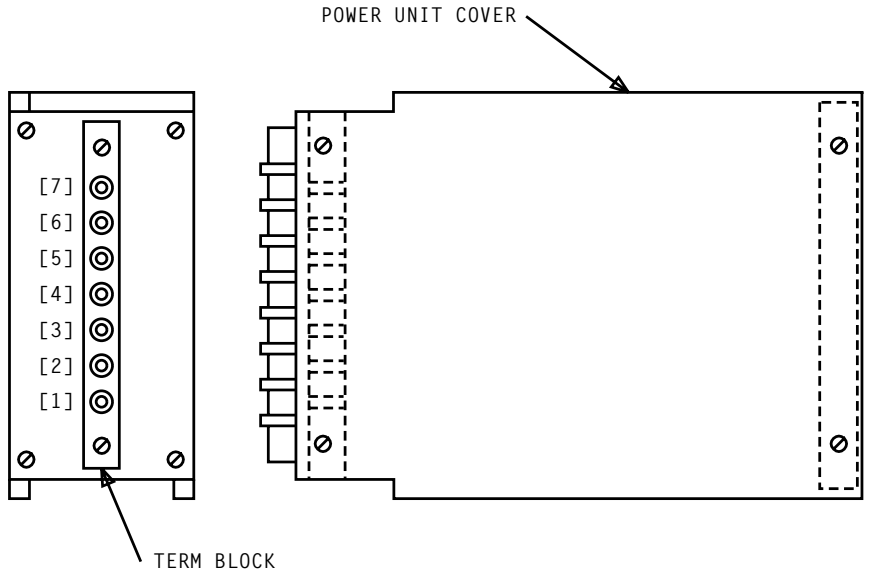

FIG. 1

REPLACE ED4C188 POWER UNIT

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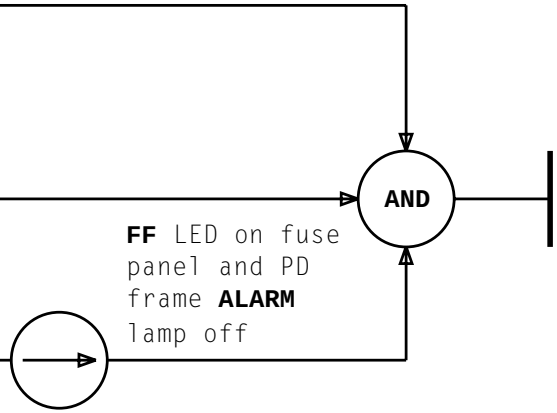
[1] On power distribution (PD) frame, insert probe into filter fuse position, twist and lock in position

[2] See CAUTION 1. Hold **CAP CHG TEST** switch closed until **CAP CHG** LED goes off, then release

[3] Remove charge probe from filter fuse position and install good fuse in filter fuse position



CAUTION 1
Step 3 must be performed within 12 seconds after completion of Step 2; otherwise, fuse operation will occur when fuse is inserted in filter fuse position

CHARGE FILTER CAPACITOR

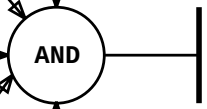
[1] Remove blown indicator fuse and load fuse

[2] Insert charge probe into indicator fuse position, twist and lock in position

[3] See WARNING 1. Hold **CAP CHG TEST** switch on charge probe closed (forward position) until **CAP CHG** LED goes off, then release

[4] Install good fuse in load fuse position

[5] Remove charge probe and install good fuse in indicator fuse position



WARNING 1
Step 4 must be performed within 12 seconds after the **CAP CHG** *LED extinguishes and the* **CHG** *switch is released.*

CHARGE FUSE FILTER PANEL CIRCUIT

[1] On 300-megabyte (300-MB) MHD operator control panel if not released, release **START** switch

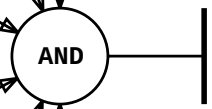
[2] On MHD frame power control unit, momentarily depress **OFF** switch

[3] Remove **5AMP N48** from inverter power control panel

[4] Remove ED-4C479-30 from MHD frame and install new ED-4C479-30

[5] Replace fuse removed in Step 3

[6] Depress **ON** switch



REPLACE ED-4C479-30 POWER CONTROL UNIT

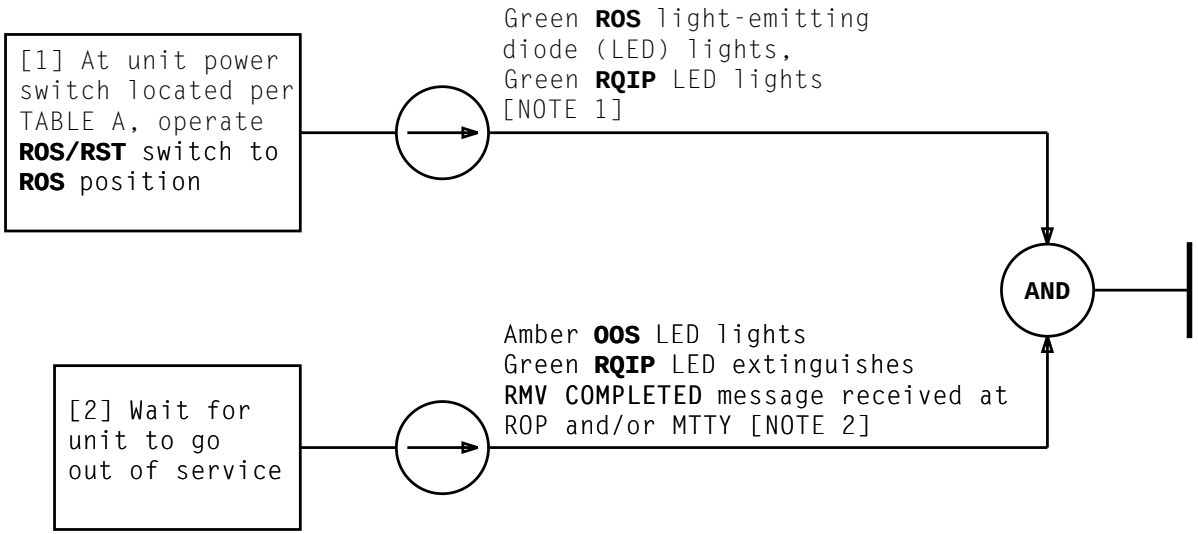


TABLE A
UNIT POWER SWITCH LOCATIONS

UNIT	POWER SWITCH	CABINET	UNIT	POWER SWITCH	CABINET
CU 0	TN5B	PC 0	IOP 0	TN6B	PC 0
CU 1	TN5B	PC 1	IOP 1	TN6B	PC 1
DFC 0	TN3B	PC 0	160-MB MHD (a)*	TN2	MMD 0
DFC 1	TN3B	PC 1	160-MB MHD (b)*	TN2	MMD 1
SCSI DFC 0	TN6B	PC Bay 0	300-MB MHD (c)*	ED-4C479	MHD (d)
SCSI DFC 1	TN6B	PC Bay 1	340-MB MHD (e)*	ED-4C481	Tape/Disk 0
SCSI DFC 0	TN6B	SCSI Disk 0	340-MB MHD (f)*	ED-4C481	Tape/Disk 1
SCSI DFC 1	TN6B	SCSI Disk 0	SCSI MHD (g)*	CGG1	SCSI Disk 0
SCSI DFC 2	TN6B	SCSI Disk 1	SCSI MHD (h)*	CGG1	SCSI Disk 1
SCSI DFC 3	TN6B	SCSI Disk 1			

(a) Even Numbers
(b) Odd Numbers
(c) MHD Member Number
(d) MHD Frame Number
(e) MHD 0, 1, 2, and 3
(f) MHD 4 through 12
(g) SCSI MHD 0 through 15
(h) SCSI MHD 16 through 31
* Ensure mate of MHD has been verified before removing MHD from service

NOTES
1. If Green **RQIP** LED begins to flash and then extinguishes, the request to go out of service was not accepted by the system. Check the receive-only printer (ROP) or maintenance TTY (MTTY) for messages
2. Subunits are removed from service before unit **RMV COMPLETED** message received (no subunit messages with CU) Maintenance terminal display page unit indicators show **OOS** or **OOS MAN**

REMOVE UNIT FROM SERVICE VIA POWER SWITCH

[1] At unit power switch located per TABLE A, operate **ROS/RST** switch to **RST** position [NOTE 1]

A. Green **ROS** light-emitting diode (LED) extinguishes
B. Green **RQIP** LED lights when system acknowledges request [NOTE 2]
C. Amber **OOS** LED will extinguish when unit is placed in service
D. **RST COMPLETED** message received
E. Maintenance terminal display page indicators show **ACT** (CU goes to **STBY**)
F. **RQIP** LED will extinguish when diagnostics are completed

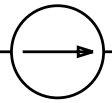


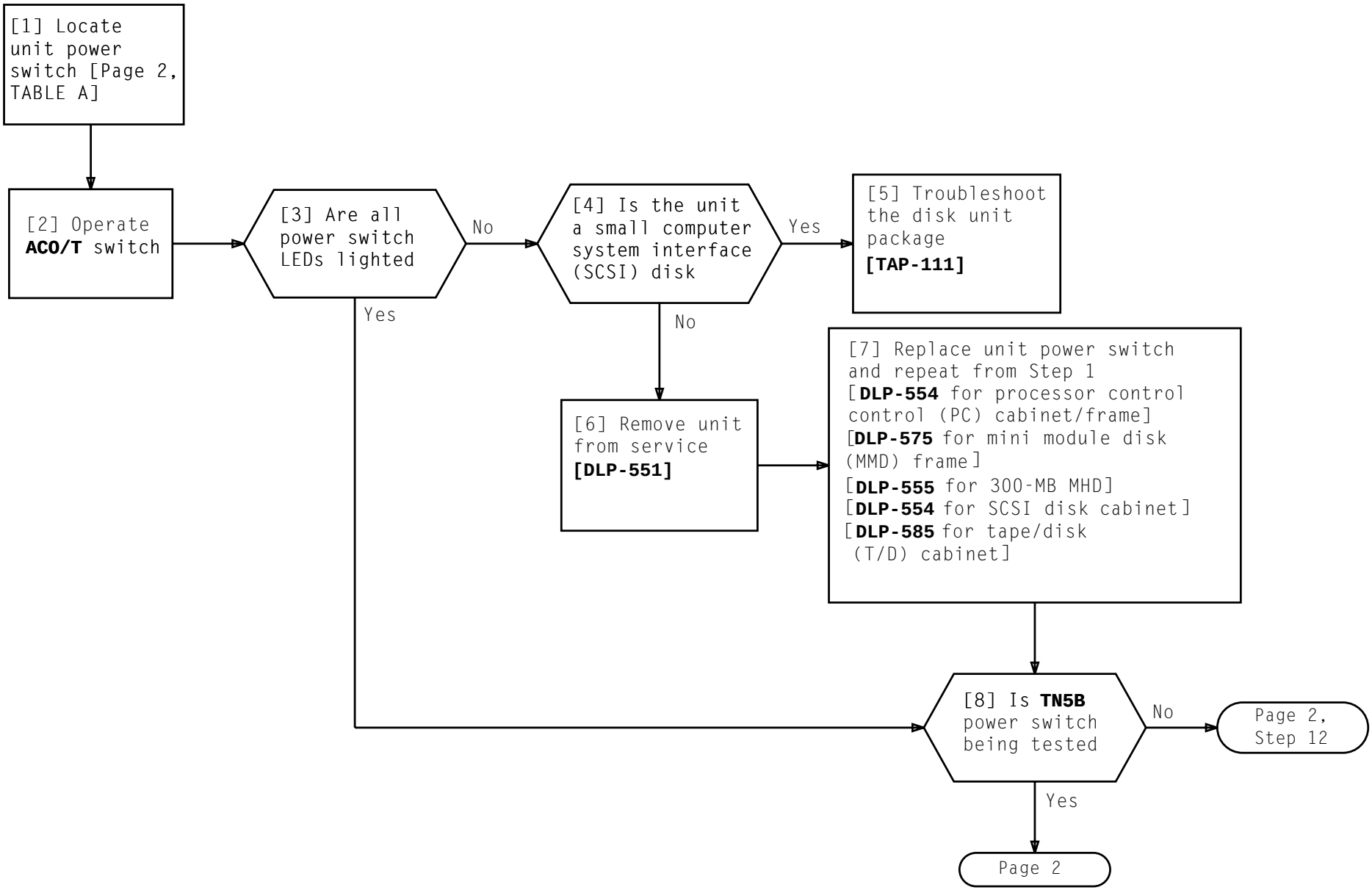
TABLE A
POWER SWITCHES AND LOCATIONS PER UNIT

UNIT	POWER SWITCH	CABINET	UNIT	POWER SWITCH	CABINET
CU 0	TN5B	PC 0	IOP 0	TN6B	PC 0
CU 1	TN5B	PC 1	IOP 1	TN6B	PC 1
DFC 0	TN3B	PC 0	160-MB MHD (a)	TN2	MMD 0
DFC 1	TN3B	PC 1	160-MB MHD (b)	TN2	MMD 1
SCSI DFC 0	TN6B	PC Bay 0	300-MB MHD (c)	ED-4C479	MHD (d)
SCSI DFC 1	TN6B	PC Bay 1	340-MB MHD (e)	ED-4C481	Tape/Disk 0
SCSI DFC 0	TN6B	SCSI Disk 0	340-MB MHD (f)	ED-4C481	Tape/Disk 1
SCSI DFC 1	TN6B	SCSI Disk 0	SCSI MHD (g)	CGG1	SCSI Disk 0
SCSI DFC 2	TN6B	SCSI Disk 1	SCSI MHD (h)	CGG1	SCSI Disk 1
SCSI DFC 3	TN6B	SCSI Disk 1			

(a) Even Numbers
(b) Odd Numbers
(c) MHD Member Number
(d) MHD Frame Number
(e) MHD 0, 1, 2, and 3
(f) MHD 4 through 12
(g) SCSI MHD 0 through 15
(h) SCSI MHD 16 through 31

NOTES
1. All subunits and units diagnosed before being restored to service [no restore subunit messages with control unit (CU)]
2. If **RQIP** LED begins to flash and then extinguishes, the request to restore service was not accepted by the system. Check the maintenance TTY (MTTY) and/or the receive-only printer (ROP) for messages

RESTORE UNIT TO SERVICE VIA POWER SWITCH



CHECK LIGHT EMITTING DIODES (LEDs)

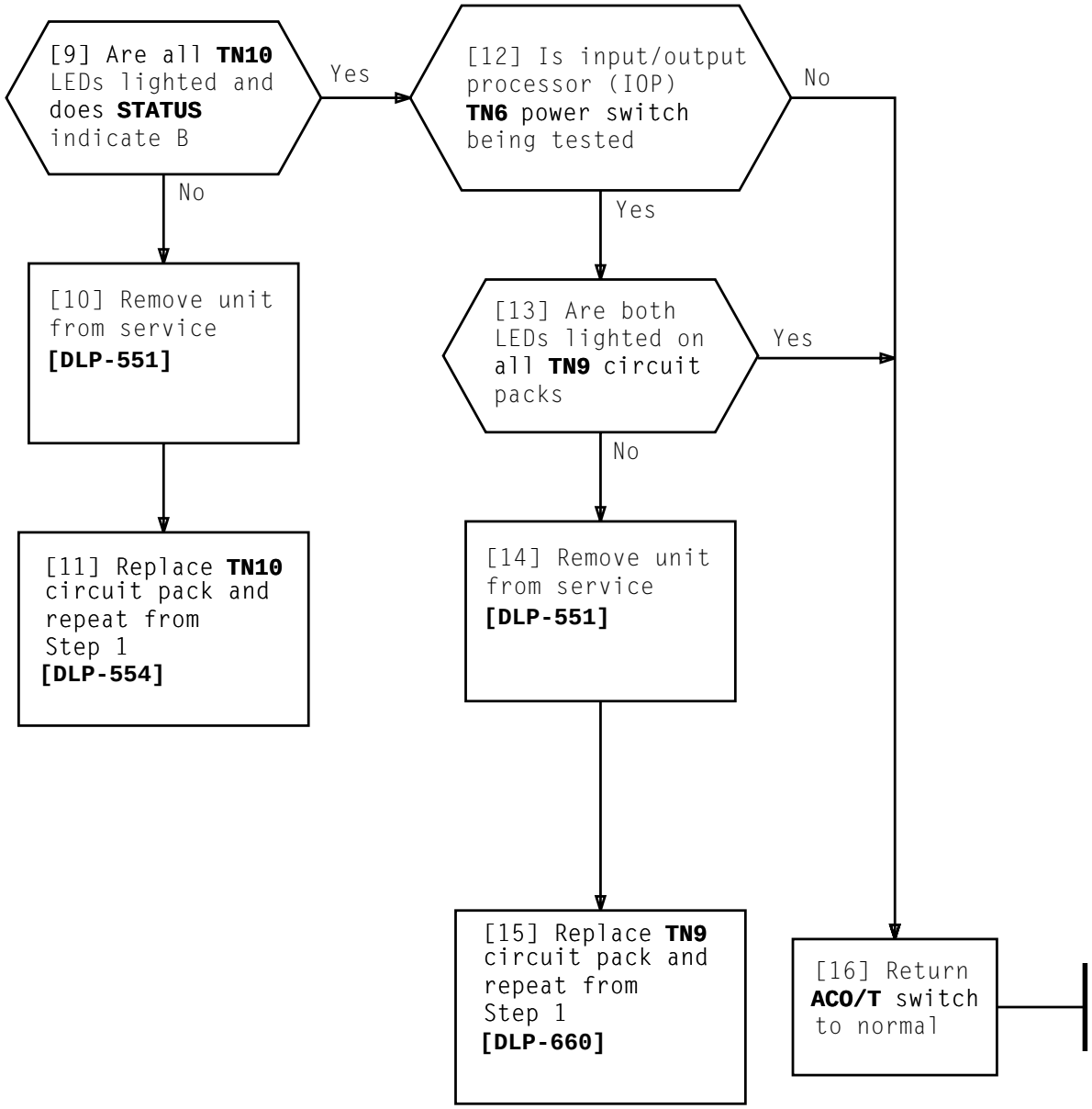


TABLE A
POWER SWITCHES AND LOCATIONS PER UNIT

UNIT	POWER SWITCH	CABINET
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0	TN3B	PC Bay 0
DFC 1	TN3B	PC Bay 1
SCSI DFC 0	TN6B	PC Bay 0
SCSI DFC 1	TN6B	PC Bay 1
SCSI DFC 0	TN6B	SCSI Disk 0
SCSI DFC 1	TN6B	SCSI Disk 0
SCSI DFC 2	TN6B	SCSI Disk 1
SCSI DFC 3	TN6B	SCSI Disk 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
160-MB MHD (a)	TN2	MMD 0
160-MB MHD (b)	TN2	MMD 1
300-MB MHD (c)	ED-4C479	MHD (d)
340-MB MHD (e)	ED-4C481	Tape/Disk 0
340-MB MHD (f)	ED-4C481	Tape/Disk 1
SCSI MHD (g)	CGG1	SCSI Disk 0
SCSI MHD (h)	CGG1	SCSI Disk 1

(a) Even Numbers
(b) Odd Numbers
(c) MHD Member Number
(d) MHD Frame Number
(e) MHD 0, 1, 2, and 3
(f) MHD 4 through 12
(g) SCSI MHD 0 through 15
(h) SCSI MHD 16 through 31

CHECK LIGHT EMITTING DIODES (LEDs)

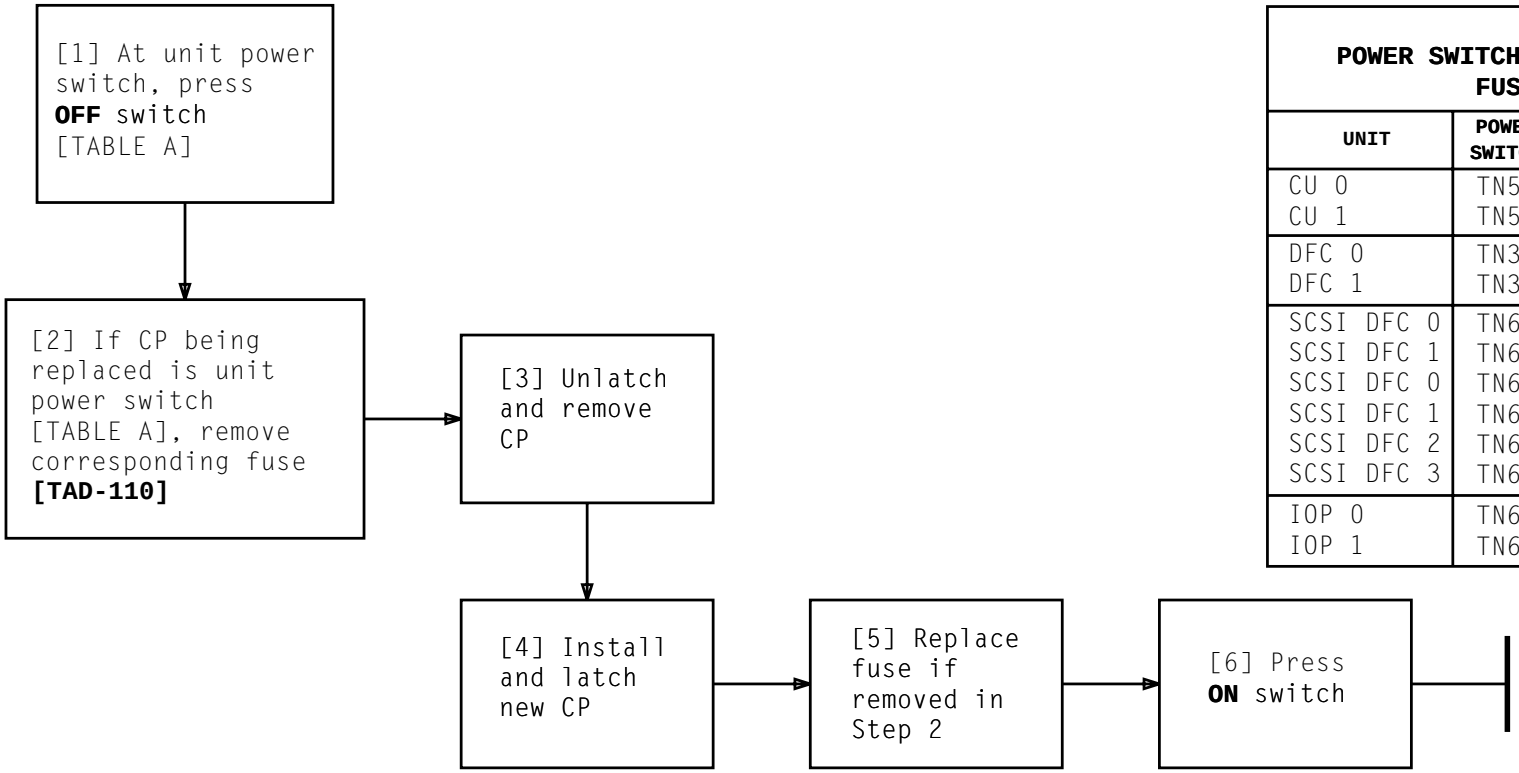


TABLE A
POWER SWITCHES AND CORRESPONDING FUSES PER UNIT

UNIT	POWER SWITCH	CABINET	FUSE
CU 0	TN5B	PC 0	F10A
CU 1	TN5B	PC 1	F10A
DFC 0	TN3B	PC 0	F5A
DFC 1	TN3B	PC 1	F5A
SCSI DFC 0	TN6B	PC 0	F5A
SCSI DFC 1	TN6B	PC 1	F5A
SCSI DFC 0	TN6B	SCSI Disk 0	F11A
SCSI DFC 1	TN6B	SCSI Disk 0	F14A
SCSI DFC 2	TN6B	SCSI Disk 1	F11A
SCSI DFC 3	TN6B	SCSI Disk 1	F14A
IOP 0	TN6B	PC 0	F22A
IOP 1	TN6B	PC 1	F22A

REPLACE CIRCUIT PACK (CP)

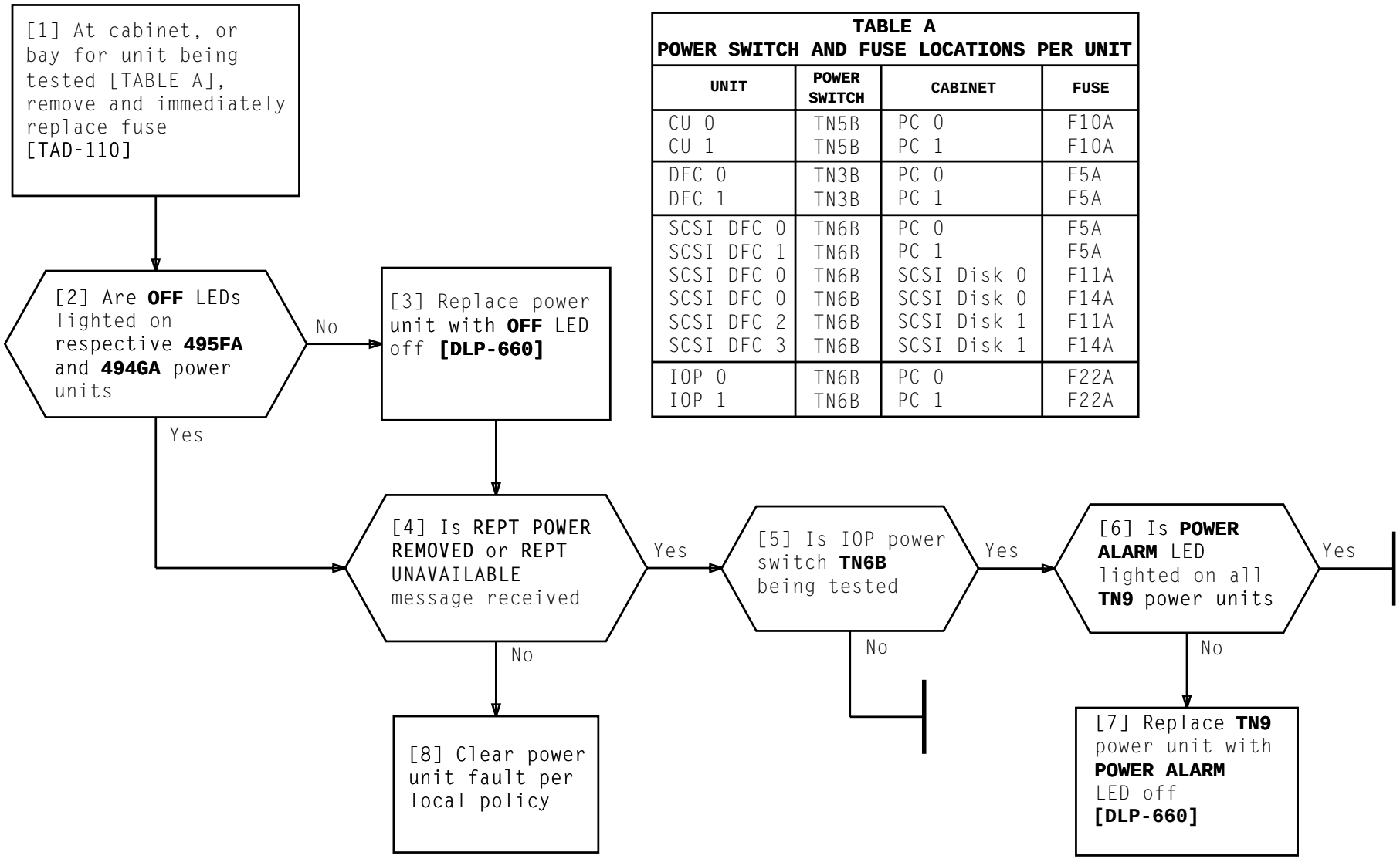


TABLE A
POWER SWITCH AND FUSE LOCATIONS PER UNIT

UNIT	POWER SWITCH	CABINET	FUSE
CU 0	TN5B	PC 0	F10A
CU 1	TN5B	PC 1	F10A
DFC 0	TN3B	PC 0	F5A
DFC 1	TN3B	PC 1	F5A
SCSI DFC 0	TN6B	PC 0	F5A
SCSI DFC 1	TN6B	PC 1	F5A
SCSI DFC 0	TN6B	SCSI Disk 0	F11A
SCSI DFC 0	TN6B	SCSI Disk 0	F14A
SCSI DFC 2	TN6B	SCSI Disk 1	F11A
SCSI DFC 3	TN6B	SCSI Disk 1	F14A
IOP 0	TN6B	PC 0	F22A
IOP 1	TN6B	PC 1	F22A

TEST POWER SWITCH FUSE ALARM

RESTORE POWER TO UNIT

[1] At unit power switch located per per TABLE A, operate **ON** switch. [NOTE 1]

If small computer system interface (SCSI) DUP, Amber **OOS** LED will be lighted, Red **OFF** LED will extinguish
300-MB MHD, Red **OFF** LED and the Red **ALERT** LED extinguish
340-MB MHD, Red **OFF** LED lights and Amber **OSS** LED lights if not already lighted

[2] Perform one of the following actions based on the type of unit being powered up

A. If SCSI DUP, wait one minute for disk spin to up
B. If 300-MB MHD or 340-MB MHD, press drive **START** switch engaging it [NOTE 2]

If unit is 300-MB MHD, **START** LED lights and **READY** LED flashes as the disk spins up and remains lighted when up to speed
If unit is 340-MB MHD, the **START** LED flashes as the disk spins up and remains steady on when unit is up to speed REPT POWER RESTORED or REPT OUT OF SERVICE message received

AND

TABLE A
POWER SWITCHES AND LOCATIONS PER UNIT

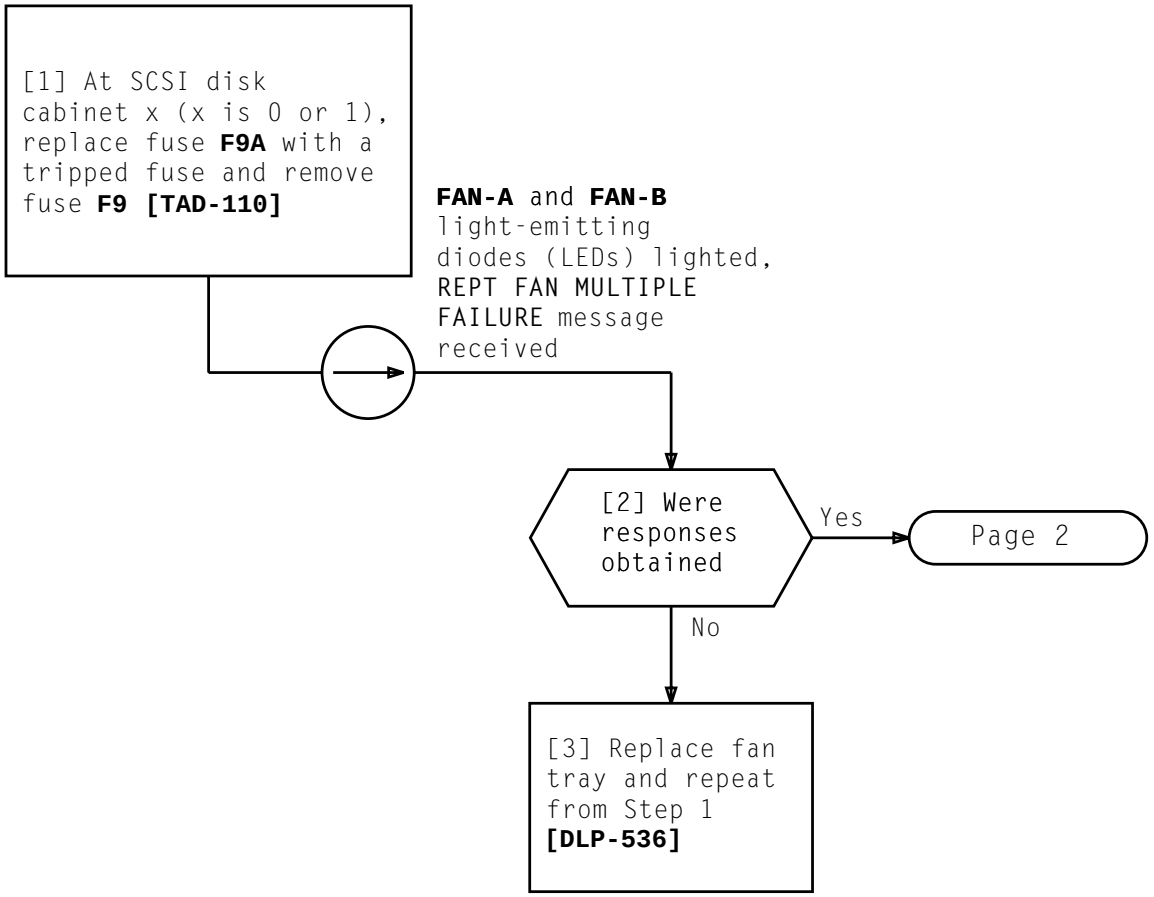
UNIT	POWER SWITCH	CABINET
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0	TN3B	PC Bay 0
DFC 1	TN3B	PC Bay 1
SCSI DFC 0	TN6B	PC Bay 0
SCSI DFC 1	TN6B	PC Bay 1
SCSI DFC 0	TN6B	SCSI Disk 0
SCSI DFC 1	TN6B	SCSI Disk 0
SCSI DFC 2	TN6B	SCSI Disk 1
SCSI DFC 3	TN6B	SCSI Disk 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
300-MB MHD (a)	ED-4C479	MHD (b)
340-MB MHD (c)	ED-4C481	Tape/Disk 0
340-MB MHD (d)	ED-4C481	Tape/Disk 1
SCSI MHD (e)	CGG1	SCSI Disk 0
SCSI MHD (f)	CGG1	SCSI Disk 1

(a) MHD Member Number
(b) MHD Frame Number
(c) MHD 0, 1, 2, and 3
(d) MHD 4 through 12
(e) SCSI MHD 0 through 15
(f) SCSI MHD 16 through 31

NOTES
1. It may be necessary to toggle the **ACO/T** switch to power up moving head disks (MHDs)
2. If Red LED on **FAULT** switch is lighted, clear fault by pressing the switch

SUMMARY

Replace fuse **F9A** with tripped fuse and remove fuse **F9**. Check responses. Replace tripped fuse **F9A**, press **ON/RESET** switch. Check that alarms are cleared. Repeat for fuse **F16A**.



NOTE

Depending on configuration, the SCSI disk cabinet may or may not contain SCSI disk file controllers (DFCs). If DFCs are present, they may be DFC 0 and 1, or they may be DFC 2 and DFC 3. Only when DFCs are present are there cooling units in the SCSI disk cabinet. DFC 2 and DFC 3 should be substituted, if appropriate, for the SCSI disk cabinet being testing

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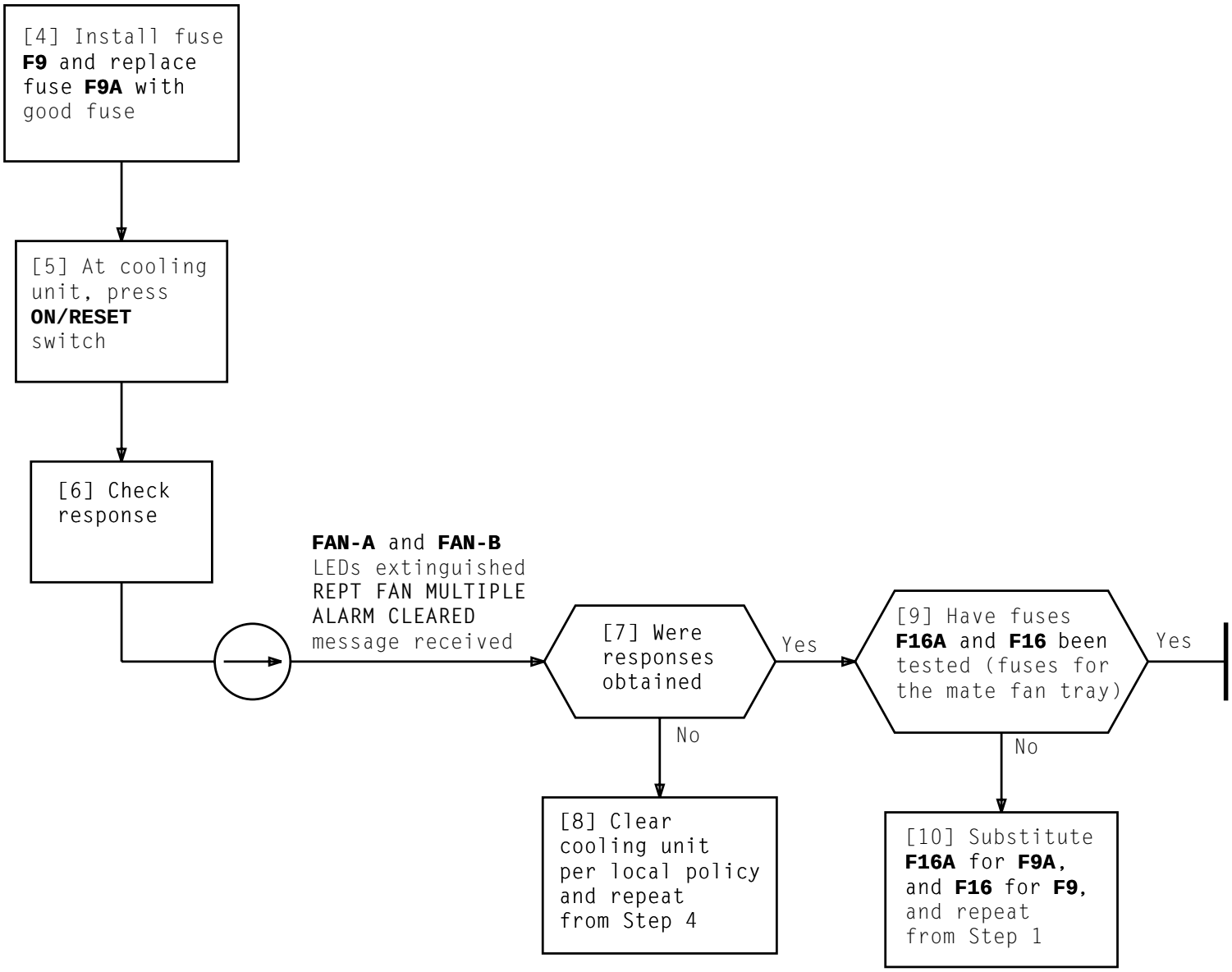
TEST SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK CABINET COOLING UNIT ALARMS



TEST SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK CABINET COOLING UNIT ALARMS

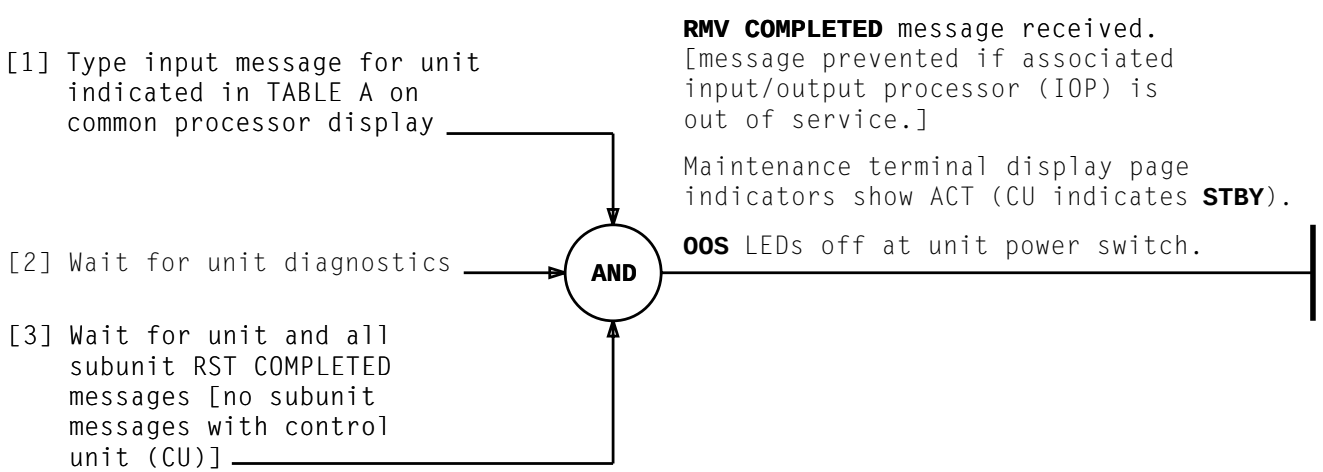


TABLE A
INPUT MESSAGES FOR RESTORING UNITS TO SERVICE

UNIT	INPUT MESSAGE
CU 0	RST:CU 0;UCL!
CU 1	RST:CU 1;UCL!
DFC a	RST:DFC a!
IOP 0	RST:IOP 0;UCL!
IOP 1	RST:IOP 1;UCL!
MHD c	RST:MHD a!

a = Member Number

RESTORE UNIT TO SERVICE VIA INPUT MESSAGE

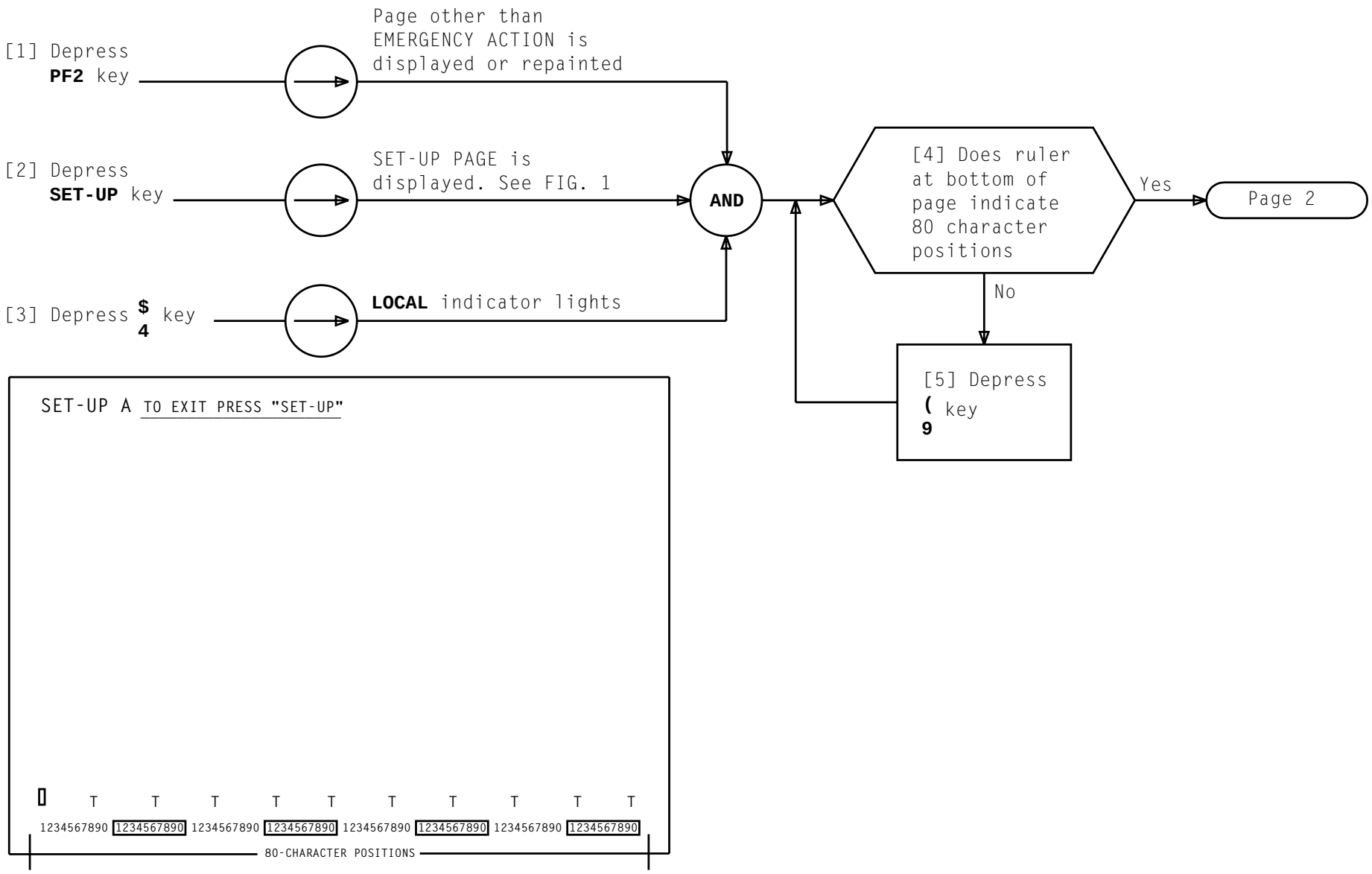
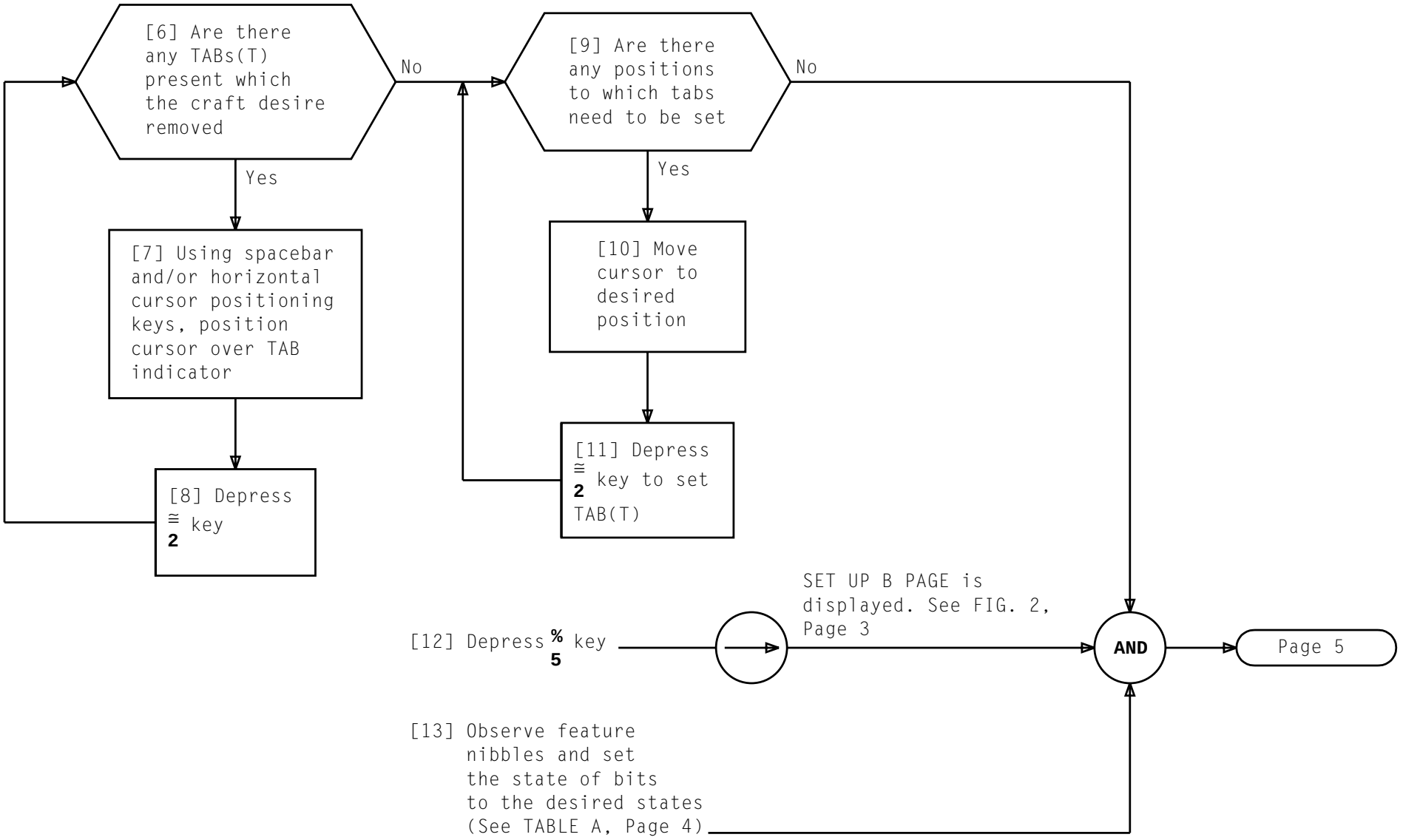


FIG. 1 — SET UP A PAGE

CHECK TERMINAL FEATURES



CHECK TERMINAL FEATURES

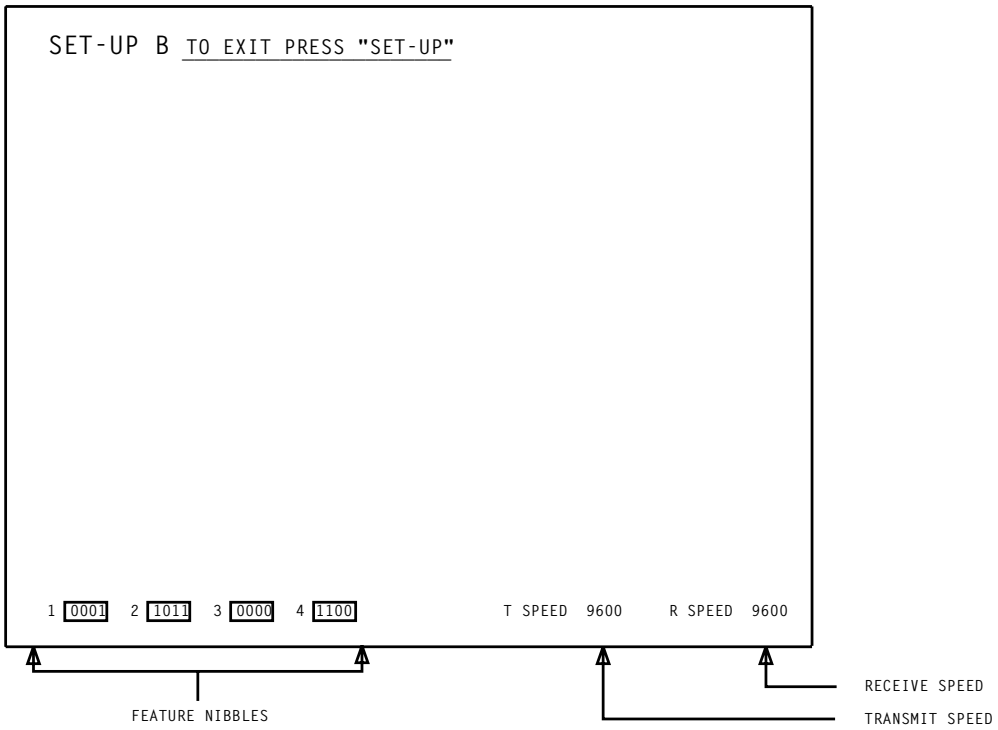
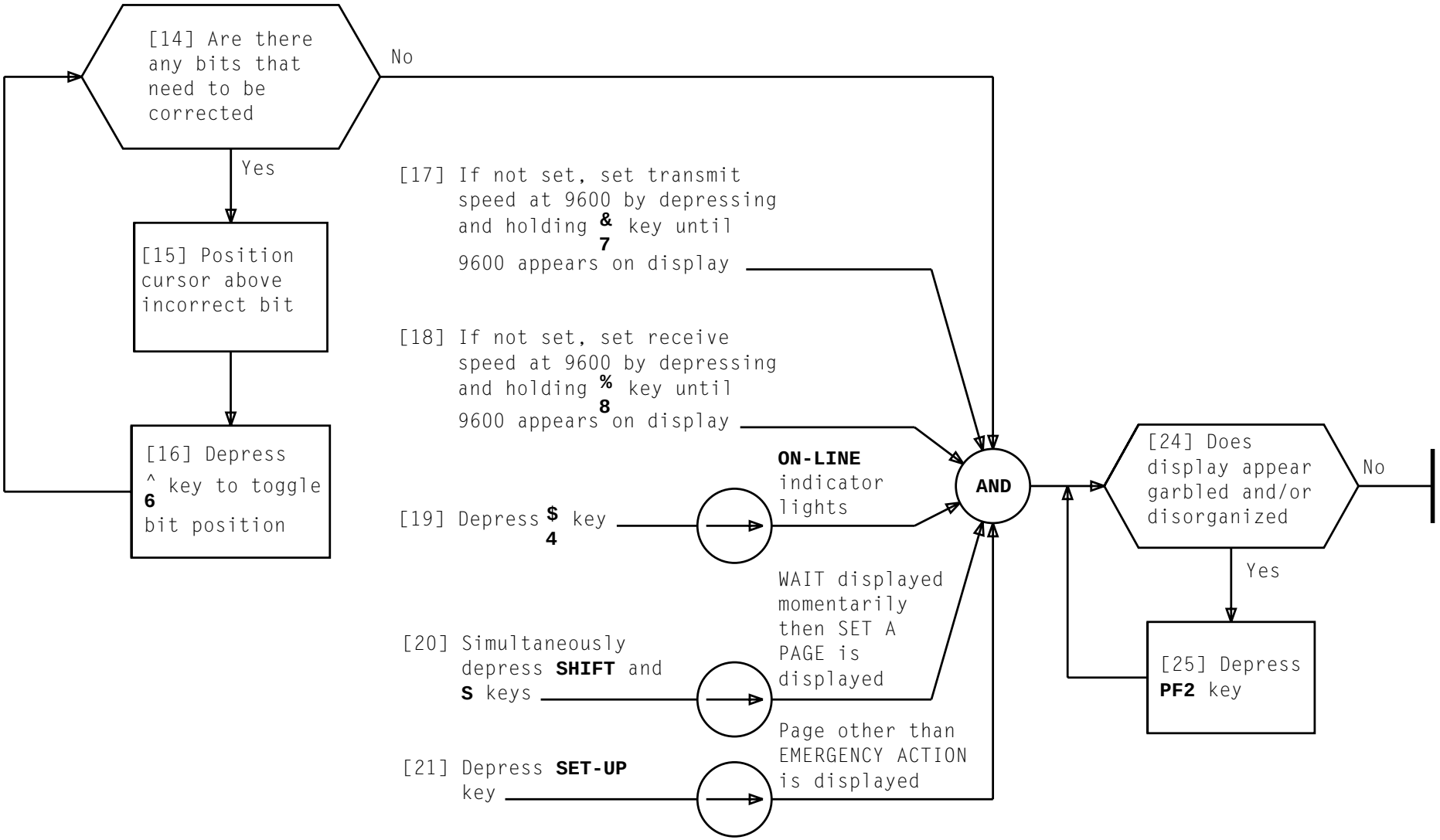
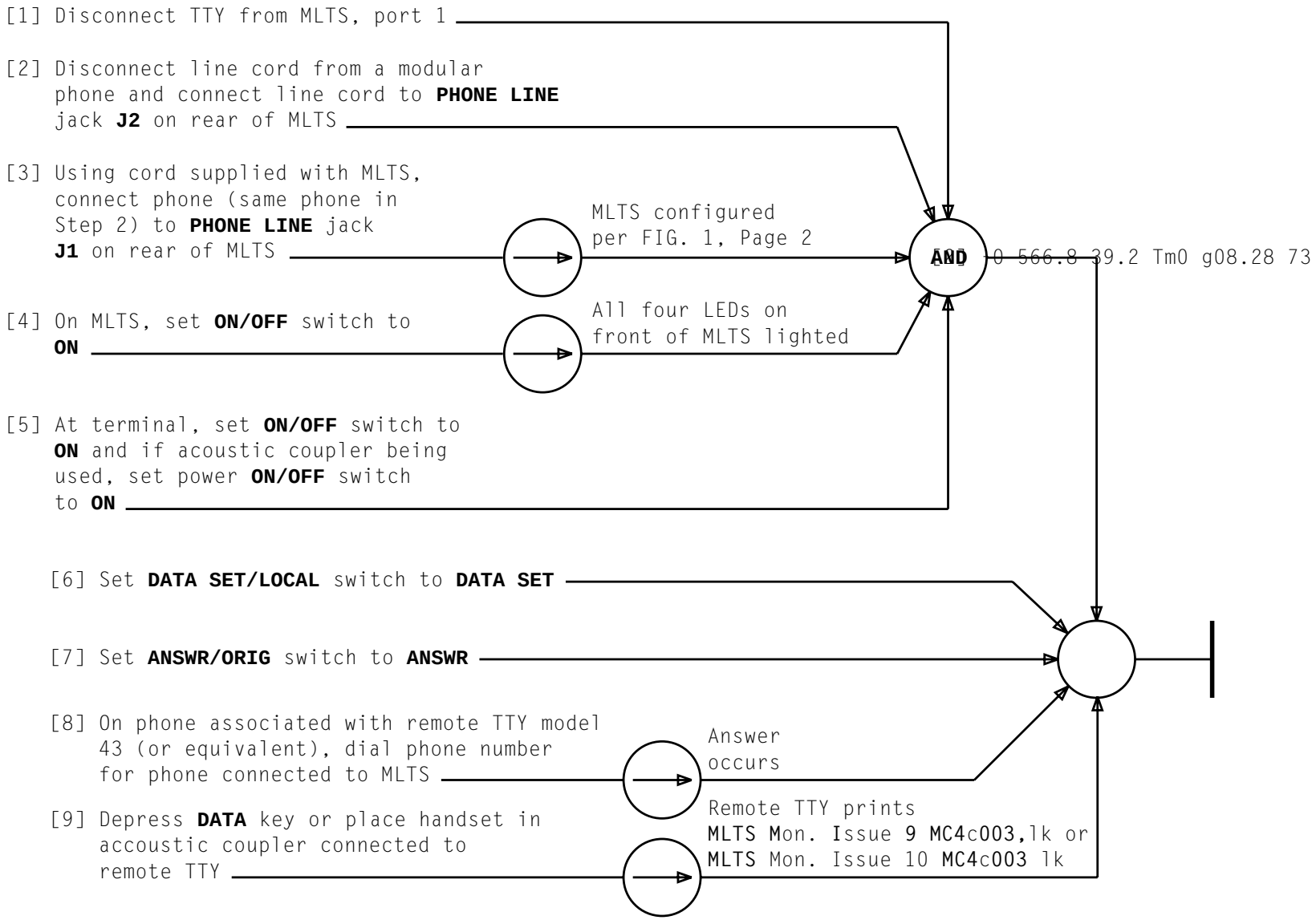


FIG. 2 — SET UP B PAGE

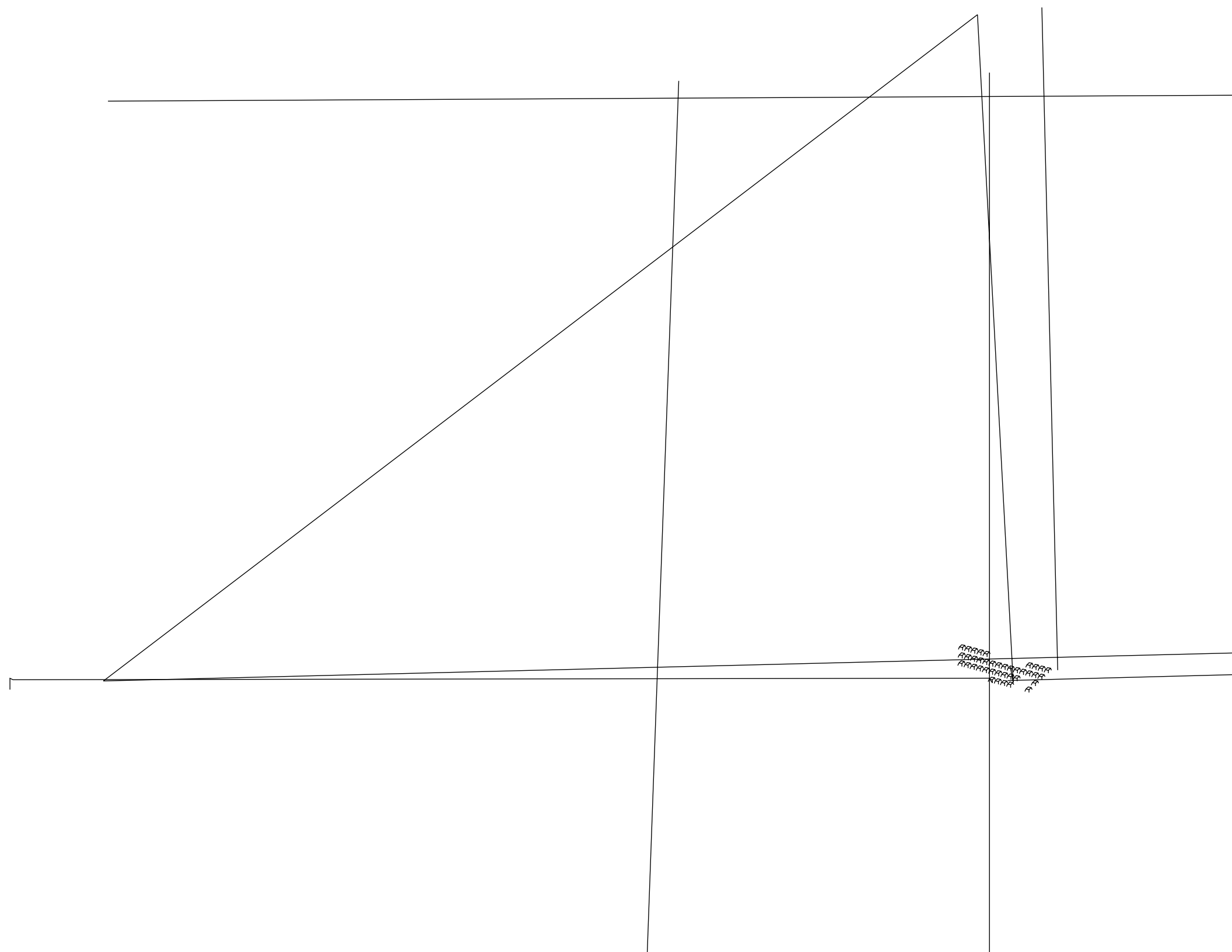
TABLE A MAINTENANCE TERMINAL FEATURES			
MODE	**NIBBLE**	**OPTION/ FUNCTION**	**DESIRED STATE**
SET-UP A	1	Characters Per Line	80
		Tab-Stops	* (Preferably Every 8th Character)
SET-UP B	1	Jump/Scroll	* (0 = Jump, 1 = Smooth)
		Auto Repeat	0 (Off)
		Screw	0 (Dark Background)
		Cursor	1 (Block)
	2	Margin Bell	1 (On)
		Keyclick	0 (Off)
		Ansi	1
		Auto Xon	1
	3	#	0 (Shifted)
		Wrap Around	0 (Off)
		New Line	0 (Off)
		Interlace	0 (Off)
	4	Parity Sense	1 (Even)
		Parity	1 (On)
		Bits Per Character	0 (7 Bits)
		Power	0 (60 Hertz)
		Transmit Speed	9600
		Receive Speed	9600
* "Don't Care"			

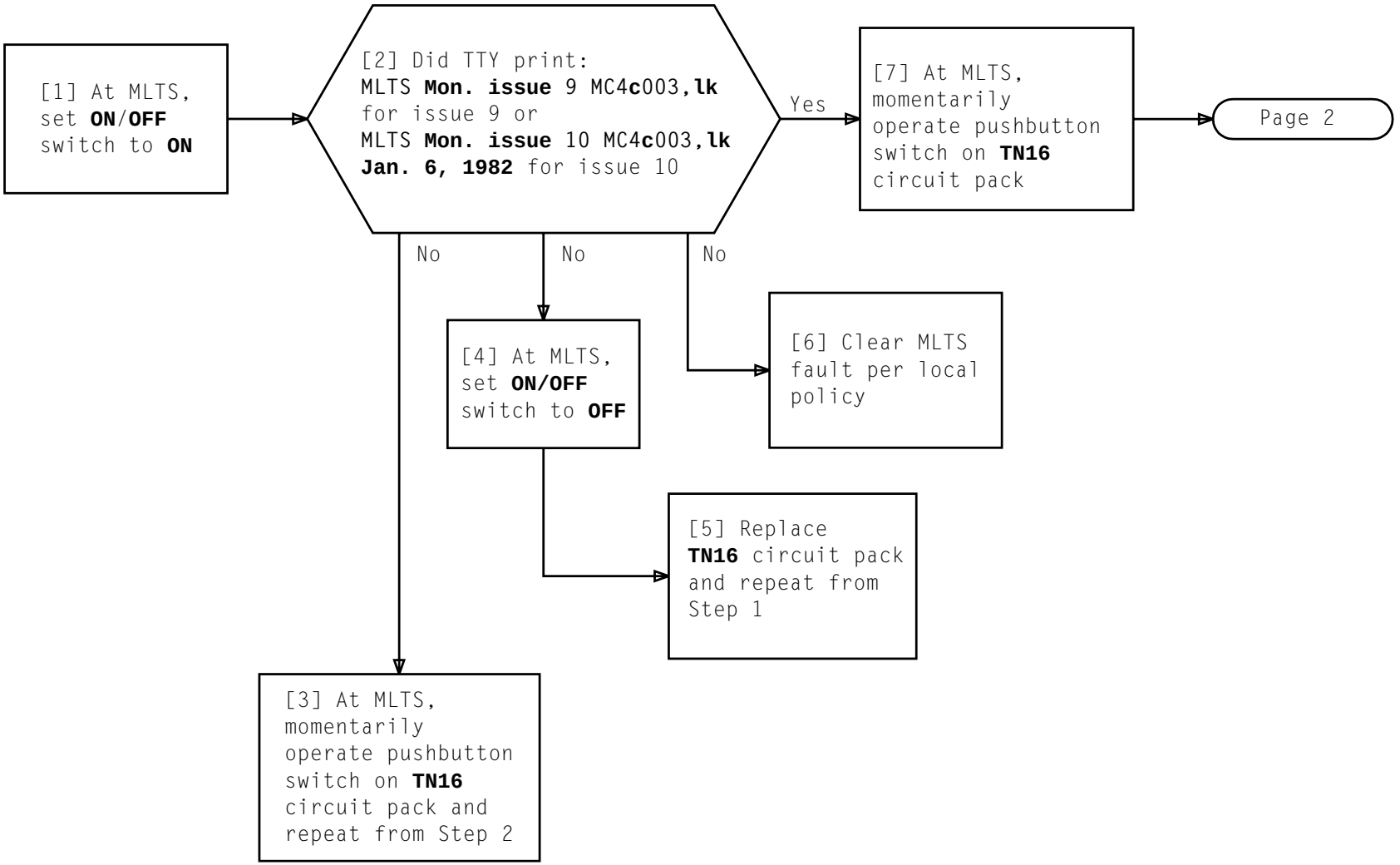


CHECK TERMINAL FEATURES

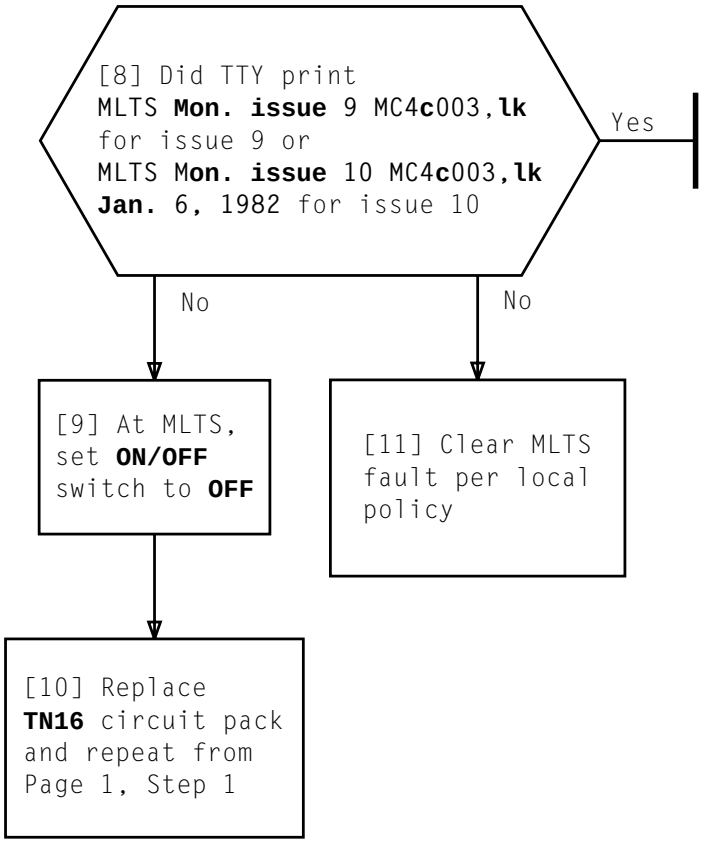


SET UP MICRO LEVEL TEST SET (MLTS) FOR AUTOMATIC ANSWER

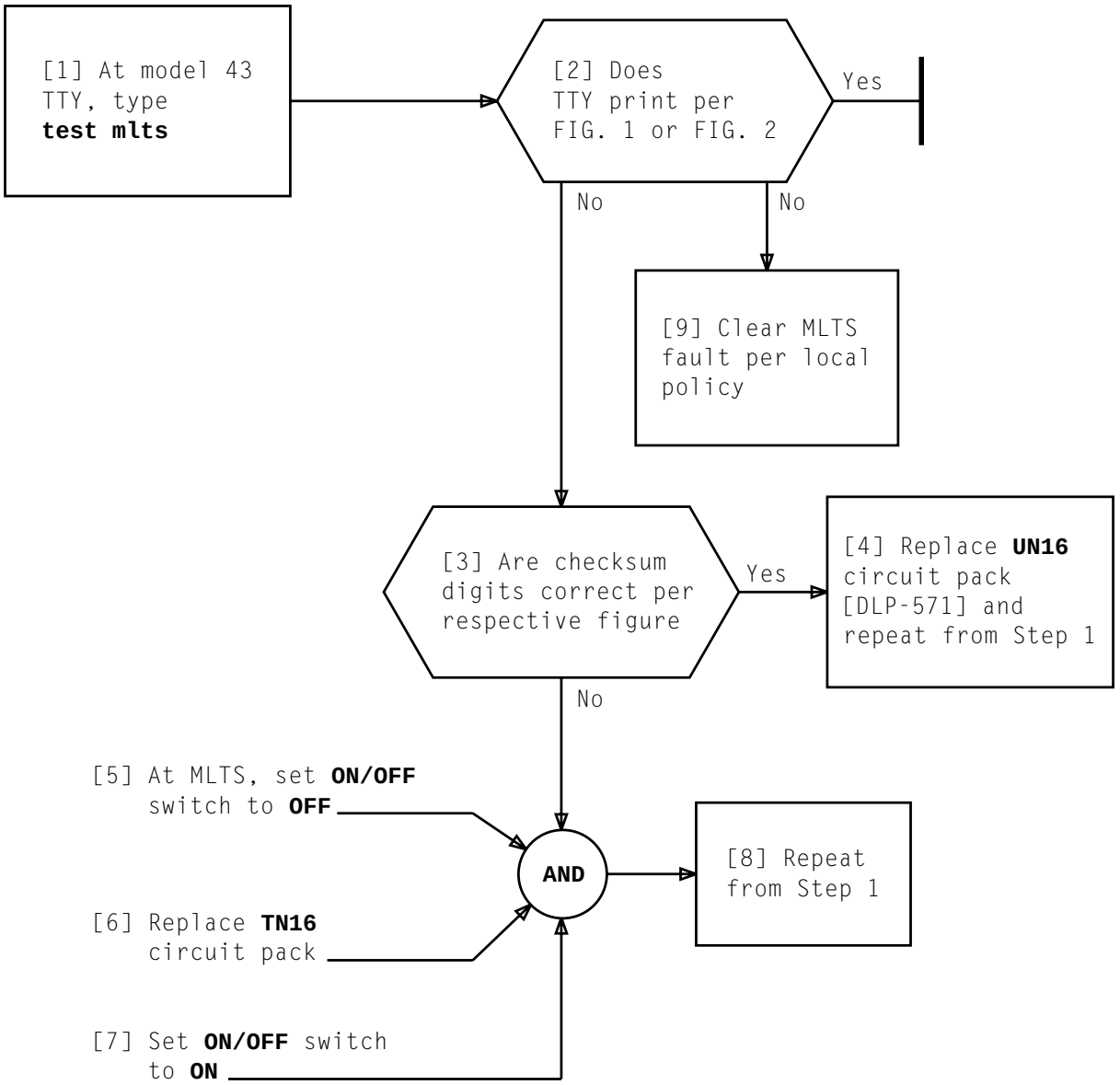




TEST MICRO LEVEL TEST SET (MLTS) LOCAL CONFIGURATION



TEST MICRO LEVEL TEST SET (MLTS) LOCAL CONFIGURATION



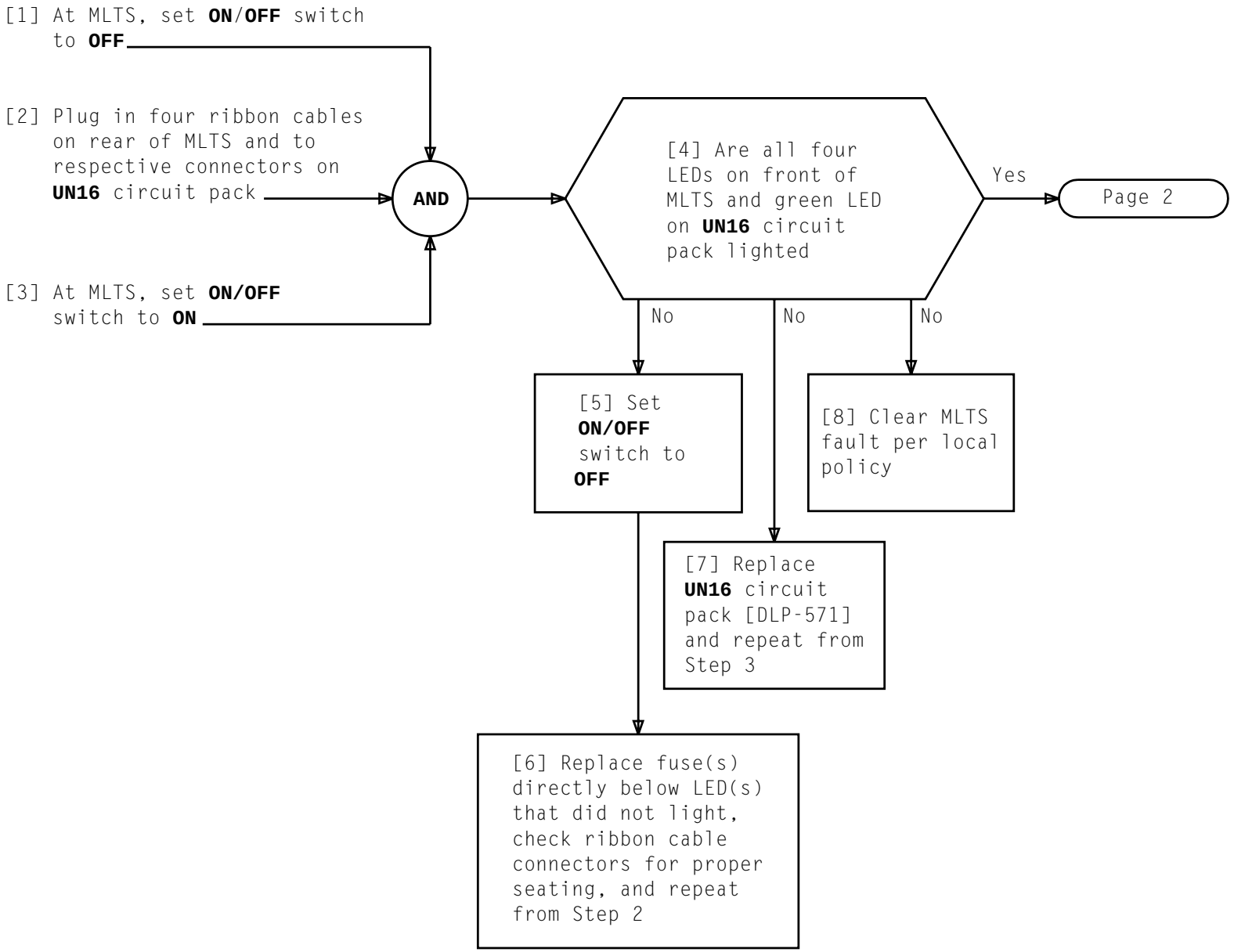

```
E4 77 63 F8 E0 B2 29 AB E1 B3 B5
22 6C 9D 6E 55 0953
ATP
RAM TEST
atp
MLTS Mon. issue 9 MC4c003,lk
>
```

FIG. 1

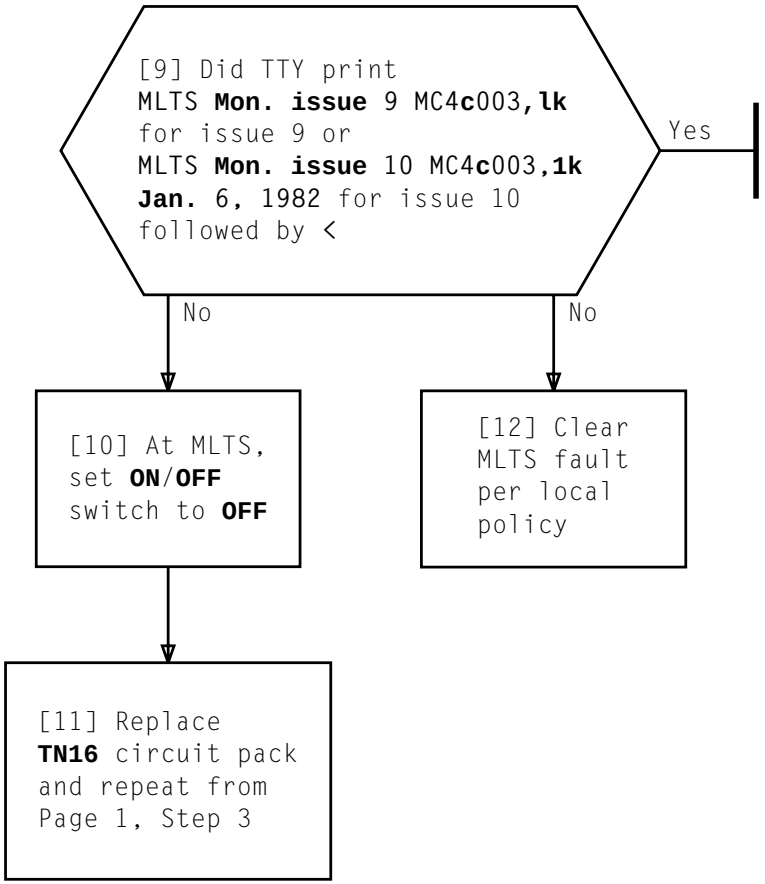
```
81 6C 6B D8 FD F9 52 5B DA 16 A8
33 5C 10 EF F3 08EC
ATP
RAM TEST
atp
MLTS Mon. issue 10 MC4c003-01
Jan. 6, 1982
>
```

FIG. 2

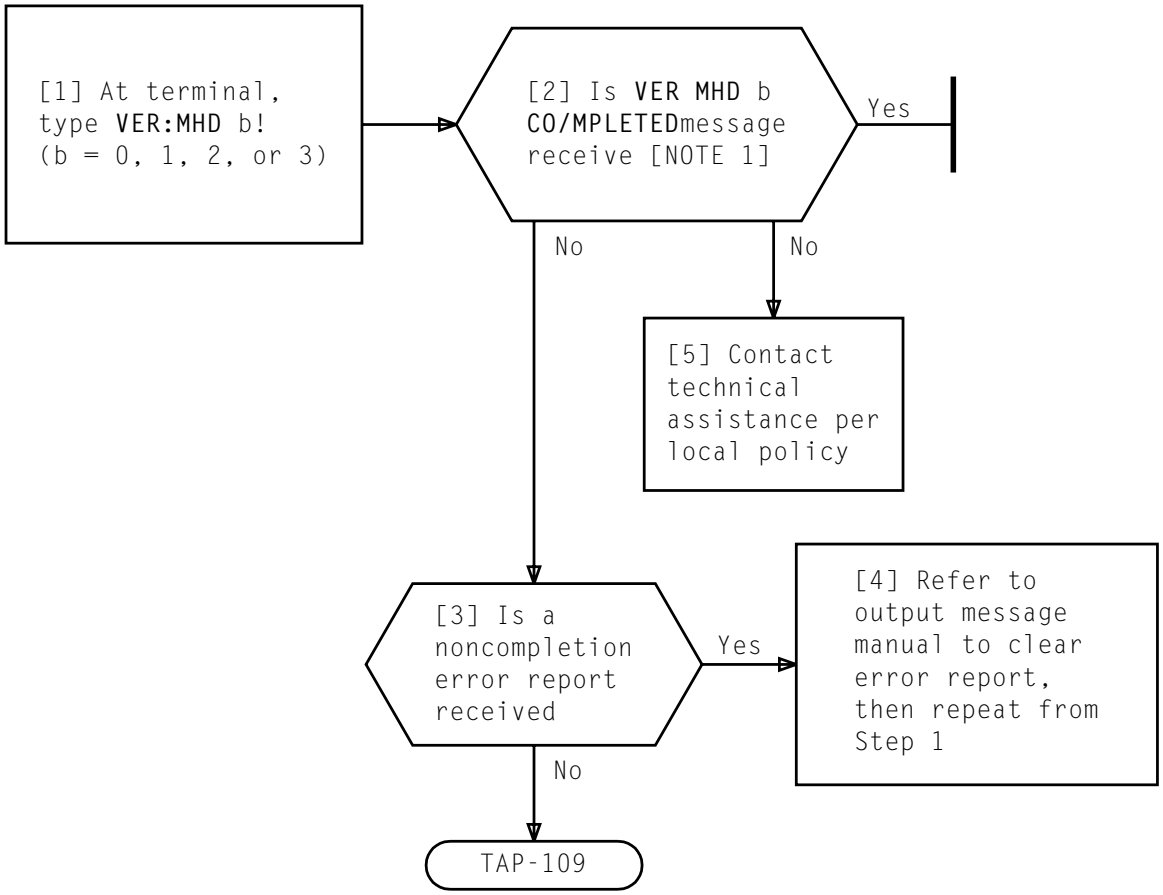
DIAGNOSE MICRO LEVEL TEST SET (MLTS)



CHECK MICRO LEVEL TEST SET (MLTS) LIGHT EMITTING DIODES (LEDs)



CHECK MICRO LEVEL TEST SET (MLTS) LIGHT EMITTING DIODES (LEDs)



VERIFY MOVING HEAD DISK (MHD)

NOTE 1
Requires approximately 20 minutes to complete

APPLY END OF TAPE (EOT) MARKER

[1] Is tape in position where EOT marker is to be applied

Yes

No

[2] Depress **ON LINE** switch if lighted

[3] Depress **STOP** switch then **TEST MODE** switch

[4] Read NOTE 1. Depress **FORWARD RUN** switch, then after the required time, depress **STOP** switch

AND

[5] At upper tape guide, apply tape marker on shiny side of tape along edge near tape unit [FIG. 1]

[6] Depress **TEST MODE** switch if lighted

[7] Depress **REWIND** switch

AND

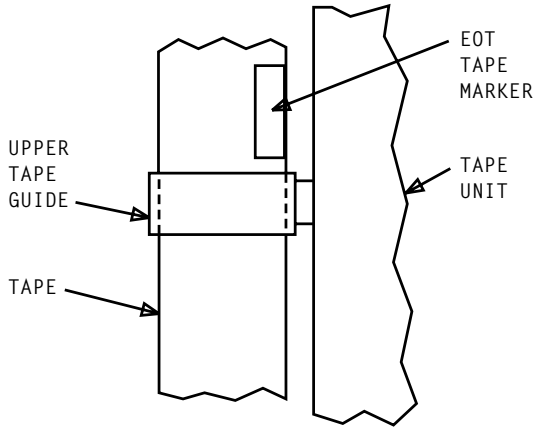
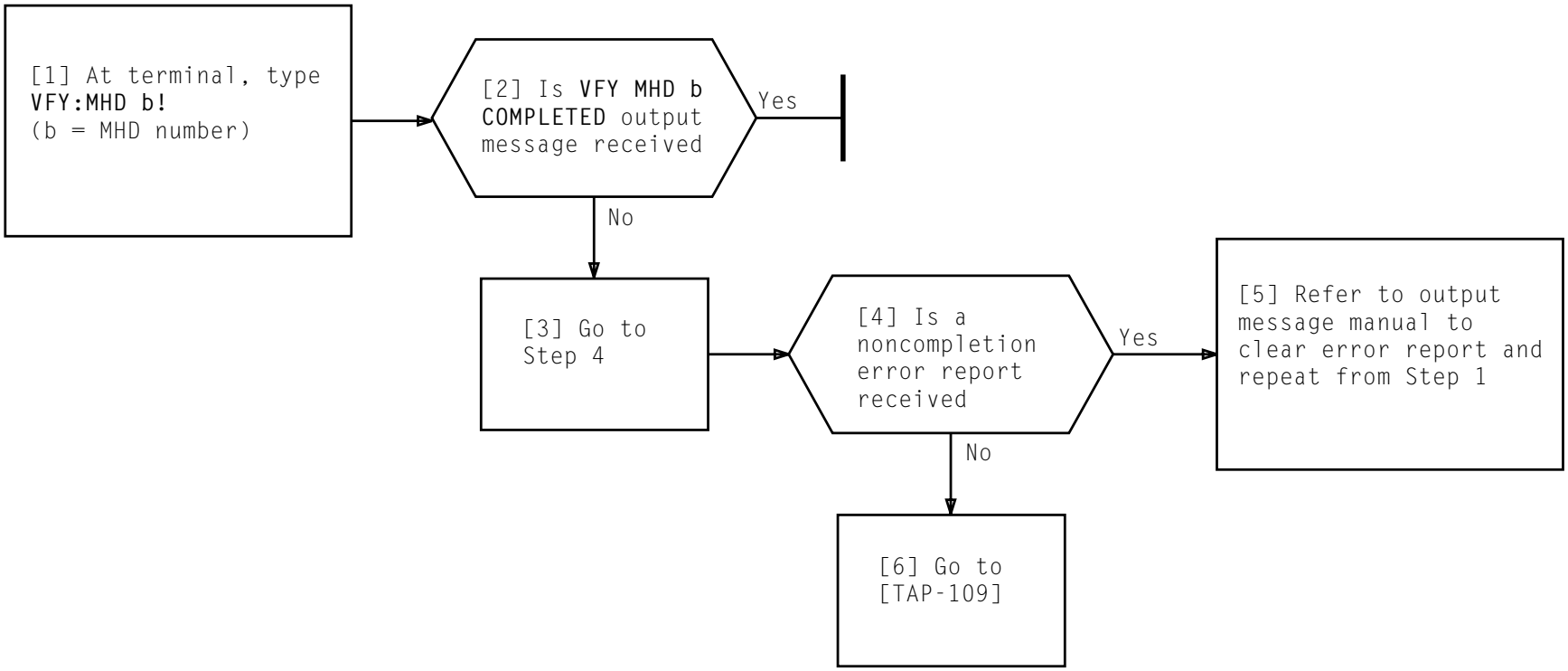


FIG. 1

NOTE 1
The time interval from depressing **FORWARD RUN** switch to depressing **STOP** switch controls the amount of tape from the BOT marker to the EOT marker. The tape moves at 25 inches per second



VERIFY MOVING HEAD DISK (MHD)

1. At MLTS, set **ON**/**OFF** switch to **OFF**

2. Remove **UN16B** circuit pack from MLTS

3. Disconnect cable assembly from **UN16B** circuit pack

4. On new **UN16B** circuit pack, connect cable assembly

5. Insert **UN16B** circuit pack into MLTS storage rack

End of procedure

REPLACE UN16B CIRCUIT PACK

[1] Thread tape along path as shown in FIG. 1

[2] Holding end of tape against take-up reel, wrap tape three turns clockwise around take-up reel (take-up reel may be rotated for this)

[3] Depress **ON LINE** if lighted

[4] Depress **STOP** switch then **TEST MODE** switch

[5] Depress **FORWARD RUN** switch and two (2) seconds later depress **STOP** switch

[6] At upper tape guide, apply tape marker on shiny side of tape along edge facing craftperson [See FIG. 2]

AND

[7] Depress **TEST MODE** switch

[8] Depress **REWIND** switch

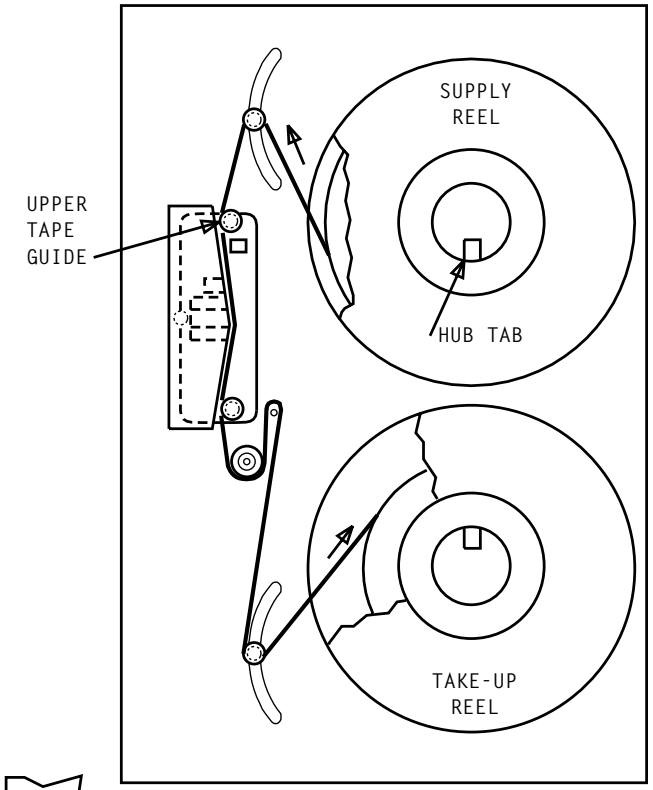


FIG. 1

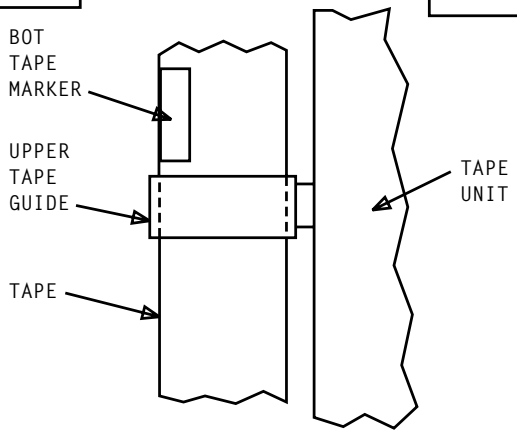


FIG. 2

APPLY BEGINNING OF (BOT) TAPE MARKER

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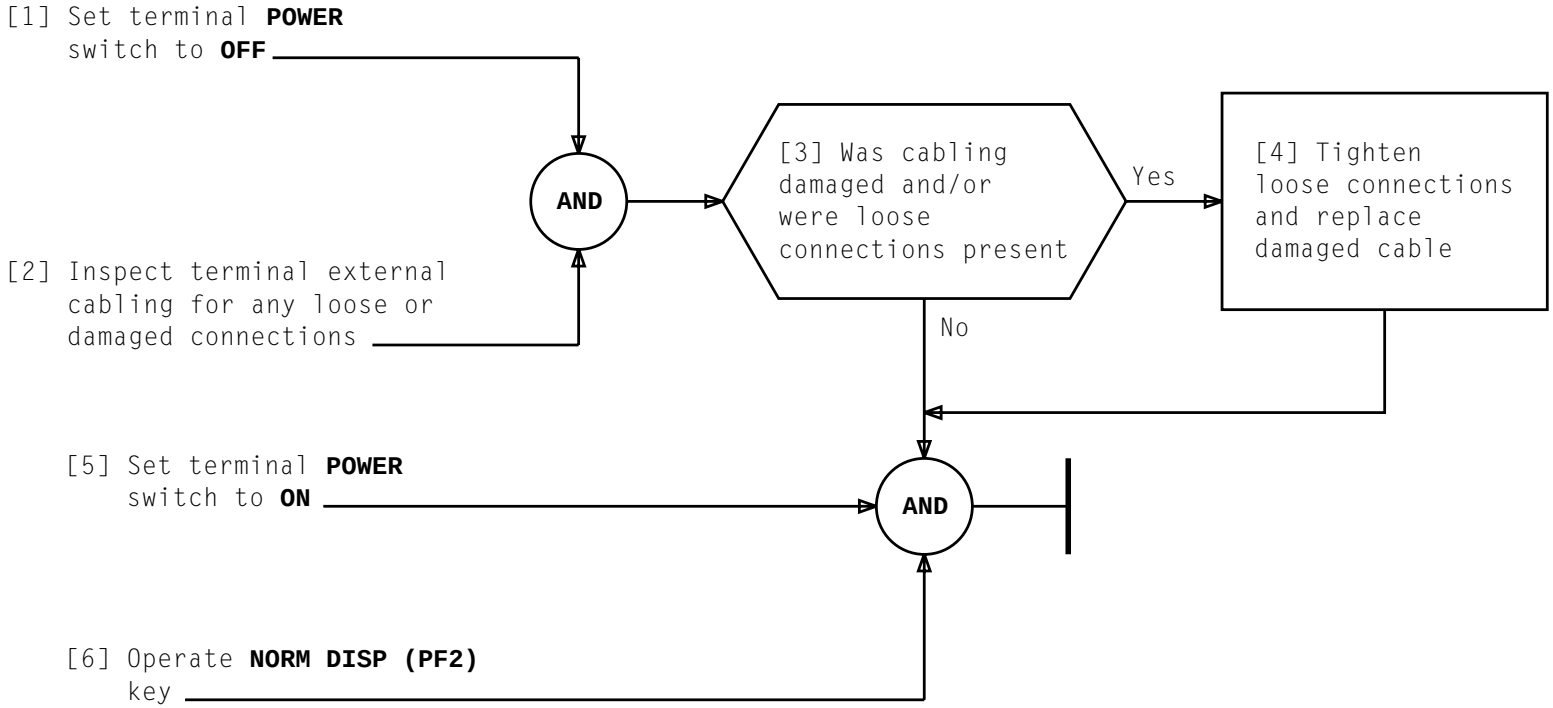
SUMMARY

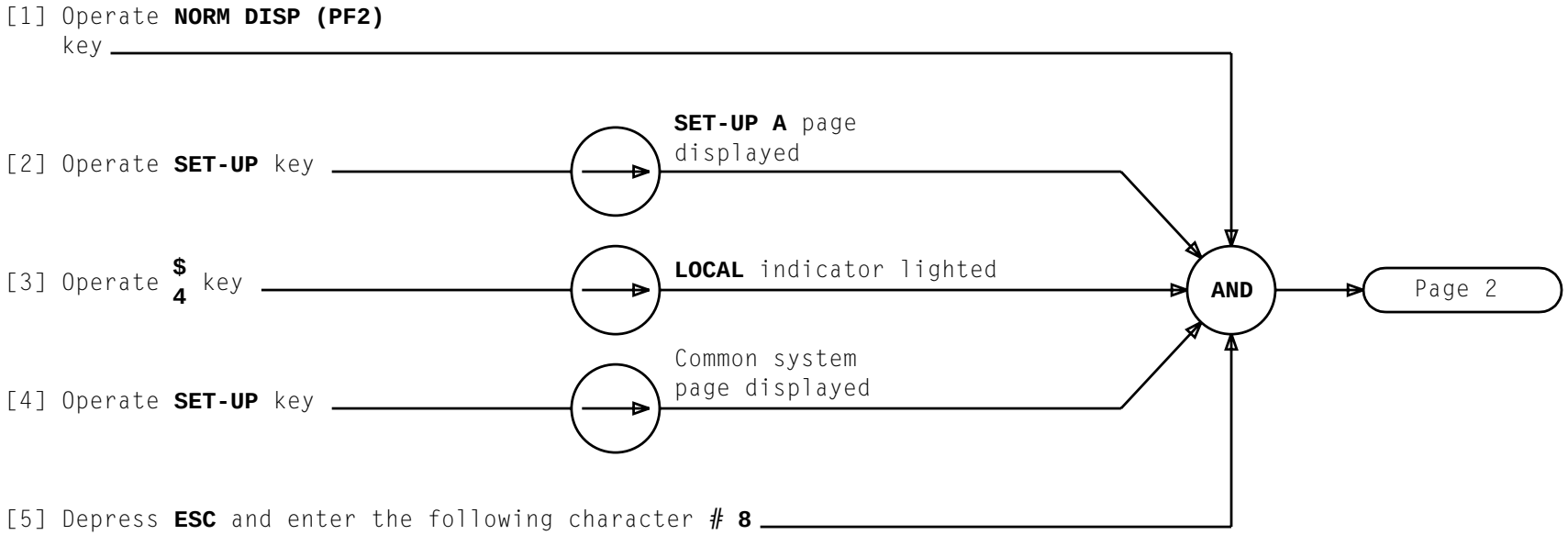
Remove power and check for loose or damaged connections.
Restore power



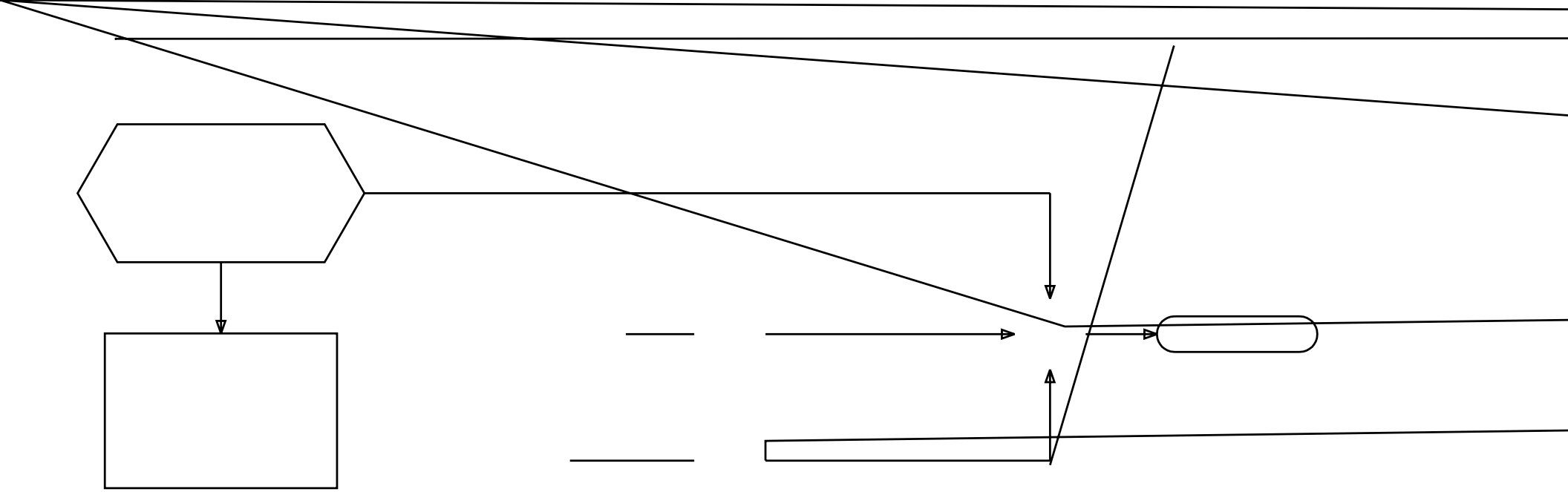
INSPECT TERMINAL

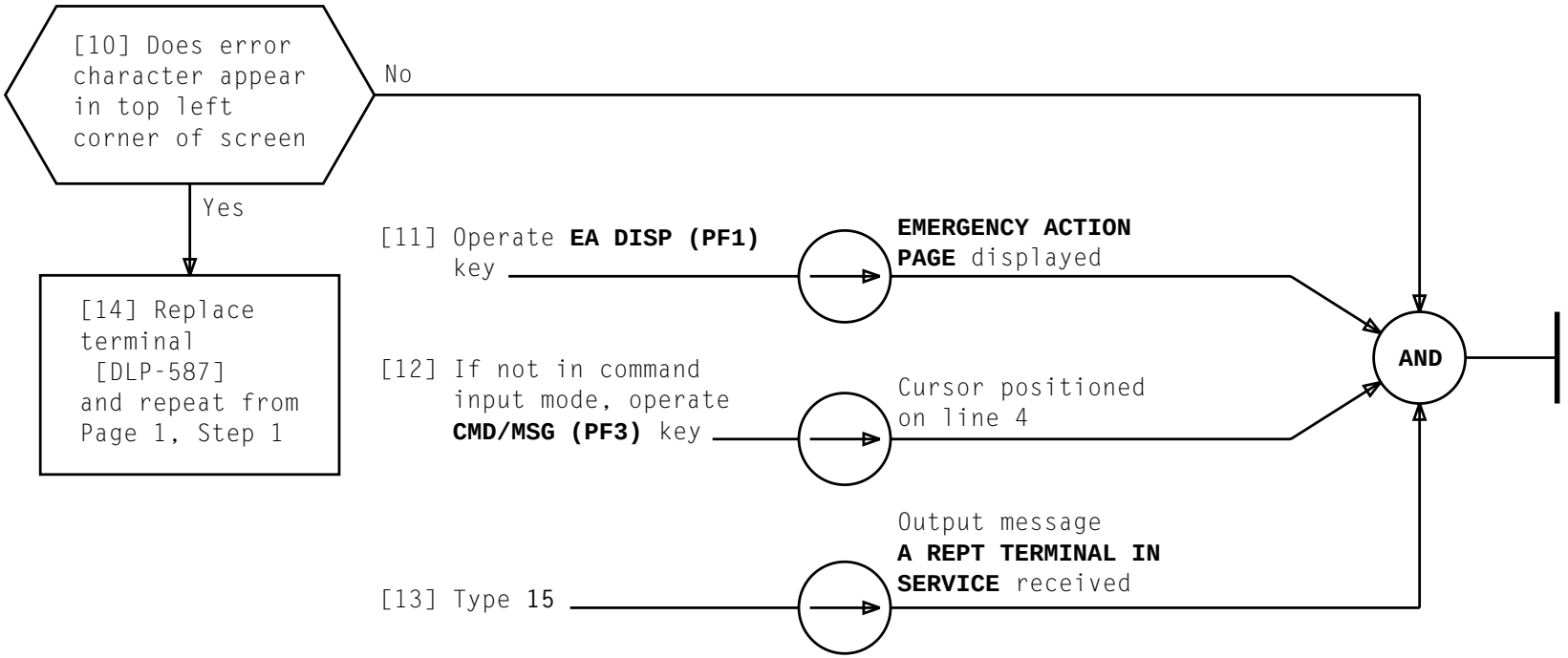
SUMMARY

Place terminal in LOCAL mode and display 24 by 80 matrix of Es. Enter ONLINE mode and reset terminal



PERFORM TERMINAL SELF-DIAGNOSTICS

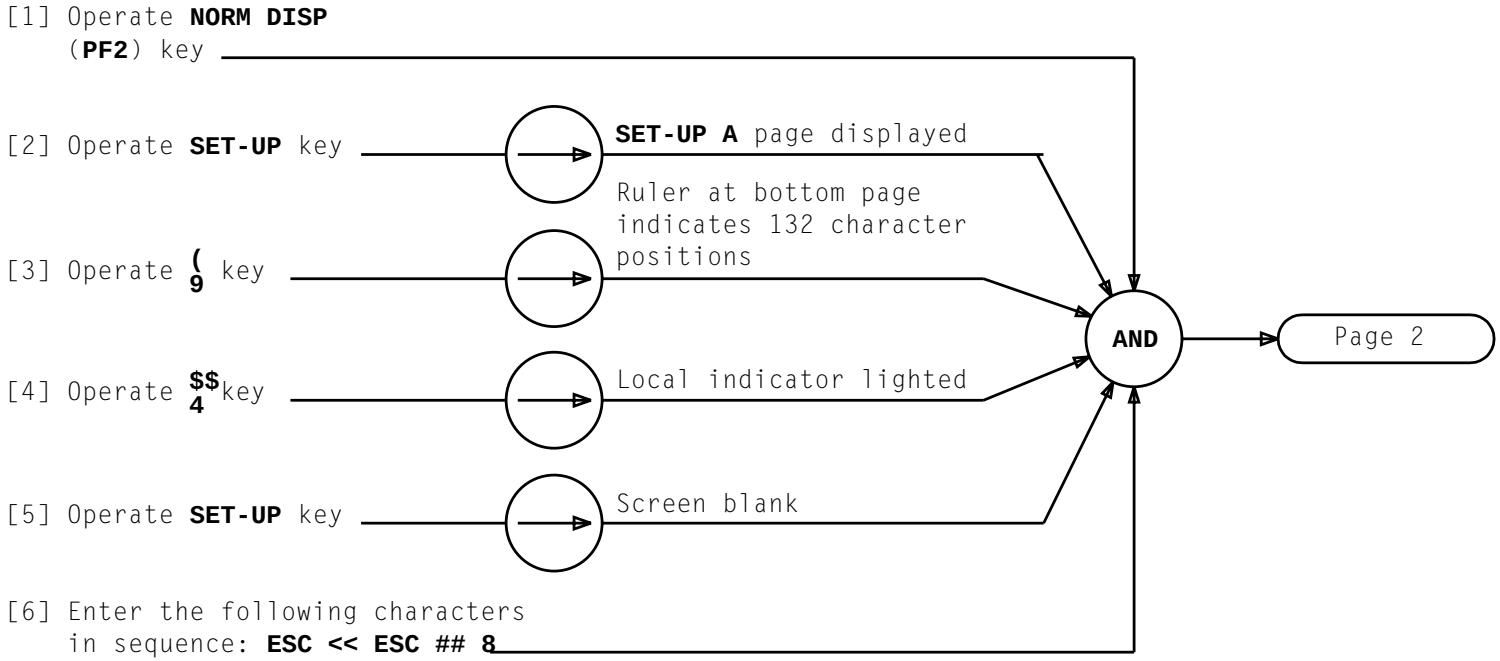




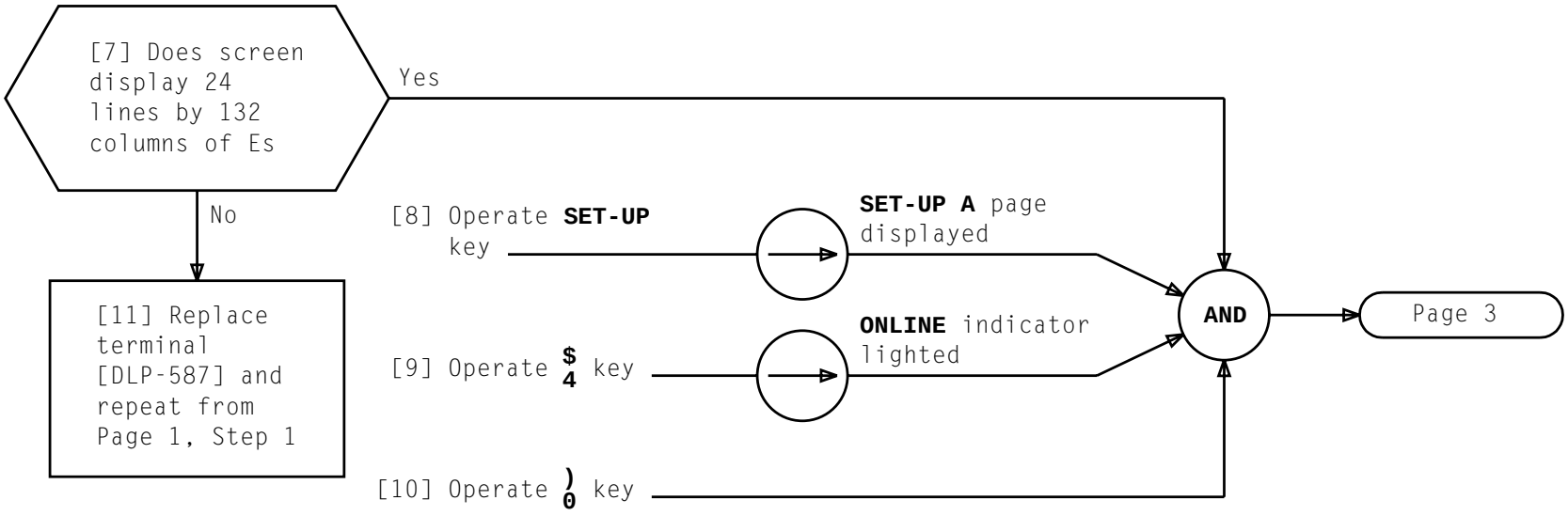
PERFORM TERMINAL SELF-DIAGNOSTICS

SUMMARY

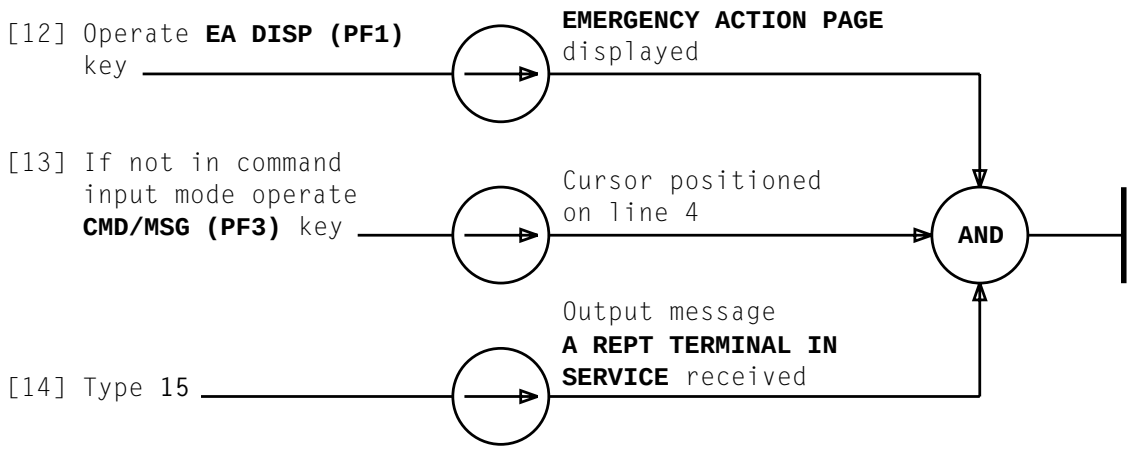
Enter **SET-UP** mode, operate **(** **9** key, and enter **LOCAL** mode of operation. Exit **SET-UP** mode and operate the **ESC**, **<<**, **ESC**, **##** and **8** keys in sequence. If screen does not display 24 lines by 132 columns of Es, replace terminal and repeat previous steps. Enter **SET-UP** mode, **ON-LINE** mode, and reset terminal. Operate **SET-UP** key, display EAI page, and reinitialize terminal



VERIFY TERMINAL VIDEO OPTION



VERIFY TERMINAL VIDEO OPTION



VERIFY TERMINAL VIDEO OPTION

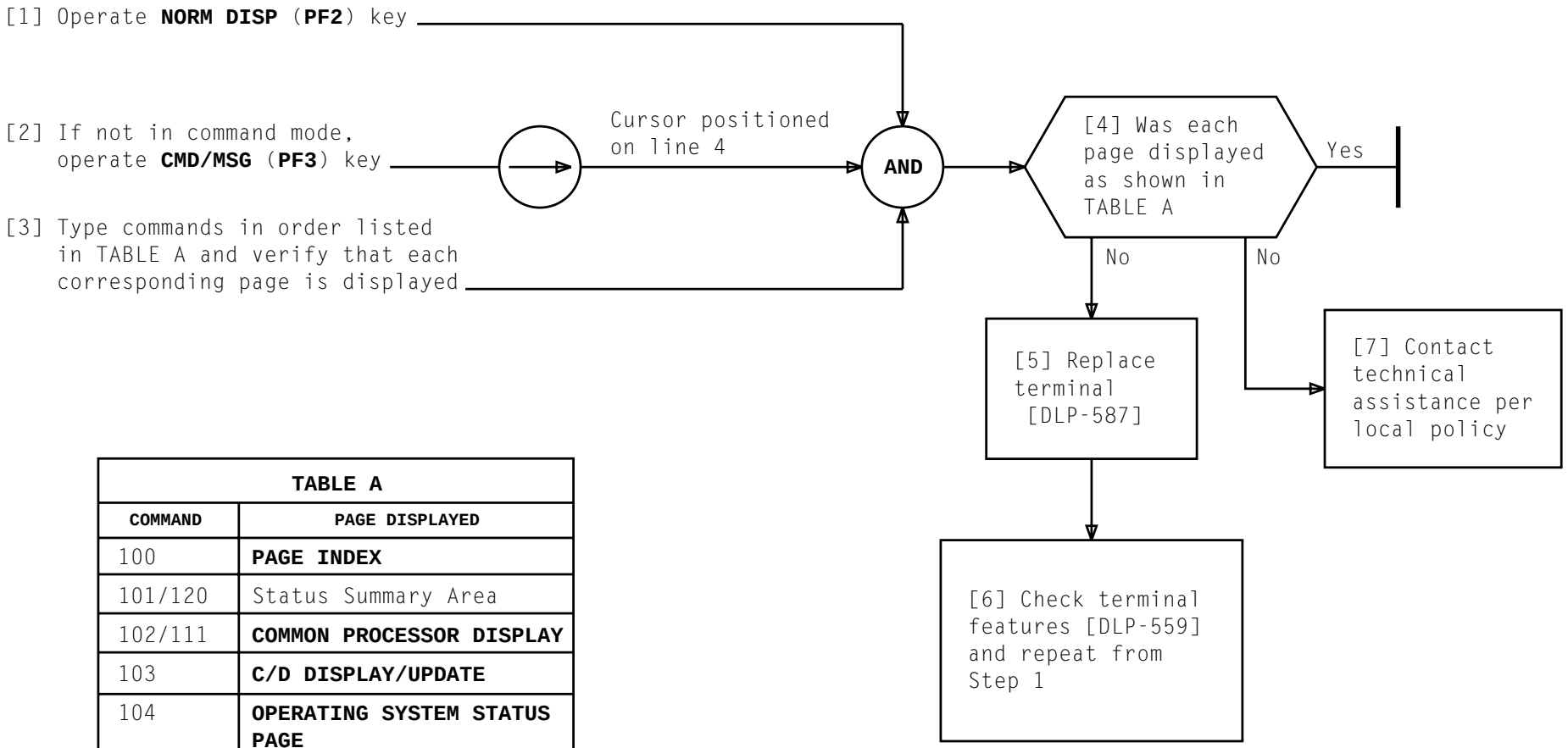
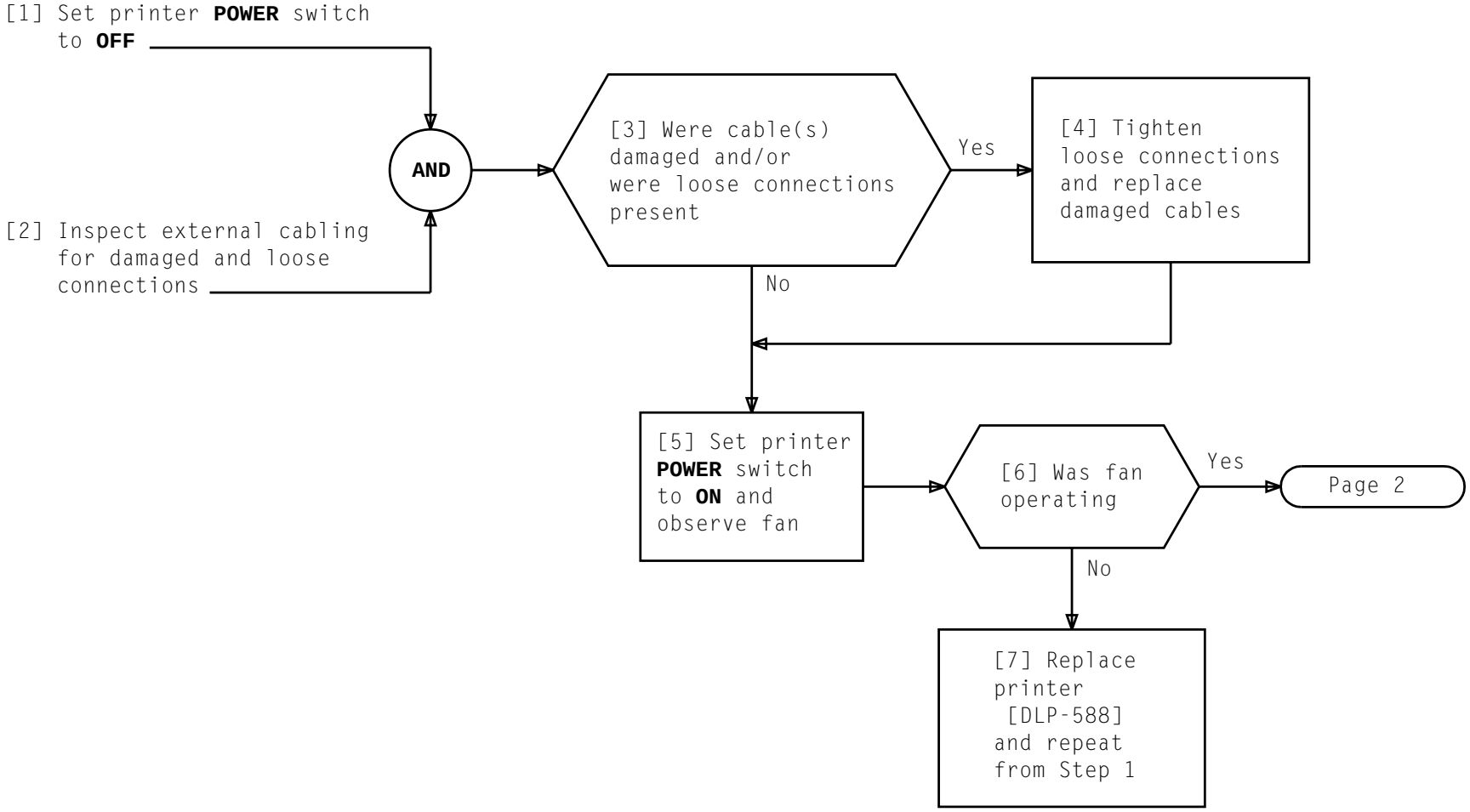


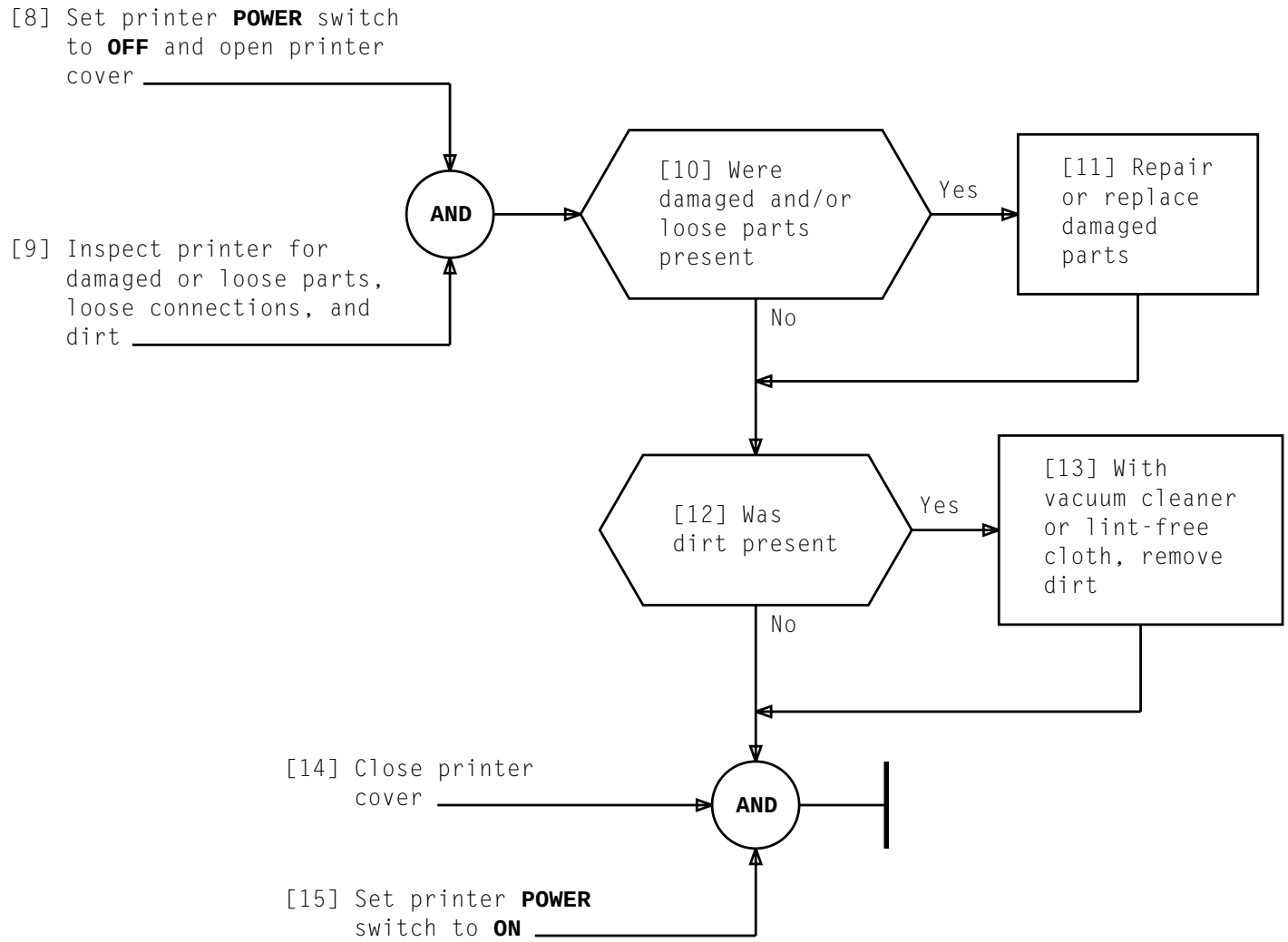
TABLE A	
COMMAND	**PAGE DISPLAYED**
100	**PAGE INDEX**
101/120	Status Summary Area
102/111	**COMMON PROCESSOR DISPLAY**
103	**C/D DISPLAY/UPDATE**
104	**OPERATING SYSTEM STATUS PAGE**
105	**CRAFT FM 01***
106	**CRAFT FM 01***
109	**FIELD UPDATE***
110	**DISK FILE SYSTEM ACCESS***
* Effective with Generic 3	

INSPECT DISPLAY PAGES

SUMMARY
Remove power. Inspect for loose or damaged connections and parts. Insure fan operates. Inspect printer for dirt. Take corrective action when necessary. Restore power



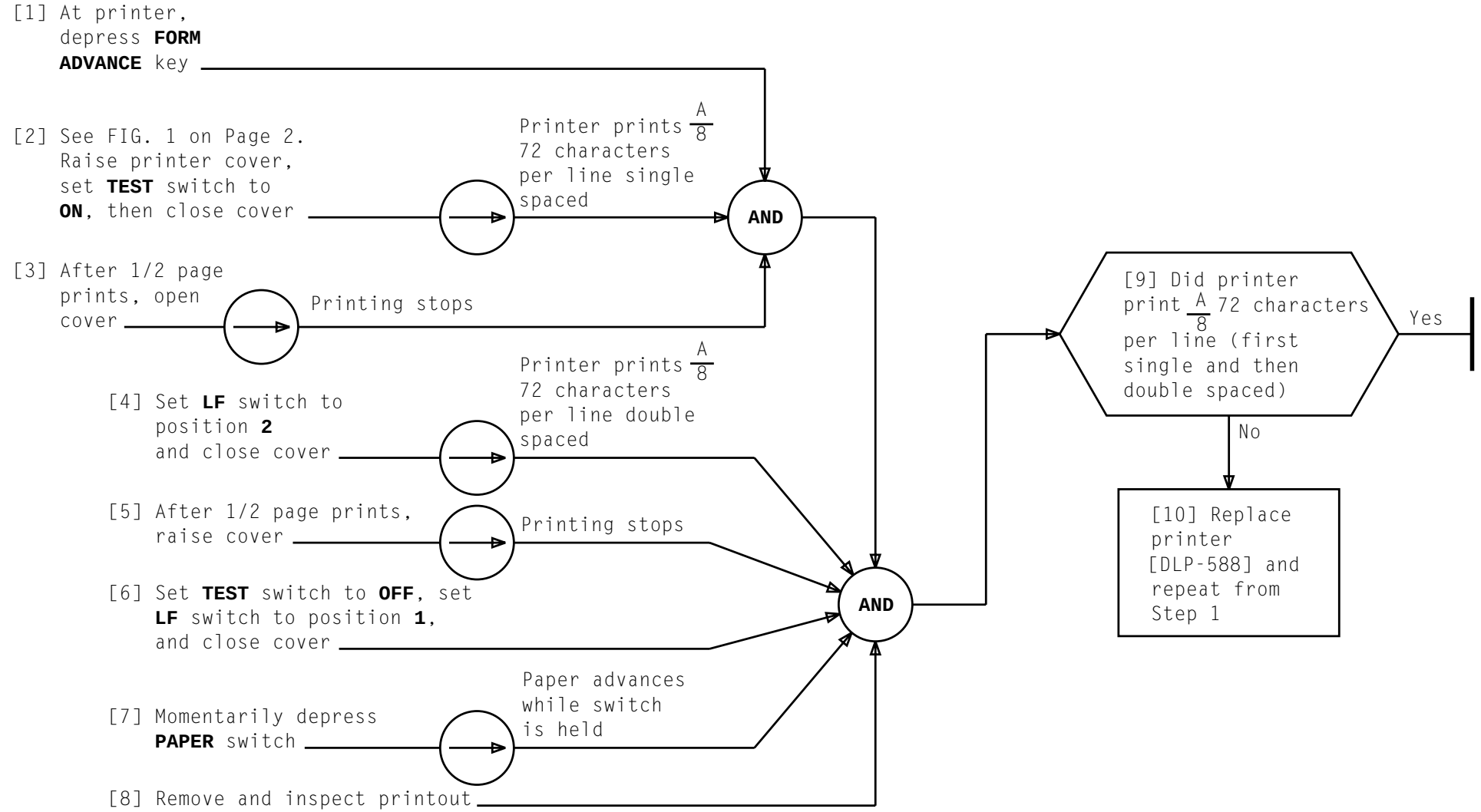
INSPECT PRINTER



INSPECT PRINTER

SUMMARY

Print 1/2 page of A/8 characters single-spaced and 1/2 page of A/8 characters double-spaced. Check for correctness



PERFORM PRINTER TEST ROUTINE

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SUMMARY
Print 1/2 page of character print and check for correctness

FIG. 1

[1] See FIG. 1. At printer, release **IN SERVICE** key

Key/lamp off

[2] Operate **TEST** key

Key/lamp lighted. Printer prints characters in FIG. 2

[3] After 1/2 page prints, release **TEST** key

Key/lamp off. Printer stops. Paper advances a full sheet

[4] Depress **IN SERVICE** key

Key/lamp lighted

[5] Remove and inspect printout

AND

[6] Does each line of printout agree with FIG. 2

Yes

No

[7] Contact technical assistance per local policy

!"#$%&'()*+,-./0/123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^ _

FIG. 2

PERFORM PRINTER CHARACTER TEST

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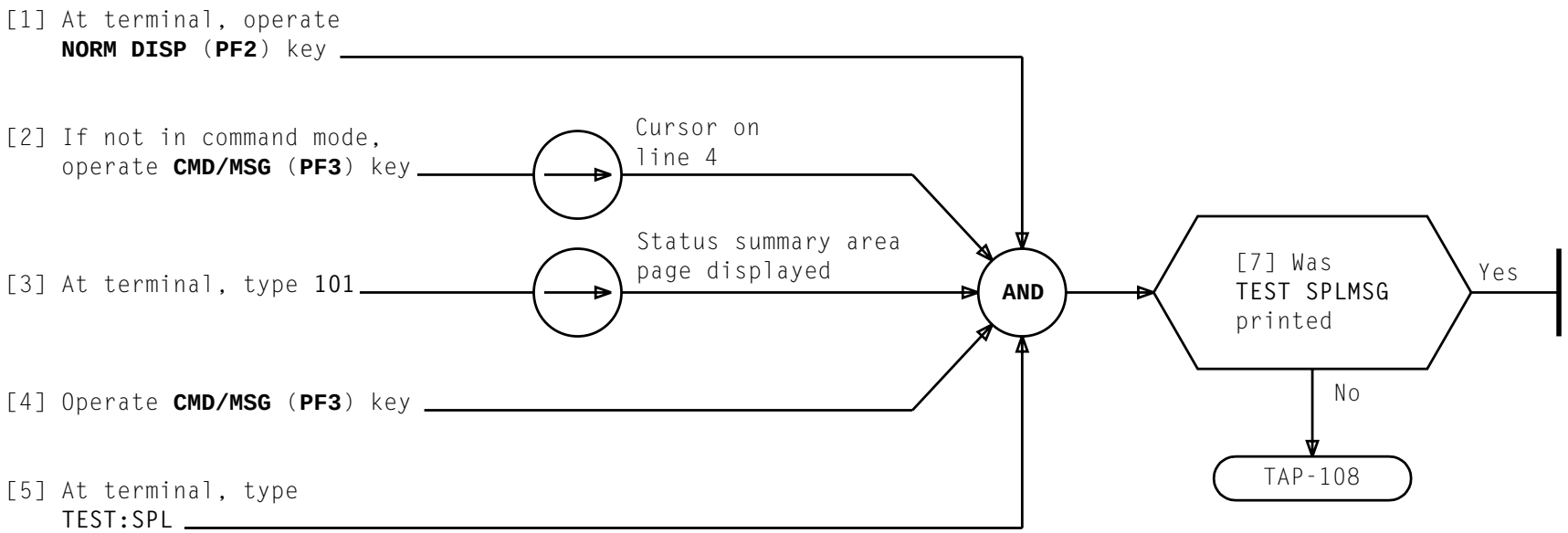


TEST TERMINAL-PRINTER INTERACTION

SUMMARY

Enter **SW:PORTSW** message to toggle port switch subunits (PSSUs) LEDs

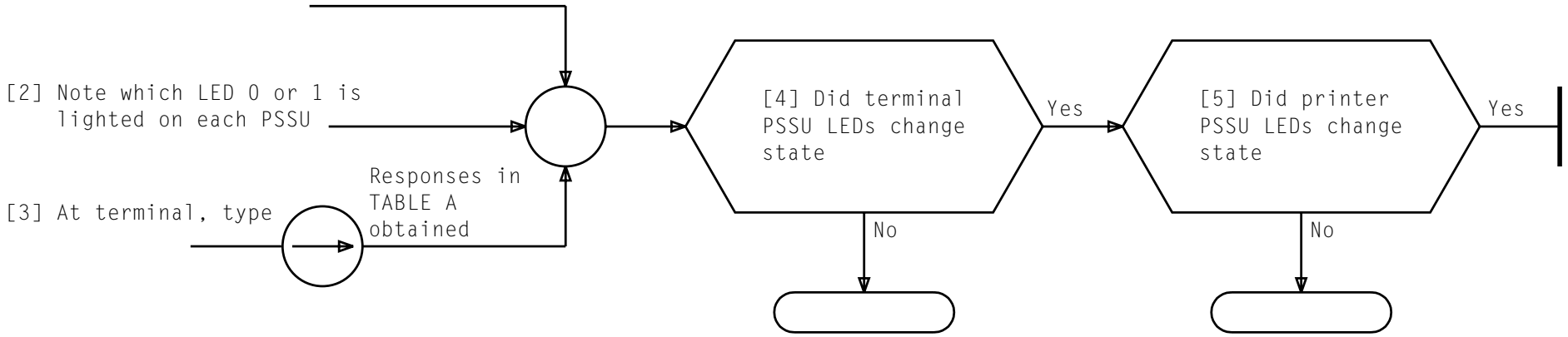


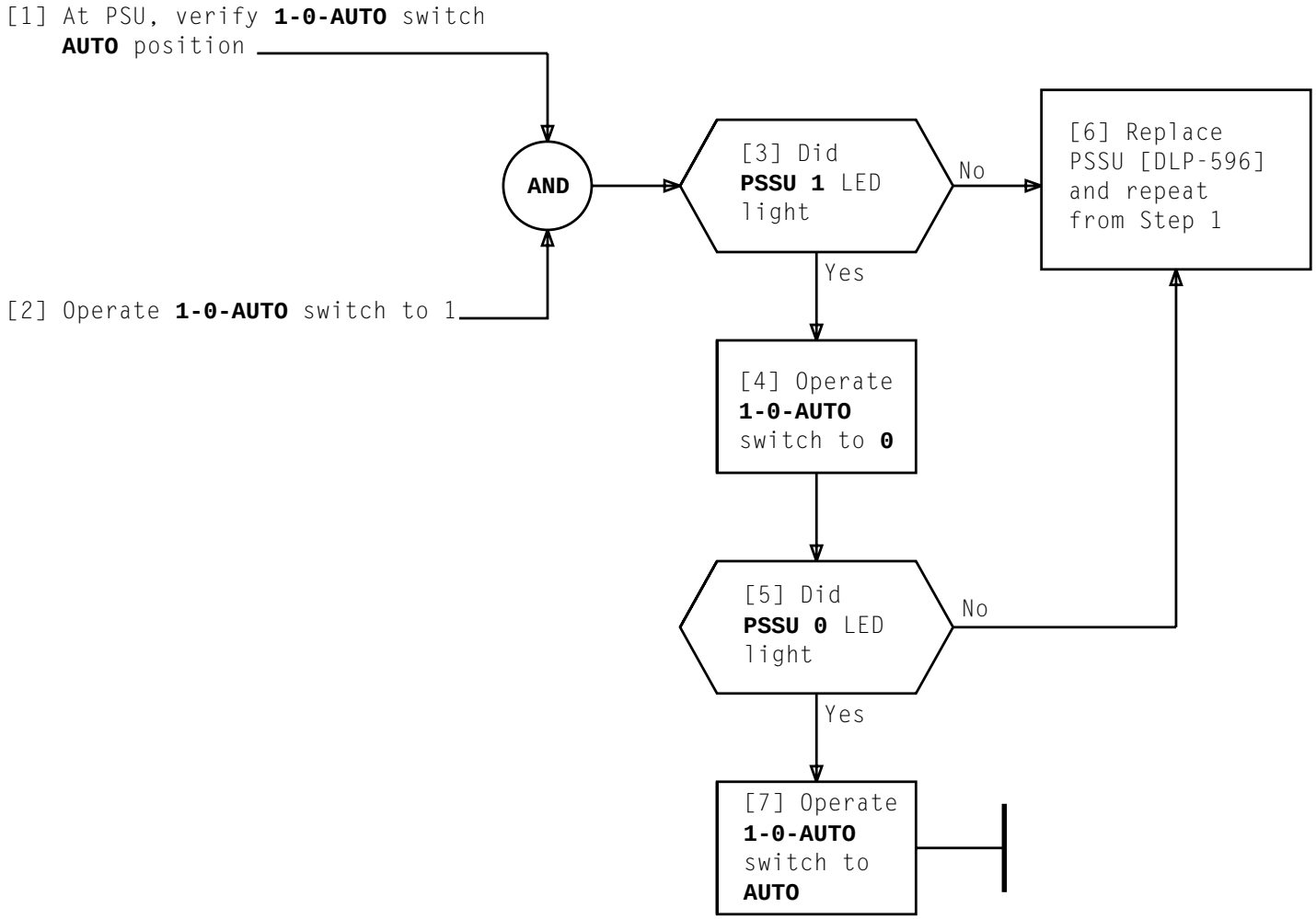
TABLE A

ITEM	RESPONSE
1	
2	Message received:
3	Message received:
4	Message received:

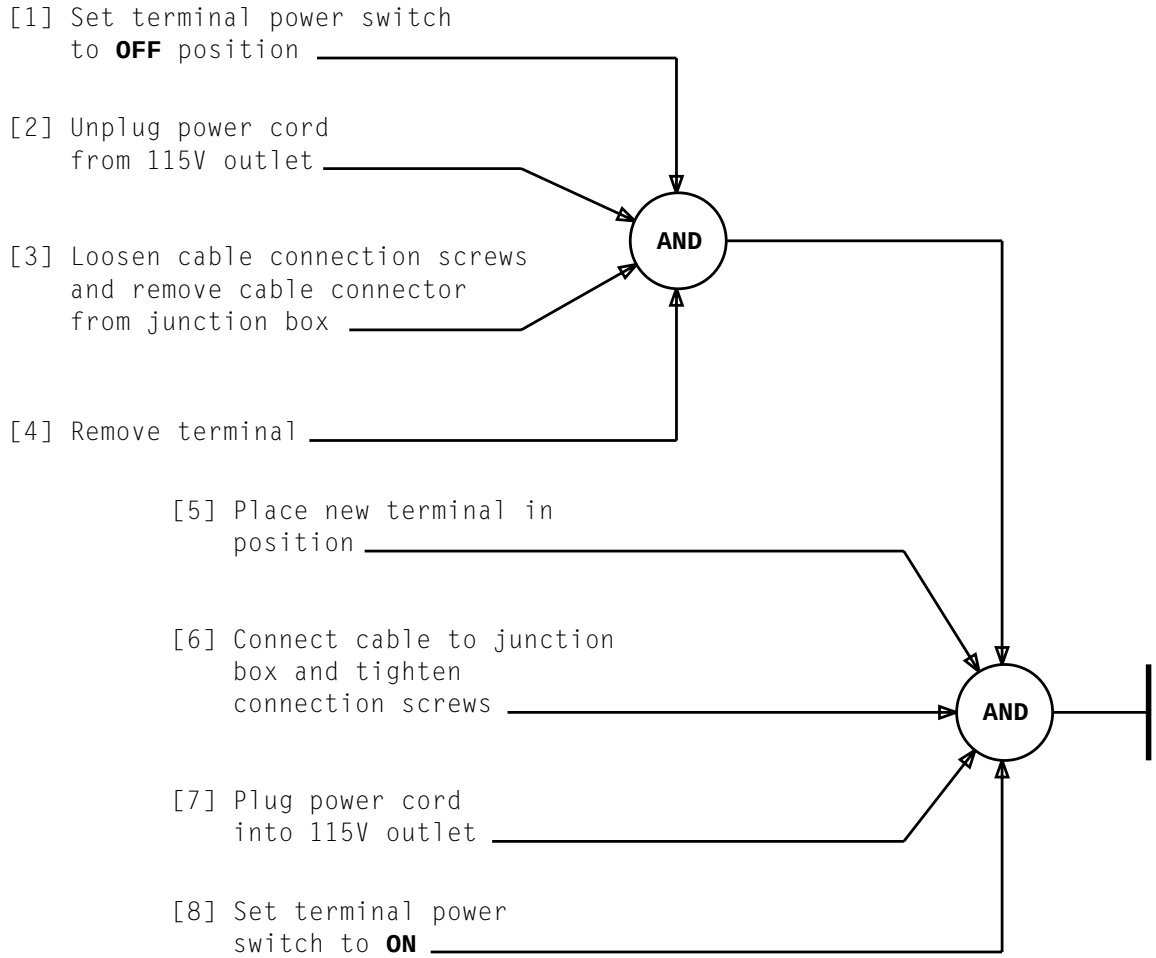
TEST PORT SWITCH UNIT (PSU)

SUMMARY

Verify **1-0-AUTO** switch is in **AUTO** position. Operate to **1** and then to **0** positions and verify respective LEDs light. Restore **1-0-AUTO** to **AUTO** position



TEST PORT SWITCH SUBUNIT (PSSU)



REPLACE TERMINAL

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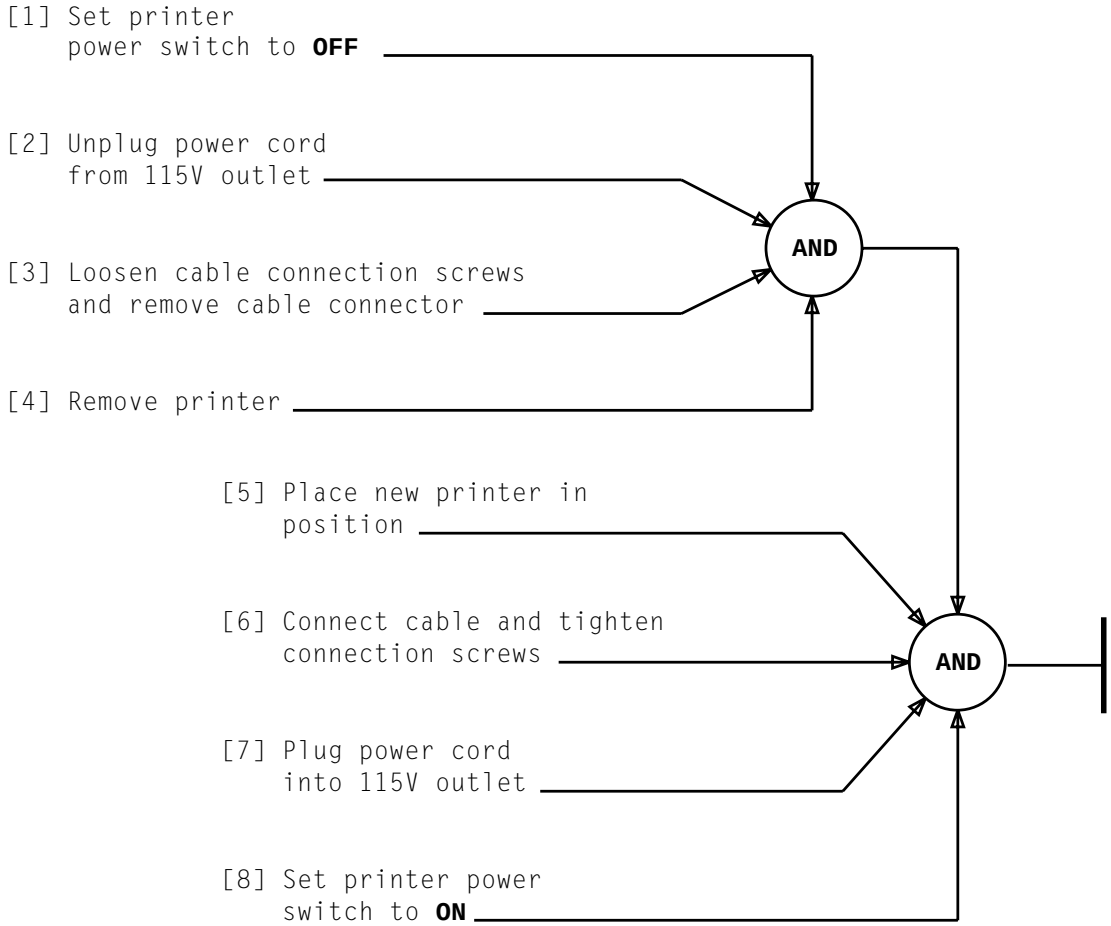
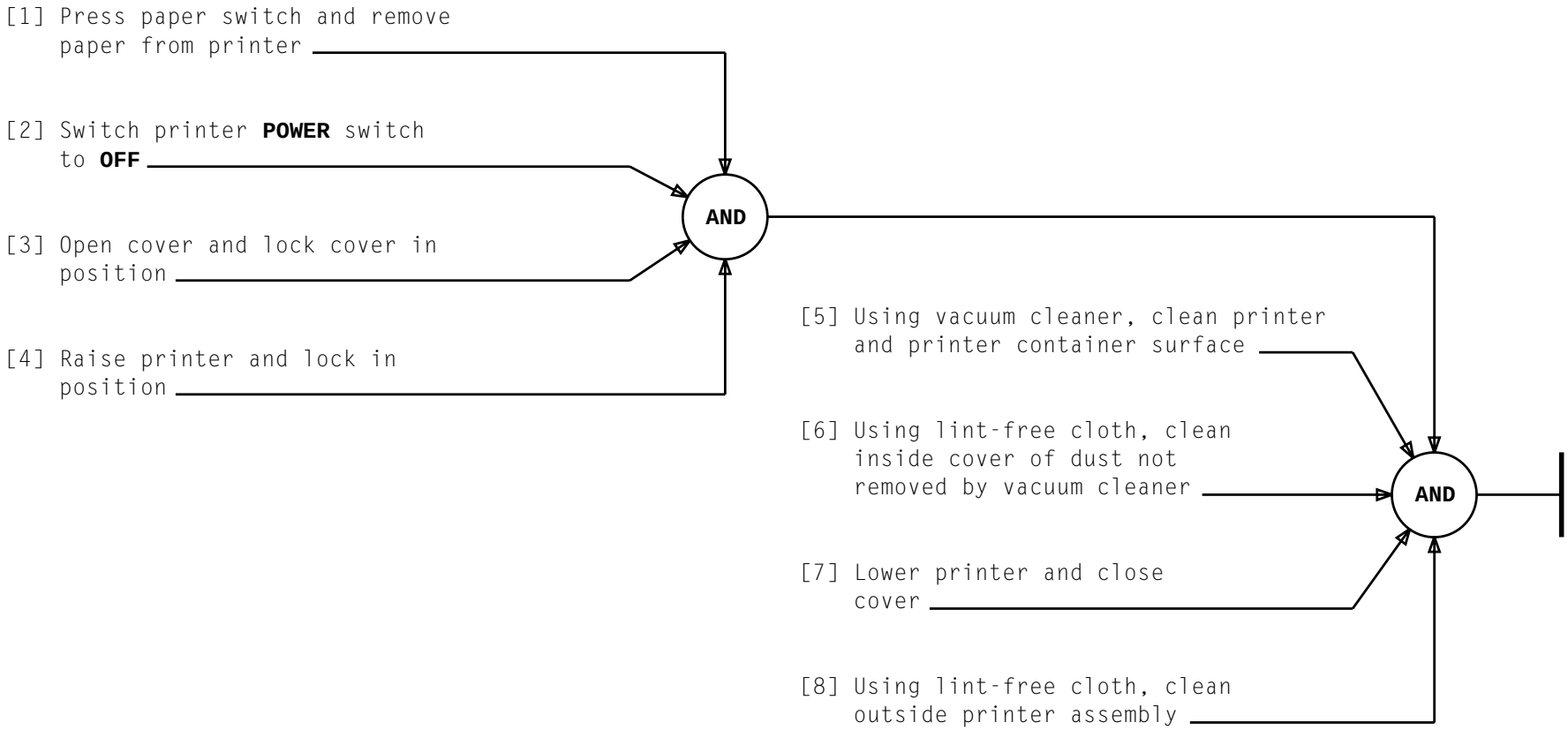
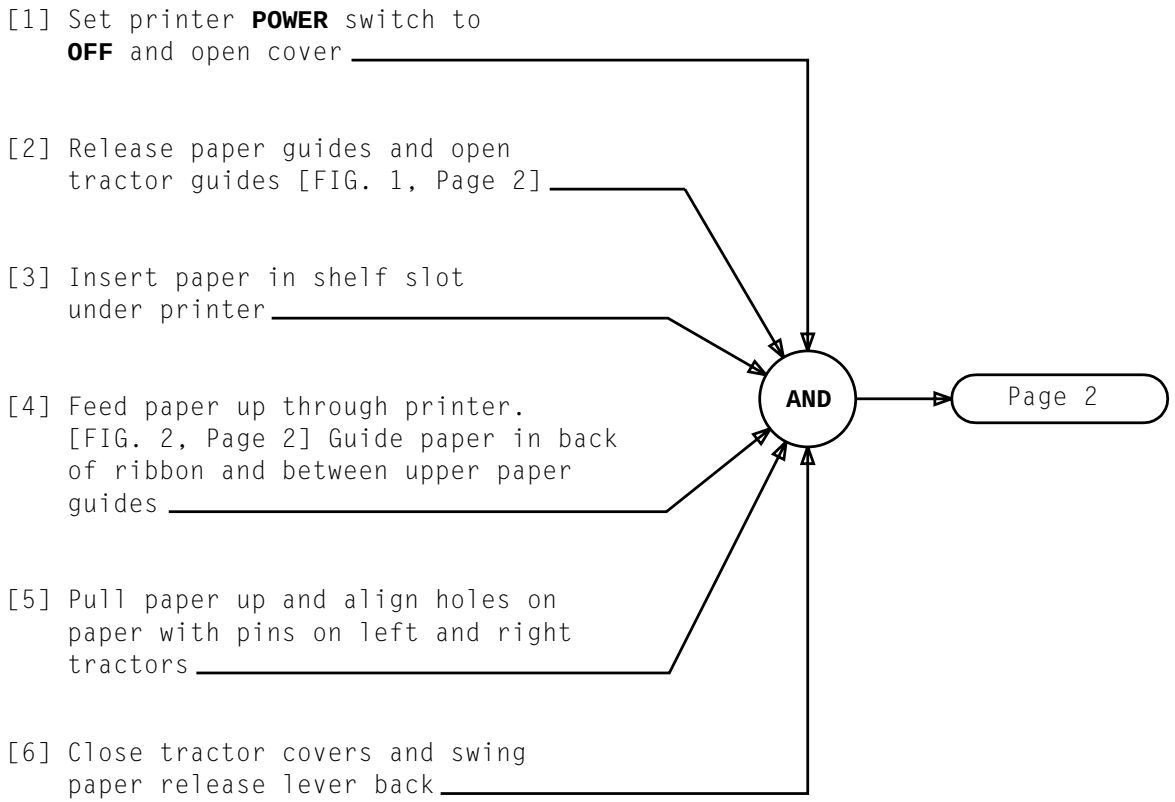


REPLACE PRINTER



CLEAN PRINTER ASSEMBLY



INSTALL PRINTER PAPER

[7] Pull out paper adjusting knob and turn to align paper for first line of printing

[8] Close cover, set **POWER** switch to **ON**, and depress **PAPER** button momentarily

[9] Set **POWER** switch to **OFF**, open cover, and thread paper through cover opening

[10] Close cover, set **POWER** switch to **ON**, and depress **FORM ADVANCE** button

AND

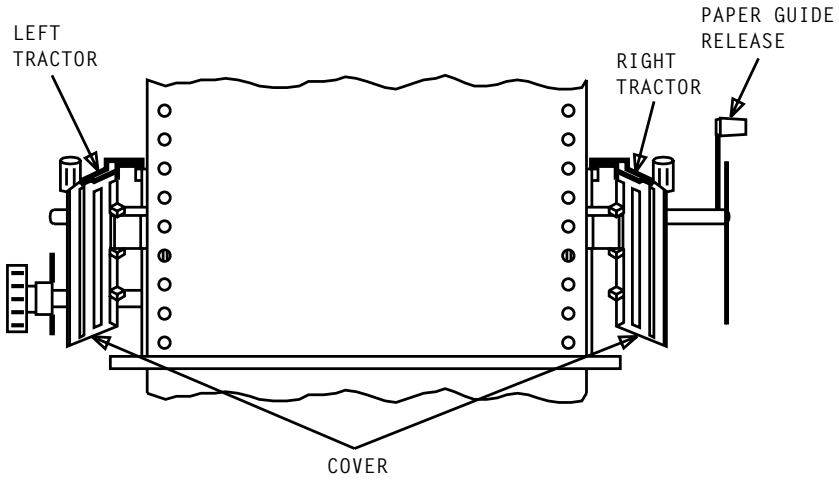


FIG. 1

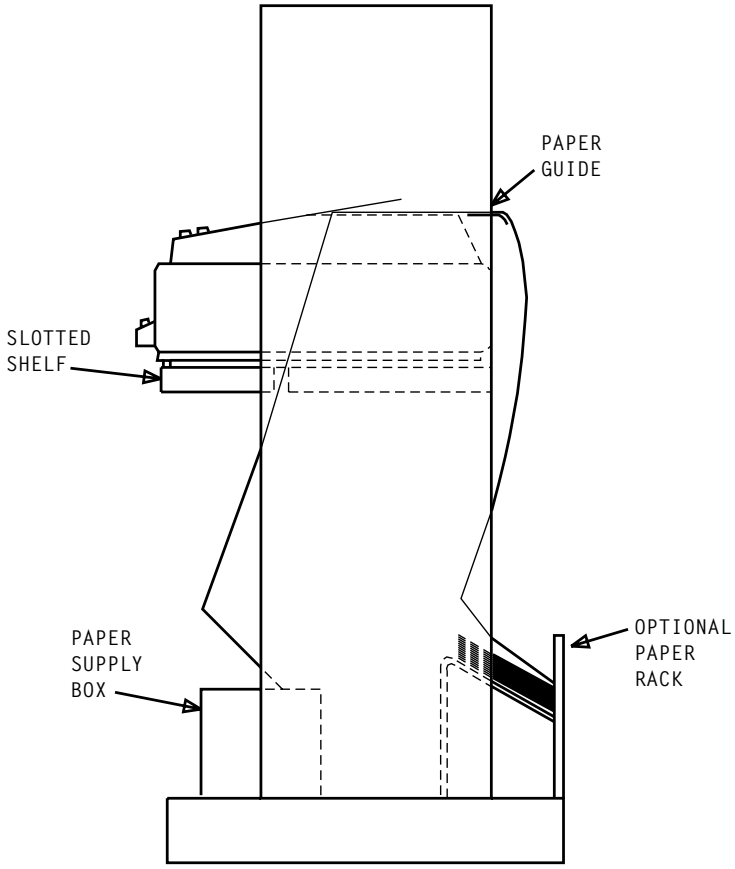
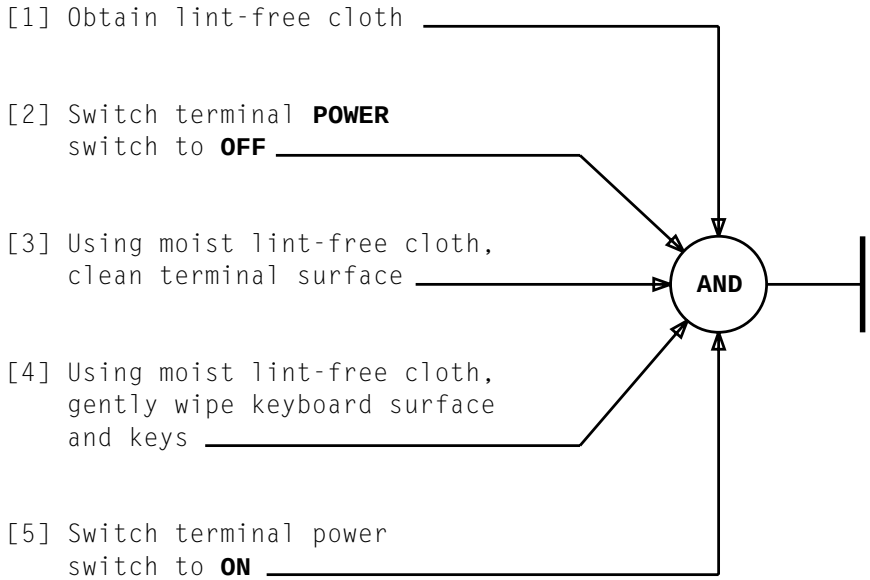


FIG. 2

INSTALL PRINTER PAPER



CLEAN TERMINAL ASSEMBLY

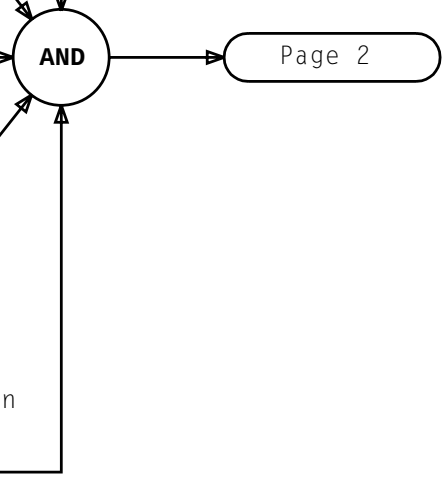
[1] Set printer **POWER** switch to **OFF**, open cover, and raise to locked position

[2] Unthread ribbon, if necessary, and remove both ribbon spools by pulling forward. Discard spools [FIG. 1, Page 2]

[3] Rotate spindles by hand and note which one is fixed and which one turns freely

[4] Place new spool with ribbon on free-turning spindle so ribbon feeds off bottom of spool

[5] Hold empty spool in one hand and thread ribbon as shown in FIG. 2 on Page 2. Be sure eyelet is wound onto empty spool and ribbon passes through reversing arms. Also, be sure that ribbon is centered on all rollers and not caught on type pallets of wire guides



INSTALL PRINTER RIBBON

[6] Place empty spool on spindle with ribbon feeding onto bottom of spool

[7] Rotate full spool by hand to take up all slack

[8] Lower printer, close cover, and set **POWER** switch to **ON**

AND

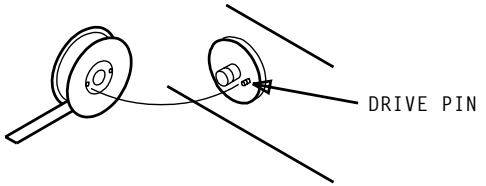


FIG. 1

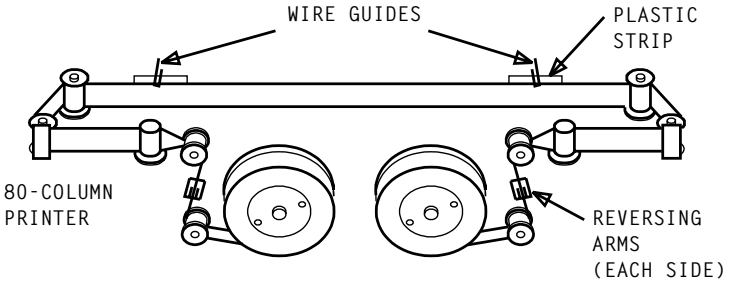
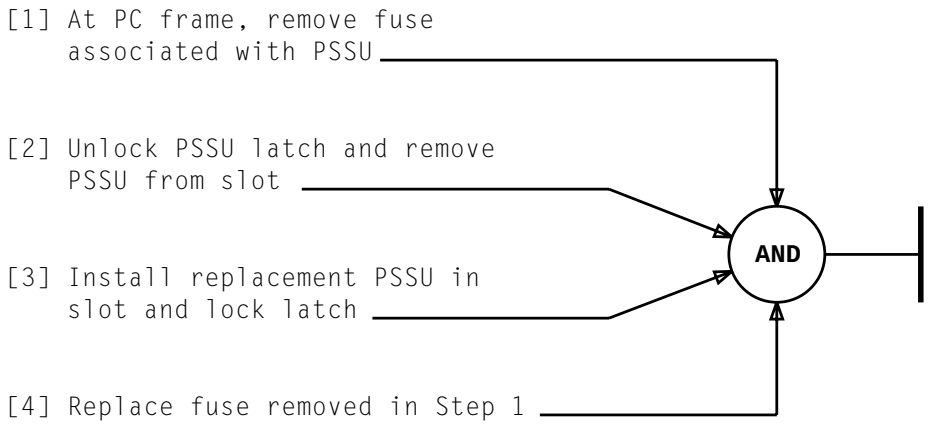


FIG. 2

INSTALL PRINTER RIBBON



REPLACE PORT SWITCH SUBUNIT (PSSU)

1. At unit power switch, operate **ROS/RST** switch to ROS position and wait for RMV CO/MPLETED messages

   NOTE: Any subunits removed from service before unit RMV CO/MPLETEDmessage received

   Response: RMV CO/MPLETEDmessage received.
   Unit label indicates OOS or OOS MAN.
   OOS and **ROS** LEDs lighted

End of procedure

REMOVE UNIT FROM SERVICE VIA FRAME CONTROLS

1. Type message indicated in TABLE A on common system display and wait for unit and all subunit RST CO/MPLETEDmessages

   Response: RST CO/MPLETEDmessage received.
   Unit label indicates ACT (CU indicates STBY).
   OOS LED off at unit power switch

End of procedure

TABLE A

UNIT	INPUT MESSAGE
CU 0	RST:CU 0;UCL!
CU 1	RST:CU 1;UCL!
DFC 0	RST:DFC 0;CONT!
DFC 1	RST:DFC 1;CONT!
IOP 0	RST:IO/P 0;UCL!
IOP 1	RST:IO/P 1;UCL!
MHD 0	RST:MHD 0!
MHD 1	RST:MHD 1!
MHD 2	RST:MHD 2!
MHD 3	RST:MHD 3!

Legend: CU = control unit
DFC = disk file controller
IOP = input/output processor
MHD = moving head disk
RST = restore

RESTORE UNIT TO SERVICE VIA INPUT MESSAGE

1. At unit power switch, operate **ROS/RST** switch to **RST** position and wait for unit and all subunit RST CO/MPLETEDmessages

   NOTE: All subunits and unit diagnosed then restored to service.

   Response: RST CO/MPLETEDmessage received.
   At terminal display, unit label indicates ACT (CU indicates STBY).
   At unit power switch, **OOS** and **RQIP** LEDs off

End of procedure

RESTORE UNIT TO SERVICE VIA FRAME CONTROLS

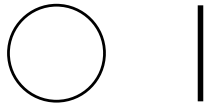
CAUTION: System may sustain a severe maintenance reset if mate unit is not active

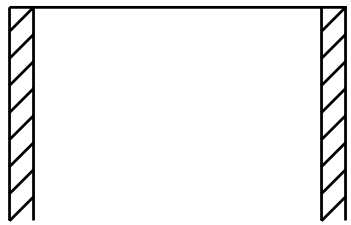
1. At unit power switch, operate **OFF** switch

   Response: REPT PO/WER DO/WN or REPT UNAVAILABLE message received. At terminal display, unit label indicates UNAV or OOS.
   At unit power switch, **OFF** LED lighted

End of procedure

REMOVE POWER FROM UNIT





1. At unit power switch, depress **ON** switch

   Response: REPT PO/WER UPor REPT O/UT SERVICE
   message received.
   At terminal common systems display,
   unit label indicates OOS or OOS MAN.
   At unit power switch, **OOS** LED lighted

2. If unit is a 300– or 340-megabyte MHD, at MHD
   operator control panel, depress **START** key

   Response: **START** or **READY** lamp lighted in 30 seconds

End of procedure

RESTORE POWER TO UNIT

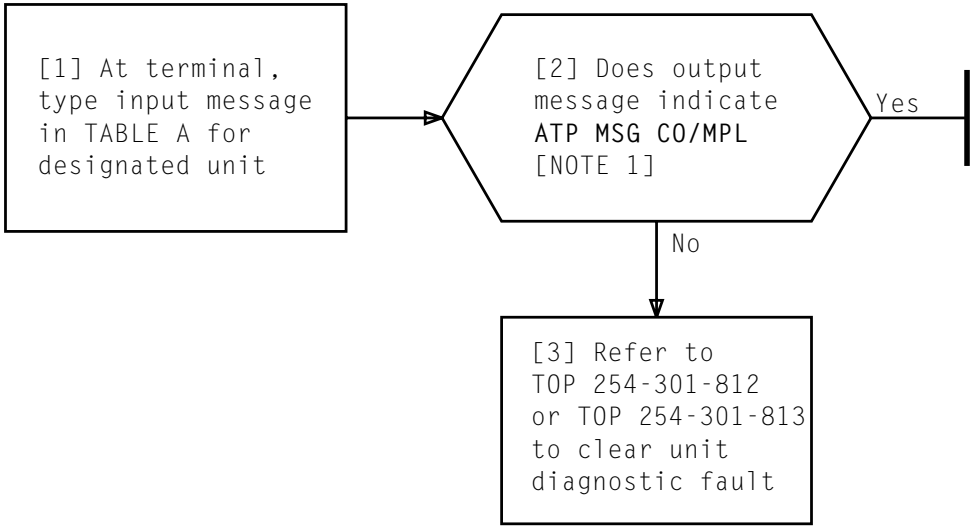


TABLE A

UNIT	INPUT MESSAGE*
CU	DGN:CU a;RAW,DEX!
DFC	DGN:DFC a;RAW,DEX:CONT!
IOP	DGN:IOP a;RAW,DEX:CONT!
MHD	DGN:MHD b;RAW,DEX!

* a = 0 or 1
b = disk drive number

Legend: CU = control unit
DFC = disk file controller
IOP = input/output processor
MHD = moving head disk

NOTE 1
Output message received when all subunits are removed from service and diagnosed which may take 30 minutes

DIAGNOSE UNIT

CHECK LIGHT EMITTING DIODES (LEDs)

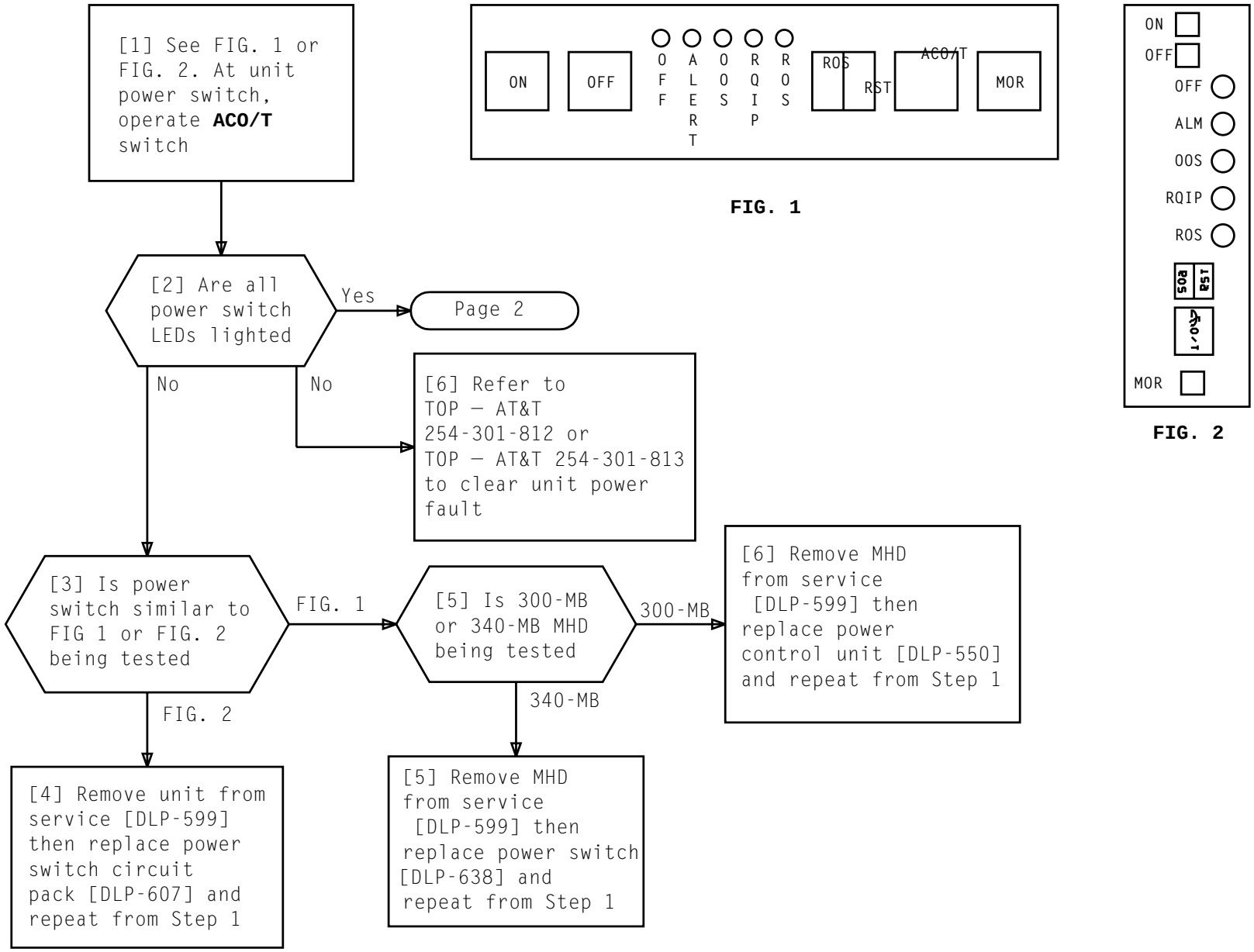


FIG. 1

FIG. 2

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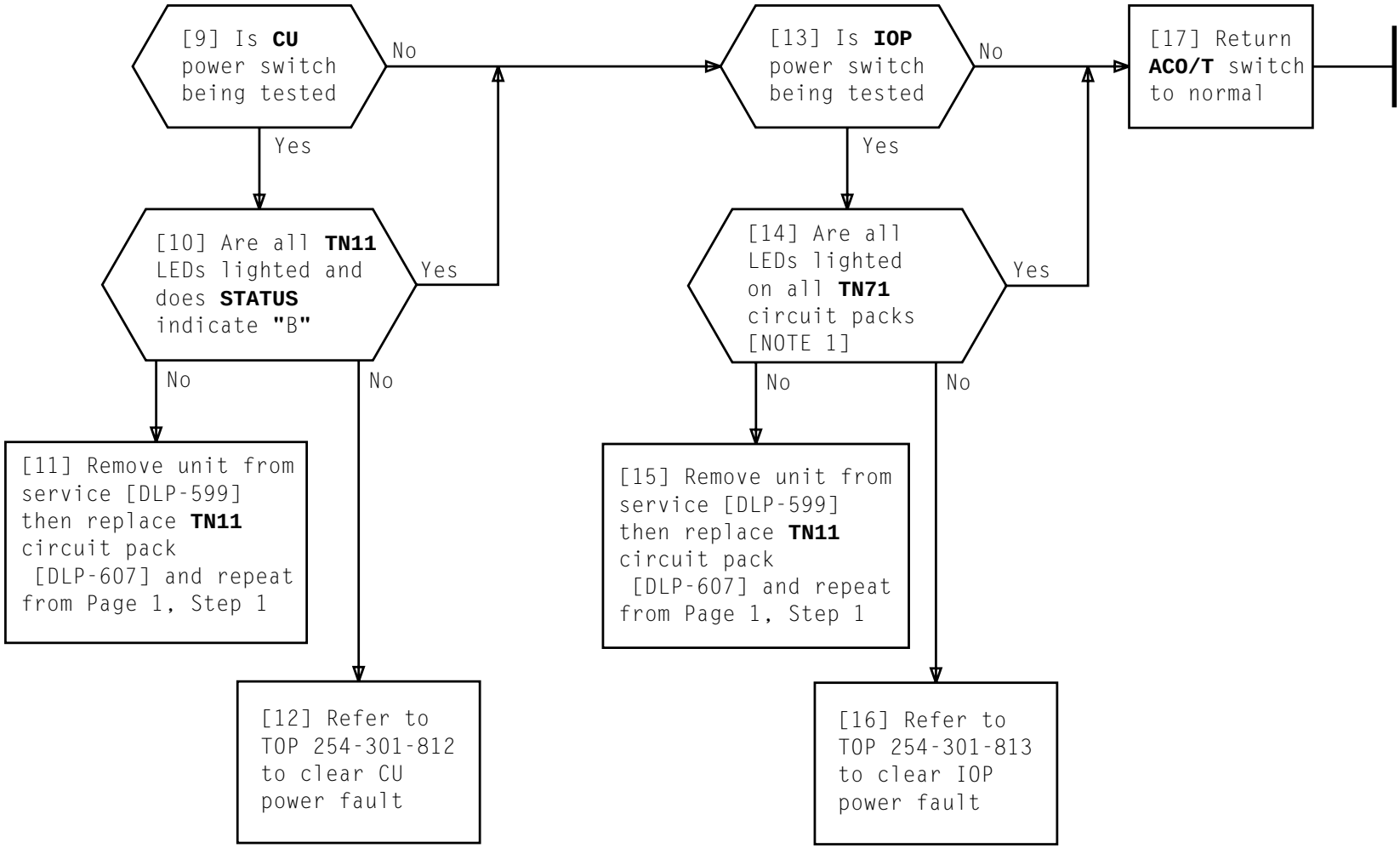
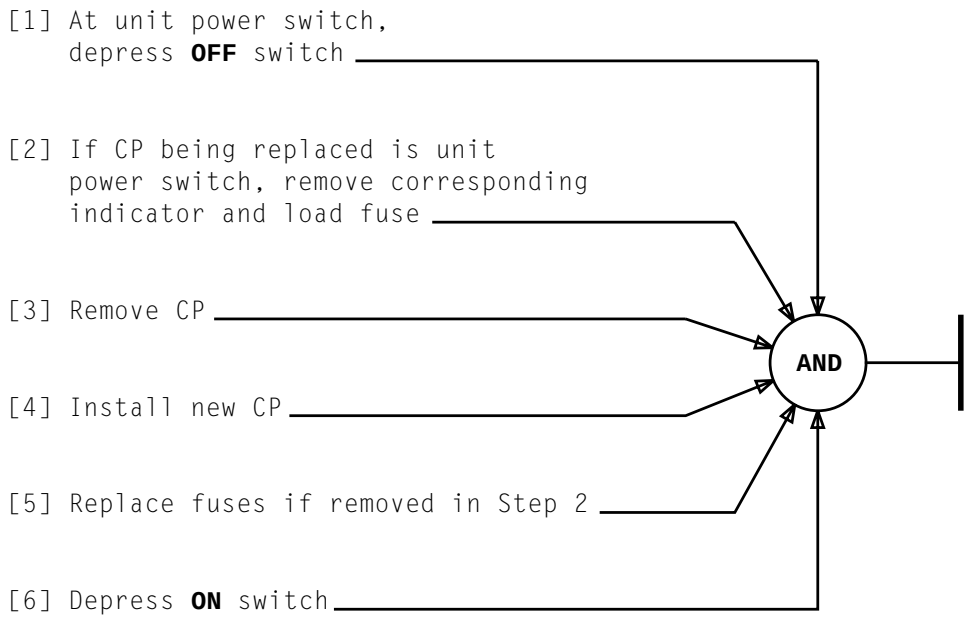


NOTE 1
Each IOP growth unit community contains a **TN71** circuit pack

CHECK LIGHT EMITTING DIODES (LEDs)



REPLACE CIRCUIT PACK (CP)

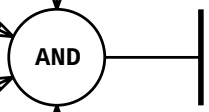
SUMMARY
Visually inspect frame for circuit packs and fuses. Check base covers for frame stenciling.

[1] See DANGER 1. At CU frame, verify that circuit packs and apparatus for office configuration are installed per FIG. 1, Page 2, TABLE A and B Page 3 and TABLE C Page 4

[2] Check circuit packs for proper insertion and seating

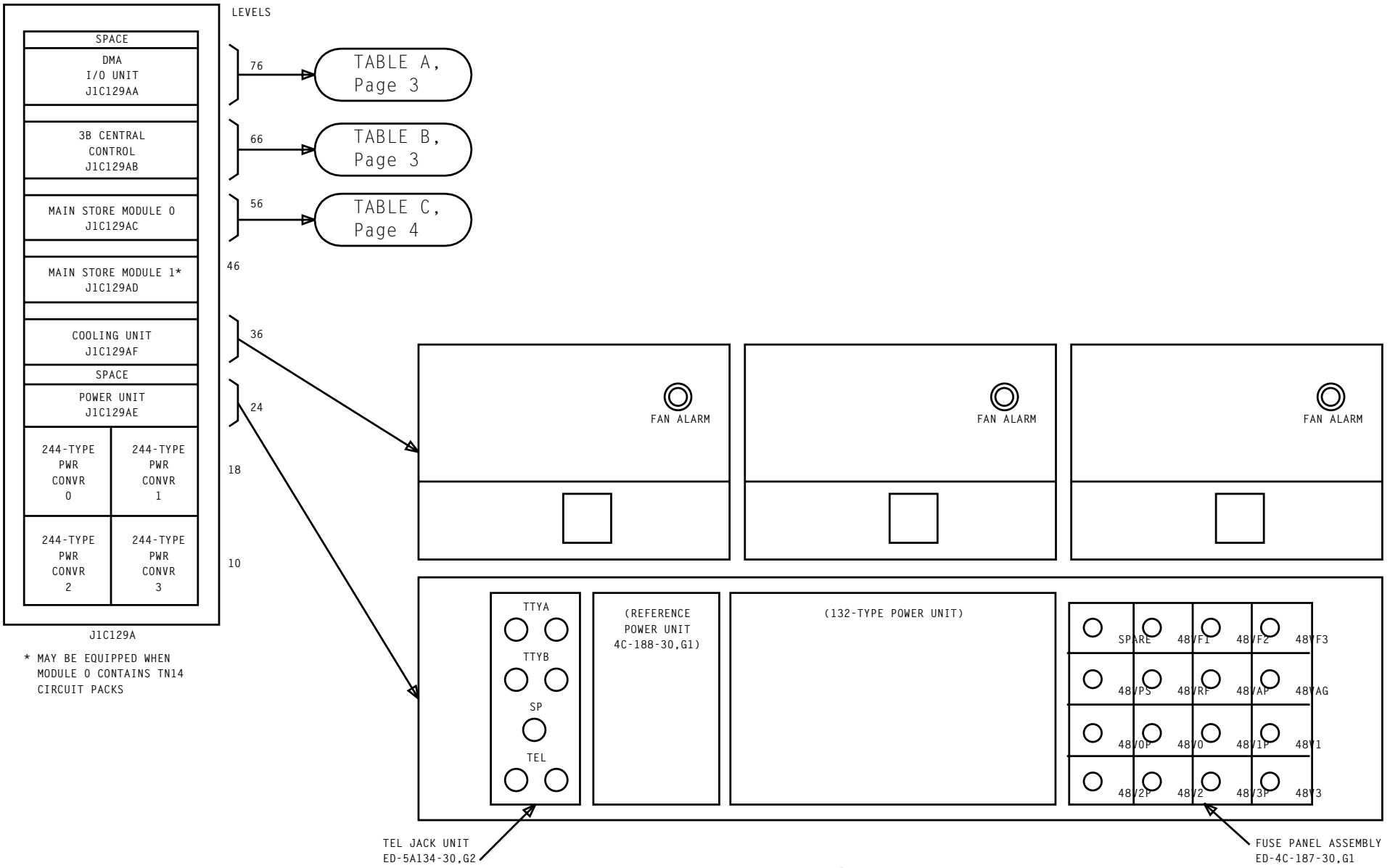
[3] Verify fuse stenciling and fuse ratings are as shown in FIG. 2 and TABLE D, Page 5

[4] Verify that **CU**a is stenciled on top at extreme left of both front and rear base frame covers (a = 0 or 1)



DANGER 1
–48V present on this frame

INSPECT CONTROL UNIT (CU) FRAME



* MAY BE EQUIPPED WHEN MODULE 0 CONTAINS TN14 CIRCUIT PACKS

FIG. 1

INSPECT CONTROL UNIT (CU) FRAME

TABLE A		
DIRECT MEMORY ACCESS INPUT OUTPUT UNIT		
CIRCUIT PACKS		
LOCATION	REQUIRED*	OPTIONS†
008		UN9, UN19, UN26
016		UN9, UN19, UN26
024		UN9, UN19, UN26
032		UN9, UN19, UN26
040		UN9, UN19, UN26
048	UN9	
056		UN9
068		UN9
076		
084	UN37	
092	UN36	
100	UN35	
108	UN35	
116		UN9
128		UN9
136		UN9
144		UN9
152		UN37
160		UN36
168		UN35
176		UN35

* Effective for Generics 1, 2, and 3
† Vacant locations may be job engineered

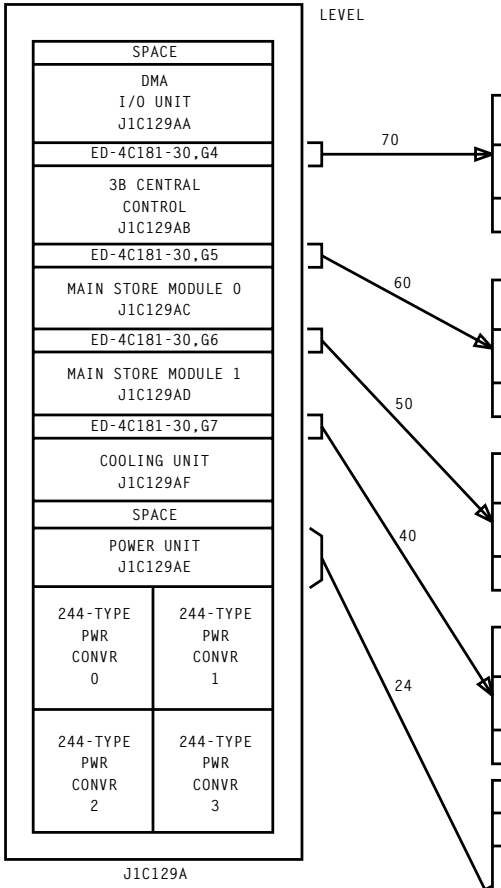
TABLE B			
CENTRAL CONTROL UNIT			
CIRCUIT PACKS			
LOCATION	GENERIC 1	GENERIC 2	GENERIC 3
008	UN28 (MC4C000A1)	UN28B (MC4C000A1B)	UN28B (MC4C077A1)
016	UN18	UN18B	UN18B
024*	UN28 (MC4C000A1)	UN28 (MC4C000A1B)	UN48B
032*	UN28 (MC4C000A1)	UN28 (MC4C000A1B)	UN48B
040	Vacant (UN16B)	Vacant (UN16B)	Vacant (UN16B)
048	UN22	UN22B	UN22B
056	UN44 (MC4C040A1)	UN135 (MC4C076A1)	UN135 (MC4C076A1)
068	UN1B	UN1C	UN1C
076	UN23B	UN23C	UN23C
084	UN2	UN2B	UN2B
092	UN3	UN3B	UN3B
100	UN6	UN6B	UN6B
108	UN43	UN43B	UN43B
116	UN45	UN45B	UN45B
128	UN21	UN21B	UN21B
136	UN10	UN10B	UN10B
144	UN11	UN11B	UN11B
152	UN30	UN30B	UN30B
160	UN34 (MC4C043A1)	UN34 (MC4C044A1)	UN34 (MC4C044A1)
168*	UN9	UN9B	UN9B
176*	UN9	UN9B	UN9B

* Locations are job engineered

INSPECT CONTROL UNIT (CU) FRAME

TABLE C		
MAIN STORE MODULE 0		
CIRCUIT PACKS		
LOCATION	GENERIC 1	GENERIC 2 AND 3
008	ABB1	ABB1
016	TN11	TN11B
024	Vacant	Vacant
032	TN14	TN28*
040	↕	↕
048		
056		
068		
076		
084		
092		
100		
108		
116		
128		
136		
144		
152		
160	TN14	TN28*
168	UN39 (MC4C036A1)	UN59
176	UN40	Vacant
* All locations may not be equipped for Generic 2 and 3		

INSPECT CONTROL UNIT (CU) FRAME



LEVEL

70

60

50

40

24

POSITIONS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
LOCATIONS*	008	016	024	032	040	048	056	062	068	076	084	092	100	108	116	122	128	136	144	152	160	168	176
PILOT FUSE TYPE	↗	↗	↗	↗	↗	↗	↗	(PLUG)	↖	↑	↑	↑	↗	↗	↗	(PLUG)	↖	↖	↖	↖	↖	↖	↖
	70F	70F	70F	70F	70F	70F	70F	–	70F	70F	70F	70F	70F	70F	70F	–	70F	70F	70F	70F	70F	70F	70F
STENCIL	+5V 00	+5V 01	+5V 02	+5V 03	+5V 04	+5V 05	+5V 06	(PLUG)	+5V 07	+5V 08	+5V 09	+5V 10	+5V 11	+5V 12	+5V 13	(PLUG)	+5V 14	+5V 15	+5V 16	+5V 17	+5V 18	+5V 19	+5V 20
TYPE	74D					74D		–			74D	74D	74D	74D		–							
PILOT FUSE TYPE	↗	↗	↗	↗	↗	↗	↗	(PLUG)	↖	↑	↑	↑	↗	↗	↗	(PLUG)	↖	↖	↖	↖	↖	↖	↖
	70F	70F	70F	70F	70F	70F	70F	–	70F	70F	70F	70F	70F	70F	70F	–	70F	70F	70F	70F	70F	70F	70F
STENCIL	+5V 21	+5V 22	+5V 23	+5V 24	+5V 25	+5V 26	+5V 27	(PLUG)	+5V 28	+5V 29	+5V 30	+5V 31	+5V 32	+5V 33	+5V 34	(PLUG)	+5V 35	+5V 36	+5V 37	+5V 38	+5V 39	+5V 40	+5V 41
TYPE	74D	74D	74D	74D	74D	74D	74D	–	74D	74D	74D	74D	74D	74D	74D	–	74D	74D	74D	74D	74C		74D
PILOT FUSE TYPE	↗	↗	–	↗	↗	↗	↗	–	↖	↑	↑	↑	↗	↗	↗	–	↖	↖	↖	↖	↖	↖	↖
	70C	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F
STENCIL	+5V 42	+5V 43	+5V 44	+5V 45	+5V 46	+5V 47	+5V 48	+12 VA	+5V 49	+5V 50	+5V 51	+5V 52	+5V 53	+5V 54	+5V 55	+12 VB	+5V 56	+5V 57	+5V 58	+5V 59	+5V 60	+5V 61	+5V 62
TYPE		74B	74A	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74D	74C
PILOT FUSE TYPE	(PLUG)	(PLUG)	–	↗	↗	↗	↗	–	↖	↑	↑	↑	↗	↗	↗	–	↖	↖	↖	↖	↖	↖	↖
	–	–	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F	70F
STENCIL	(PLUG)	(PLUG)	+5V 65	+5V 66	+5V 67	+5V 68	+5V 69	+12 VC	+5V 70	+5V 71	+5V 72	+5V 73	+5V 74	+5V 75	+5V 76	+12 VD	+5V 77	+5V 78	+5V 79	+5V 80	+5V 81	+5V 82	+5V 83
TYPE	–	–	74A	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74B	74D	74C

FUSE PANEL ASSEMBLY ED-4C-187-30,G1

STENCIL	TYPE	LOAD	STENCIL	TYPE	LOAD
SPARE	-	-	48VOP	70F	244-TYPE 0 PILOT
48VF1	70D	COOLING UNIT 0	48VO	74E	244-TYPE 0 LOAD
48VF2	70D	COOLING UNIT 1	48V1P	70F	244-TYPE 1 PILOT
48VF3	70D	COOLING UNIT 2	48V1	74E	244-TYPE 1 LOAD
48VPS	70G	POWER SWITCH ABB1	48V2P	70F	244-TYPE 2 PILOT
48VRF	70H	REF POWER UNIT 4C-188-30, G1	48V2	74E	244-TYPE 2 LOAD
48VAP	70F	POWER CONV 132-TYPE PILOT	48V3P	70F	244-TYPE 3 PILOT
48VAG	74D	POWER CONV 132-TYPE LOAD	48V3	74E	244-TYPE 3 LOAD

* VACANT FUSE LOCATIONS EQUIPPED WITH 72A DUMMY FUSES

TABLE D

TYPE	RATING	TYPE	RATING
70C	3A	74A	1-1/4A
70D	5A	74B	3A
70F	1/4A	74C	5A
70G	1/2A	74D	10A
70H	3/4A	74E	15A

FIG. 2

INSPECT CONTROL UNIT (CU) FRAME

SUMMARY
Visually inspect frame for circuit packs and fuses. Check base covers for frame stenciling.

[1] See DANGER 1. At PC frame, verify that circuit packs and apparatus required for office configuration of input/output processor (IOP) are installed and seated per FIG. 1, Page 2

[2] Verify fuse stenciling and fuse ratings are as shown in FIG. 1 and TABLE A, Page 2

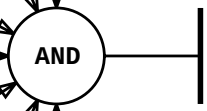
[3] Verify that circuit packs and apparatus required for office configuration of port switch unit (PSU) and disk file controller (DFC) are installed and seated per FIG. 2, Page 3

[4] Verify that PSU and DFC fuse stenciling and fuse ratings are as shown in FIG. 2 and TABLE B, Page 3

[5] If equipped, verify that circuit packs and apparatus required for office configuration of IOP growth unit are installed and seated per FIG. 3, Page 4

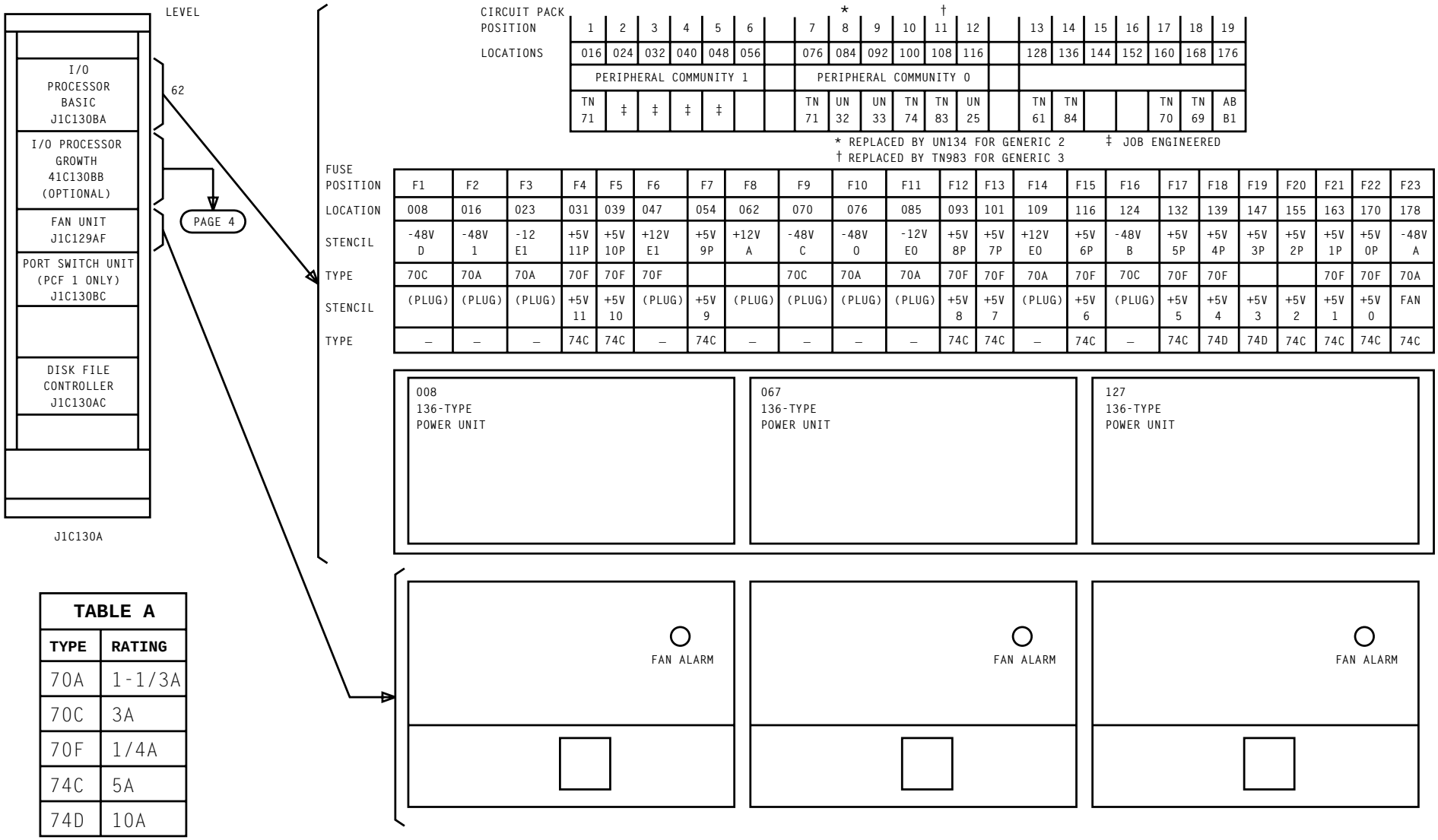
[6] If equipped, verify that IOP growth unit fuse stenciling and fuse ratings are as shown in FIG. 3 and TABLE C, Page 4

[7] Verify that **PC**a is stenciled on top at extreme left of both front and rear base frame covers (a = 0 or 1)



DANGER 1
−48V present on this frame

INSPECT PERIPHERAL CONTROL (PC) FRAME



CIRCUIT PACK POSITION	1	2	3	4	5	6		7	8 *	9	10	11 †	12		13	14	15	16	17	18	19
LOCATIONS	016	024	032	040	048	056		076	084	092	100	108	116		128	136	144	152	160	168	176
	PERIPHERAL COMMUNITY 1							PERIPHERAL COMMUNITY 0													
	TN 71	‡	‡	‡	‡			TN 71	UN 32	UN 33	TN 74	TN 83	UN 25		TN 61	TN 84			TN 70	TN 69	AB B1

FUSE POSITION	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21	F22	F23
LOCATION	008	016	023	031	039	047	054	062	070	076	085	093	101	109	116	124	132	139	147	155	163	170	178
STENCIL	-48V D	-48V 1	-12 E1	+5V 11P	+5V 10P	+12V E1	+5V 9P	+12V A	-48V C	-48V 0	-12V EO	+5V 8P	+5V 7P	+12V EO	+5V 6P	-48V B	+5V 5P	+5V 4P	+5V 3P	+5V 2P	+5V 1P	+5V 0P	-48V A
TYPE	70C	70A	70A	70F	70F	70F			70C	70A	70A	70F	70F	70A	70F	70C	70F	70F			70F	70F	70A
STENCIL	(PLUG)	(PLUG)	(PLUG)	+5V 11	+5V 10	(PLUG)	+5V 9	(PLUG)	(PLUG)	(PLUG)	(PLUG)	+5V 8	+5V 7	(PLUG)	+5V 6	(PLUG)	+5V 5	+5V 4	+5V 3	+5V 2	+5V 1	+5V 0	FAN
TYPE	—	—	—	74C	74C	—	74C	—	—	—	—	74C	74C	—	74C	—	74C	74D	74D	74C	74C	74C	74C

TABLE A	
TYPE	**RATING**
70A	1-1/3A
70C	3A
70F	1/4A
74C	5A
74D	10A

FIG. 1

INSPECT PERIPHERAL CONTROL (PC) FRAME

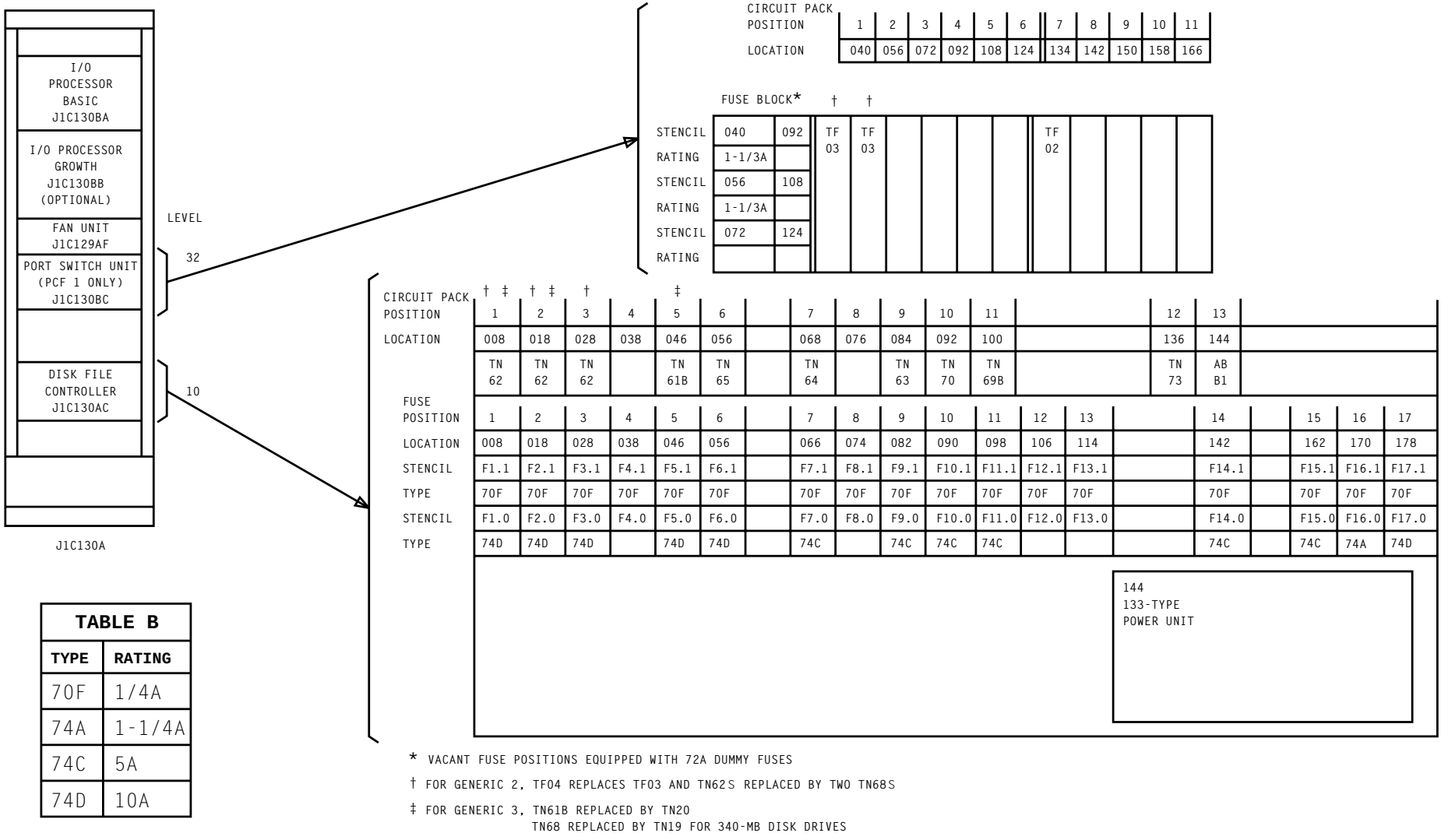


TABLE B	
TYPE	**RATING**
70F	1/4A
74A	1-1/4A
74C	5A
74D	10A

* VACANT FUSE POSITIONS EQUIPPED WITH 72A DUMMY FUSES

† FOR GENERIC 2, TF04 REPLACES TF03 AND TN62S REPLACED BY TWO TN68S

‡ FOR GENERIC 3, TN61B REPLACED BY TN20
TN68 REPLACED BY TN19 FOR 340-MB DISK DRIVES

FIG. 2

INSPECT PERIPHERAL CONTROL (PC) FRAME

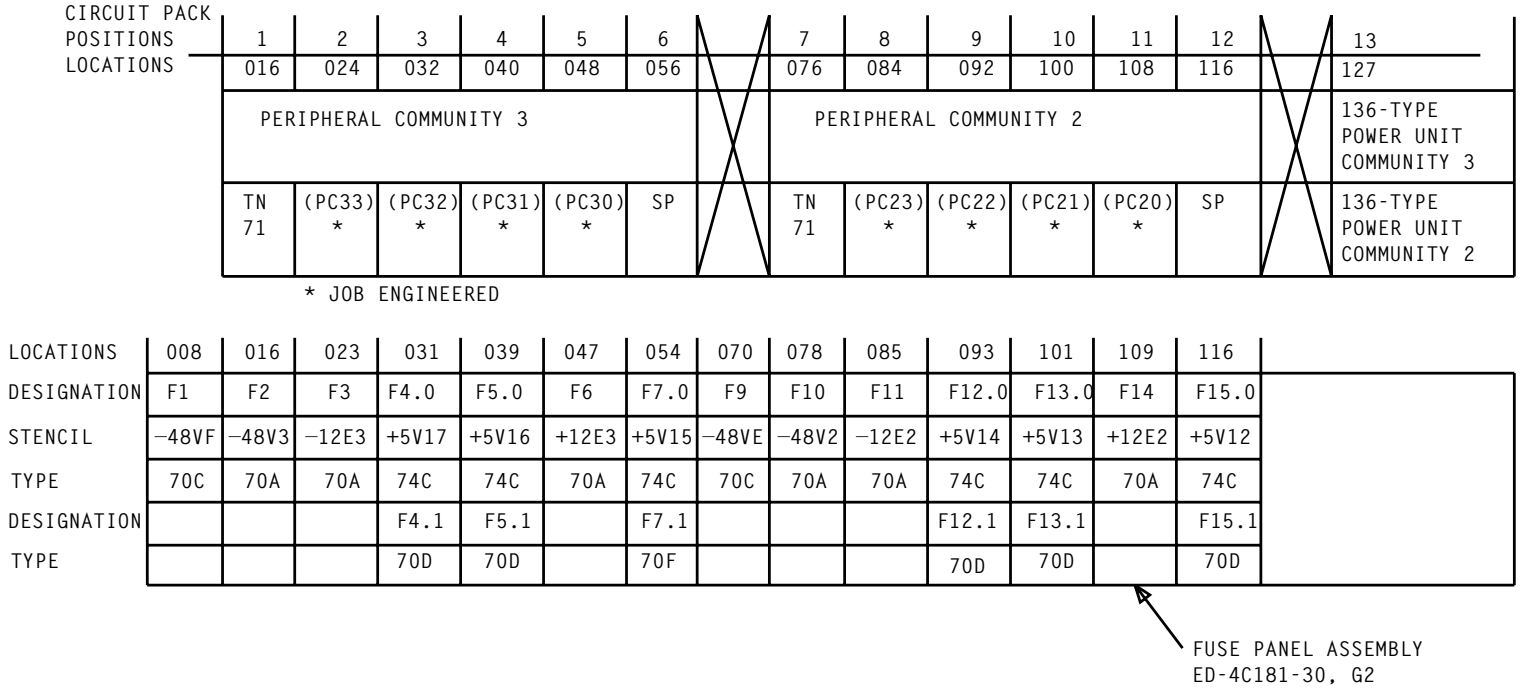


FIG. 3 — Input/Output Processor Growth Unit (Optional)

TABLE C	
TYPE	**RATING**
70A	1-1/3A
70C	3A
70D	5A
70F	1/4A
74C	5A

INSPECT PERIPHERAL CONTROL (PC) FRAME

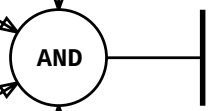
SUMMARY
Visually inspect frame for circuit packs and fuses. Check base covers for frame stenciling.

[1] At MHD frame, verify that apparatus is installed per FIG. 1, Page 2

[2] At disk file inverter front panel, verify that fuse block is stenciled **70D FUSE** and is equipped with correctly rated fuse

[3] At disk inverter control panel, verify that fuse block is stenciled **5AMP N48VOLTS** and is equipped with correctly rated fuse

[4] On top at left front of MHD drive stand, verify that **DFC** a **MHD** b and **PORT B**bb are stenciled [EXAMPLE 1]
(a = 0 or 1; b = 0, 1, 2, or 3)



EXAMPLE 1
Frame stenciling:

DFC 1 MHD 3
PORT Bbb

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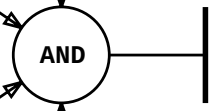
INSPECT MOVING HEAD DISK (MHD) FRAME

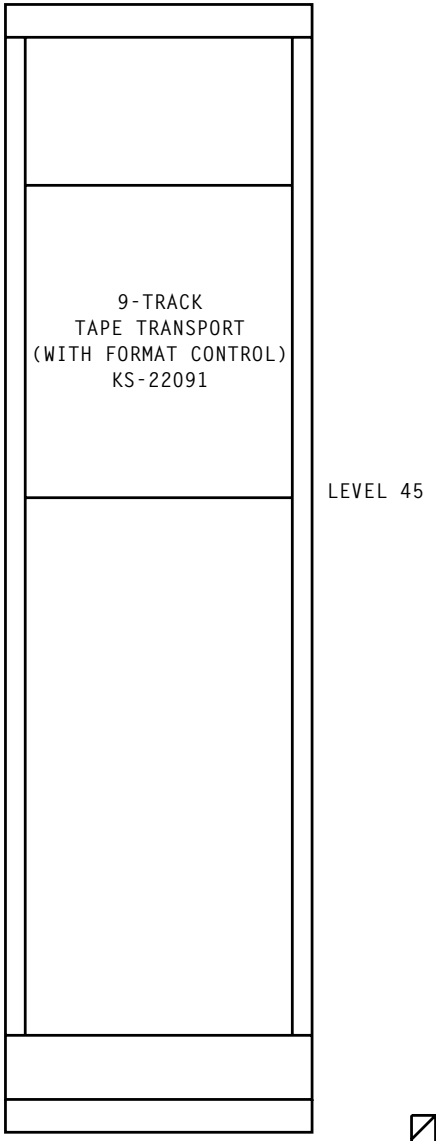
[1] See DANGER 1. At TU frame, verify tape transport installation per FIG. 1

[2] At lower left rear of tape transport, verify fuse block is stenciled **48V DC POWER** and is equipped with a 10A fuse

[3] At lower right rear of tape formatter, verify fuse block is stenciled **24V DC POWER** and is equipped with a 5A fuse

[4] Verify that **TU0** is stenciled on top at extreme left of both front and rear frame base covers





J1C134A

FIG. 1

DANGER 1
—48V present on this frame

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INSPECT TAPE UNIT (TU) FRAME WITH KS-22091 TAPE TRANSPORT

SUMMARY

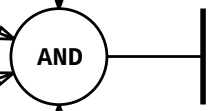
Visually inspect frame to insure apparatus is properly provided and correctly stenciled.

[1] See DANGER 1 and WARNING 1. At DC PD frame, verify that apparatus is installed per FIG. 1 and FIG. 2, Pages 2 and 3, for J86334B or per FIG. 3 and FIG. 4, Pages 4 and 5, for J86334C

[2] Inspect frame for presence of foreign matter

[3] Inspect frame and mounted apparatus for secure mounting and stenciling

[4] Verify that **DC PDO** is stenciled on top at extreme left of both front and rear frame base covers



DANGER 1
−48V present on this frame

WARNING 1
Damage to equipment may result if fuses are removed

INSPECT POWER DISTRIBUTION (PD) FRAME

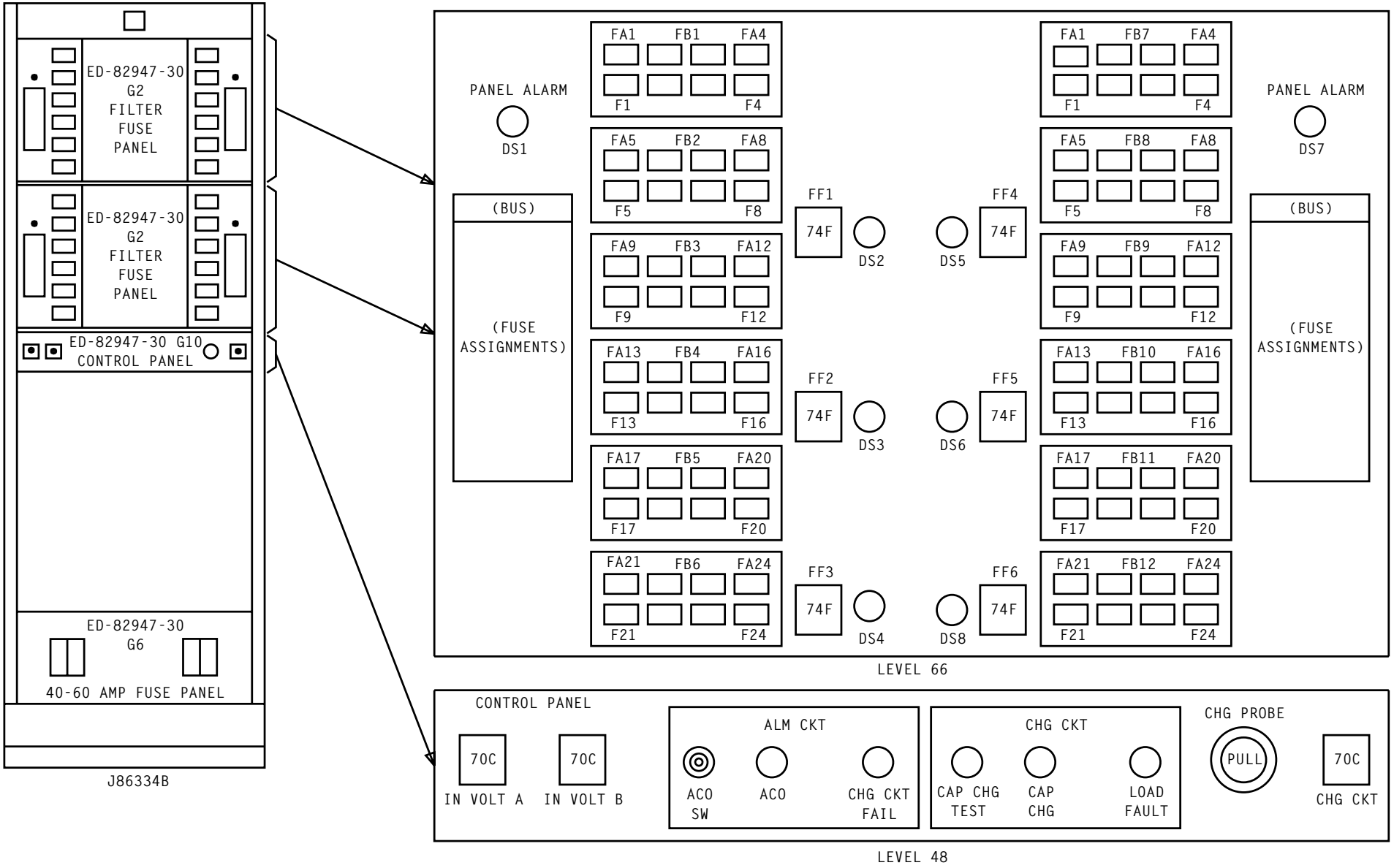


FIG. 1

INSPECT POWER DISTRIBUTION (PD) FRAME

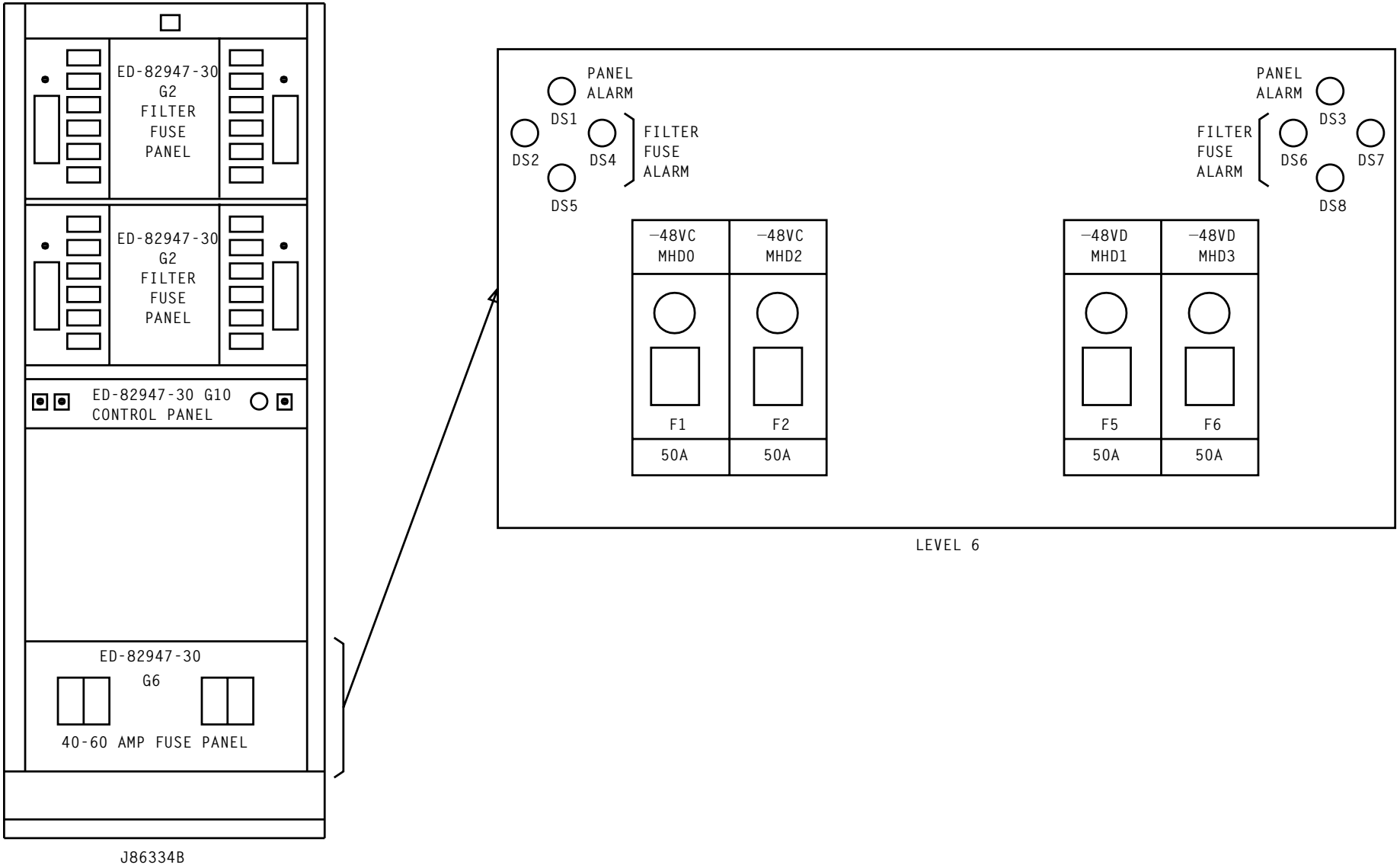


FIG. 2

INSPECT POWER DISTRIBUTION (PD) FRAME

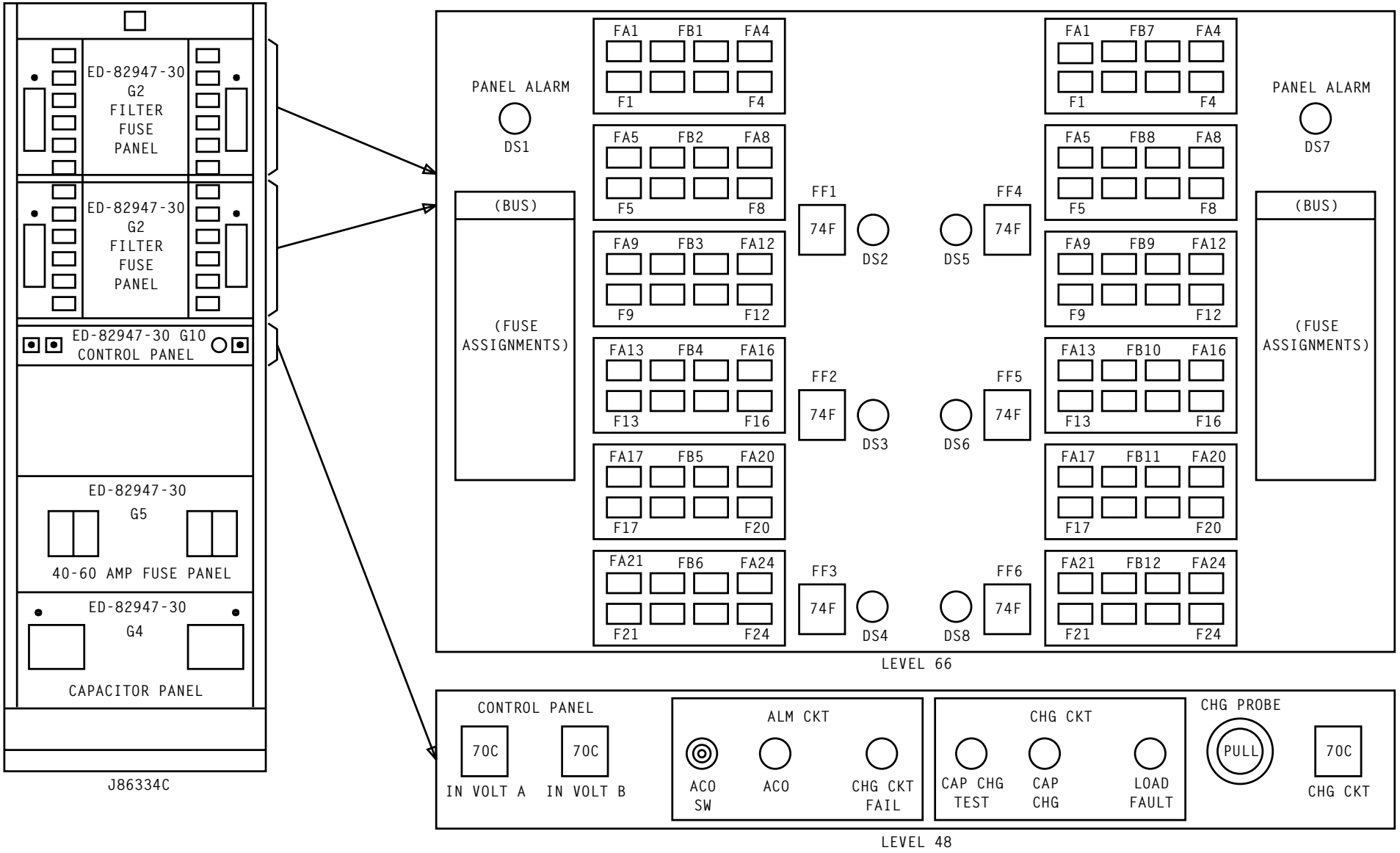


FIG. 3

INSPECT POWER DISTRIBUTION (PD) FRAME

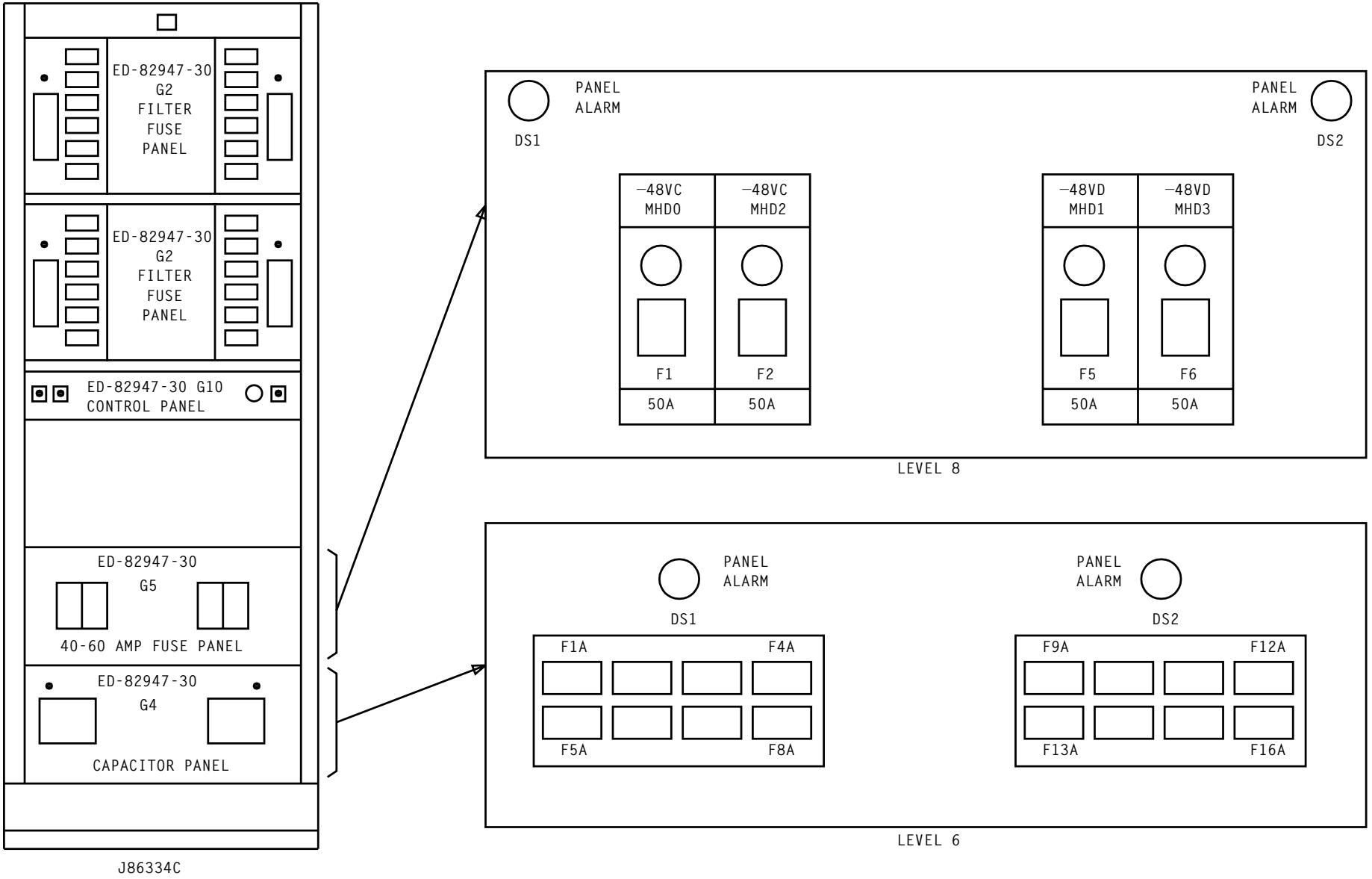


FIG. 4

INSPECT POWER DISTRIBUTION (PD) FRAME

SUMMARY

Make visual inspection of frame to insure frame-mounted equipment, wiring, and stenciling are properly provided.

[1] See DANGER 1. Inspect frame for presence of foreign matter

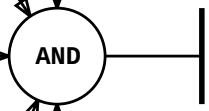
[2] Inspect frame for physical damage

[3] Inspect frame and mounted apparatus for secure mounting and stenciling

[4] Check frame wired connections for:

- Number of wire wraps and clippings
- Solder integrity (joints not soldered, cold solder, solder splashes)
- Crossed or bent terminals
- Wire fanning, dressing, and lacing

[5] Check relays, if equipped, for contact continuity, damage, and cover alignment



DANGER 1
–48V present
on this frame

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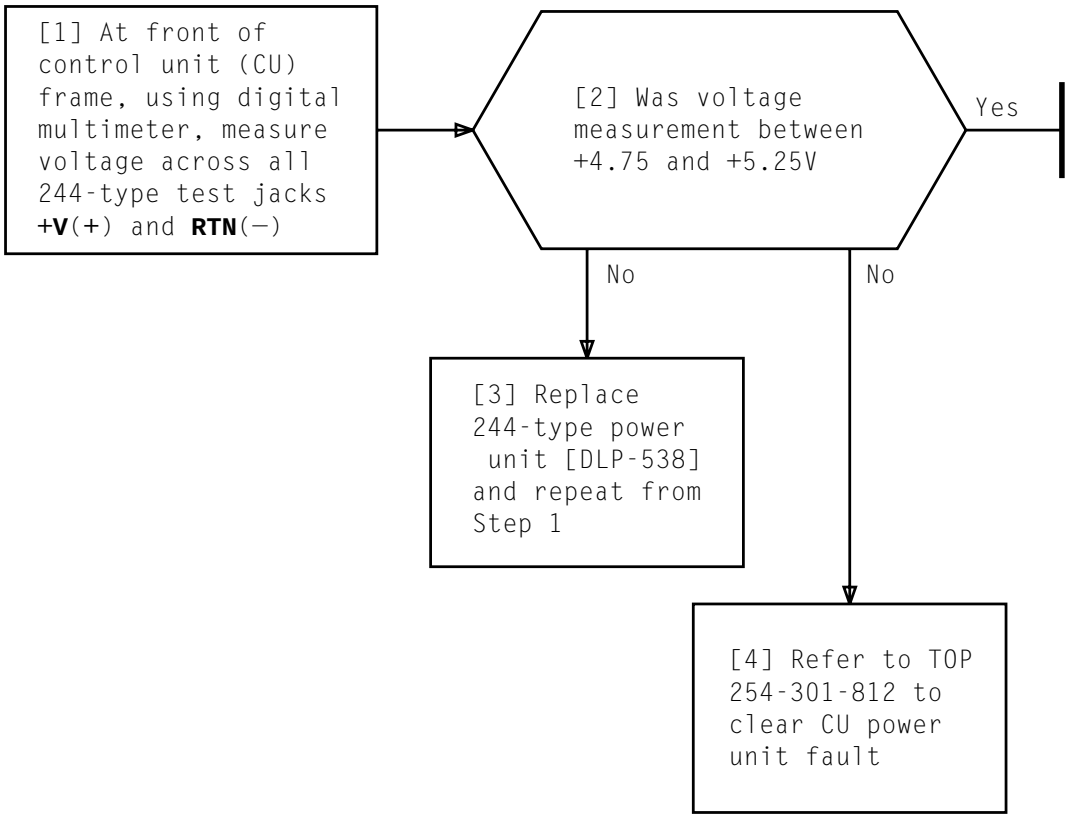
INSPECT FRAME FOR PHYSICAL INTEGRITY



TEST 244-TYPE POWER UNIT

DIAGNOSE CENTRAL CONTROL (CC)

[1] At terminal, operate **EA DISP (PF1)** key

[2] Remove any forces in effect on emergency action (EA) page. If necessary, type **14!** on line 4

[3] Have a craft assistant at CU under test observe **TN11** CPs

[4] Type **DGN:CU a,CC 0:PH 93,TLP!** and observe PRMs sequences per TABLE A (a = 0 or 1)

AND

[5] Did PRMs on EA page sequence as shown in TABLE A and is sequence printed on printer [NOTE 1]

Yes → Page 3

No → [6] Replace TN11 circuit pack [DLP-607] and repeat from Step 4

No → [13] Refer to TOP 254-301-812 to clear CU diagnostic fault

No → [7] Display page 102/111 and note solid interface lines from IOP to MCRT and ROT labels

[8] Remove connected IOP from service via frame controls [DLP-599]

[9] Replace **TN83** circuit pack in this IOP [DLP-607]

[10] Restore IOP to service via frame controls [DLP-601]

[11] Restore interface between IOP and MTTY labels as noted in Step 7

AND

[12] Repeat from Step 4

TABLE A

LOCATION	PROGRAM RECOVERY MESSAGES (PRMs)*
At terminal EA display page and at printer	PRM-a 0123 4567 89AB CDEF xx xx xx PRM-a AAAA AAAA AAAA AAAA xx xx xx PRM-a 5555 5555 5555 5555 xx xx xx PRM-a EEEE EEEE EEEE EEEE xx xx xx PRM-a 1111 1111 1111 1111 xx xx xx PRM-a 0000 0000 0000 0000 xx xx xx PRM-a FFFF FFFF FFFF FFFF xx xx xx

NOTE 1
An ATP output message does not indicate a successful test in this case

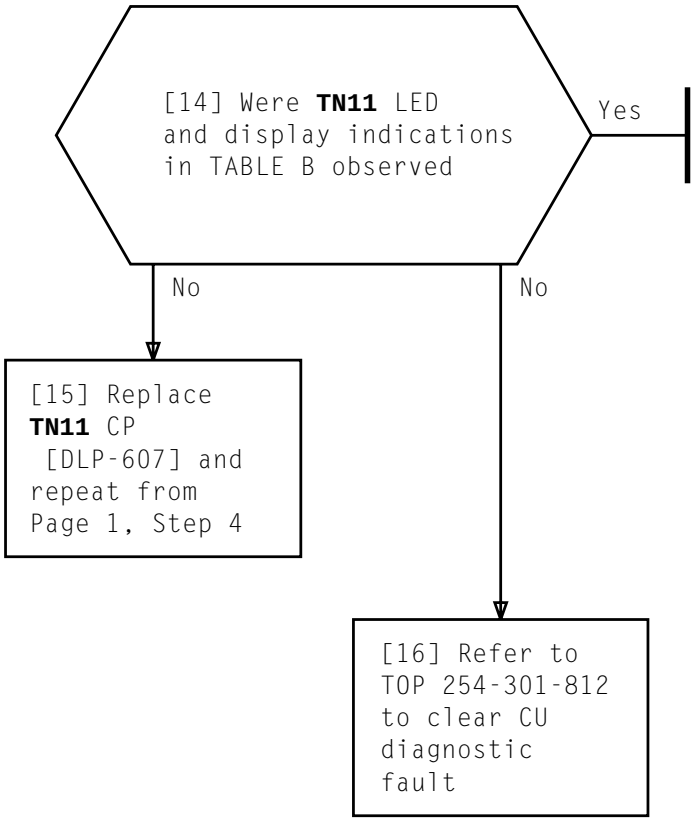


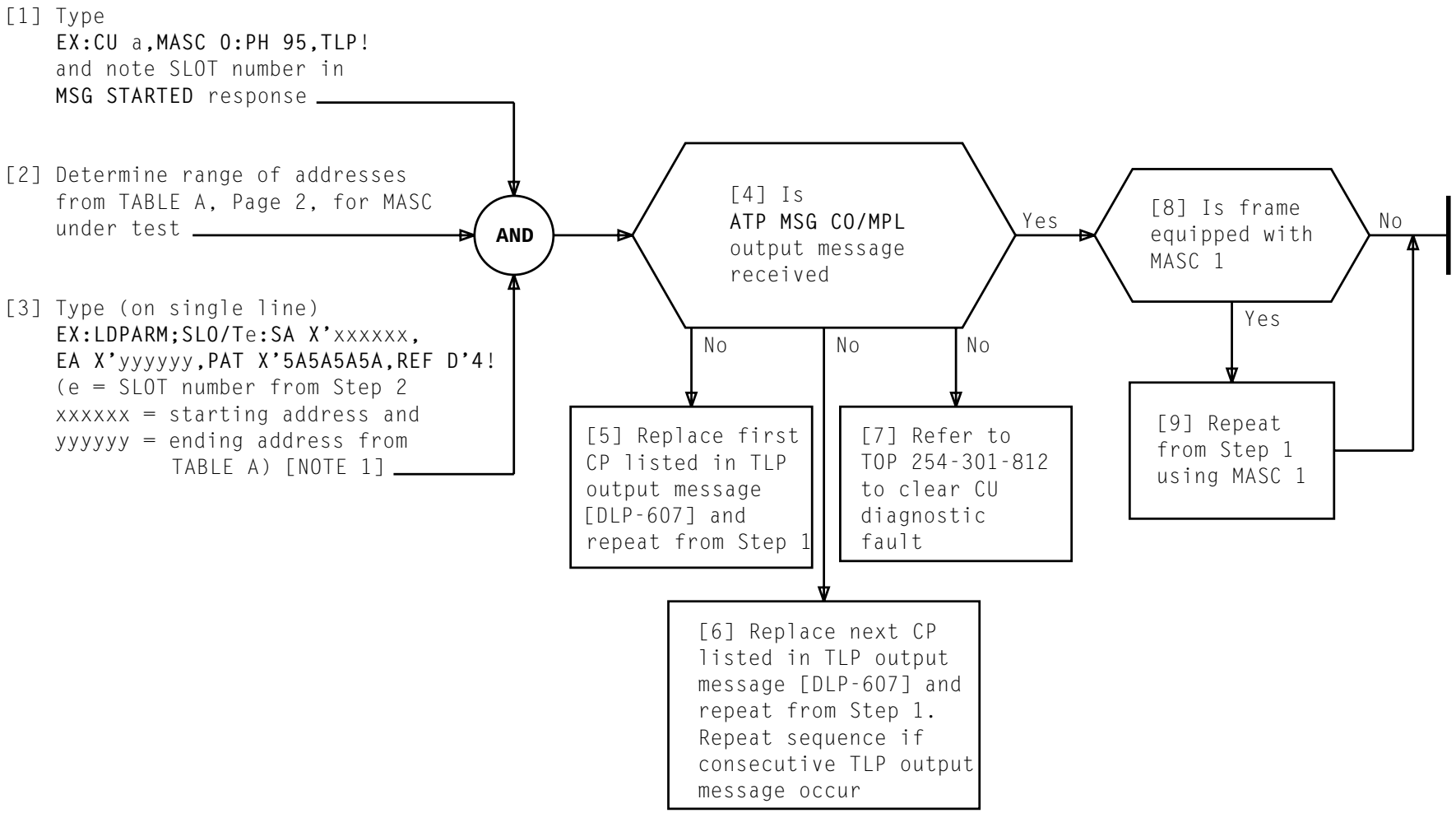
TABLE B

LOCATION*	ITEM	INDICATION
At CU a **TN11**	1	Hexidecimal display indicator sequences 0 through F
	2	Each LED lights and goes off in sequence (top to bottom)

* a = 0 or 1

DIAGNOSE CENTRAL CONTROL (CC)

DIAGNOSE MAIN STORE CONTROLLER (MASC)



NOTE 1
PAT X' can be any pattern, ie:
A5A5A5A5
FFFFFFFF
00000000

TABLE A					
EQUIPPED MAIN STORE ARRAY		MASC 0		MASC 1	
TN28	TN14	STARTING ADDRESS (SA)	ENDING ADDRESS (EA)	STARTING ADDRESS (SA)	ENDING ADDRESS (EA)
00	00	000000	07FFFC	800000	87FFFC
	01	080000	0FFFFC	880000	8FFFFC
01	02	100000	17FFFC	900000	97FFFC
	03	180000	1FFFFC	980000	9FFFFC
02	04	200000	27FFFC	A00000	A7FFFC
	05	280000	2FFFFC	A80000	AFFFFC
03	06	300000	37FFFC	B00000	B7FFFC
	07	380000	3FFFFC	B80000	BFFFFC
04	08	400000	47FFFC	C00000	C7FFFC
	09	480000	4FFFFC	C80000	CFFFFC
05	10	500000	57FFFC	D00000	D7FFFC
	11	580000	5FFFFC	D80000	DFFFFC
06	12	600000	67FFFC	E00000	E7FFFC
	13	680000	6FFFFC	E80000	EFFFFC
07	14	700000	77FFFC	F00000	F7FFFC
	15	780000	7FFFFC	F80000	FFFFFC

DIAGNOSE MAIN STORE CONTROLLER (MASC)

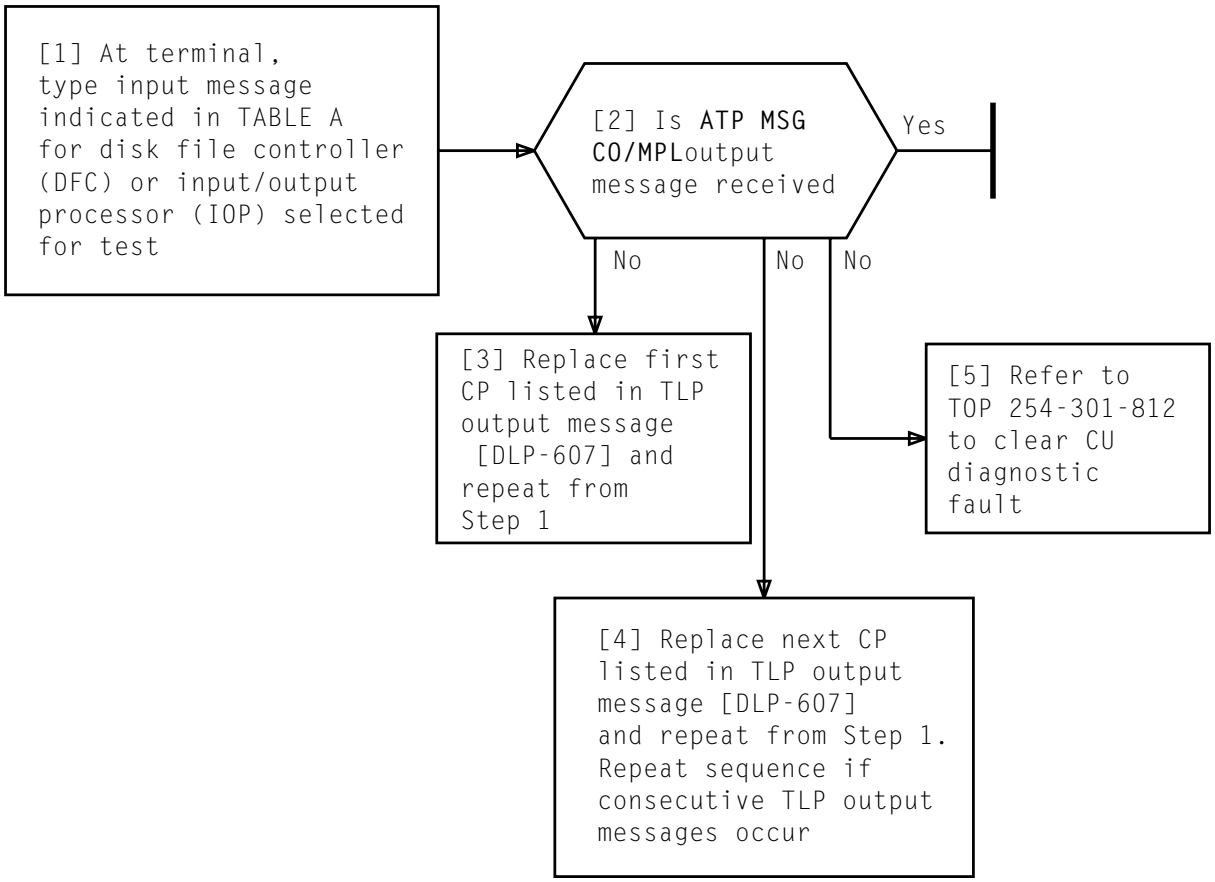
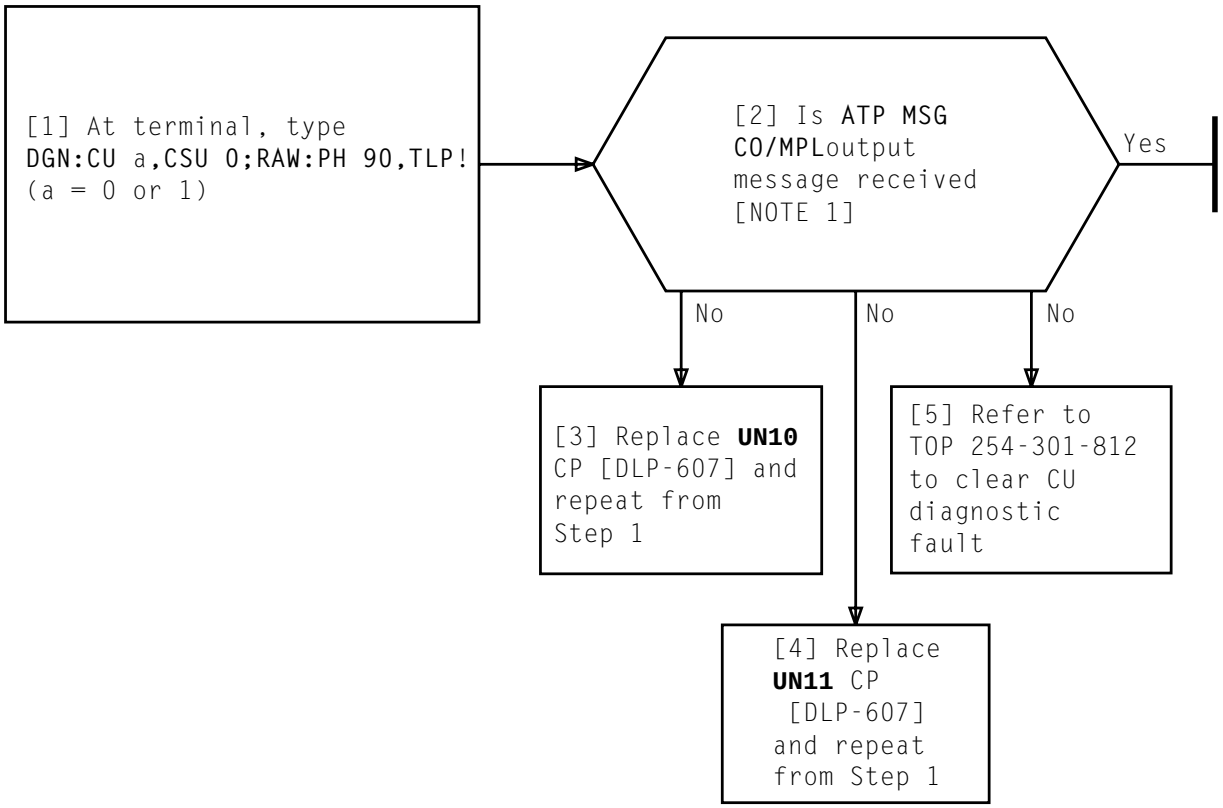


TABLE A

UNIT	INPUT MESSAGE*
DFC 0	DGN:CU a,CH 11:PH 40,TLP,DFC 0!
DFC 1	DGN:CU a,CH 11:PH 40,TLP,DFC 1!
IOP 0	DGN:CU a,CH 11:PH 40,TLP,IOP 0!
IOP 1	DGN:CU a,CH 11:PH 40,TLP,IOP 1!

* a = 0 or 1

DIAGNOSE DATA COMMUNICATION CHANNEL

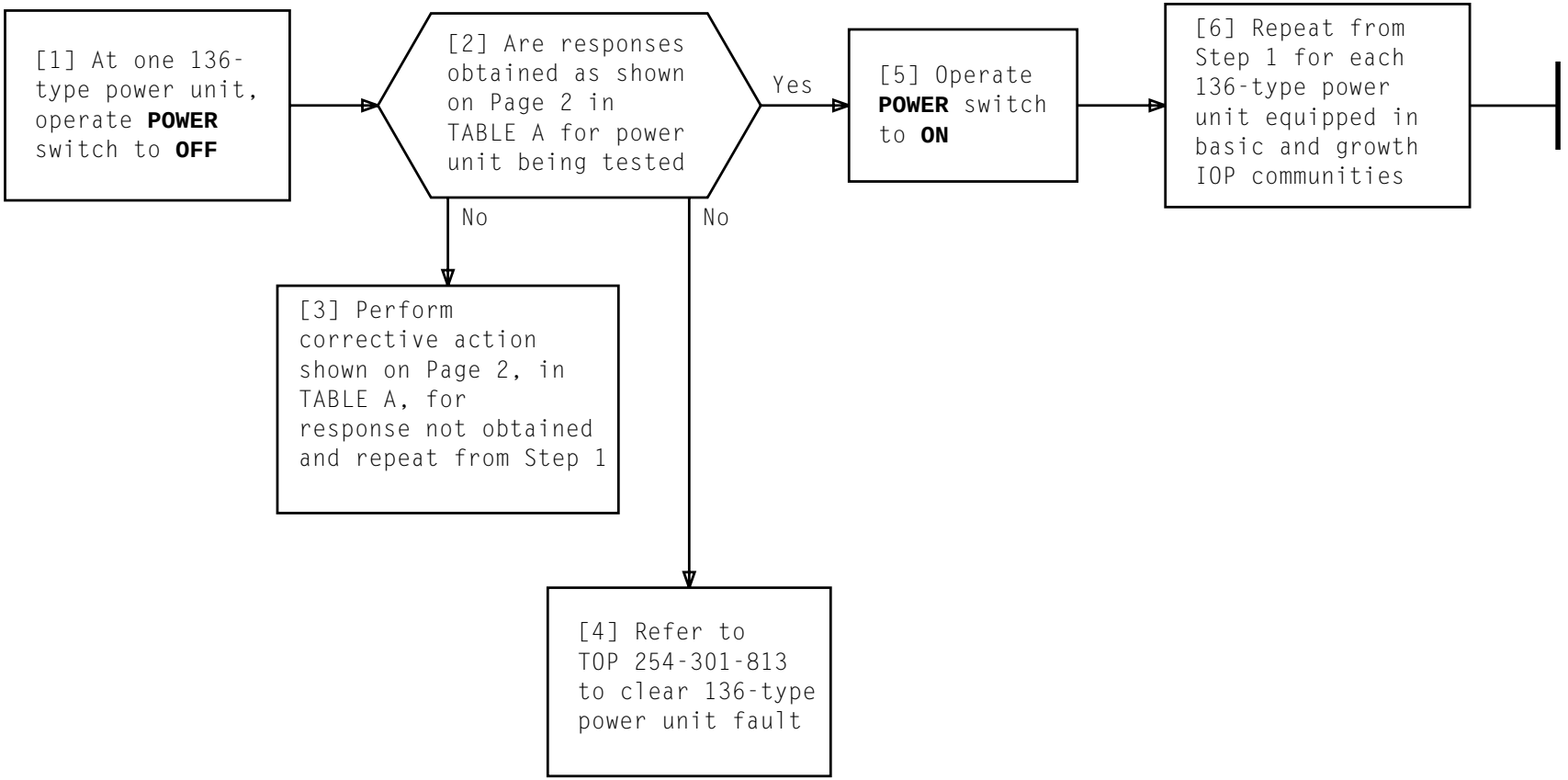


NOTE 1
Requires approximately 40 minutes before output message is received

DIAGNOSE CACHE STORE UNIT (CSU)

SUMMARY

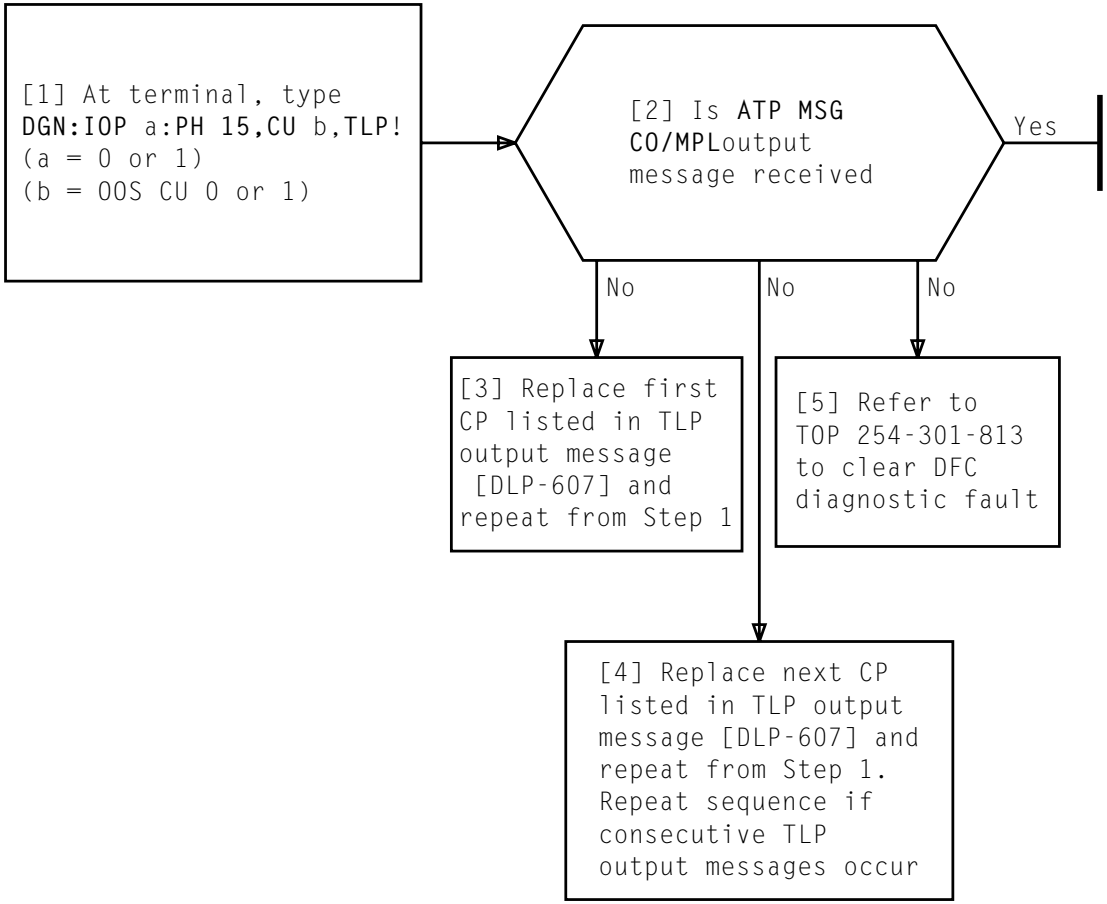
Set power unit **ON/OFF** switch to **OFF**. Verify **ALM** LEDs, major audible alarm, and output message. Set switch to **ON.**



TEST 136-TYPE POWER UNIT FAILURE ALARM

TABLE A							
	136-TYPE POWER UNITS ALM LEDs		ABB1 LEDs		ALL COOLING UNITS ALM LEDs LIGHTED	OUTPUT MESSAGES	
	ALL POWER UNITS ALM LEDs LIGHTED	ALM LED LIGHTED ONLY FOR POWER UNIT SWITCHED OFF	ALM LED LIGHTED	OFF LED LIGHTED		REPT POWER DOWN WITH MAJOR AUDIBLE ALARM	REPT FAULT IOP WITH MINOR AUDIBLE ALARM
136-type power unit for controller	●		●	●	●	●	
136-type power unit for community tested		●	●				●
Corrective action	Replace 136-type power unit [DLP-542]		Replace ABB1 [DLP-607]		Replace cooling unit with **ALM** LED off [DLP-514]	Refer to TOP 254-301-813 to clear IOP power unit fault	

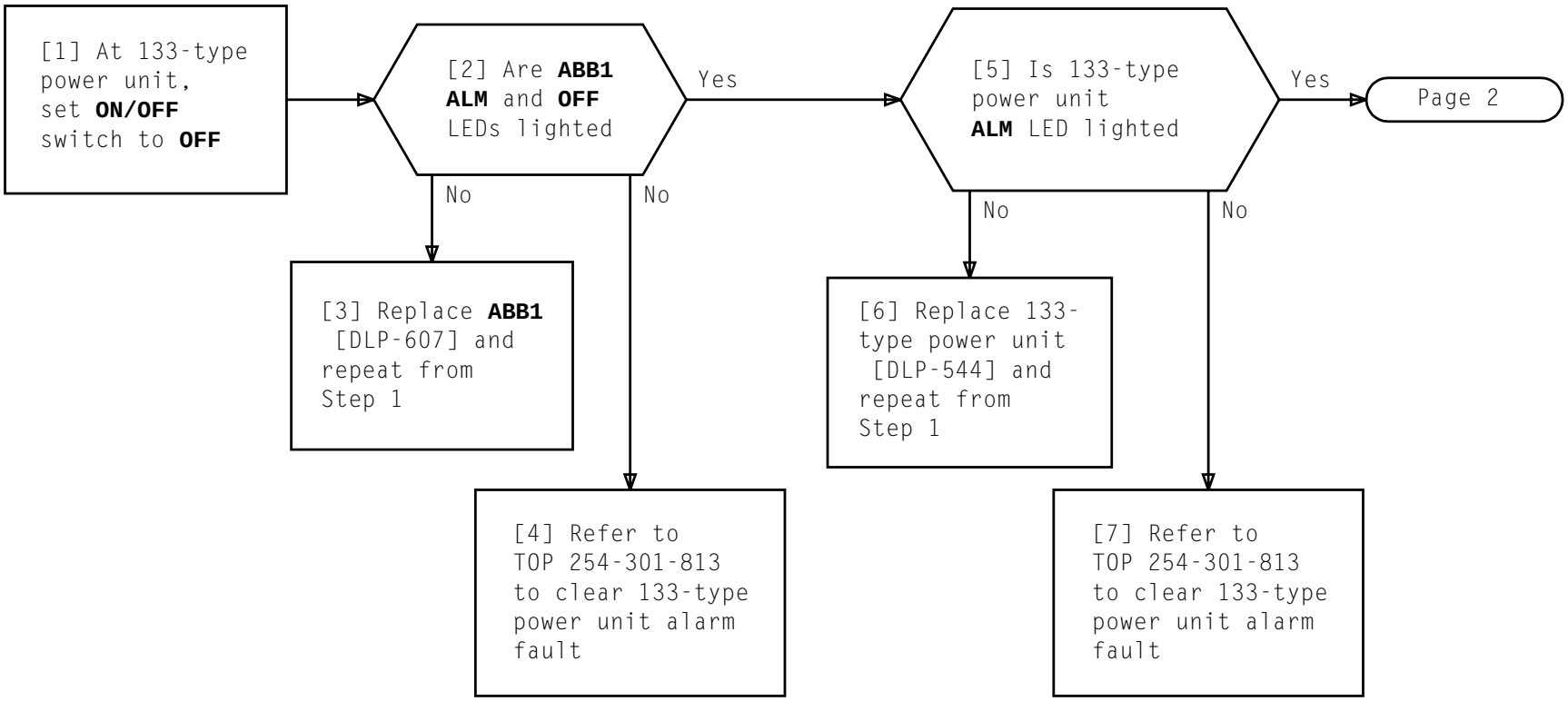
TEST 136-TYPE POWER UNIT FAILURE ALARM



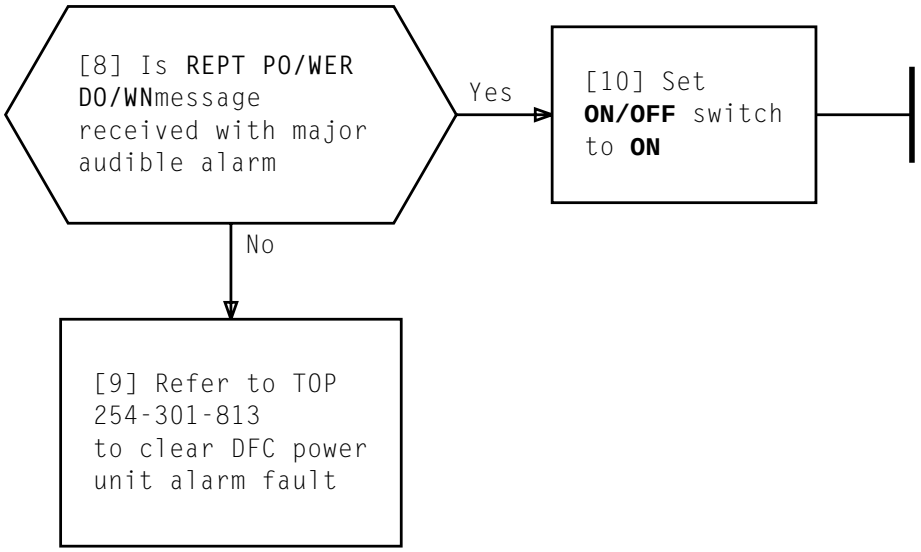
DIAGNOSE INPUT/OUTPUT PROCESSOR (IOP) USING DEMAND DIAGNOSTICS

SUMMARY

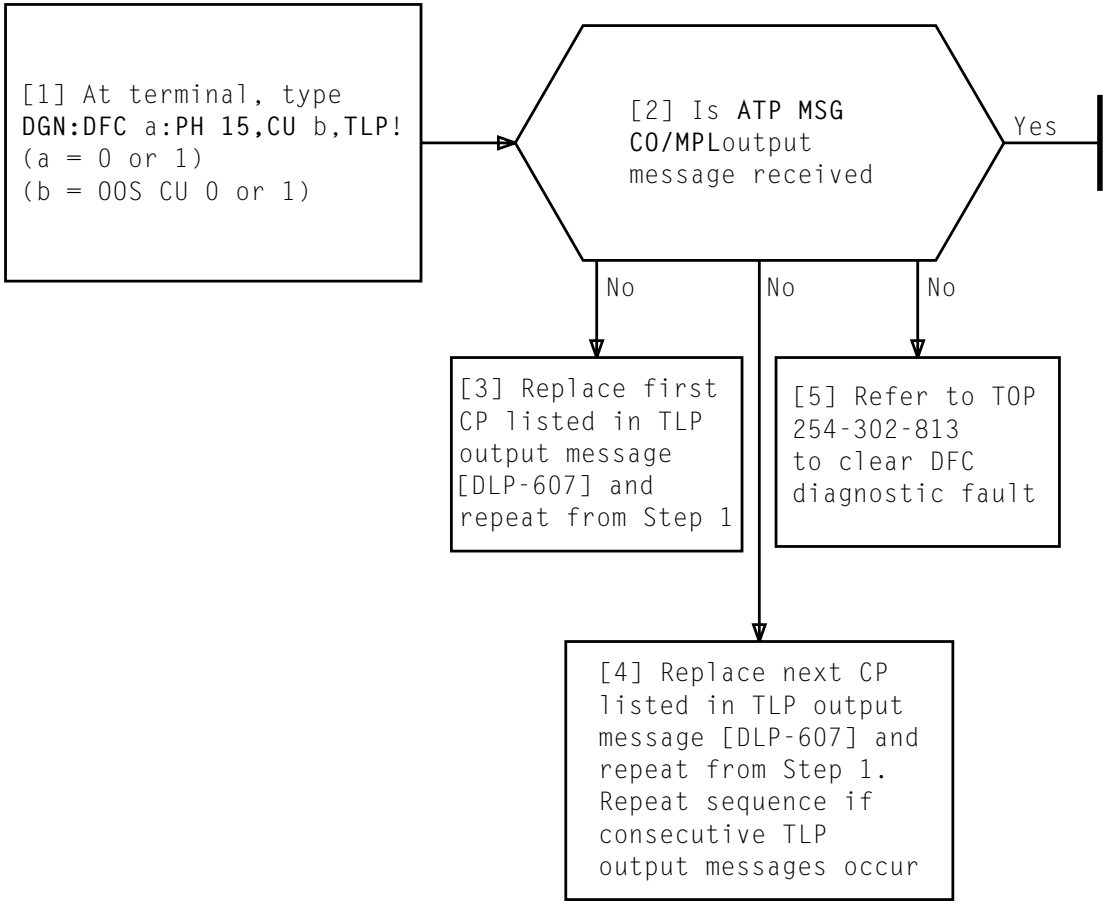
Set power unit **ON/OFF** switch to **OFF**. Verify **ALM** LEDs, major audible alarm, and output message. Set switch to **ON.**



TEST 133-TYPE POWER UNIT FAILURE ALARM

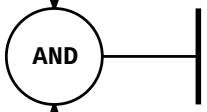


TEST 133-TYPE POWER UNIT FAILURE ALARM



DIAGNOSE DISK FILE CONTROLLER (DFC) USING DEMAND DIAGNOSTICS

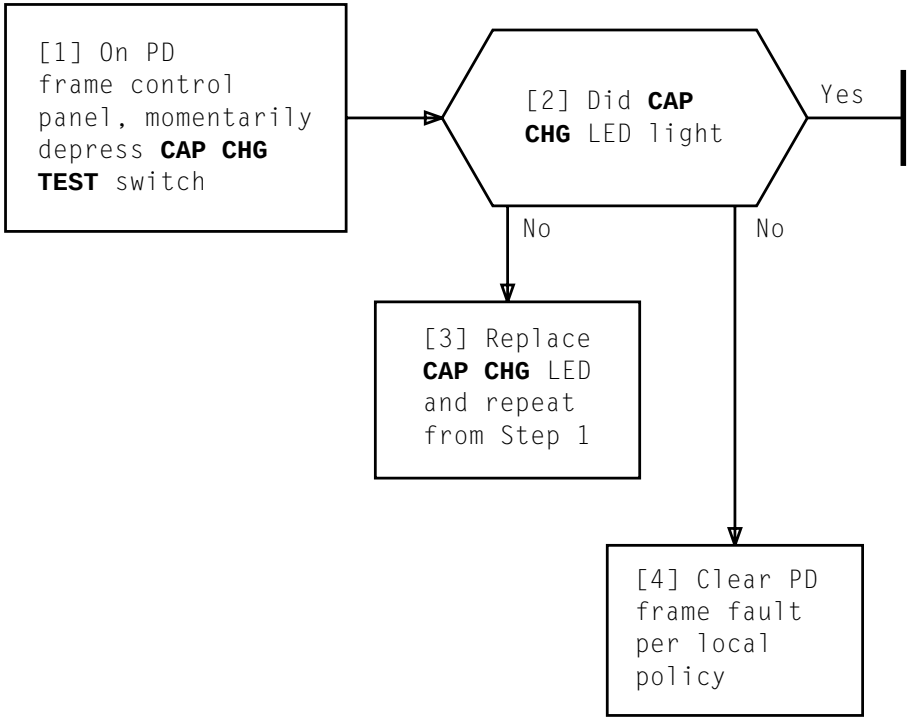
[1] See CAUTION 1. At power distribution (PD) frame fuse panel, pull 50-Amp fuse block corresponding to 300-megabyte (MB) MHD frame number



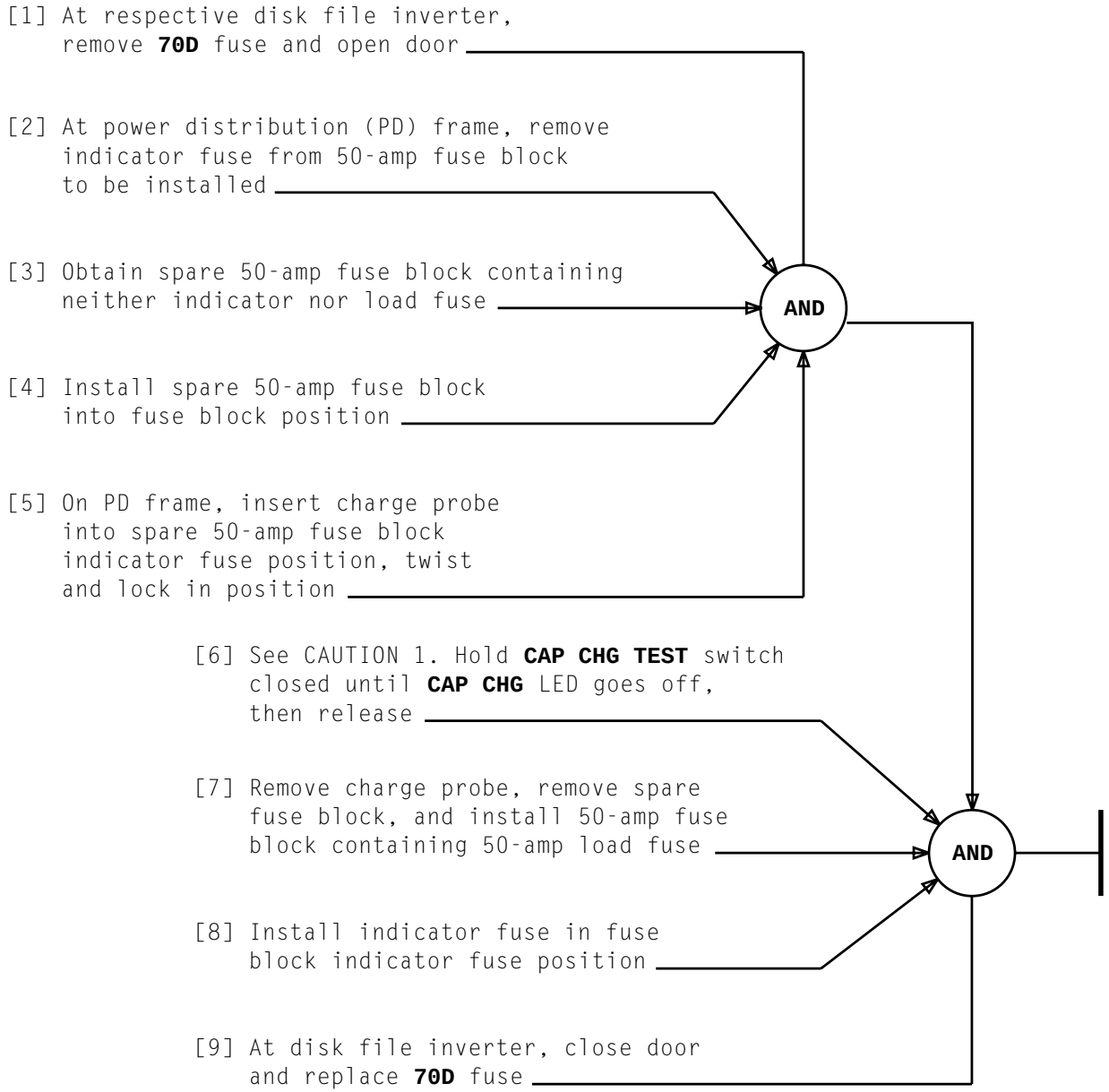
[2] At PD frame fuse panel, remove pilot fuse and then load fuse corresponding to 300-MB MHD frame number

CAUTION 1
System will sustain a maintenance reset if MHD is in service

REMOVE 300-MB MOVING HEAD DISK (MHD) SOURCE VOLTAGES



TEST CAP CHG CIRCUIT



CAUTION 1
Step 7 must be performed within 12 seconds after completion of Step 6; otherwise, fuse operation will occur when fuse block containing load fuse is installed

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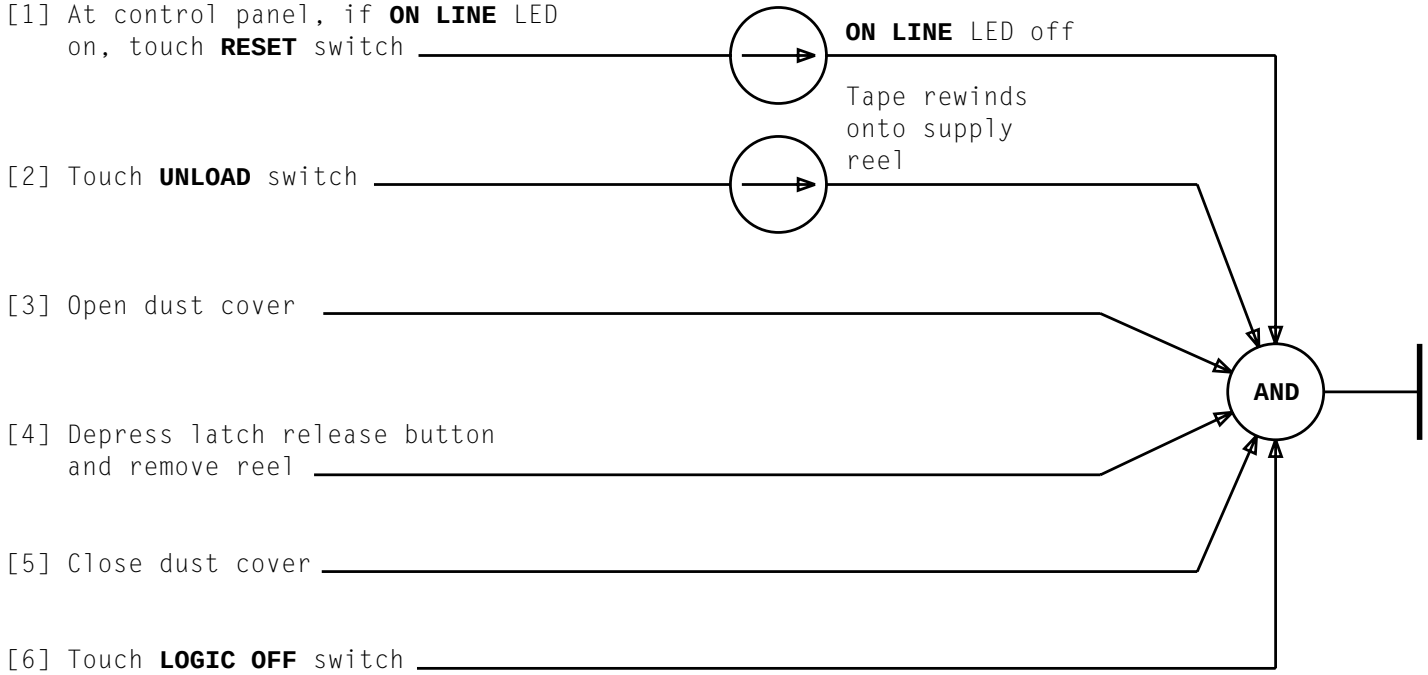
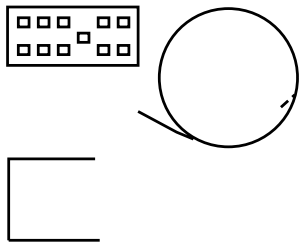
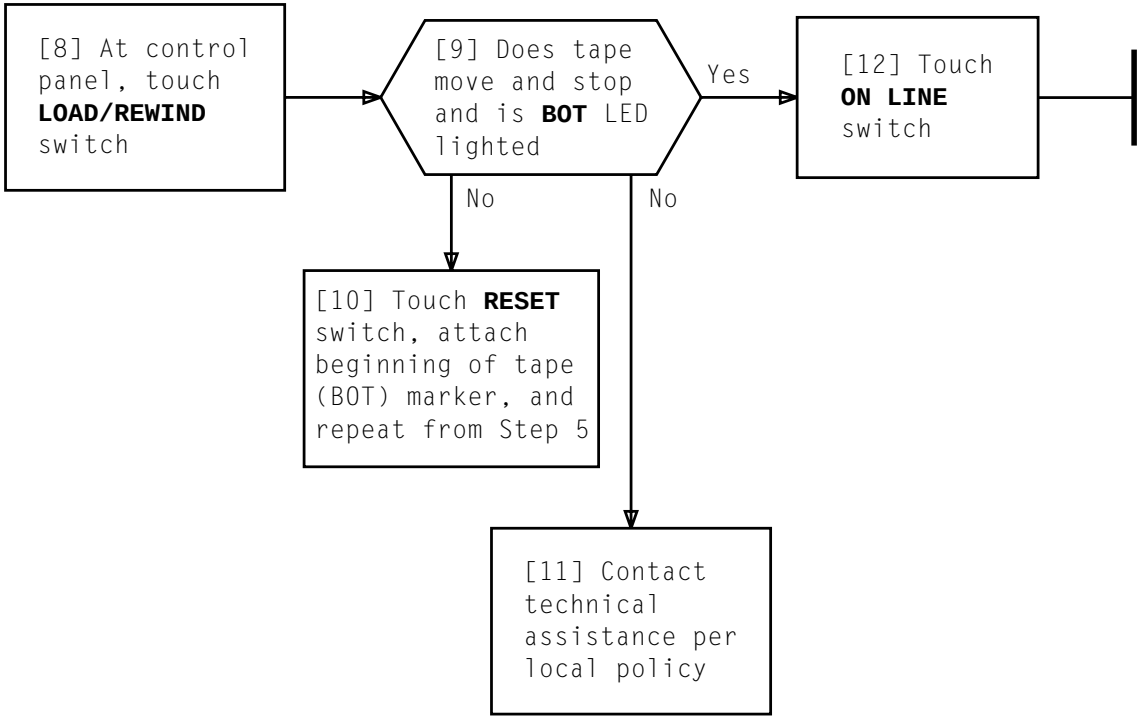
CHARGE 50-AMP FUSE FILTER PANEL CIRCUIT



REMOVE TAPE (KS-22762 OR KS-23113)





MOUNT TAPE (KS-22762 OR KS-23113)

SUMMARY

Visually inspect for damage and dirt. Check for reel contact with tape deck and tape contact with reel flanges. Check cooling fan operation

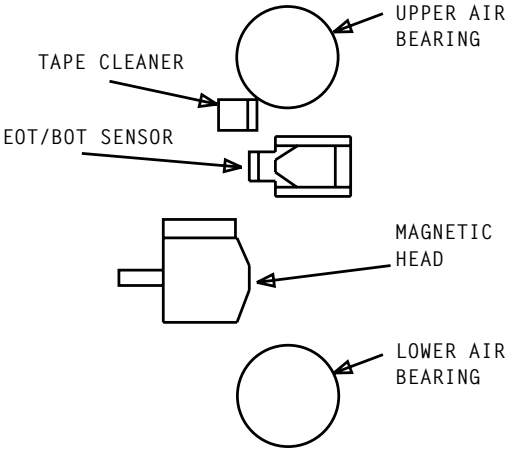


FIG. 1 — Head Assembly — Covers Removed

[1] Open dust cover and verify door interlock stud is tight

[2] Set circuit breaker (CB) to side 0

LOGIC OFF
LED off

[3] Inspect dust cover and control panel for scratches, cracks, or abrasions, and dirt

[4] See WARNING 1 and FIG. 1. Remove head assembly covers, check for dirt and oxide on magnetic head, **EOT/BOT** sensor, tape cleaner, and upper and lower air bearings

[5] Reinstall head assembly covers

[6] On rear of tape transport, inspect components and cable connectors for damage and proper seating

AND

[7] Was any damage found

No → Page 2

Yes → [8] Contact technical assistance per local policy

WARNING 1
Cleaner blades are brittle and sharp

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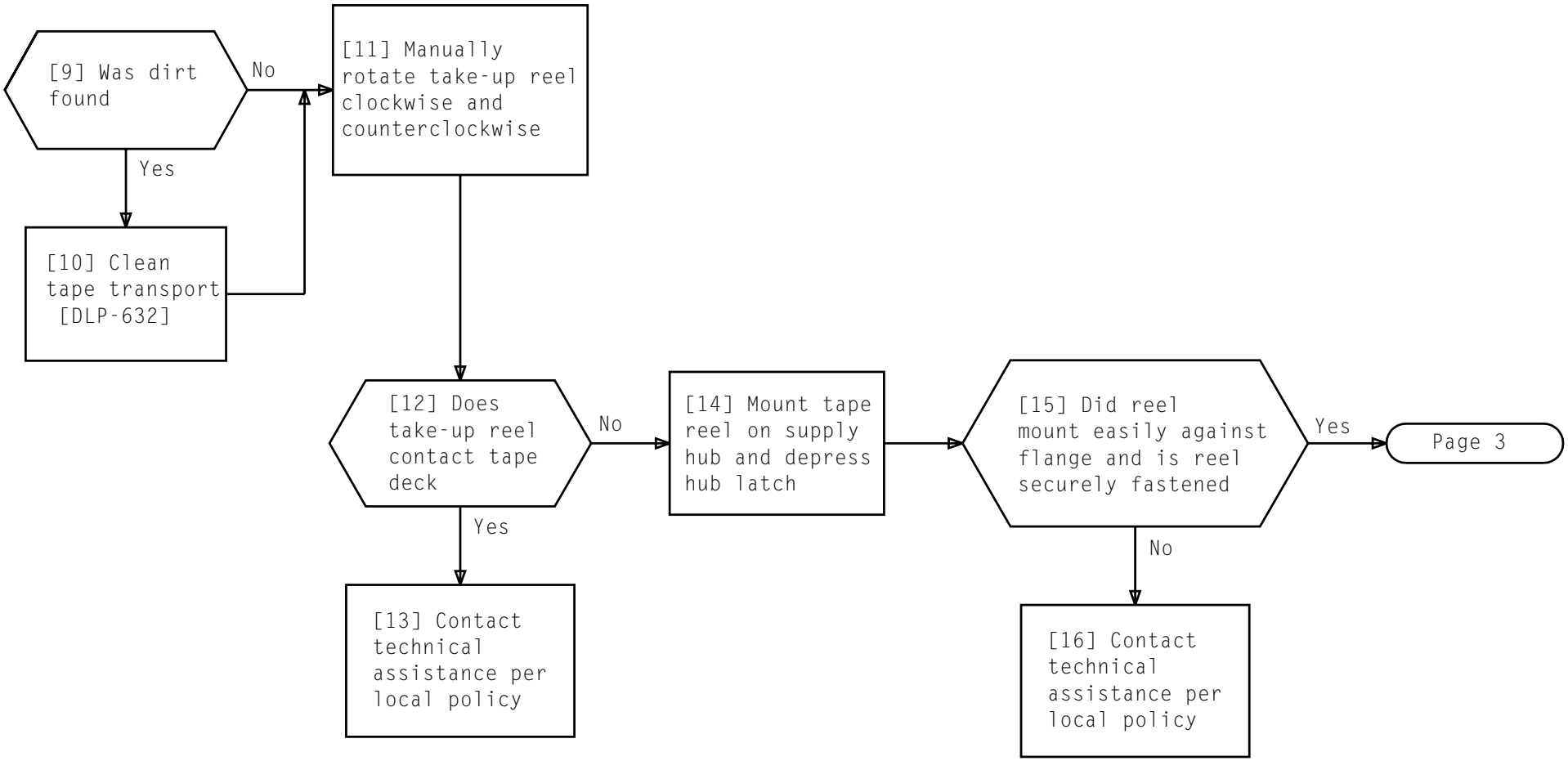
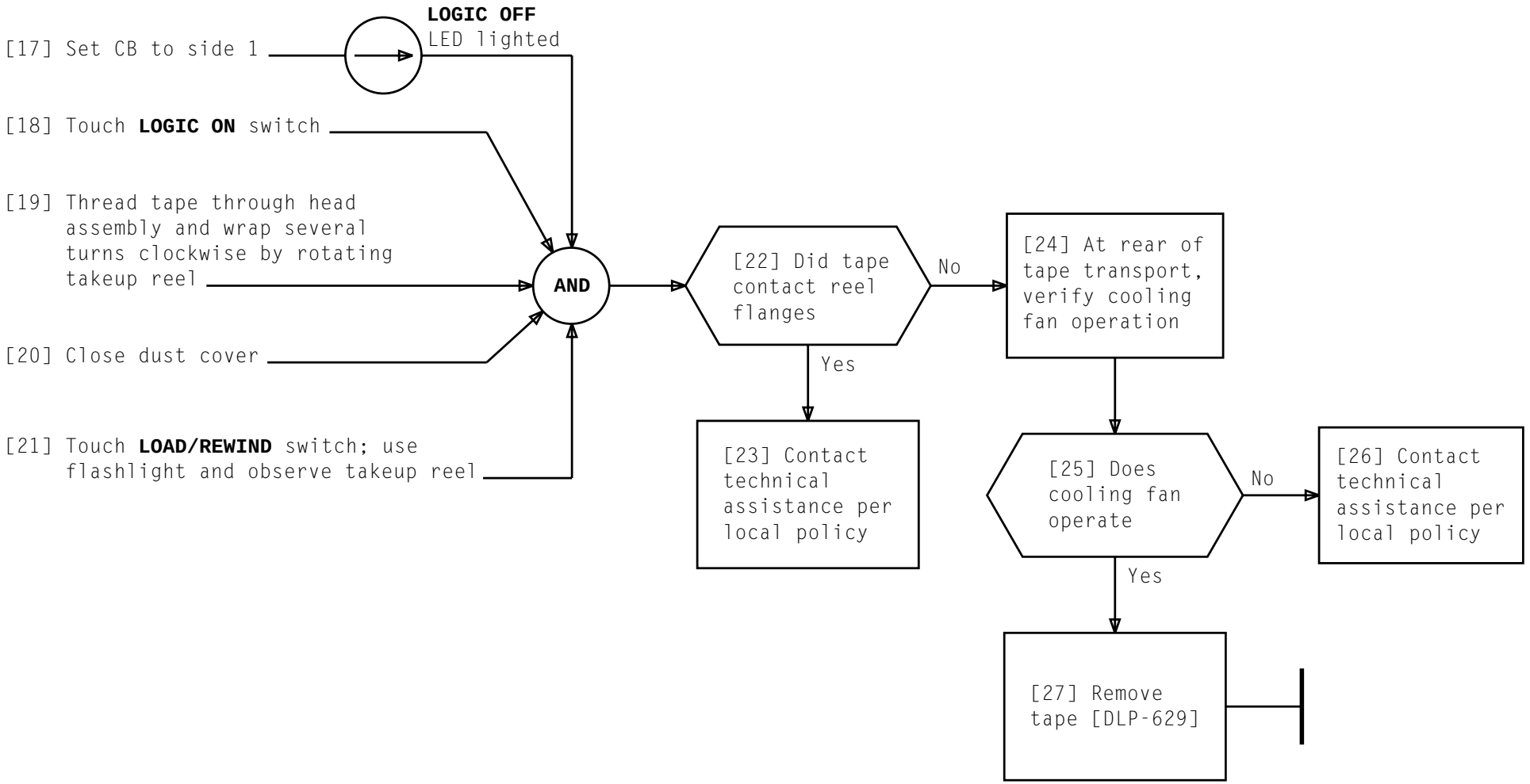
INSPECT KS-22762 OR KS-23113 TAPE TRANSPORT ASSEMBLY



INSPECT KS-22762 OR KS-23113 TAPE TRANSPORT ASSEMBLY



INSPECT KS-22762 OR KS-23113 TAPE TRANSPORT ASSEMBLY

CLEAN KS-22762 OR KS-23113 TAPE TRANSPORT ASSEMBLY

[1] At control panel, touch **LOGIC OFF** switch → **LOGIC OFF** LED lighted

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

[3] Remove head assembly covers

AND

[4] Using lint-free cloth moistened with tape transport cleaner, clean heads and all recording surfaces by wiping in direction of tape motion

[5] See WARNING 1 and FIG. 1. Using foam swab moistened with tape transport cleaner, remove dirt and oxide from **EOT/BOT** sensor surfaces and tape cleaner blades

[6] Using lint-free cloth moistened with tape transport cleaner, clean upper and lower air bearings

[7] Using small mechanic's mirror, inspect inner air bearing guide and clean any oxide or dirt buildup

[8] Using lint-free cloth, wipe inside of head assembly covers, then install covers

AND

[9] Using lint-free cloth, wipe dust and dirt from all interior and exterior surfaces of tape transport and dust cover

[10] Close dust cover

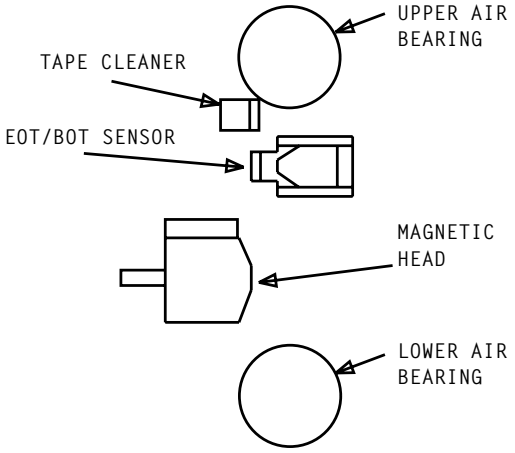


FIG. 1 — Head Assembly — Covers Removed

WARNING 1
Cleaner blades are brittle and sharp

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

[2] Mount tape reel on hub with write-enable ring and depress hub latch

[3] Thread tape from bottom of supply reel through head assembly and wrap several turns clockwise by rotating take-up reel [NOTE 1]

[4] Close dust cover

[5] See FIG. 1. Touch **TEST** switch and observe indications in TABLE A

AND

[6] Are indications in TABLE A obtained

Yes → Page 2

No → [7] Contact technical assistance per local policy

TABLE A		
ITEM	**INDICATOR**	**CONDITION**
1	Display	01
2	**DIAGNOSTICS**	Lighted
3	**FILE PRO**	Lighted
4	**RESET**	Off
5	**LOGIC ON**	Lighted
6	**BOT**	Off
7	**LOGIC OFF**	Off

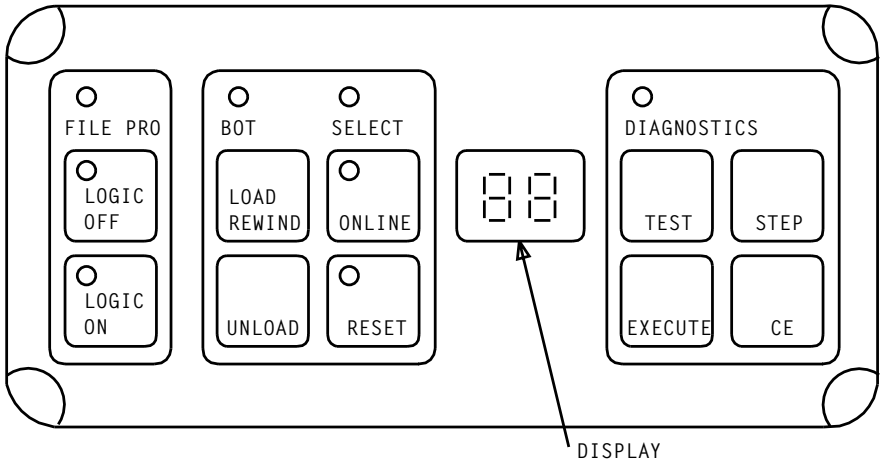

FIG. 1

NOTE 1
Tape should not be tight but should have some slack

DIAGNOSE KS-22762 OR KS-23113 TAPE TRANSPORT

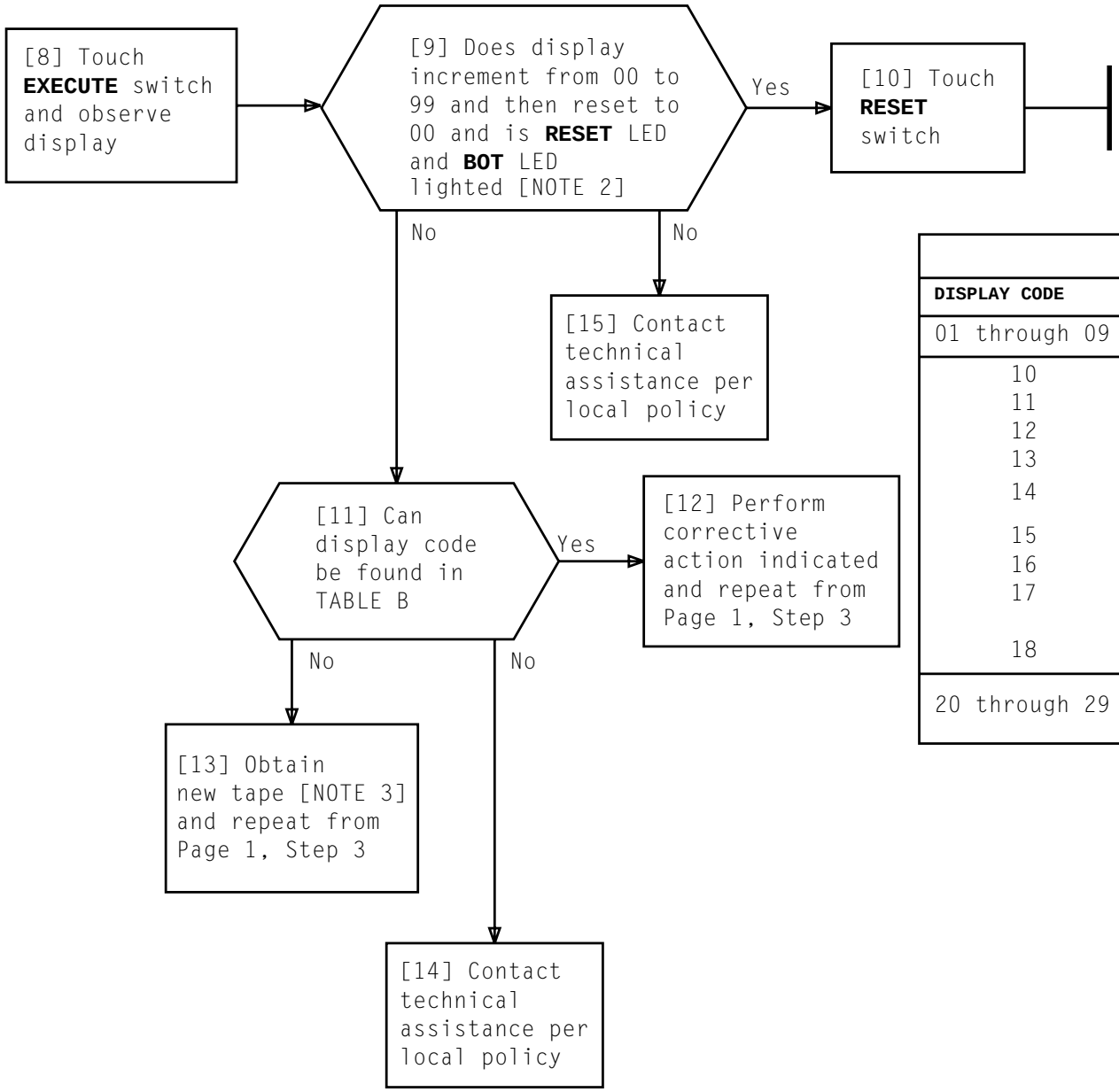

TABLE B

DISPLAY CODE	CORRECTIVE ACTION
01 through 09	Clean tape transport and change tape
10	Close dust cover
11	Thread tape
12	Latch supply reel or change tape
13	Rethread tape
14	Check position of beginning of tape (BOT) marker
15	Rerun test
16	Install write enable ring
17	Check position of end of tape (EOT) marker
18	Rethread tape; do not touch LOAD switch
20 through 29	Clean head assembly and mount good quality tape in Step 2

NOTES

2. As diagnostic progresses, tape moves forward and reverses for approximately 10 minutes for a 2400-foot reel before results are obtained
3. Tape must be certified for 6250 bpi density for KS-23113 tape drive

DIAGNOSE KS-22762 OR KS-23113 TAPE TRANSPORT

SUMMARY

Visually inspect frame for apparatus and stenciling

[1] See DANGER 1. At TU frame, verify that units and apparatus are installed per FIG. 1

[2] Verify TU 0 is stenciled on top at extreme left of both front and rear base frame covers

AND

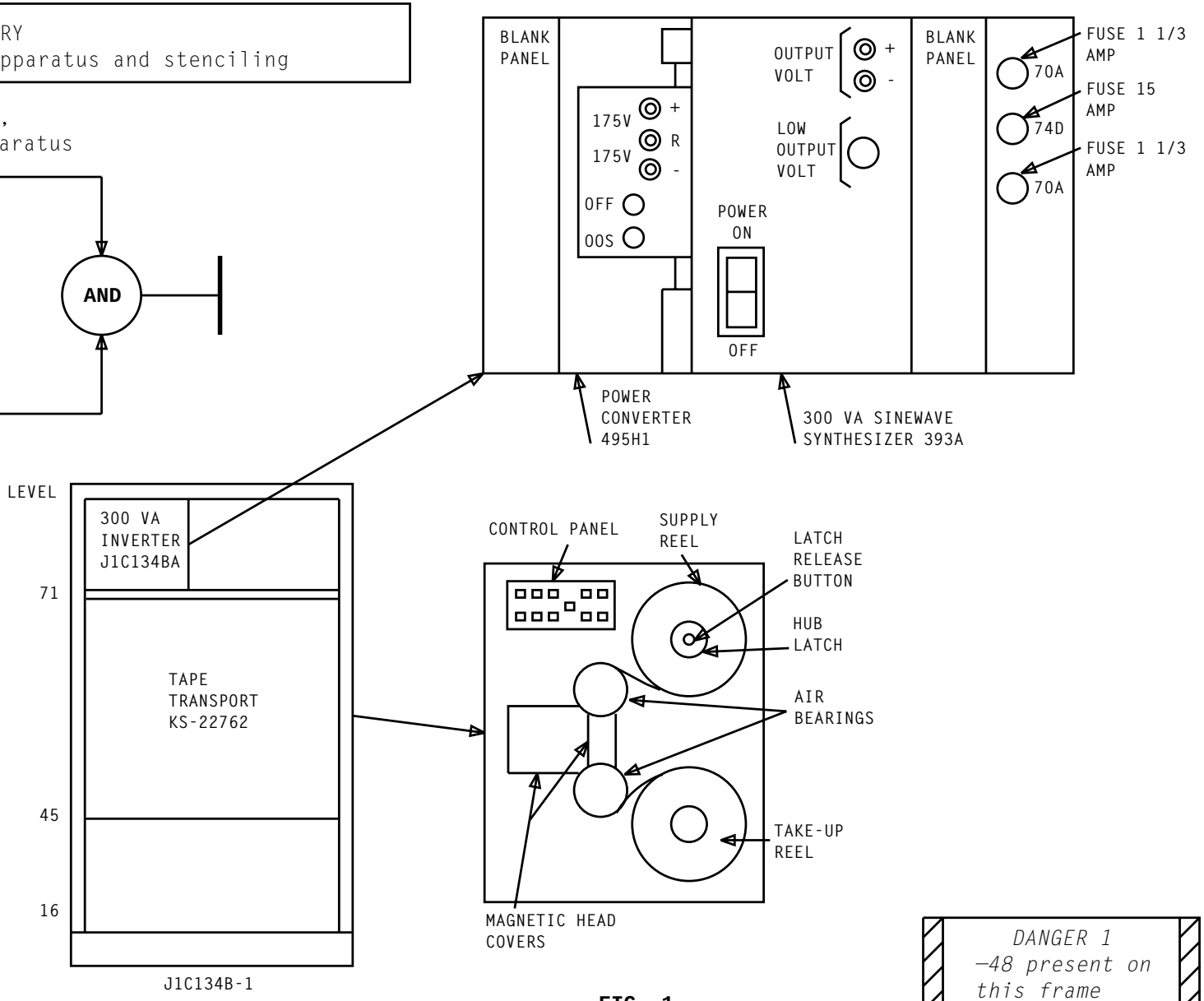

FIG. 1

DANGER 1
–48 present on this frame

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INSPECT TAPE UNIT (TU) FRAME WITH KS-22762 TAPE TRANSPORT

WRITE DIAGNOSTIC TEST TAPE

[1] Open dust cover

[2] Touch **RESET** switch

[3] Remove head assembly covers

[4] Manually rotate take-up reel clockwise until beginning of tape (BOT) marker is opposite head assembly

[5] See TABLE A. Continue to rotate take-up reel clockwise number of turns indicated for diameter of reel until 50 to 60 inches of tape have passed head assembly

AND

[6] See CAUTION 1. Hold lint-free cloth between head assembly and tape. Install end of tape (EOT) marker approximately 1 inch long on deck edge of tape per FIG. 1

[7] Install head assembly covers and close dust cover

AND

[8] Touch **LOAD/REWIND** switch

BOT LED lighted

[9] If **RESET** LED lighted, touch **RESET** switch then **LOAD/REWIND** switch

BOT LED lighted

[10] Touch **ON LINE** switch

Page 2

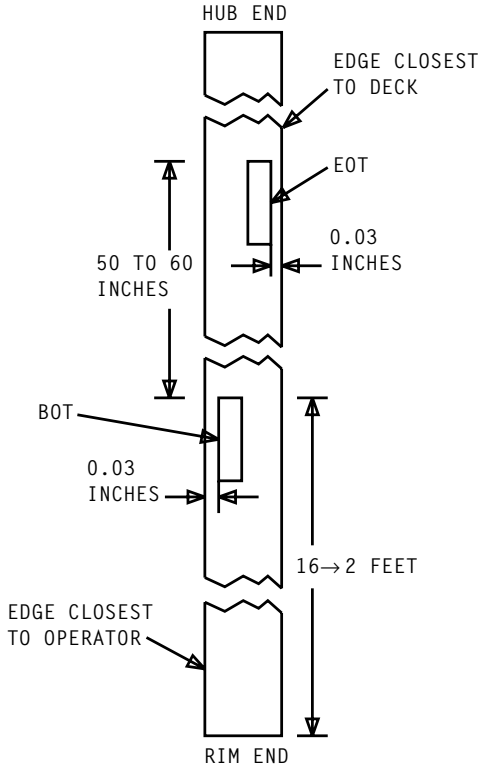
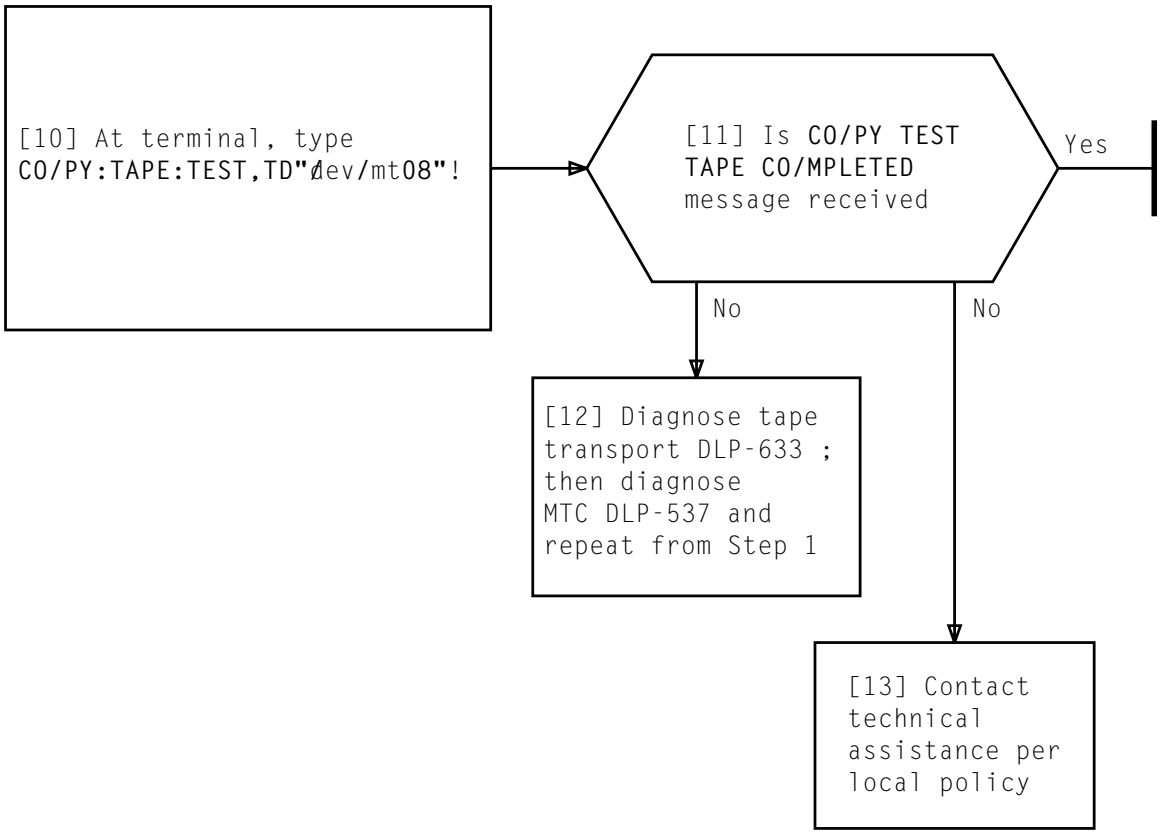


FIG. 1

TABLE A	
REEL SIZE	**TURNS**
10.5	1 3/4
8	2
6	3

CAUTION 1
EOT marker must not extend over edge of tape



WRITE DIAGNOSTIC TEST TAPE

[1] At tape/disk cabinet, verify that apparatus for office configuration is installed per FIG. 1, Page 2

[2] Verify fuses for office configuration are correct per TABLE A

[3] Verify that **TDa** is stencilled on face of both front and rear cabinet base covers (a = 0 or 1)

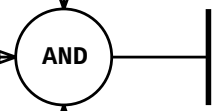
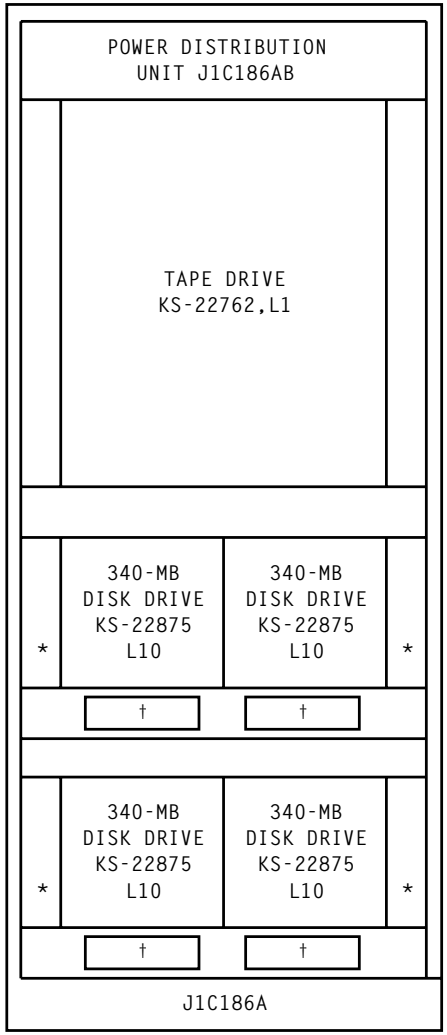


TABLE A

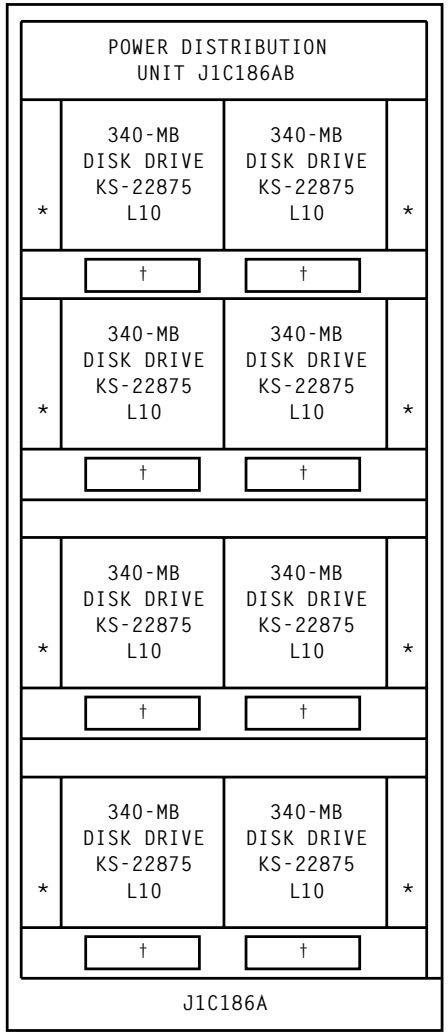
MHD	–48V BUS	LOAD	FUSE*	TYPE	RATING
0 or 4	A	PSW PS PS	F1 F2 F2A	70A 74D 70F	.25A 10A .25A
1 or 5	E	PSW PS PS	F9 F10 F10A	70F 74D 70F	.25A 10A .25A
2 or 6	B	PSW PS PS	F3 F4 F4A	70F 74D 70F	.25A 10A .25A
3 or 7	F	PSW PS PS	F11 F12 F12A	70A 74D 70F	.25A 10A .25A
8 or 12	C	PSW PS PS	F5 F6 F6A	70F 74D 70F	.25A 10A .25A
9 or 13	G	PSW PS PS	F13 F14 F14A	70F 74D 70F	.25A 10A .25A
10 or 14	D	PSW PS PS	F7 F8 F8A	70F 74D 70F	.25A 10A .25A
11 or 15	H	PSW PS PS	F15 F16 F16A	70F 74D 70F	.25A 10A .25A

LEGEND:
MHD = moving head disk
PS = power supply KS-22997
PSW = power switch ED-4C481
* Vacant fuse locations equipped with 72A dummy fuse

INSPECT TAPE/DISK CABINET

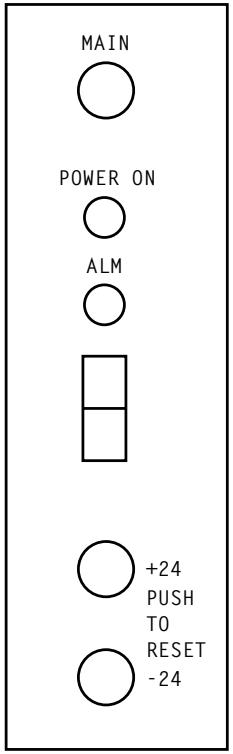


EQUIPPED WITH 1 TAPE DRIVE AND 4 DISK DRIVES

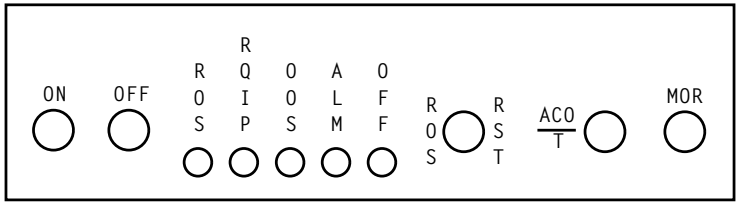


EQUIPPED WITH 8 DISK DRIVES

* POWER SUPPLY KS-22997,L2
† POWER SWITCH ED-4C481



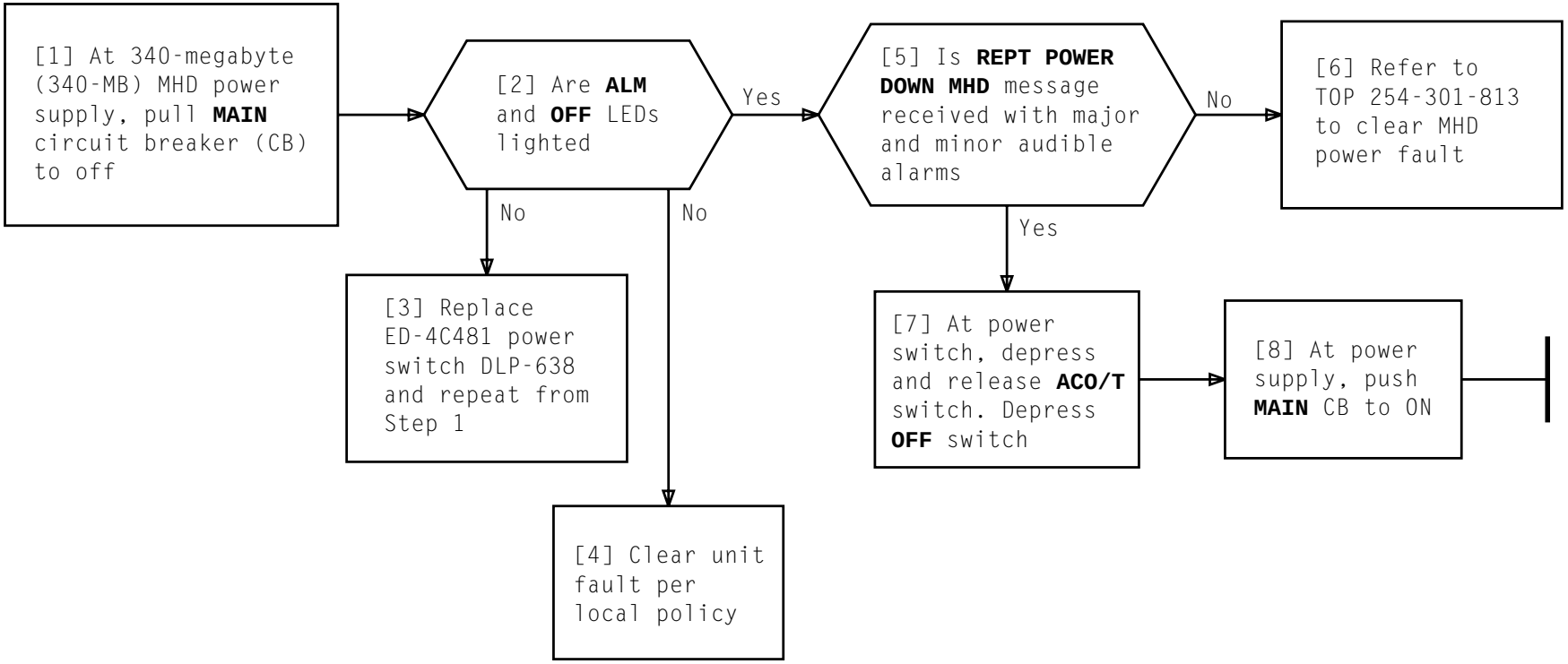
POWER SUPPLY
KS-2297,L2



POWER SWITCH ED-4C481

FIG. 1

INSPECT TAPE/DISK CABINET



TEST 340-MB MOVING HEAD DISK (MHD) ALARMS

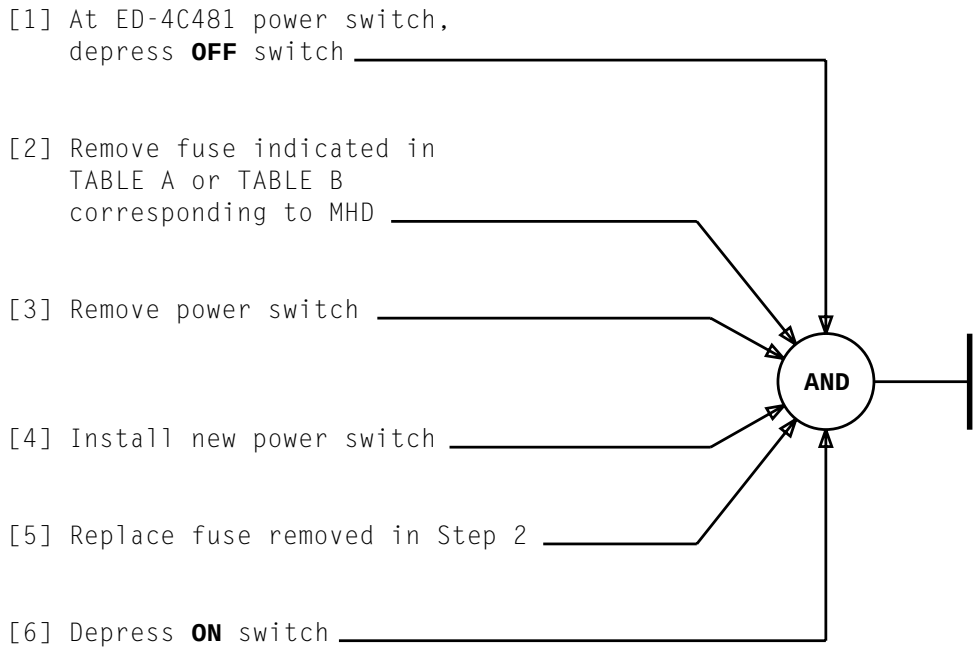


TABLE A	
TAPE/DISK CABINET WITH 2 TAPE DRIVE OR 4 DISK DRIVES	
MHD	FUSE
0 or 4	F1
1 or 5	F9
2 or 6	F3
3 or 7	F11

TABLE B	
TAPE/DISK CABINET WITH 8 DISK DRIVES	
MHD	FUSE
8	F1
9	F9
10	F3
11	F11
12	F5
13	F13
14	F7
15	F15

REPLACE ED-4C481 POWER SWITCH

TEST STOP AND SWITCH

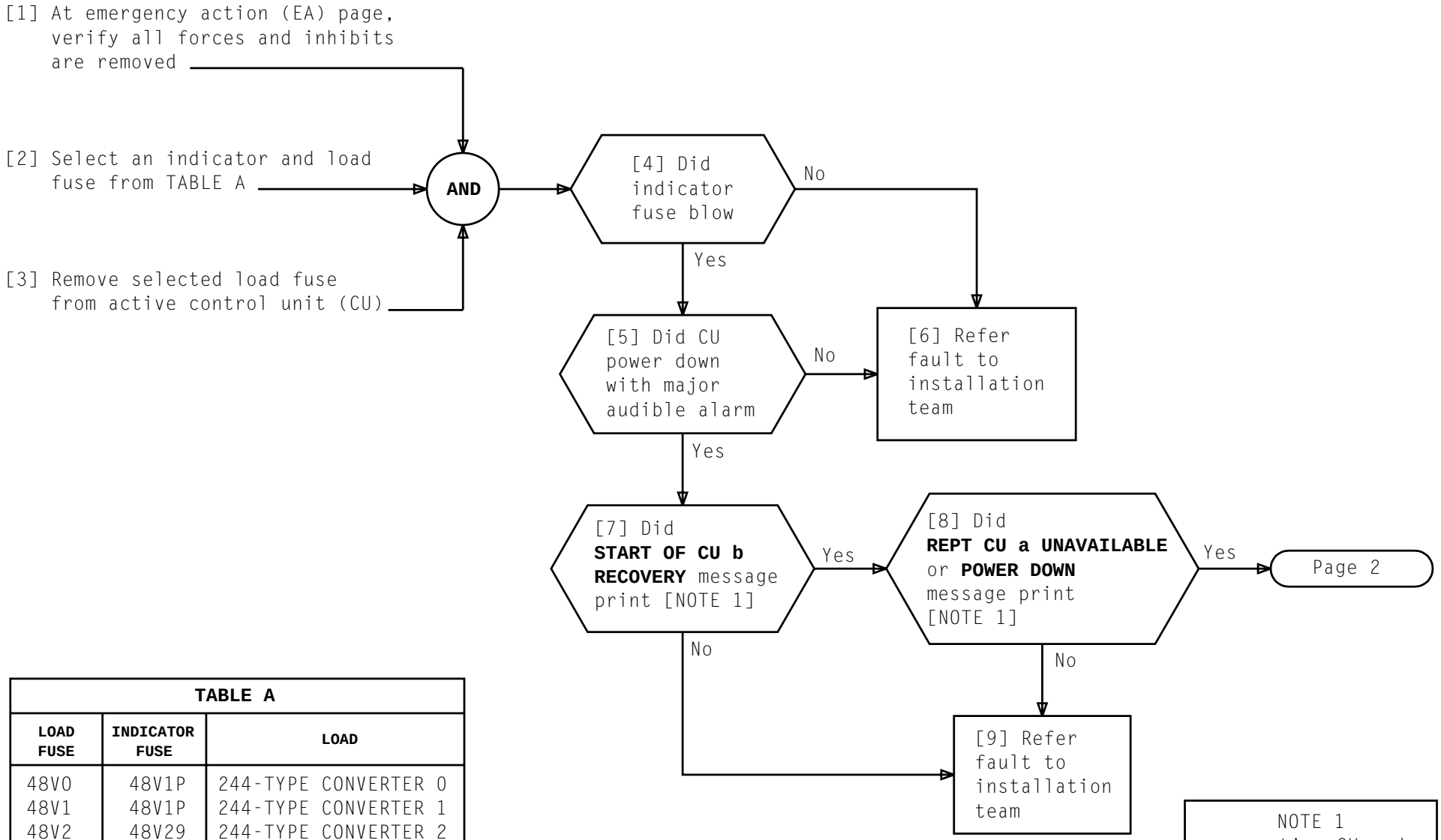
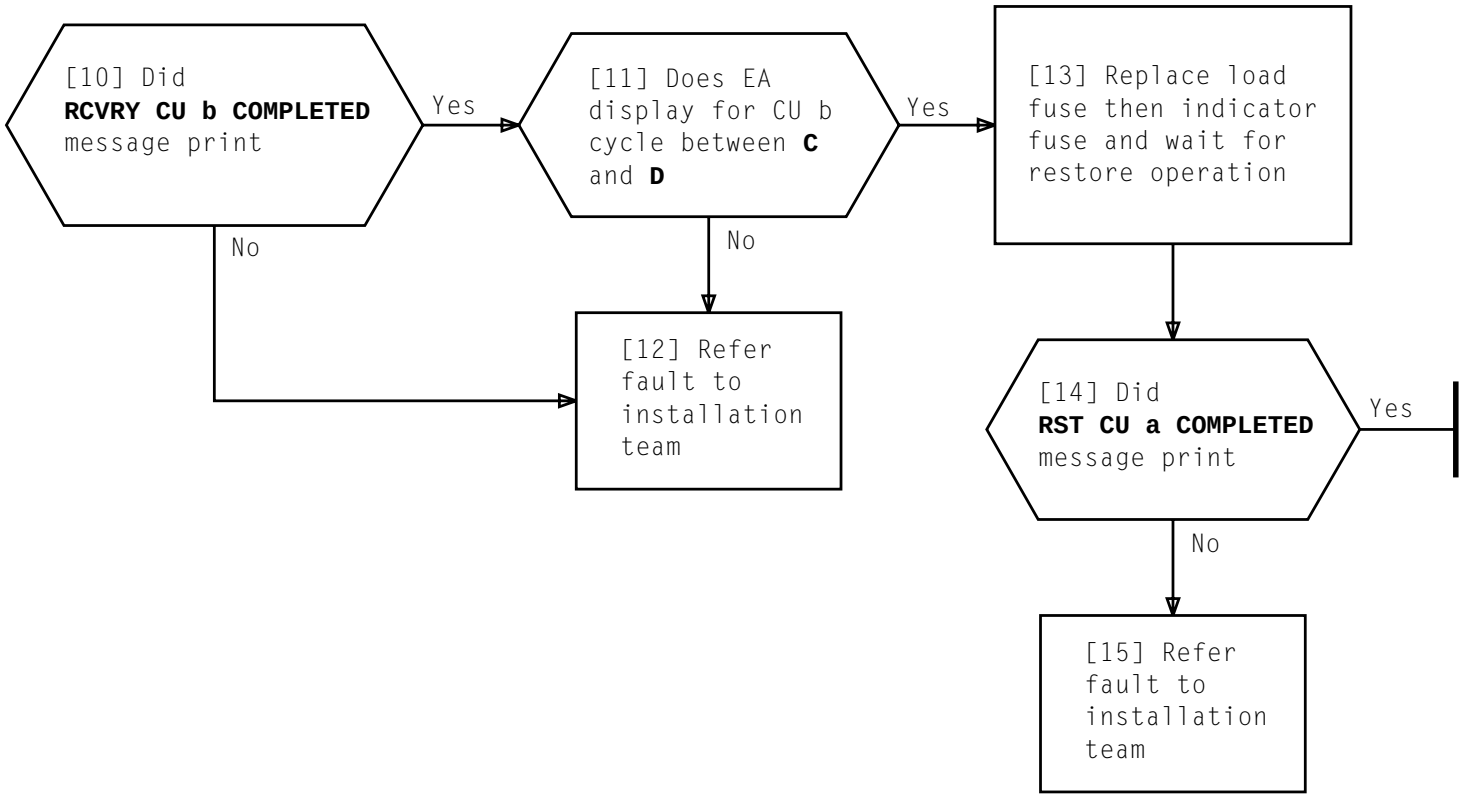
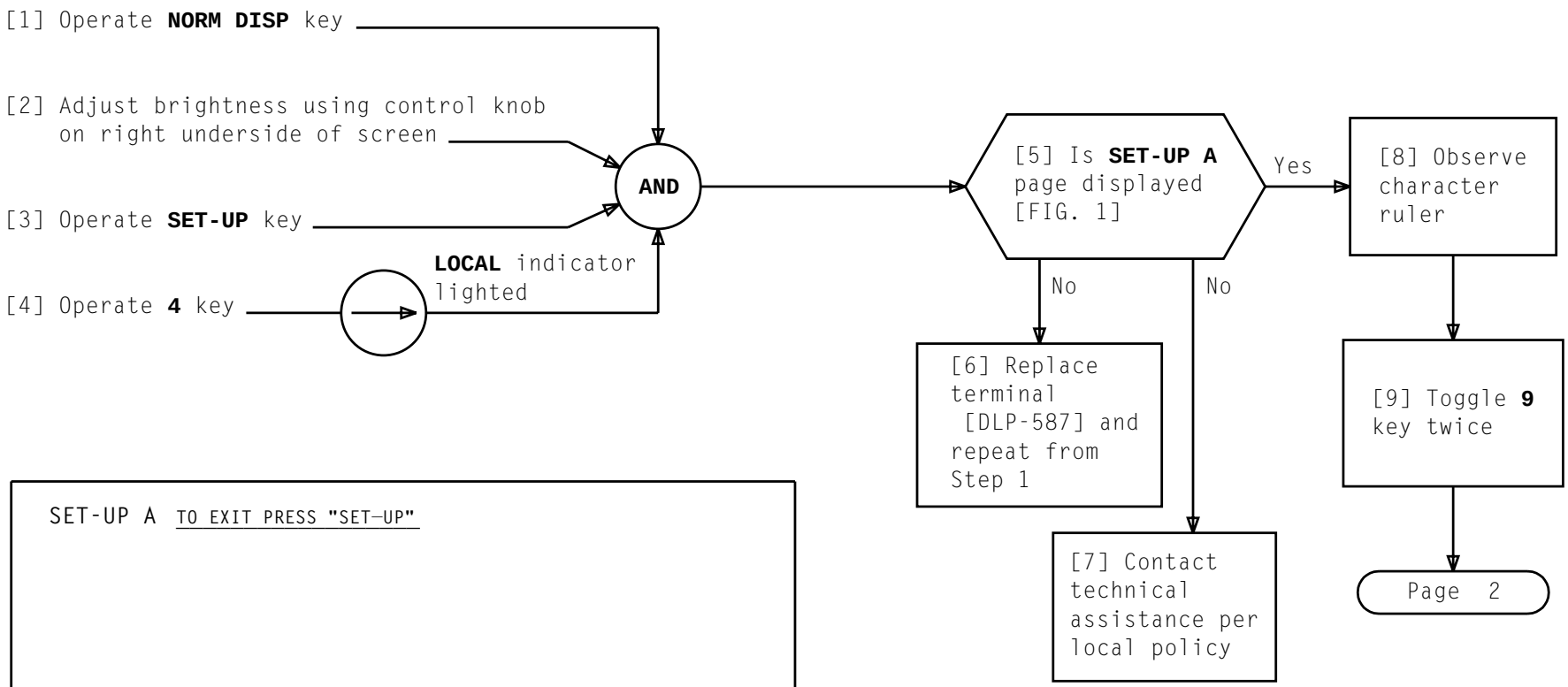


TABLE A		
LOAD FUSE	**INDICATOR FUSE**	**LOAD**
48VO	48V1P	244-TYPE CONVERTER 0
48V1	48V1P	244-TYPE CONVERTER 1
48V2	48V29	244-TYPE CONVERTER 2
48VPS	—	ABB1 Power Switch

NOTE 1
a = active CU and
b = standby CU at start of test



TEST STOP AND SWITCH



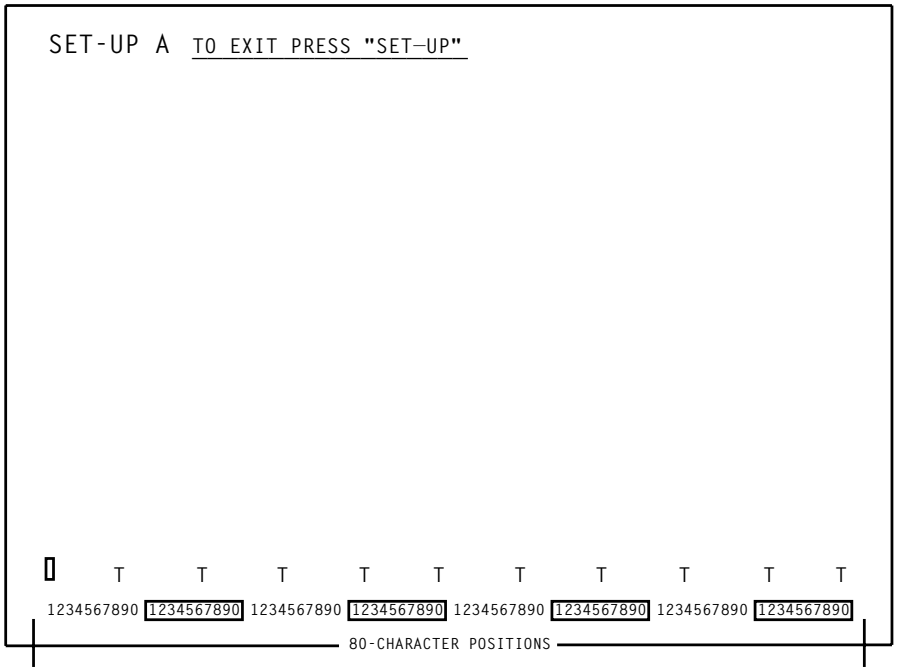
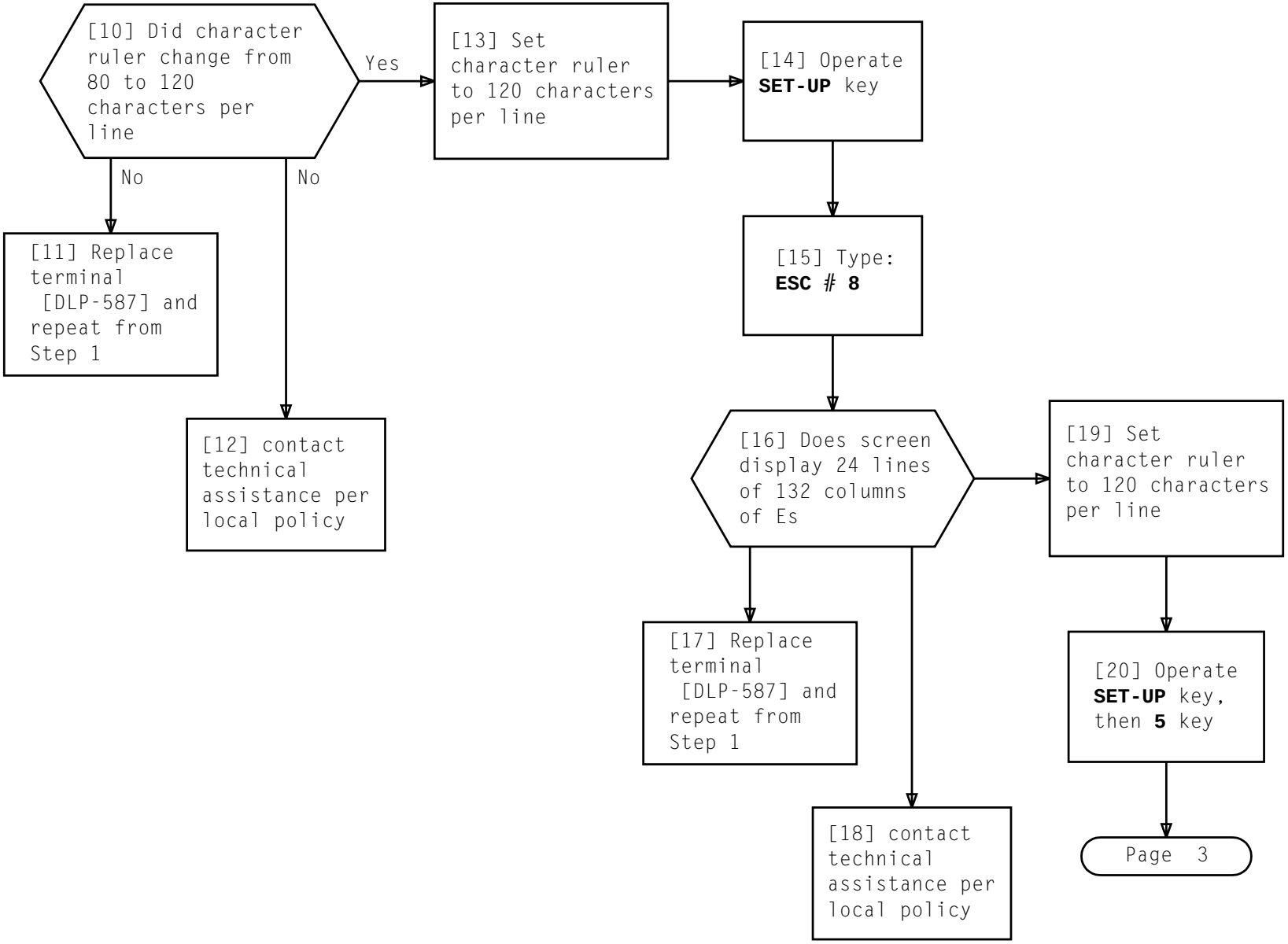
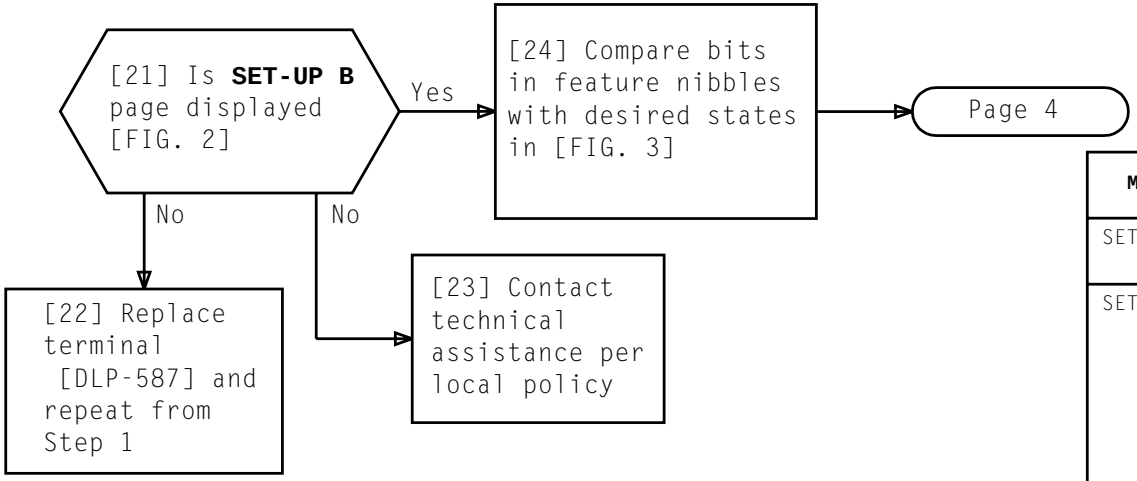


FIG. 1

CHECK KS-22921,L1 OR L2 TERMINAL



CHECK KS-22921,L1 OR L2 TERMINAL



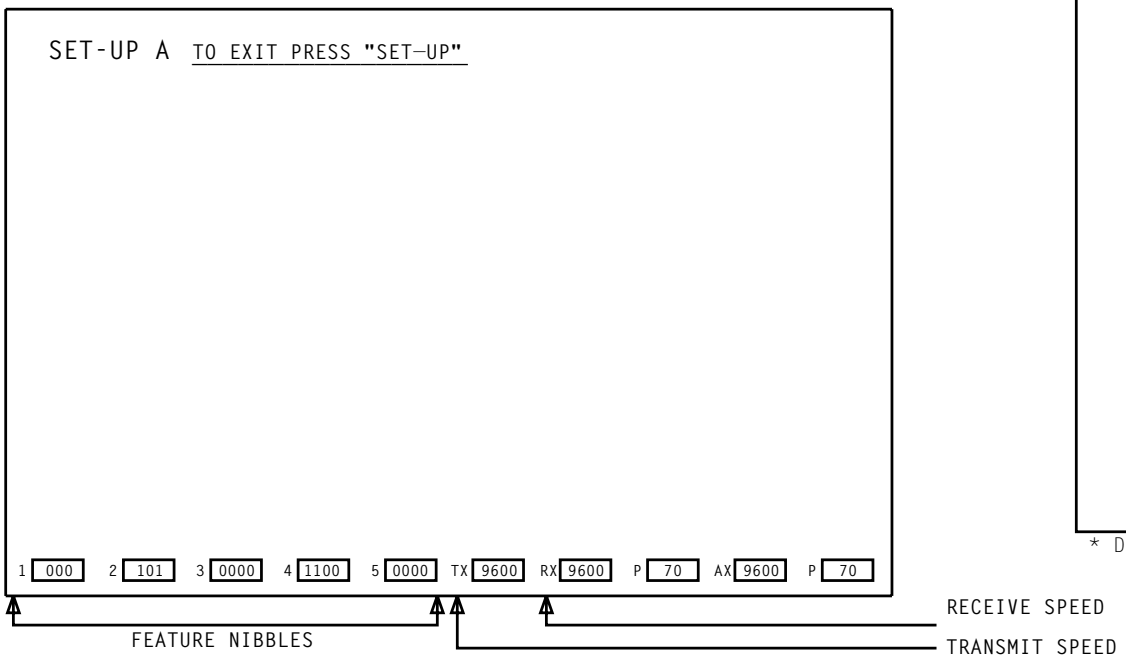


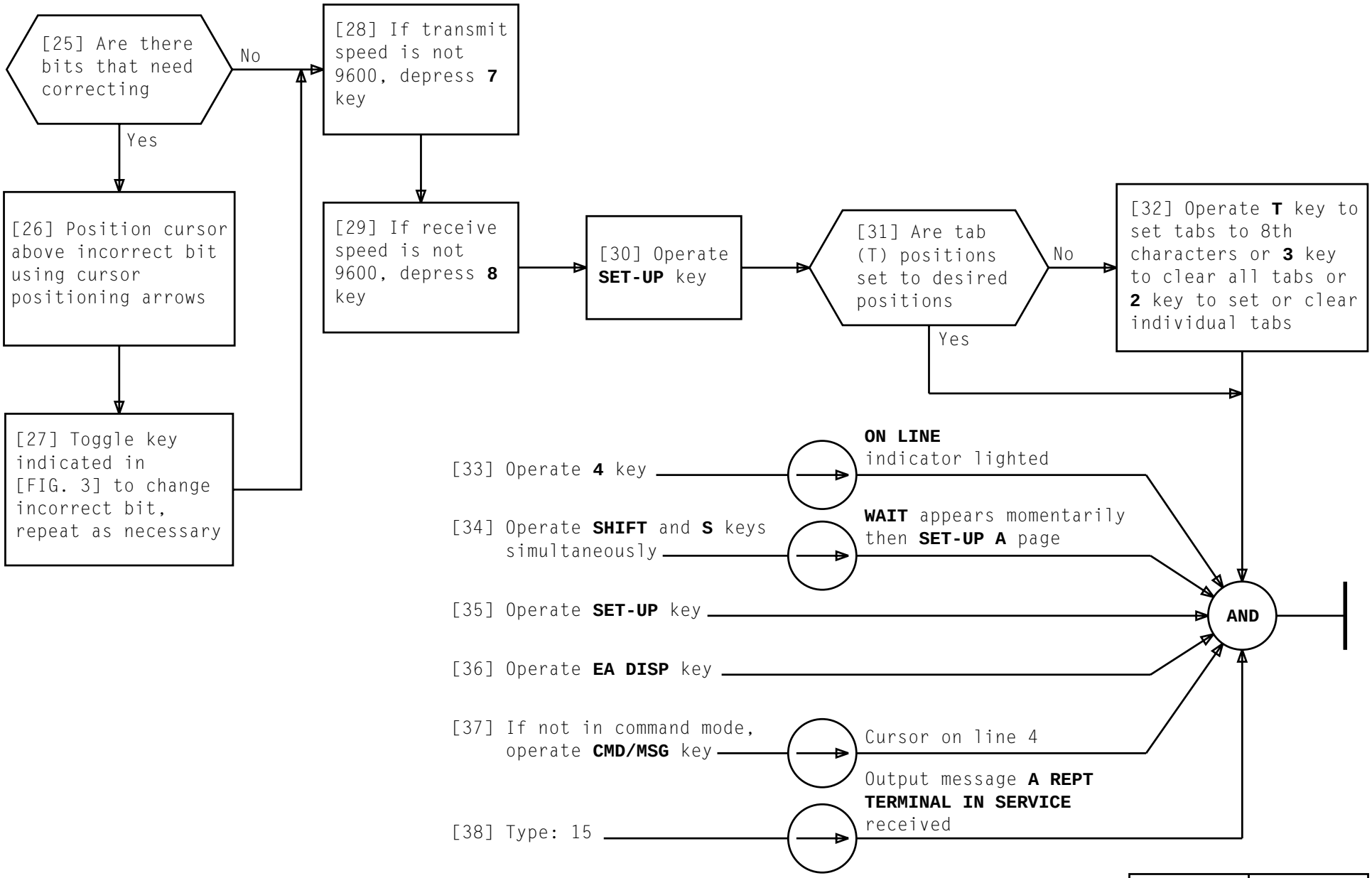
FIG. 2

MODE	NIBBLE	OPTION/ FUNCTION	DESIRED STATE	TOGGLE KEY
SET-UP A	1	Characters/line Table Stops	80 Every 8th	9 2
SET-UP B	1	Jump/scroll Autorepeat Screen Cursor	1 (Smooth) 0 (Off) 0 (Dark Background) 1 (Block)	6 6 6 6
	2	Margin Bell Keyclick ANSI/ATS Auto Xon Xoff	1 (On) 0 (Off) 1 (ANSI) 1 (On)	6 6 6 6
	3	# Wraparound New Line Power	0 (#) 0 (Off) 0 (Off) 0 (60 Hz)	6 6 6 6
	4	Interface Unused Local Display CRT Saver	0 (EIA) * 0 (Off) 0 (Off)	6 6 6
	5	Aux Xmit to Line Aux Rec from Line Rec Parity check Tape Mode	0 (Disabled) 0 (Disabled) 1 (On) 0 (Off)	6 6 6 6
	TX	Transmit Speed	9600	7
	RX	Receive Speed	9600	8
	P	Parity Line	7E	p
	AX	Aux Port	*	&
	PX	Parity Aux	*	P

* Don't care

FIG. 3

CHECK KS-22921,L1 OR L2 TERMINAL



CHECK KS-22921,L1 OR L2 TERMINAL

SUMMARY

Use recent change facility to change moving head disk (MHD) scan points and signal distributor points in memory to reflect new assignments after MHDs are swapped

[1] At maintenance terminal, type **199** or at recent change and verify (RCV) terminal, type **RCV:MENU:RCVECD,DB INCO/RE, NREVIEW, TERM**xxxx! (xxxx = terminal type)

RCV Parameter Info page displayed

[2] Type **incore** on line 1 [FIG. 1]

[3] Depress return five times

AND

Page 2

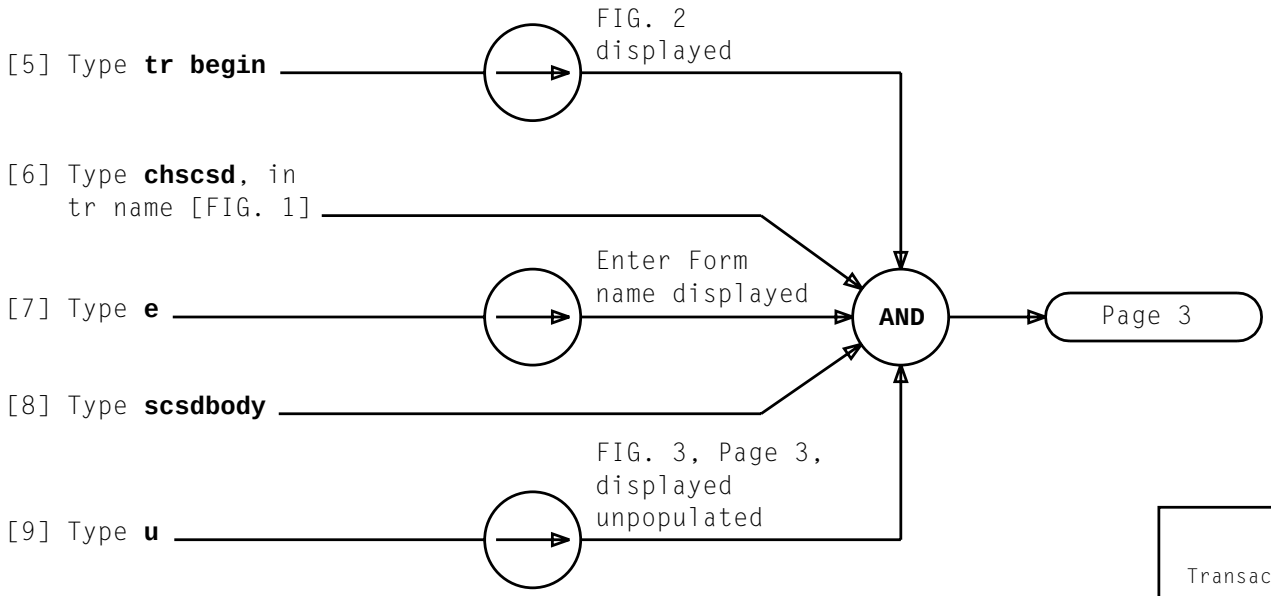
[4] Type **e**

Enter Form Name displayed

```
RCV Parameter Infor                rcv params (1/1)
                                         Recent Change and Verify
    1. database_name:

    _____________________________________________________

    2. review_only:                3. journaling:


    4. print_file:

    _____________________________________________________

    5. echo_file

    _____________________________________________________

    6. flstecd: n                  7. sysgen: n

review only: y or n _____________________________________
```

FIG. 1

CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



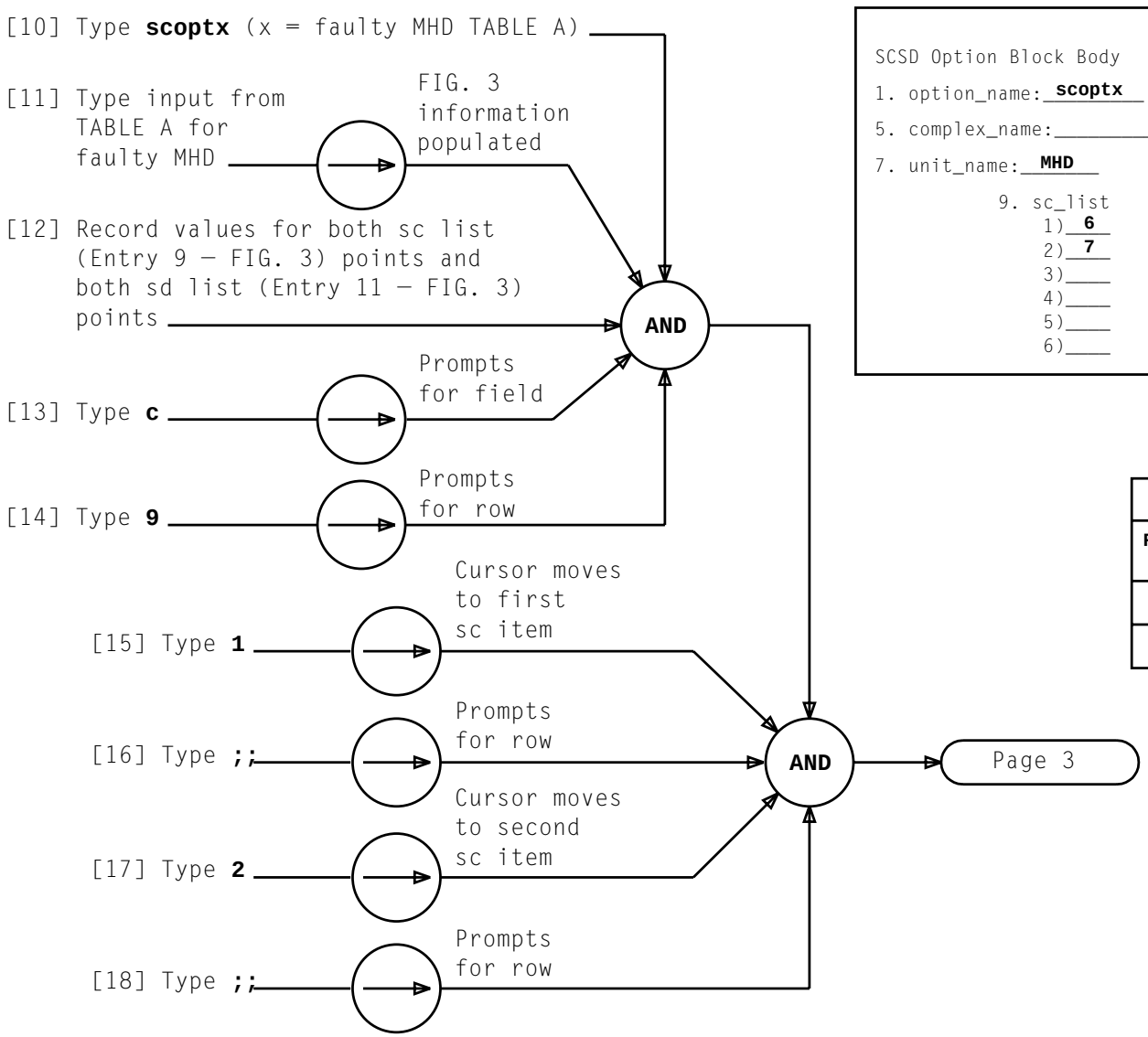
trbegin (1-1)

Transaction Begin (Execute Only)

1. tr_name: **chscsd**

FIG. 2

CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



scsdbody (1-1)

SCSD Option Block Body (Recent Change and Verify)

1. option_name: **scoptx** 2. scsdname: **PRSWMHDy** 3. dupid: **0** 4. sc_class: **PRSW**

5. complex_name: _____ 4. complex_number: ____

7. unit_name: **MHD** 8. unit_number: **y**

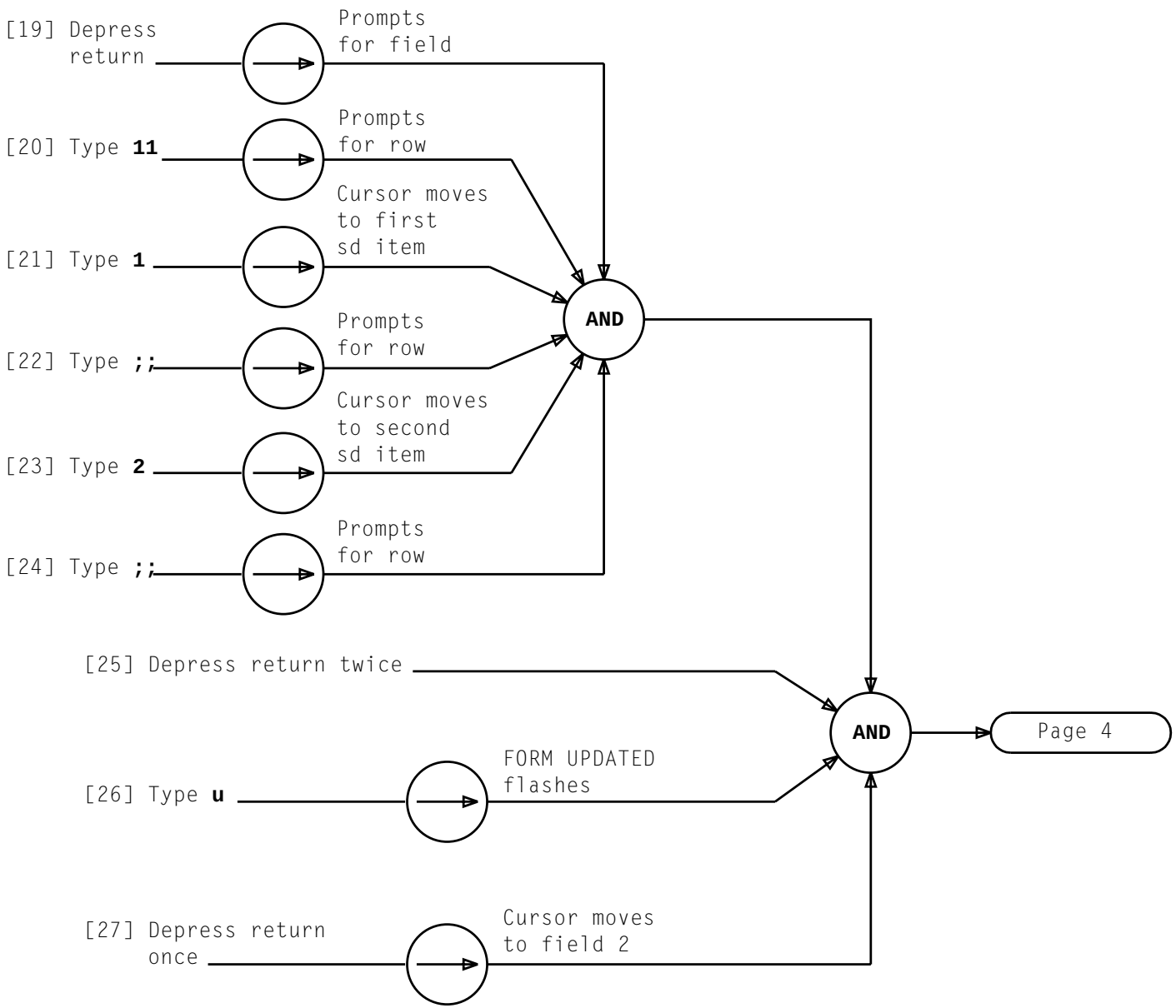
9. sc_list	11. sd_list	
1) **6**	1) **6**	
2) **7**	2) **7**	
3) ____	3) ____	
4) ____	4) ____	
5) ____	5) ____	(x = 0 or 1 = faulty MHD scsd)
6) ____	6) ____	(y = MHD number)

FIG. 3

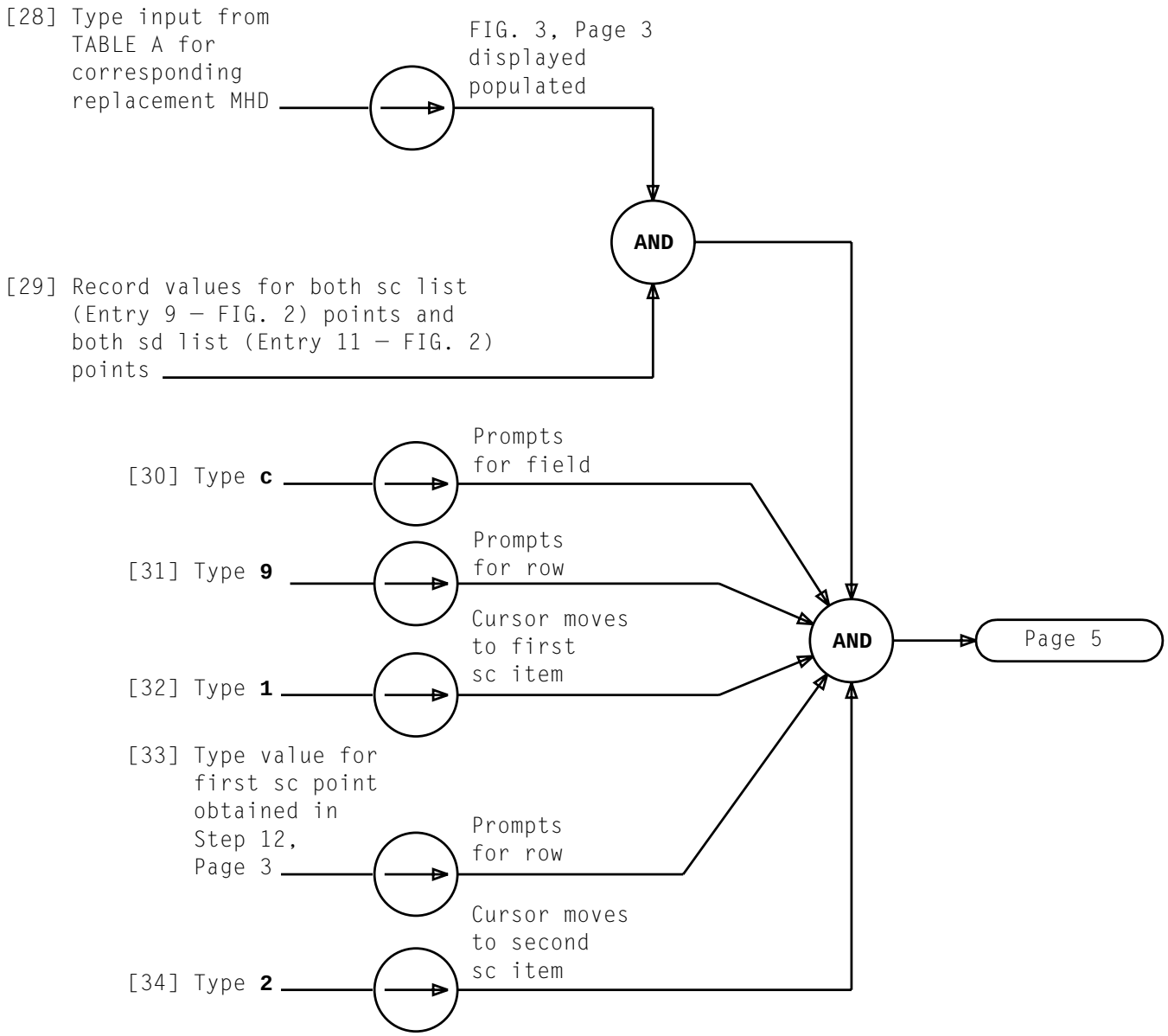
TABLE A

FAULTY MHD	INPUT	REPLACEMENT MHD	INPUT
0	**PRSWMHD0**	2	**PRSWMHD2**
1	**PRSWMHD1**	3	**PRSWMHD3**

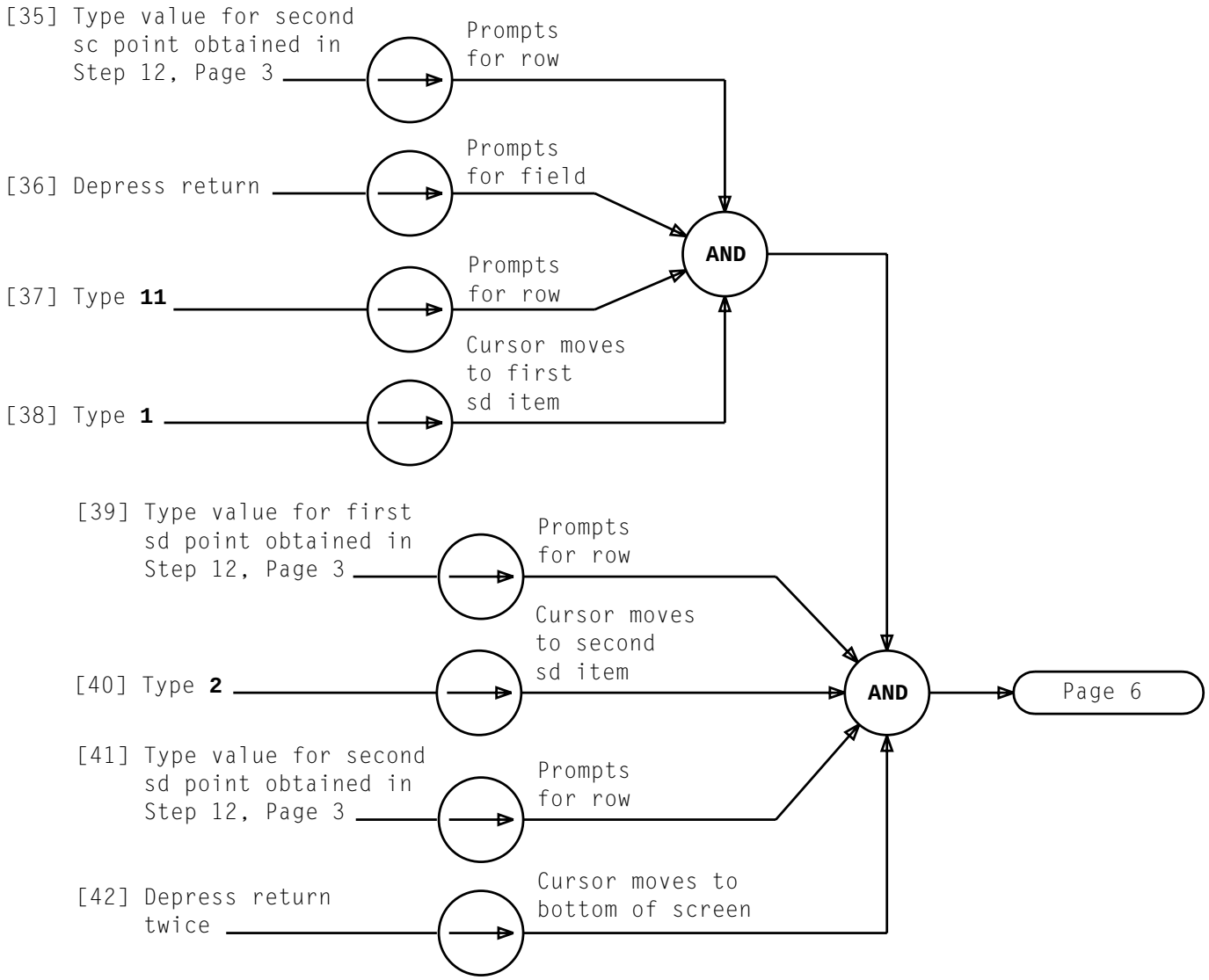
CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



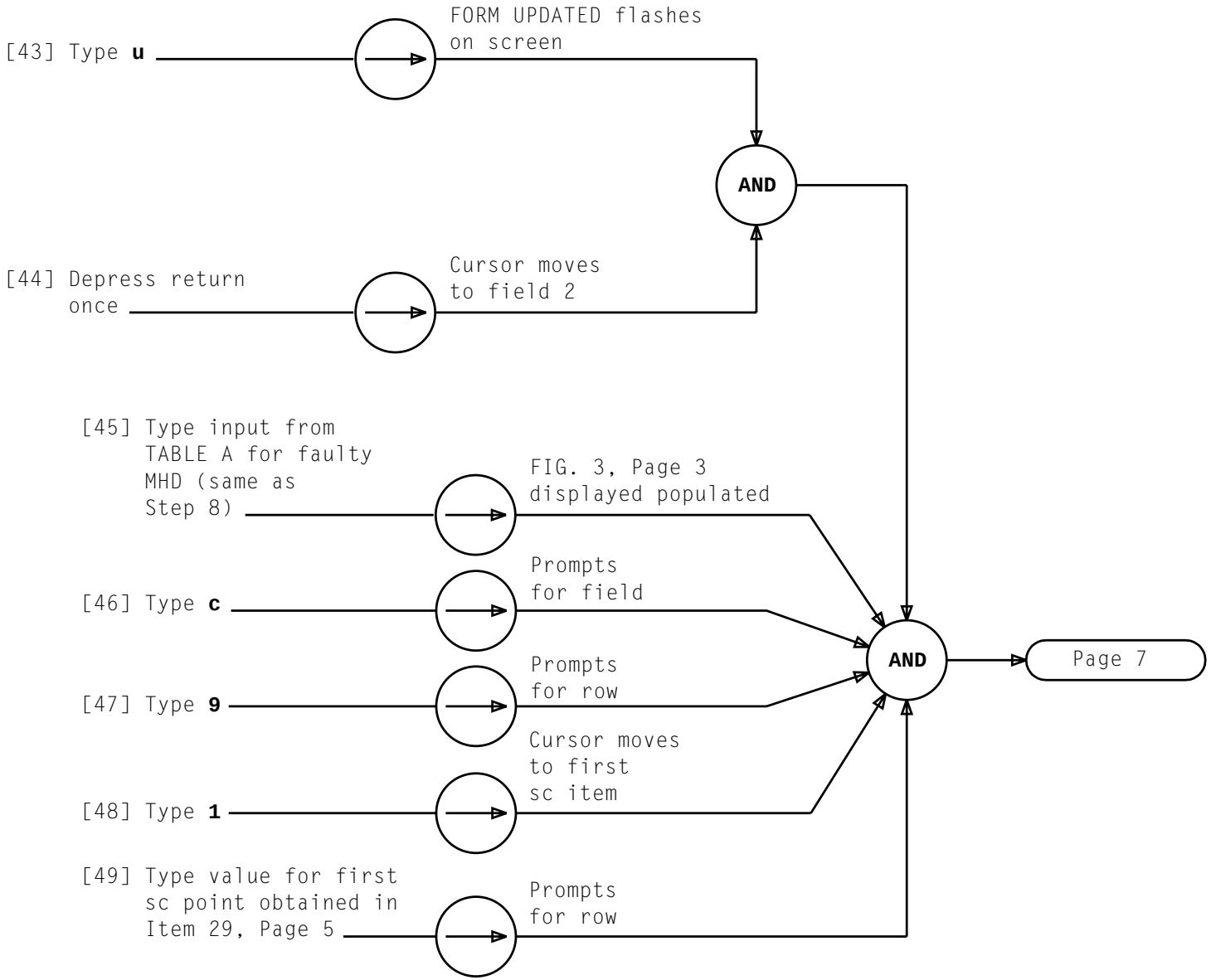
CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



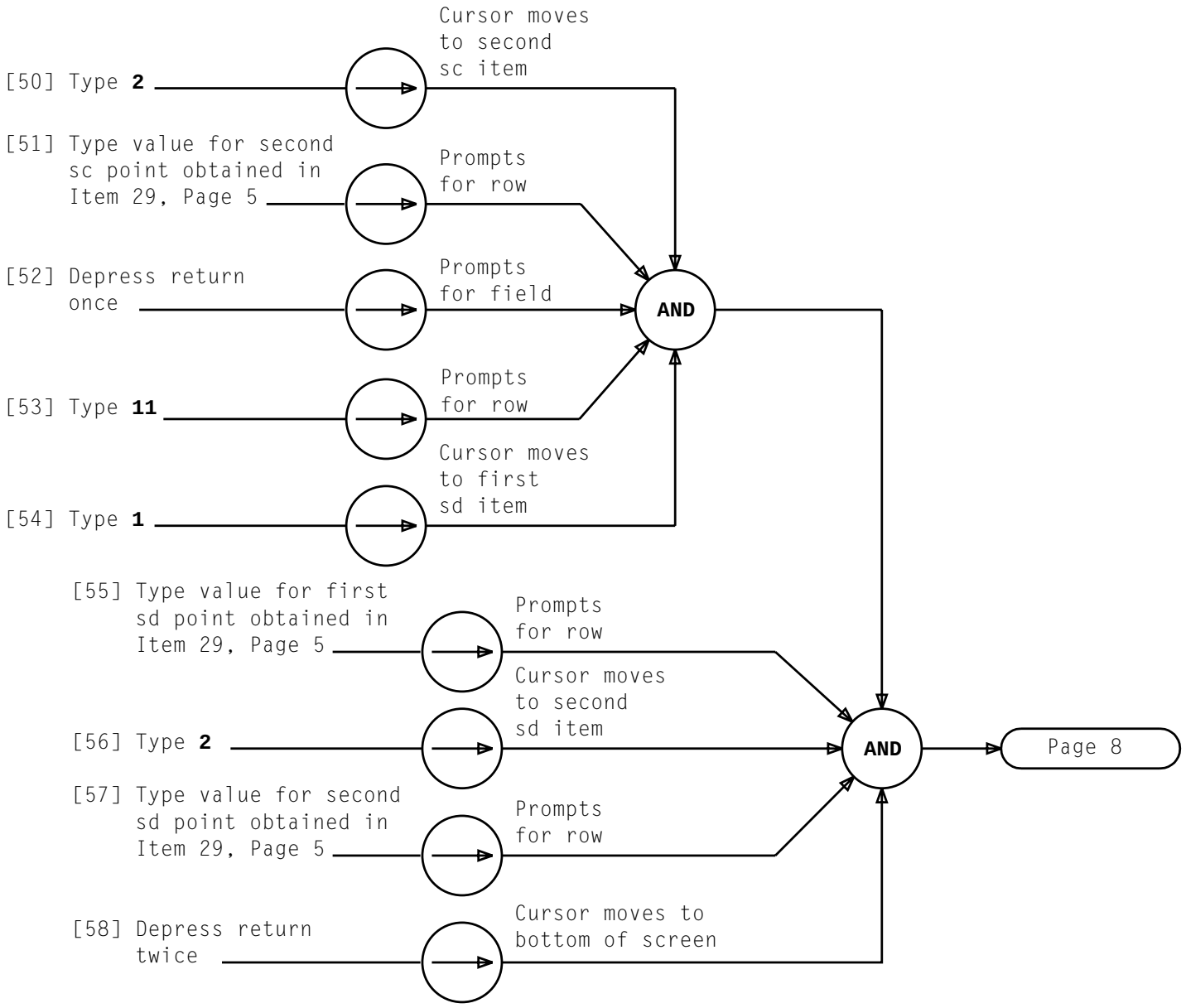
CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



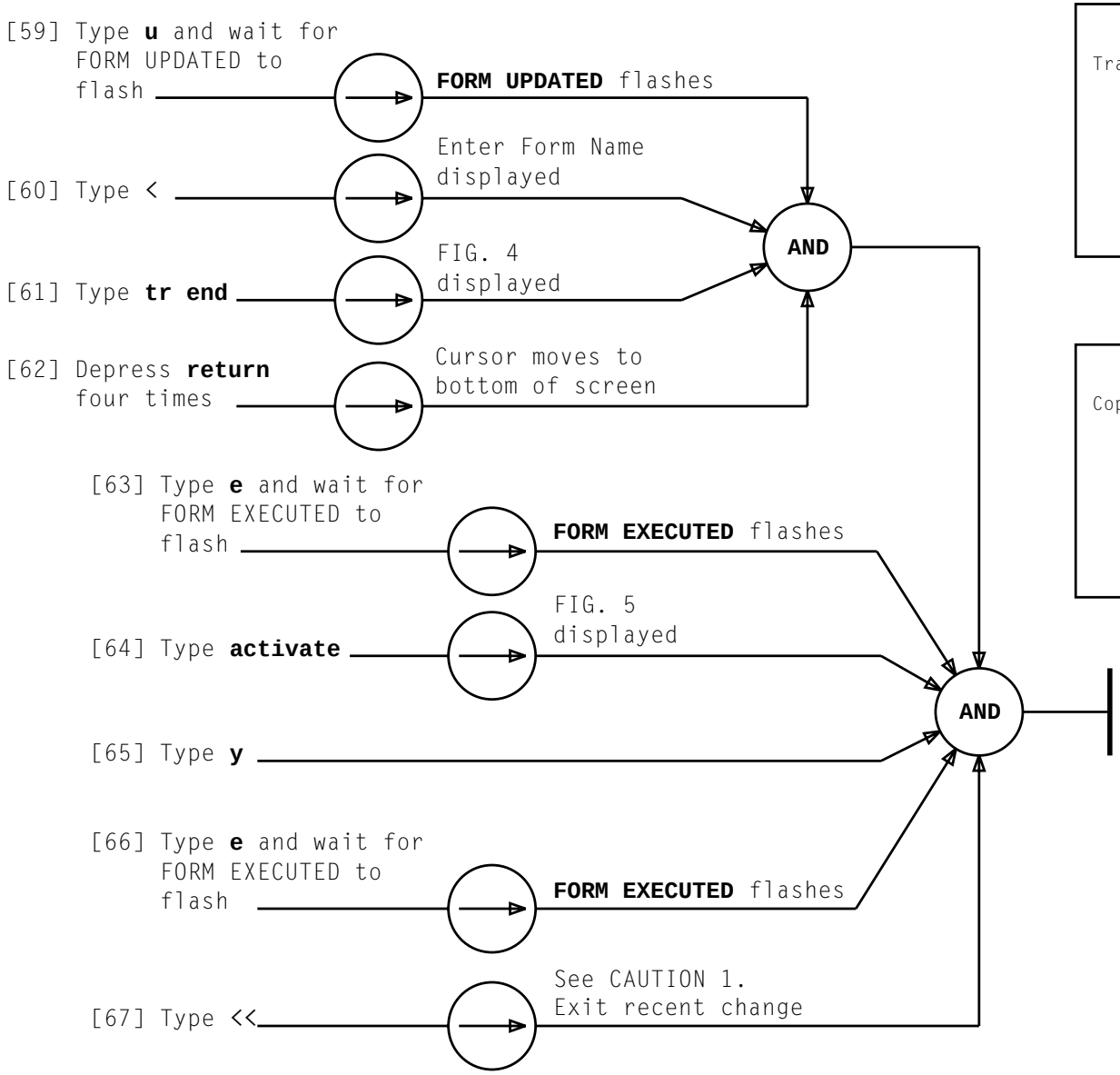
CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA



CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA




```
                                trend      (1-1)
Transaction End                                          (Execute Only)
          1. tr_name:_________
          2. dis_cf_checks:_ n
          3. apply_tr:y
          4. omissing_links:n
```

FIG. 4

```
                                activate    (1-1)
Copy Incore ECD To Root ECD                              (Execute Only)
          1. copy_incore_to_disk:y
```

FIG. 5

CAUTION 1
A bootstrap using backup root will load original information

CHANGE SCANNER SIGNAL DISTRIBUTOR (SCSD) DATA

[1] At 340-megabyte disk drive front panel [FIG. 1], remove front panel insert by pulling forward to disengage catches

[2] Remove filter

[3] See [NOTE 1]. Install new filter

[4] Replace front panel insert by aligning catches in front panel and push until catches snap into place

AND

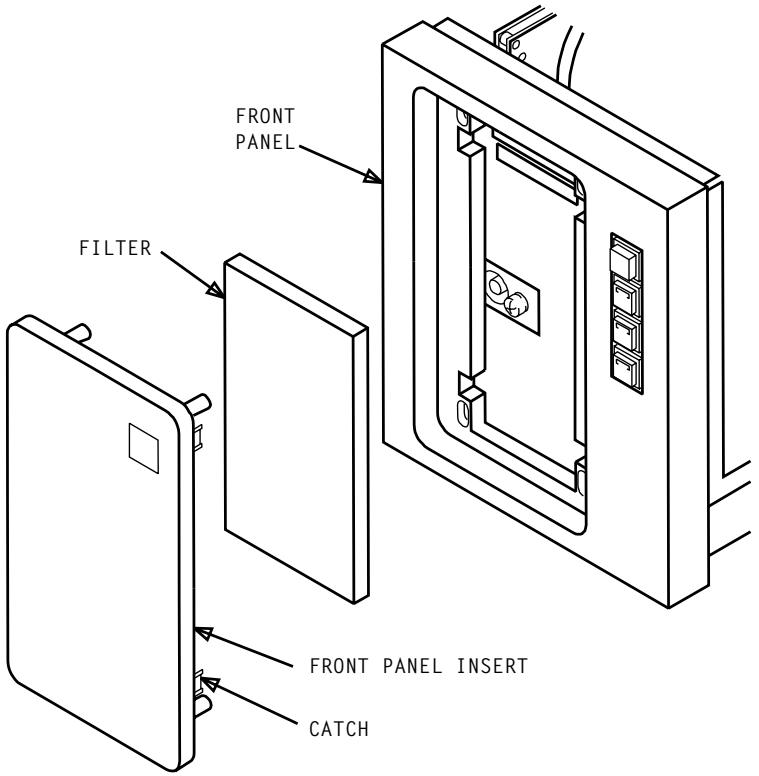


FIG. 1

NOTE 1
Filter should not be cleaned if replacement is available. If necessary wash filter with detergent, then dry, and spray with filter coat

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254-301-811	**DLP**
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REPLACE 340-MB MOVING HEAD DISK (MHD) AIR FILTER

1. If disk drive is out of service and powered down, skip to Step 5; otherwise, continue with Step 2

2. Remove DFC from service [DLP-599]

3. Remove disk drive from service [DLP-599]

4. At disk control panel, release **START** switch and wait for lamp to go steady off. Then depress **OFF** switch

5. At power supply, set **CB1** to **OFF**

6. At power distribution, remove power supply fuse for this disk drive

7. Disconnect DC power cable from input connector **J1** at rear of disk drive

8. At rear of disk drive, disconnect control cables from **J3** and **J4**. If disk drive is last drive on this DFC, remove bus terminating resistors from **J4**

9. Disconnect data cables from **J2**

10. Disconnect ground strap from **DC GRD**

    CAUTION: Severe cable damage will result if all cables are not removed from disk drive before extending disk drive slide

11. At front of disk drive, release cabinet latch and pull disk drive to the full-forward, extended position

12. With an assistant, remove disk drive from slide assemblies and place on solid support

13. Remove screws on each side holding slide to disk drive

14. If disk drive being removed contains the external programmable read-only memory (EPROM), skip to Step 18; otherwise, continue with Step 15

15. Remove cover screws and remove cover

16. Record all control board switch settings

17. Replace cover and install cover screws

18. Remove logic ID (MHD identification) plug from front control panel

19. On replacement disk drive, install logic ID plug in control panel

20. Remove cover screws and remove cover

REPLACE 340-MB DISK DRIVE

21. Check lower section of control board for presence of sector switches. If sector switches are not present, skip Step 22

22. Verify that control board switch settings are as recorded in Step 16

23. If sector switches are not present, verify that clock frequency jumper in upper left section of control board is set for 0.8 megahertz. Verify that drive capacity jumpers in upper center and lower center of control board are set for **340**

24. Replace cover and install cover screws

25. Install slide assemblies and install mounting screws

26. With an assistant, place disk drive onto slide assemblies and push disk drive into cabinet until lock engages

27. Connect ground strap to **DC GRD**

28. Connect control cable from DFC or upstream disk drive to **J3**. Connect control cable to next disk drive or install bus terminating resistors (if last disk in chain) to **J4**

29. Connect data cable from DFC to **J2**

30. Connect power cable to power jack **J1** on power supply

31. At status fault display (behind filter), verify **DIAGNOSTIC MODE** switch is off (down)

32. At power supply, set **CB1** to **ON**

33. At power switch, depress **ON** switch

34. Skip this step if replaced disk drive has sector switches. Otherwise, verify EPROM status [DLP-645]

35. Restore DFC to service [DLP-600]

36. At disk drive control panel, depress **START** and wait for lamp to go steady **ON**

37. If new disk drive is being installed, at terminal, type:
INIT:MHD x:NEW! and wait for **INIT MHD x COMPLETED** output message

38. Determine that no other MHD input messages are being processed. If other MHD input messages are running, wait for their completion

39. At terminal, type: **DUMP:MHD=**x**:DEFECT:DATA,MFGR;** and wait for **DUMP MHD DEFECT TABLE COMPLETED** output message

40. Compare this dump with the hardcopy list from the manufacturer and save for office records

41. Restore disk drive to service [DLP-600]

End of procedure

REPLACE 340-MB DISK DRIVE

1. If disk drive is out of service and powered down, skip to Step 5; otherwise, continue with Step 2

2. Remove DFC from service [DLP-599]

3. Remove disk drive from service [DLP-599]

4. At disk control panel, release **START** switch and wait for lamp to go steady off. Then at power switch depress **OFF** switch

5. At power supply, set **CB1** to **OFF**

6. At power distribution unit, remove power supply fuse for this disk drive

7. Disconnect DC power cable from input connector **J1** at rear of disk drive

8. At rear of disk drive, disconnect control cables from **J3** and **J4**. If disk drive is last drive on this DFC, remove bus terminating resistors from **J4**

9. Disconnect data cables from **J2**

10. Disconnect ground strap from **DC GRD**

    CAUTION: Severe cable damage will result if all cables are not removed from disk drive before extending disk drive slide

11. At front of disk drive, release cabinet latch and pull disk drive to the full-forward, extended position

12. With an assistant, remove disk drive from slide assemblies and place on solid support

13. Push disk drive slide into cabinet

14. At rear of power supply, remove cables from the following connectors:

    - Load cable **J1**
    - Power switch **J2**
    - DC input **J4**
    - Ground strap

15. Remove three screws from front and three screws from rear of power supply

16. Tilt power supply into disk drive space and remove from front of cabinet

17. Place new power supply through disk drive space and install screws

REPLACE 340-MB DISK DRIVE POWER SUPPLY

18. At rear of power supply, connect cables to the following connectors:
    - Load cable **J1**
    - Power switch **J2**
    - DC input **J4**
    - Ground strap

19. With an assistant, place disk drive onto slide assemblies

20. Push disk drive into cabinet until lock engages

21. Connect ground strap to **DC GRD**

22. Connect control cable from DFC or upstream disk drive to **J3**. Connect control cable to next disk drive or install bus terminating resistors (if last disk in chain) to **J4**

23. Connect data cable from DFC to **J2**

24. Connect power cable to power jack **J1** on power supply

25. At power distribution unit, install fuse for this disk drive power supply

26. At power supply, set **CB1** to **ON**

27. At power switch, operate and release **ACO/T** switch. Then depress **ON** switch

28. Restore DFC to service [DLP-600]

29. At disk drive control panel, depress **START** switch and wait for lamp to go steady **ON**

30. Restore disk drive to service [DLP-600]

End of procedure

REPLACE 340-MB DISK DRIVE POWER SUPPLY

[1] At status fault display, set **DIAGNOSTIC MODE** switch to on (up)

[2] Depress **STEP** switch until **F** appears in right digit display

[3] Depress **EXECUTE** switch

[4] Depress **STEP** switch until **1** appears in left digit display

[5] Depress **EXECUTE** switch → Hexadecimal **10** displayed

[6] Refer to TABLE A on Page 2. The left digit displays the contents of EPROM while the right digit displays the step number. Hexadecimal **10** presently in display (Step 5) is the first line of TABLE A

AND

[7] Using the **STEP** switch, step through each option listed in TABLE A and record results [NOTE 1]

[8] To exit EPROM display, set **DIAGNOSTIC MODE** switch to off (down)

[9] Compare record of options with requirements in TABLE A

AND → Page 3

NOTE 1
Display will scroll as long as **STEP** switch is depressed

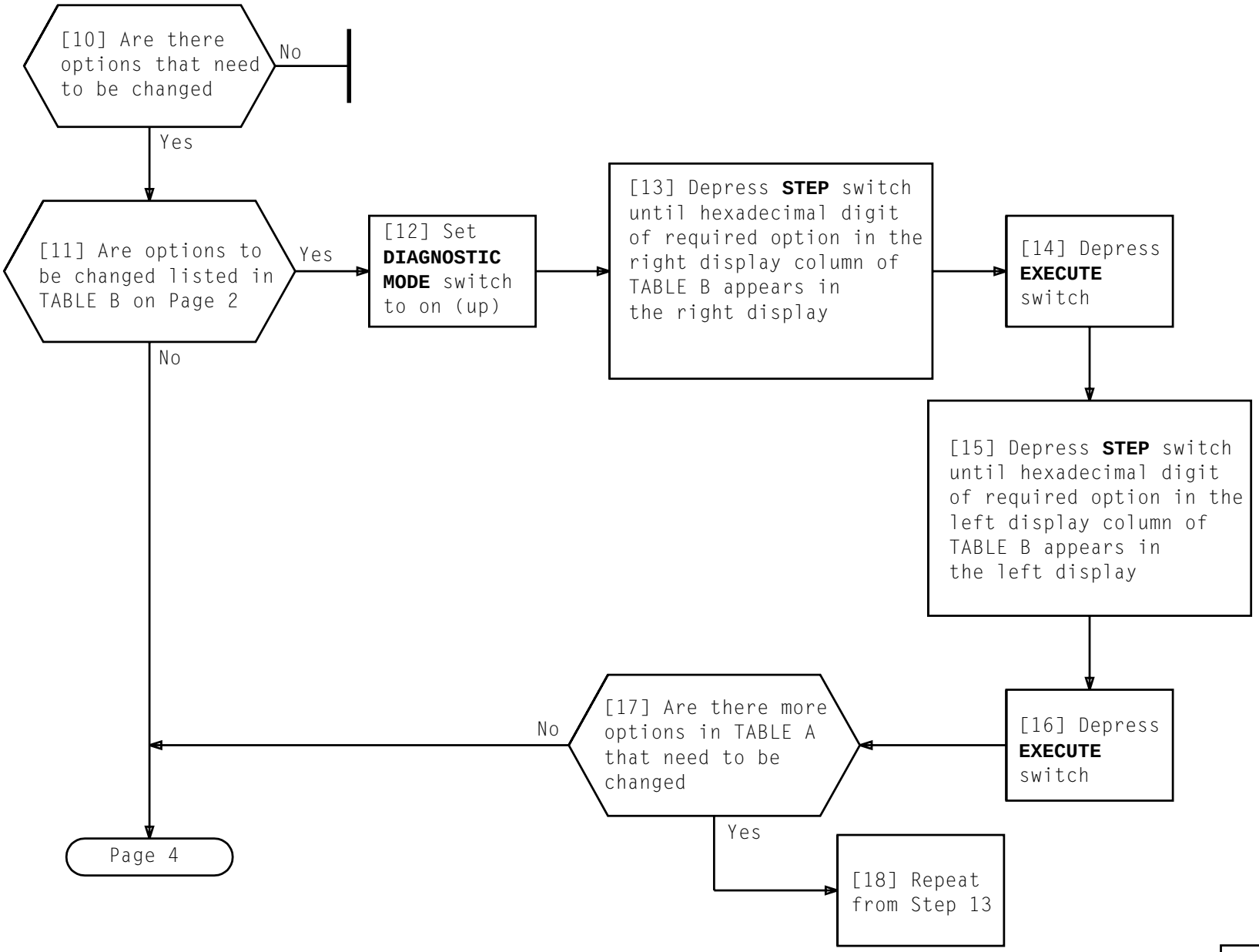
VERIFY EPROM STATUS

TABLE A		
CONTENTS (LEFT DISPLAY) (HEX)	**STEP NUMBER (RIGHT DISPLAY) (HEX)**	**REQUIRED OPTION SETTING**
1 A 3	0 1 2	Sector Length = 512 bytes (630 hex)
2 0	3 4	Number of Sectors = 32 (20 hex)
8	5	Sweep Inhibited
0	6	Return to Original Cylinder Disabled
0	7	Sweep on Seek Only Off
0	8	22-Megahertz* Off
0	9	15- or 24-Megahertz* 15-Megahertz
0	A	Write Protect during Sweep Mode Off
0	B	Spare
0	C	Spare
0	D	Write Protect Entire Disk Drive Off
0	E	Spare
0	F	Spare

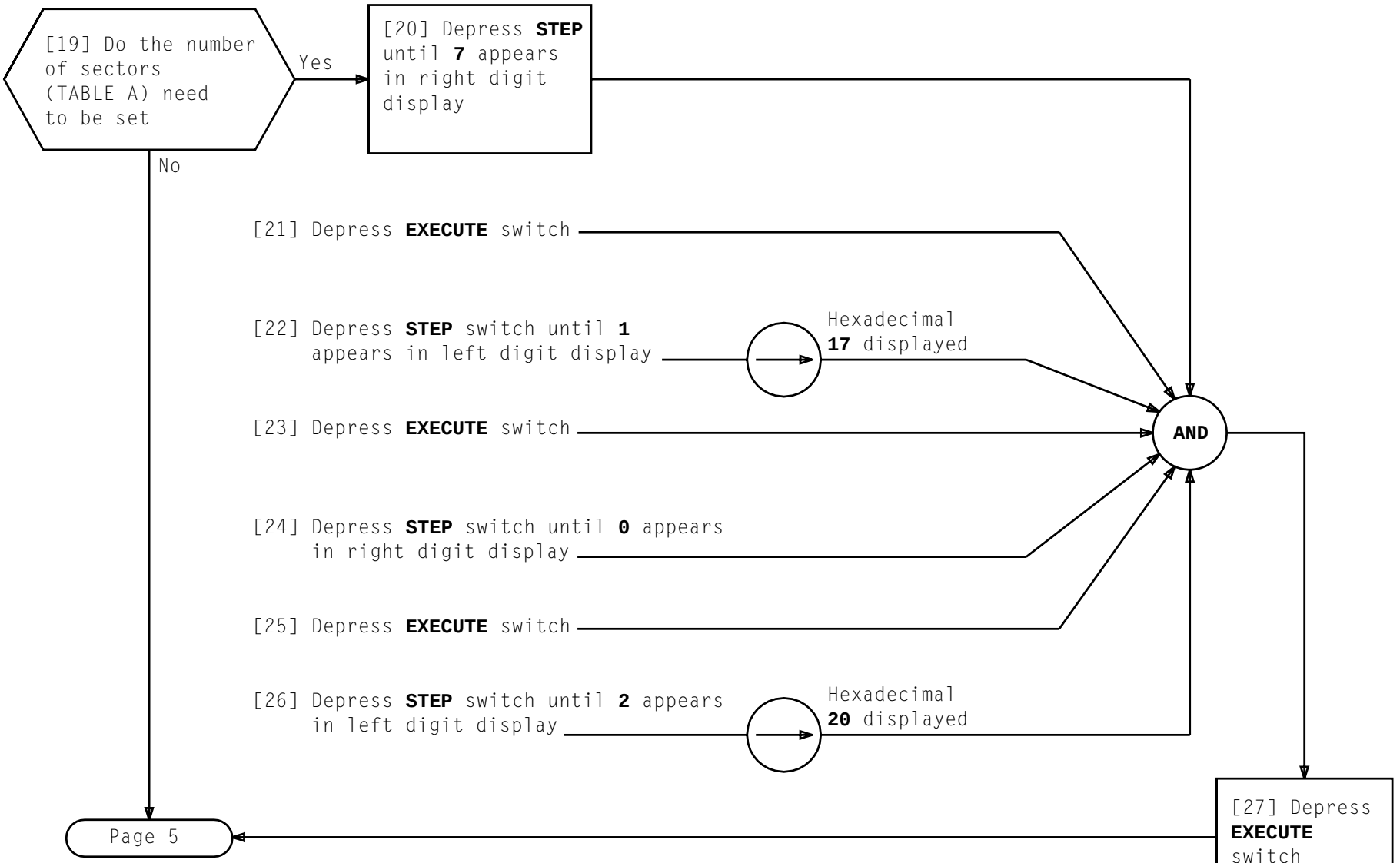
*Not used on fixed storage drives

TABLE B		
REQUIRED OPTION	**(LEFT DISPLAY) (HEX)**	**(RIGHT DISPLAY) (HEX)**
Clear write protect entire drive	1	6
Disable sweep	1	A
Disable return to original cylinder	1	C
Disable sweep on seek	1	E
Display EPROM status (TABLE A)	1	F
Disable write protect during sweep	2	1

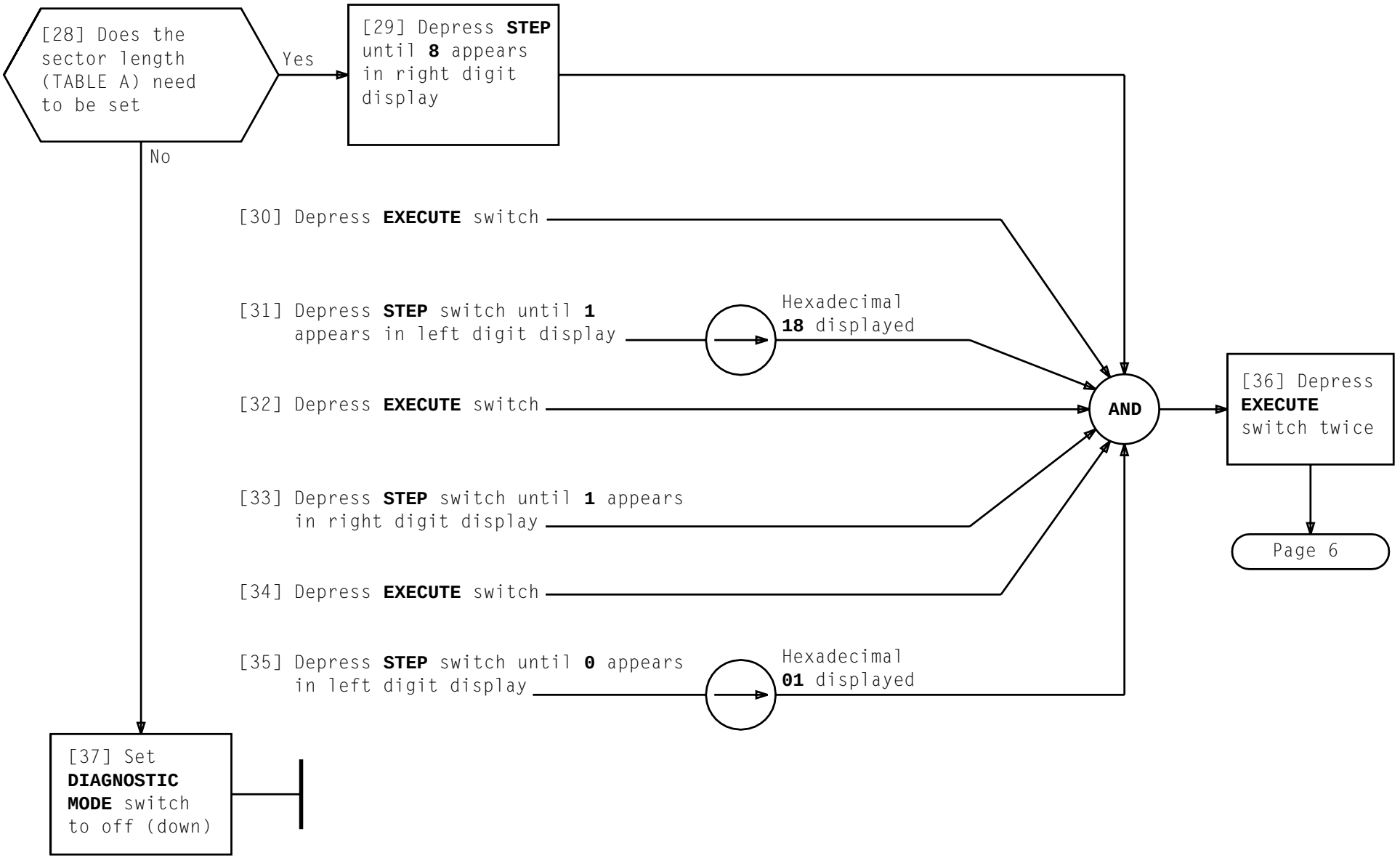
VERIFY EPROM STATUS



VERIFY EPROM STATUS



VERIFY EPROM STATUS



VERIFY EPROM STATUS

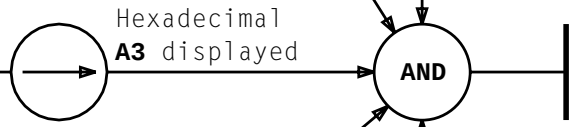
[38] Depress **STEP** switch until **3** appears in right digit display

[39] Depress **EXECUTE** switch

[40] Depress **STEP** switch until **A** appears in left digit display

[41] Depress **EXECUTE** switch

[42] Set **DIAGNOSTIC MODE** switch to off (down)



VERIFY EPROM STATUS

[1] Wear a properly grounded wrist strap throughout this procedure

[2] See CAUTION 1. At front of DUP, record and save the setting of the DUP **ID SELECTOR** switch

[3] Find SCSI bus number in TABLE A for location of DUP being removed.
At terminal, type: **RMV:SBUS a!** and wait for **RMV COMPLETE** output message.
All DUPs on bus will be removed from service where: a = SCSI bus number from TABLE A

[4] At front of DUP, press **OFF** switch. Wait 1 minute for disk to spin down

[5] At power distribution unit at top of cabinet, remove indicator fuse and then load fuse for this DUP **[TAD-110]**

Page 2

TABLE A

DUP BUS ASSIGNMENTS

New System Cabinet		**Growth System Cabinet**		**Conversion Cabinet**	
Tape Drive		**DFC 2**	**DFC 3**	**DFC 0**	**DFC 1**
KS-23113		**Cooling Unit**		**Cooling Unit**	
Upper left 4 DUPs on SCSI Bus 2 DFC 0	Upper right 4 DUPs on SCSI Bus 3 DFC 1	Upper left 4 DUPs on SCSI Bus 6 DFC 2	Upper right 4 DUPs on SCSI Bus 7 DFC 3	Upper left 4 DUPs on SCSI Bus 2 DFC 0	Upper right 4 DUPs on SCSI Bus 3 DFC 1
Lower left 4 DUPs on SCSI Bus 0 DFC 0	Lower right 4 DUPs on SCSI Bus 1 DFC 1	Lower left 4 DUPs on SCSI Bus 4 DFC 2	Lower right 4 DUPs on SCSI Bus 5 DFC 3	Lower left 4 DUPs on SCSI Bus 0 DFC 0	Lower right 4 DUPs on SCSI Bus 1 DFC 1

CAUTION 1
Disk access problems may result if an incorrect ID SELECTOR switch setting is inserted on the replacement DUP.

REMOVE SCSI DISK UNIT PACKAGE (DUP)

[6] At rear of DUP, remove all cables from the following connectors:
- SCSI Bus
- 48 V DC
- ALARM IN
- ALARM OUT
- SCAN/SD

[FIG. 1]

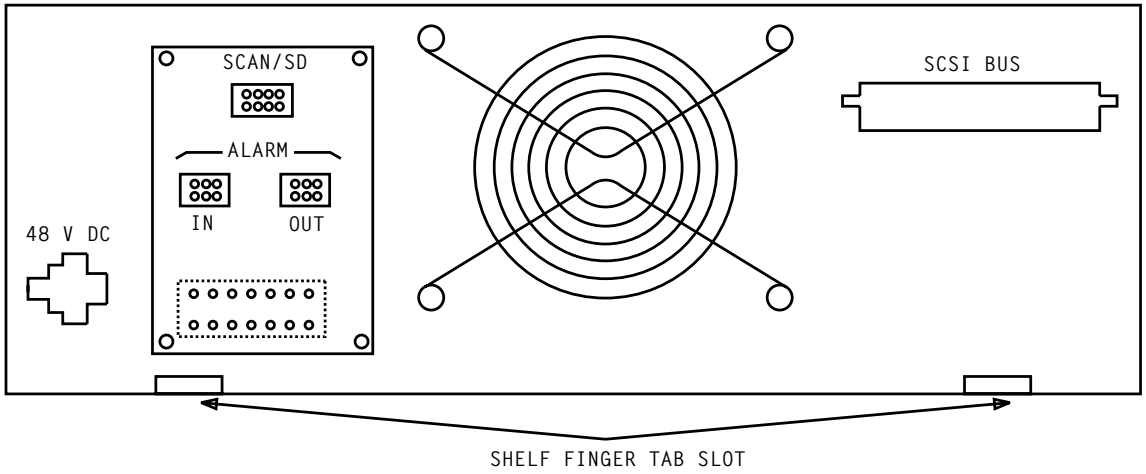


FIG. 1 - Disk Unit Package - Rear View

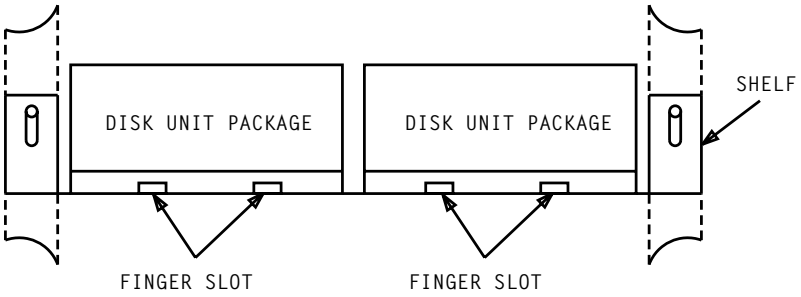
[7] At front of DUP, remove three screws that hold retaining bracket to shelf [FIG. 2, Page 2]

[8] Remove retaining bracket from finger slots in both DUPs on this shelf

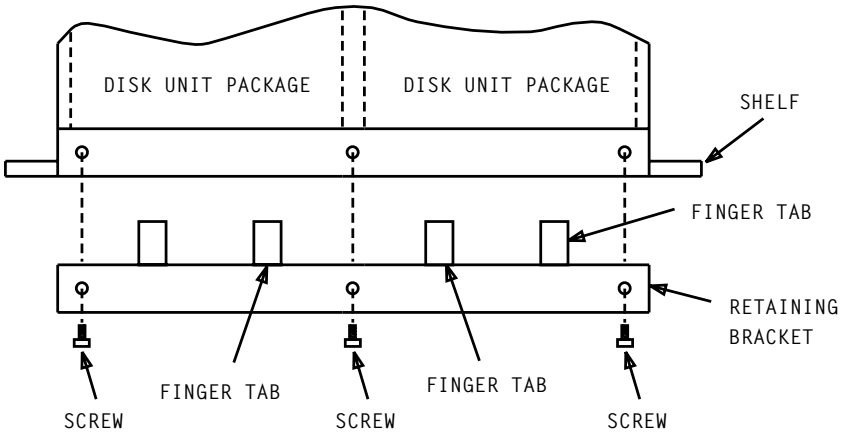
[9] From rear of cabinet, slide DUP forward to clear finger tabs from the shelf at the rear of the DUP

[10] At the front of cabinet, remove DUP from shelf

REMOVE SCSI DISK UNIT PACKAGE (DUP)



DUP FRONT VIEW (in Cabinet)



DUP TOP VIEW (in Cabinet)

FIG. 2 - Disk Unit Package Shelf Arrangement

REMOVE SCSI DISK UNIT PACKAGE (DUP)

[1] Wear a properly grounded wrist strap throughout this procedure

[2] At SCSI disk cabinet, place DUP on shelf and slide to the rear to engage shelf tabs

[3] At front of cabinet, engage retaining bracket tabs in both DUPs and install three screws [FIG. 1]

[4] At rear of DUP, install all cables to connectors as follows:

- SCAN/SD
- ALARM-IN
- ALARM-OUT
- 48 V DC
- SCSI Bus

[FIG. 2, Page 2]

Page 2

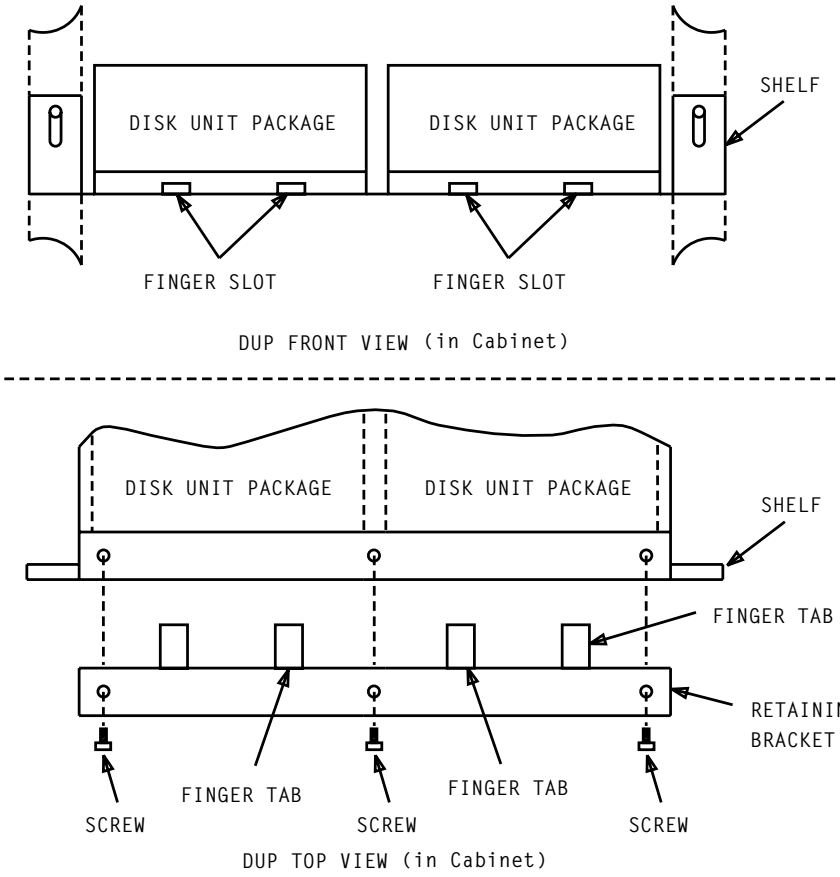


FIG. 1 - Disk Unit Package Shelf Arrangement

INSTALL SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP)

[5] At DUP front panel, set **RST/ROS** switch to **ROS** position

[6] At power distribution unit, insert the load fuse and then the indicator fuse **[TAD-110]**

[7] See CAUTION 1. Set Moving Head Disk (MHD) ID SELECTOR switch to same number recorded for the DUP removed from this location [TABLE A, Page 3]

[8] At DUP, press **ON** switch

[9] Find bus number in TABLE A, Page 3, for DUP being replaced. Restore SCSI bus and its subunits to service; at terminal, type RST:SBUS a! where a = SCSI bus number

Page 3

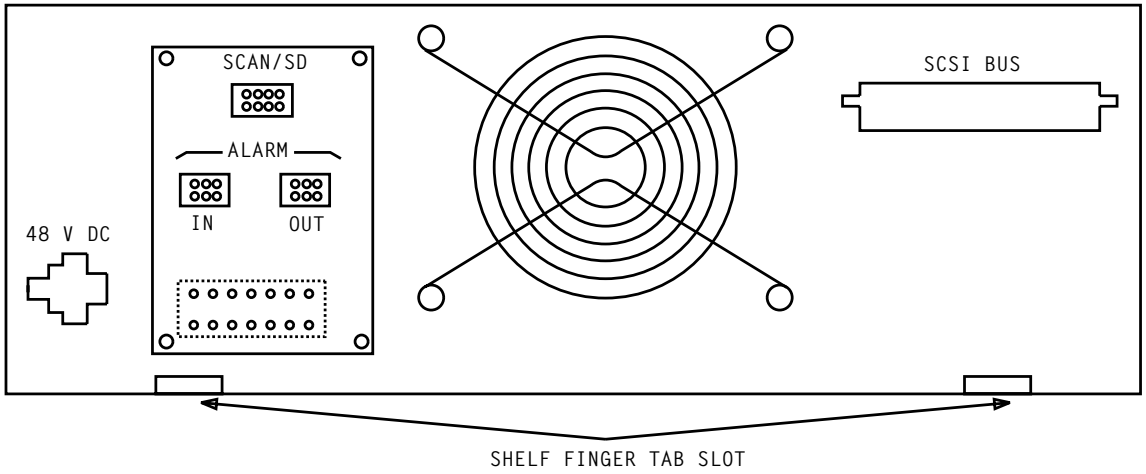


FIG. 2 - Disk Unit Package - Rear View

CAUTION 1
Disk access problems may result on this disk and other disks if incorrect ID SELECTOR switch setting is used on the replacement DUP.

INSTALL SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP)

[10] If DUP just installed is a new package, at terminal, type: INIT:MHD x:! and wait for INIT MHD x COMPLETED output message

[11] Restore MHD to service **[DLP-652]**

TABLE A

MHD BUS AND ID SELECTOR ASSIGNMENTS

New SCSI System				Growth SCSI System				Conversion			
DFC	SCSI Bus	MHD*	ID SELECTOR	DFC	SCSI Bus	MHD*	ID SELECTOR	DFC	SCSI Bus	MHD*	ID SELECTOR
0	0	0	0	2	4	16	0	0	0	0	0
0	0	4	1	2	4	20	1	0	0	4	1
0	0	8	2	2	4	24	2	0	0	8	2
0	0	12 or 14	3	2	4	28	3	0	0	12 or 14	3
0	2	2	0	2	6	18	0	0	2	2	0
0	2	6	1	2	6	22	1	0	2	6	1
0	2	10	2	2	6	26	2	0	2	10	2
0	2	14 or 12	3	2	6	30	3	0	2	14 or 12	3
1	1	1	0	3	5	17	0	1	1	1	0
1	1	5	1	3	5	21	1	1	1	5	1
1	1	9	2	3	5	25	2	1	1	9	2
1	1	13 or 15	3	3	5	29	3	1	1	13 or 15	3
1	3	3	0	3	7	19	0	1	3	3	0
1	3	7	1	3	7	23	1	1	3	7	1
1	3	11	2	3	7	27	2	1	3	11	2
1	3	15 or 13	3	3	7	31	3	1	3	15 or 13	3

*Application dependent

SUMMARY

Remove cover assembly from DUP.

[1] See CAUTIONS 1 and 2. Wear a properly grounded wrist strap throughout this procedure

[2] See CAUTION 3. At front of DUP, record and save the setting of the DUP **ID SELECTOR** switch

[3] Place DUP on workbench

[4] Remove two screws from each side and one screw from top (rear center) of DUP

[5] Slide cover assembly forward to clear switches and gently lift from DUP chassis. Do not disturb clip holding cable to DUP cover. Reach under and disconnect **ID SELECTOR** cable from disk module; then remove cover. [See FIG. 1 through FIG. 8; NOTE 1]

[6] Is disk module being replaced

Yes → Page 7, Step 11

No

[7] Is power supply (CGG2) being replaced

Yes → Page 13, Step 55

No

[8] Is power switch (CGG1) being replaced

No → [9] Is fan being replaced

Yes → Page 19, Step 96

No → Page 21, Step 106

Yes → Page 15, Step 70

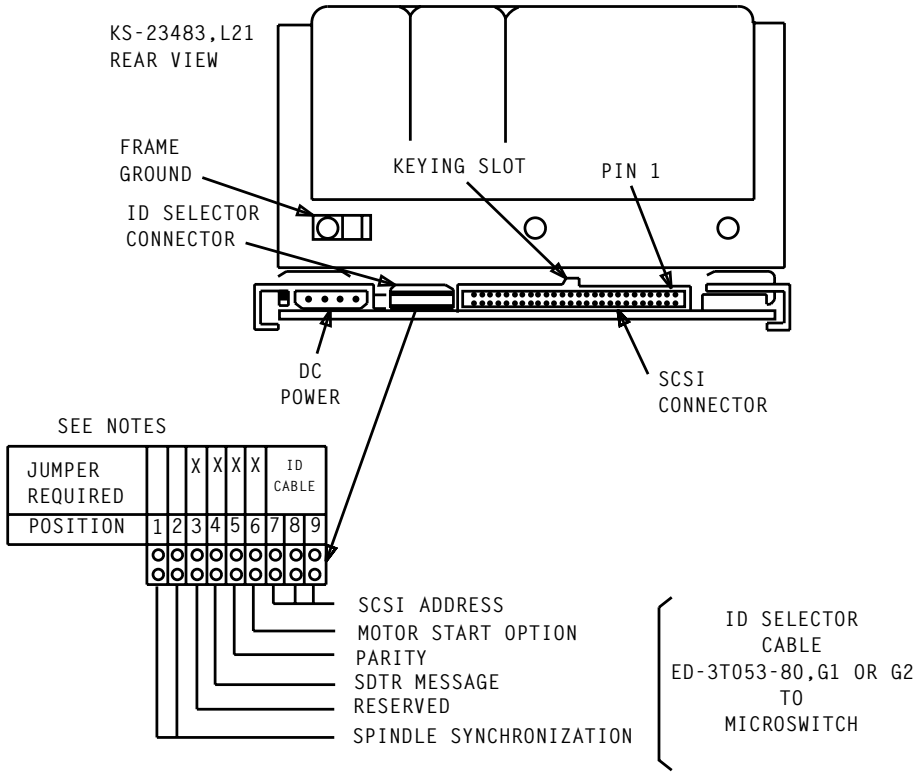
NOTE 1

In a DUP equipped with a 5 1/4-inch disk module, a cable tie restrains the ID and disk power cables to the CGG2 and prevents the cables from being damaged when removing the cover. This tie also keeps the cables away from the fan [see FIG. 8]. The cover cannot be completely removed without cutting this cable tie.

CAUTIONS

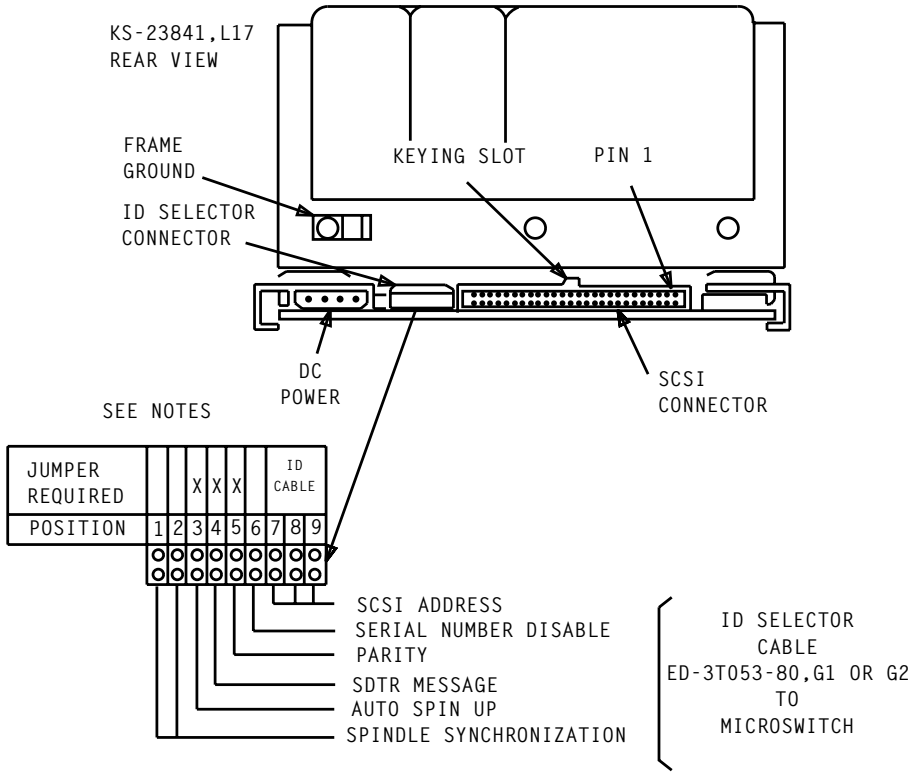
1. *Touching exposed circuit elements may damage circuits.*
2. *Electrostatic discharge may damage disk module.*
3. *Disk access problems may result if an incorrect ID SELECTOR switch setting is inserted on the replacement DUP.*

REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS



Notes:
1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

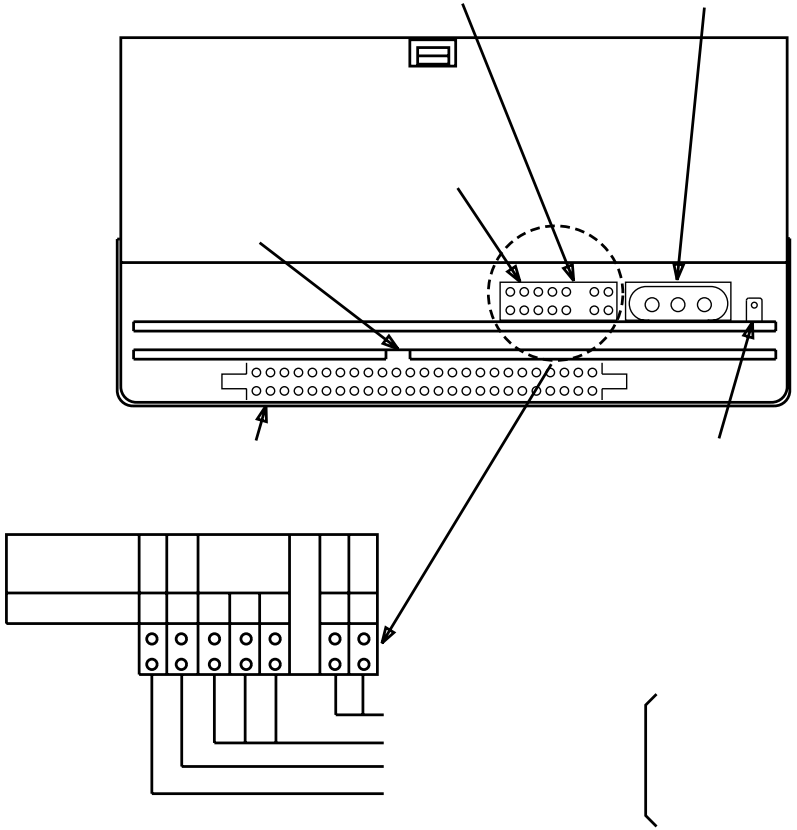
FIG. 1 - KS-23483,L21 - Rear View - ID Selector Cable Connections



Notes:

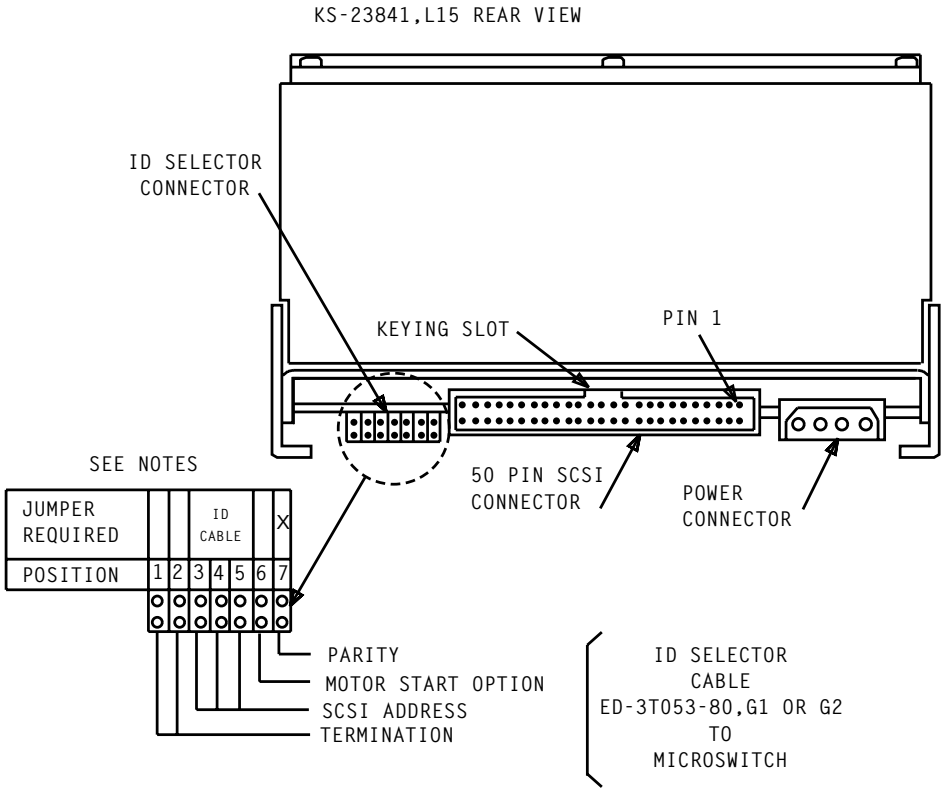
1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

FIG. 2 - KS-23841-L17 - Rear View - ID Selector Cable Connections



Notes:
1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".

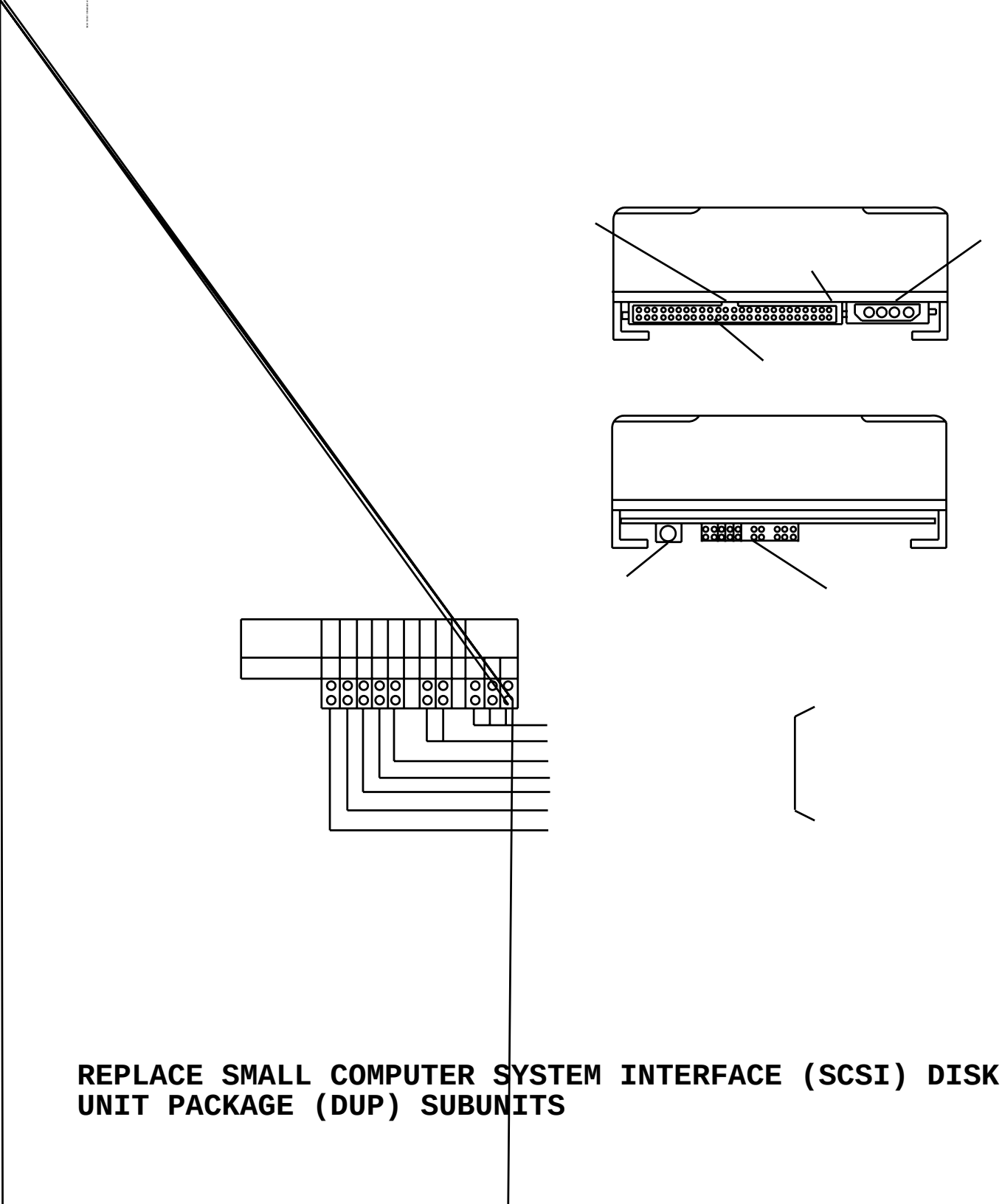
REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS



Notes:

1. Remove any jumpers in positions not indicated with an "X".
2. Install jumpers in all positions indicated with an "X".
3. Install the ID select cable in the indicated position. Observe proper orientation of the selector cable plug.

FIG. 4 - KS-23841,L15 - Rear View - ID Selector Cable Connections



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

Identify disk module.

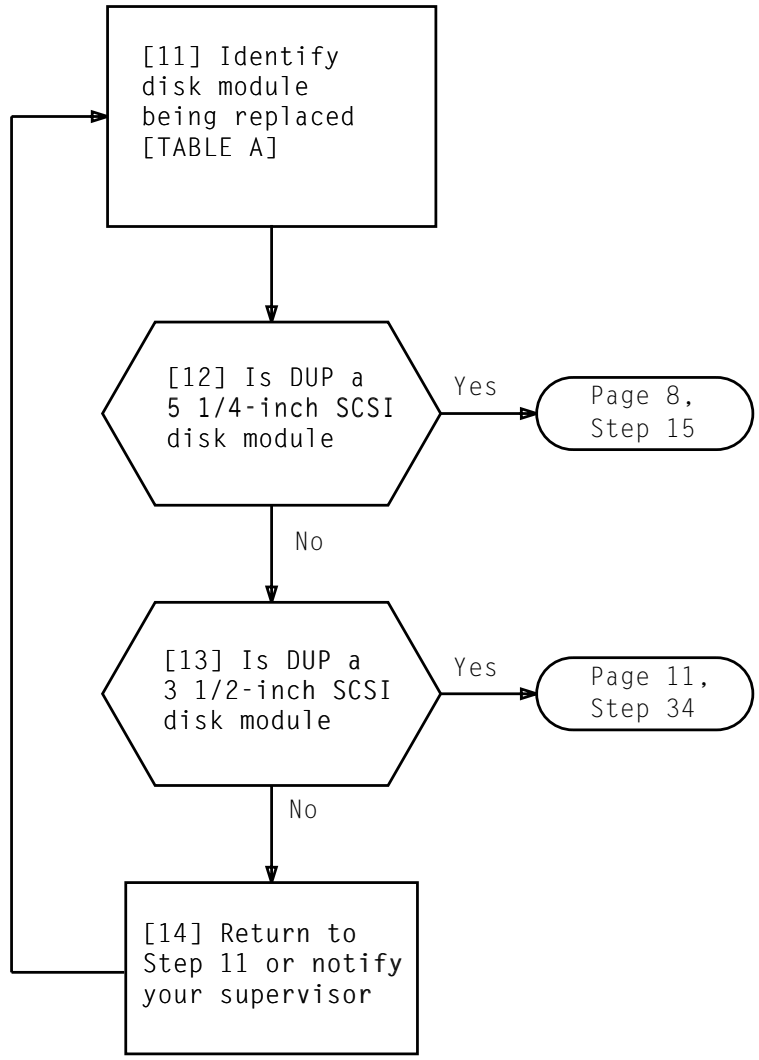
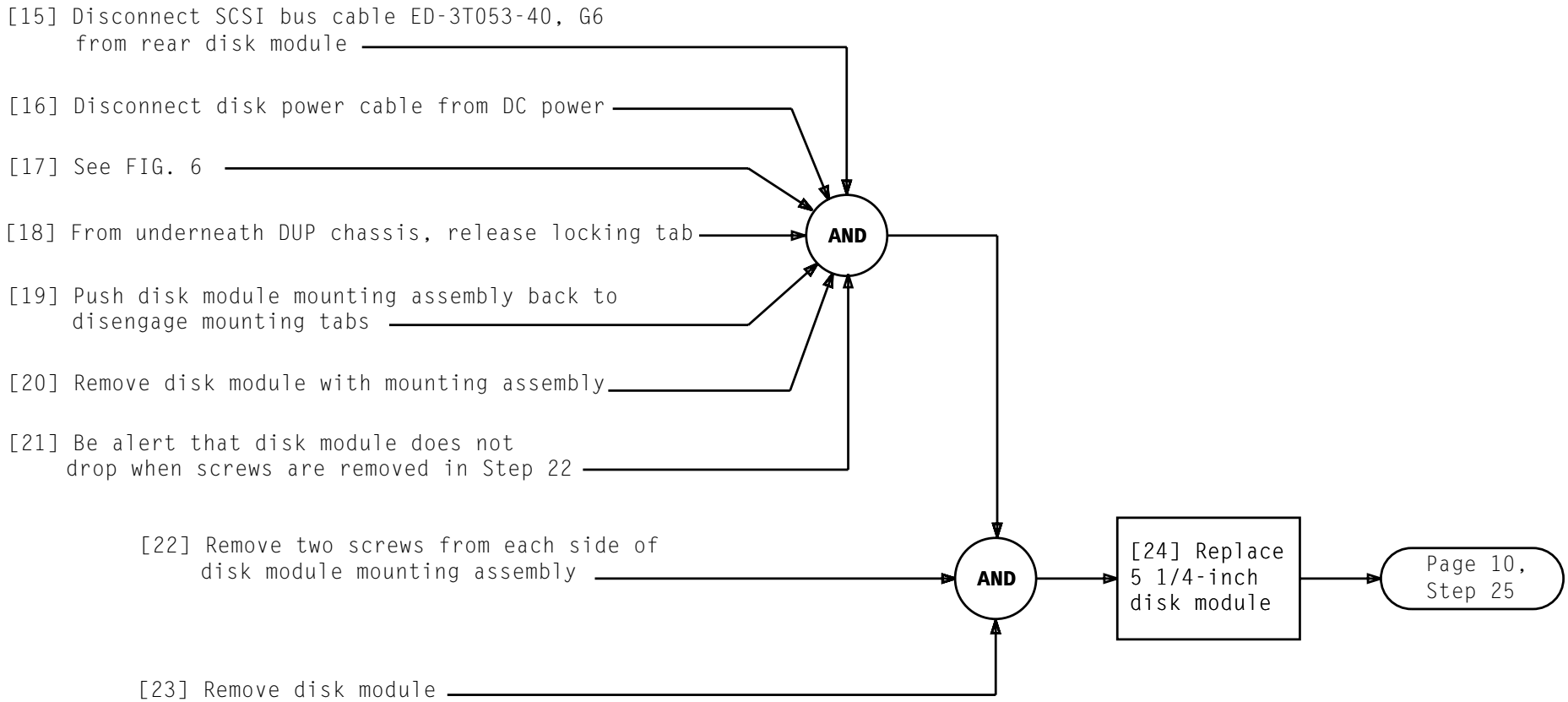


TABLE A
REPLACING DISK MODULES

FIG. 1	KS-23483,L21	Page 2
FIG. 2	KS-23841,L17	Page 3
FIG. 3	KS-23483,L13	Page 4
FIG. 4	KS-23841,L15	Page 5
FIG. 5	KS-23908,L20	Page 6

REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY
Remove 5 1/4-inch disk module.



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

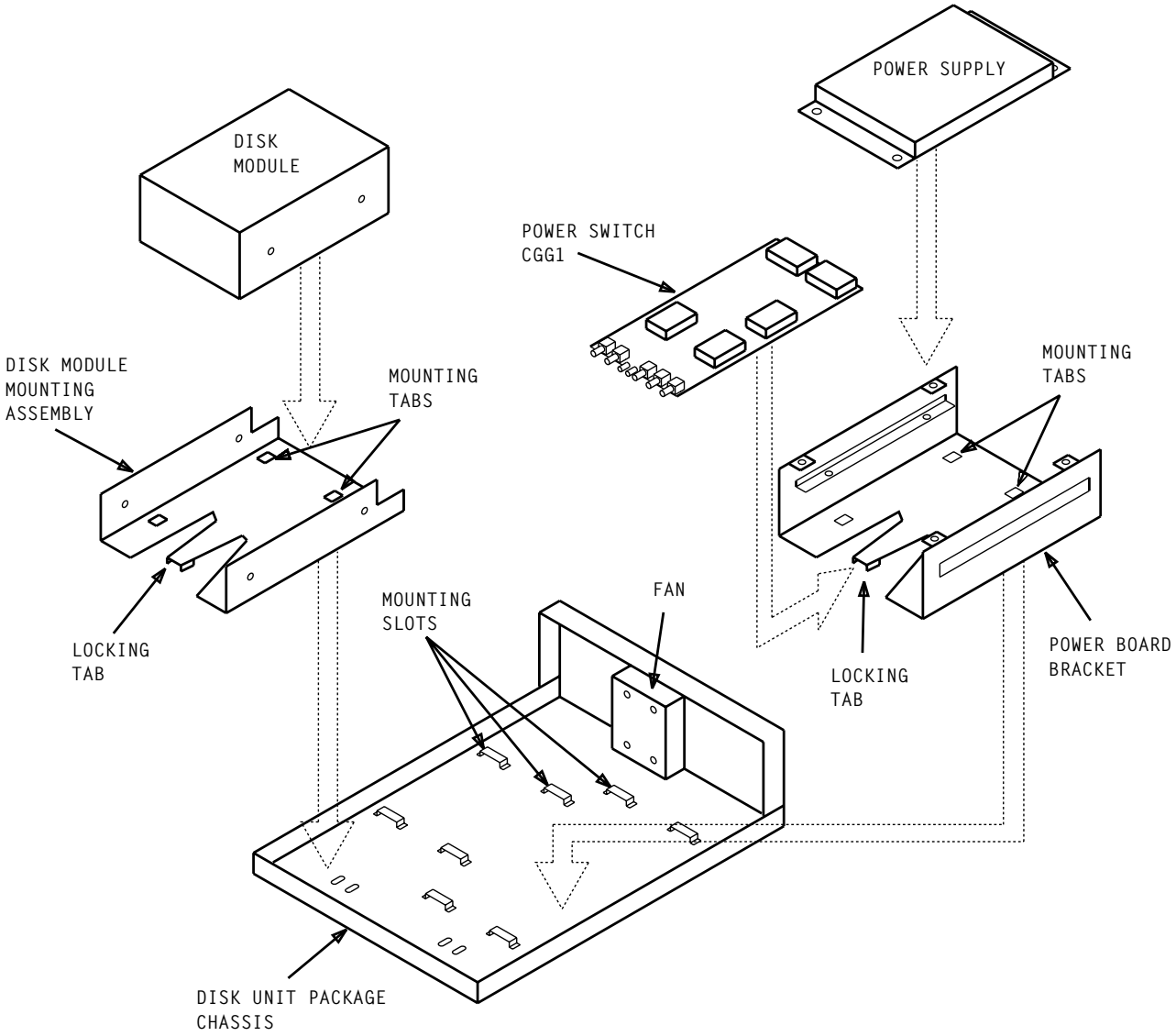
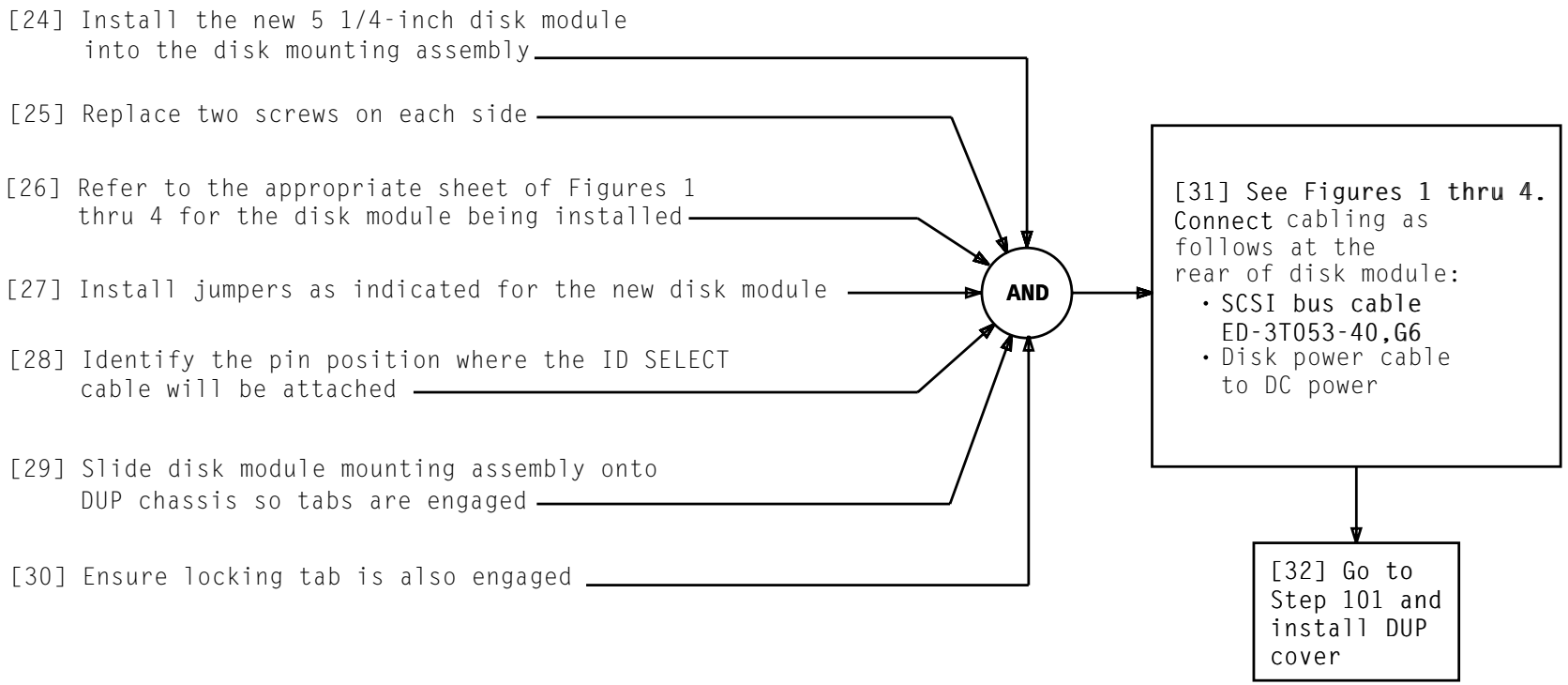


FIG. 6 - Disk Unit Package - Exploded View

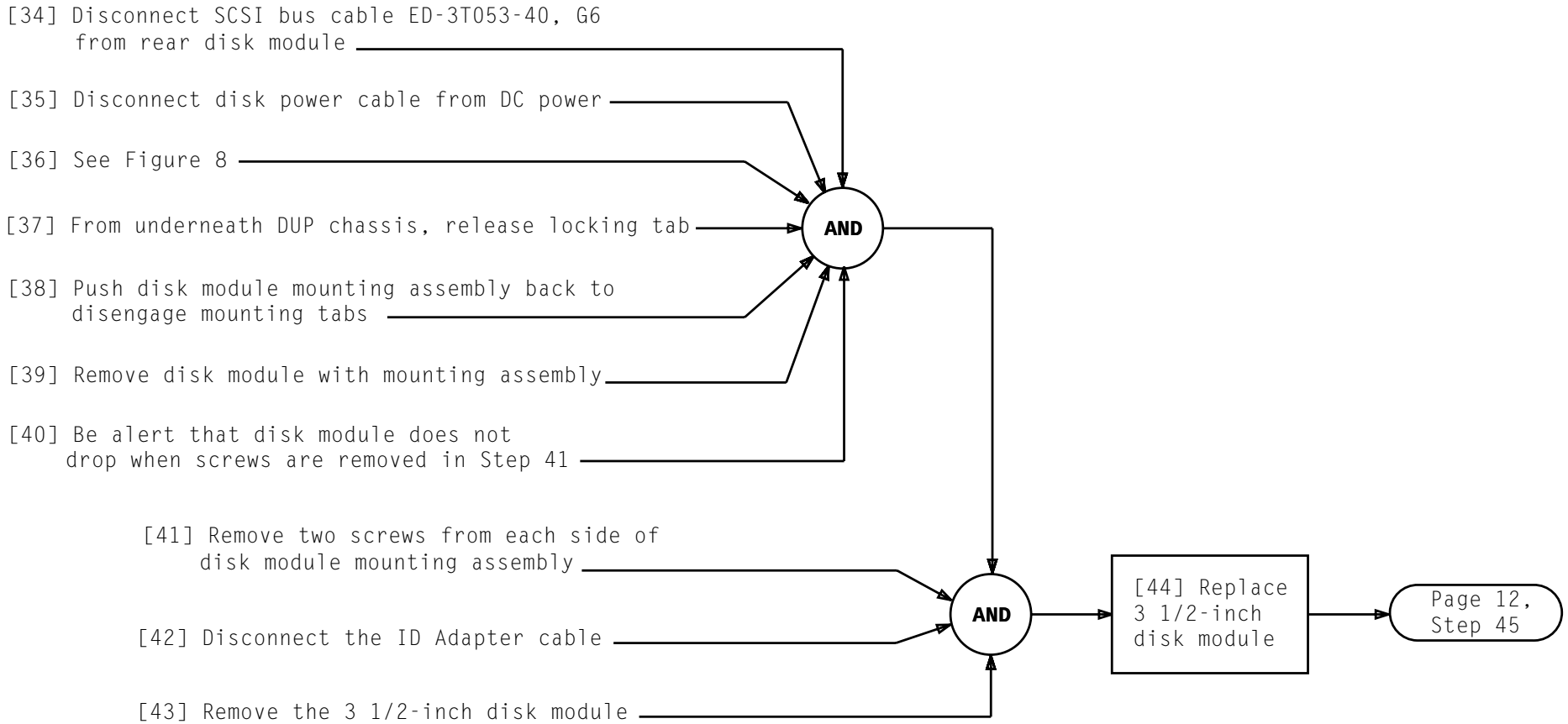
REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY
Install 5 1/4-inch disk module.



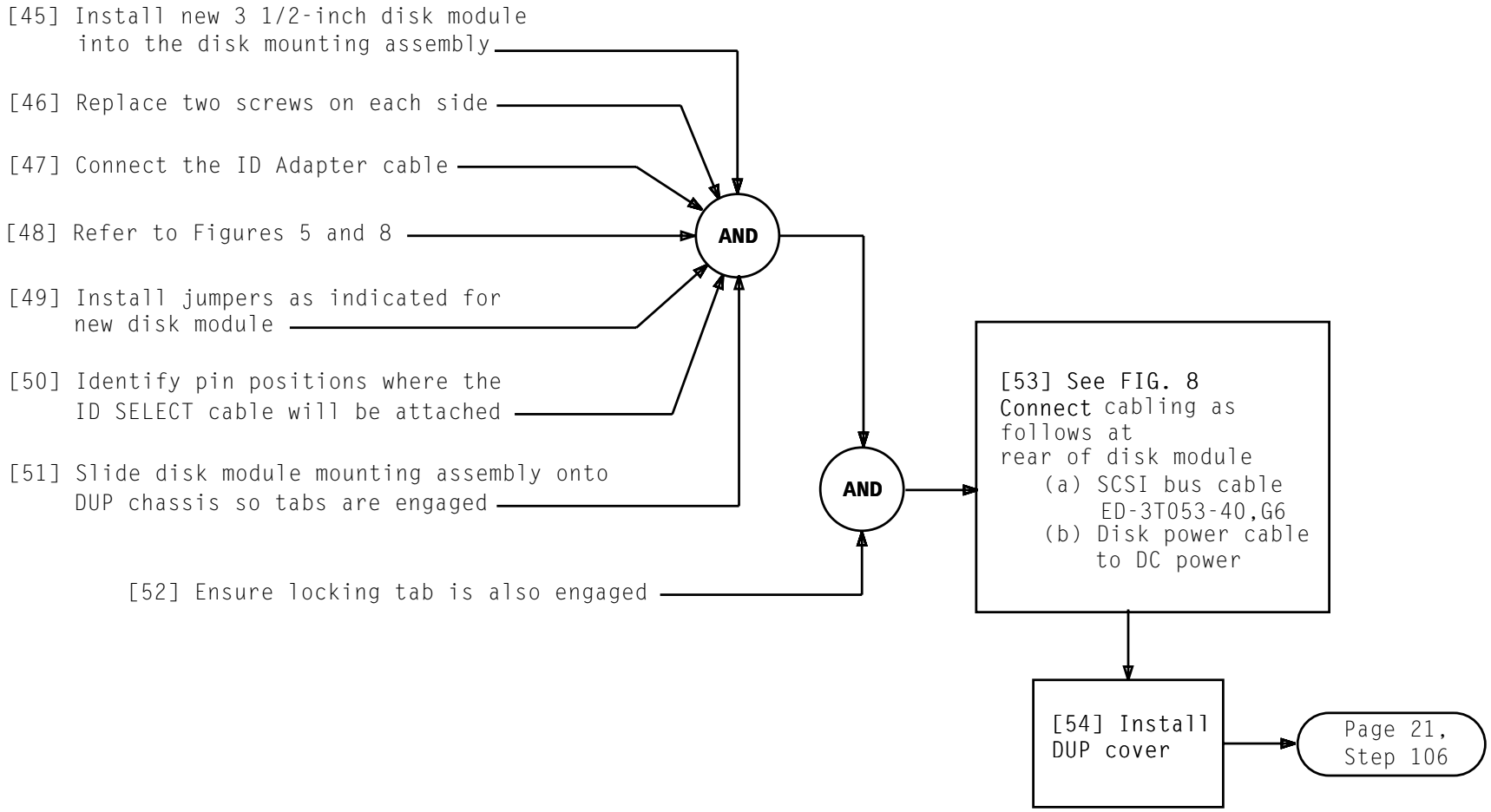
REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY
Remove 3 1/2-inch disk module.



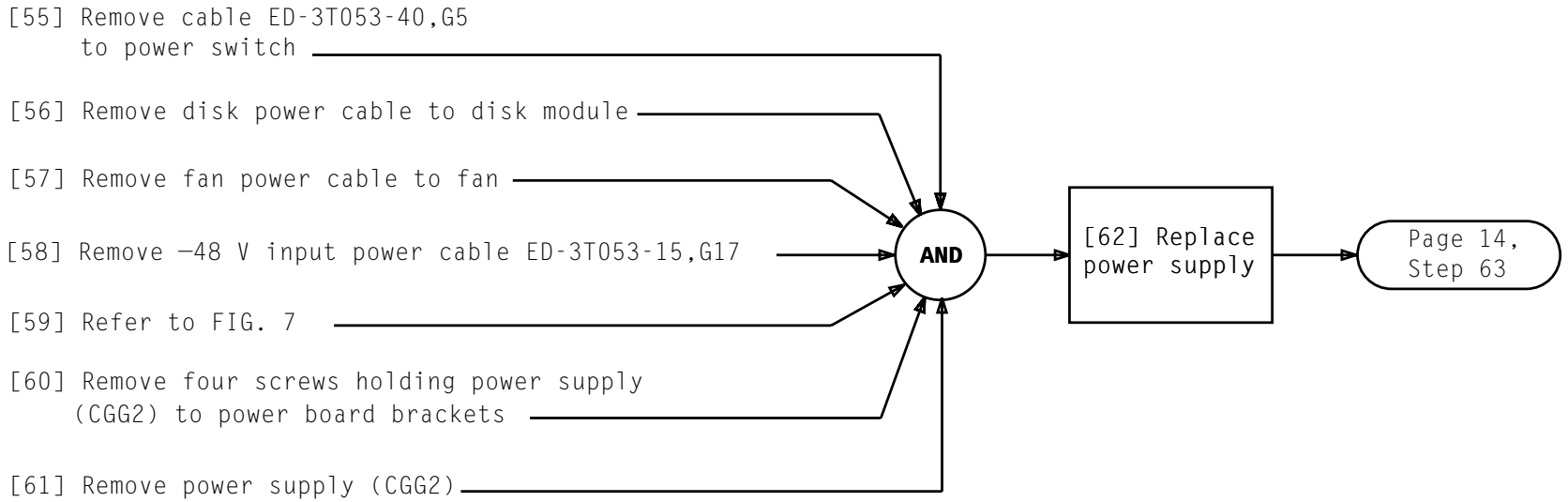
REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY
Install 3 1/2-inch disk module.



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

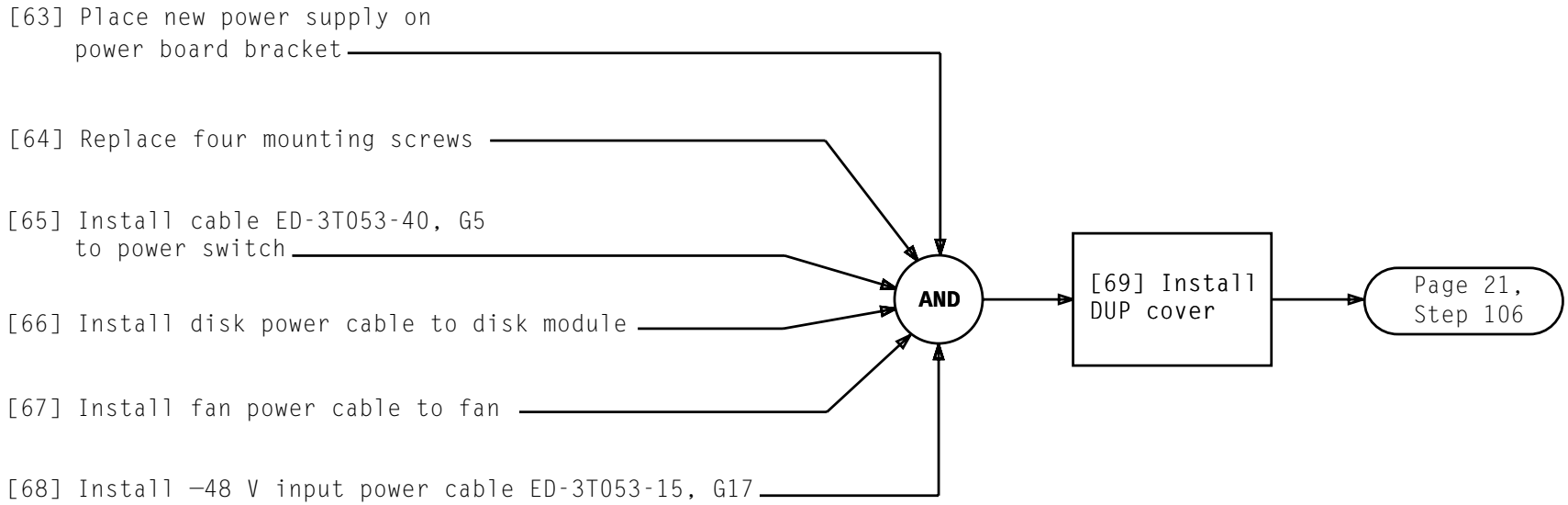
SUMMARY
Remove power supply (CGG2).



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

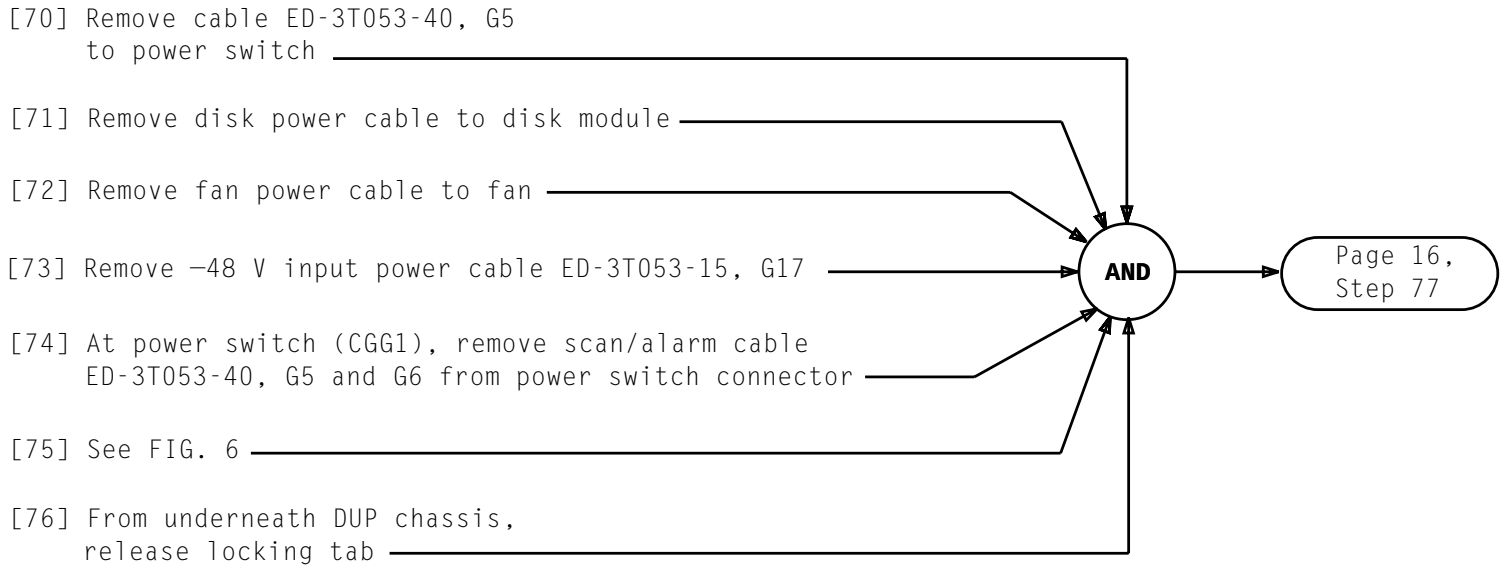
Install power supply (CGG1).



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

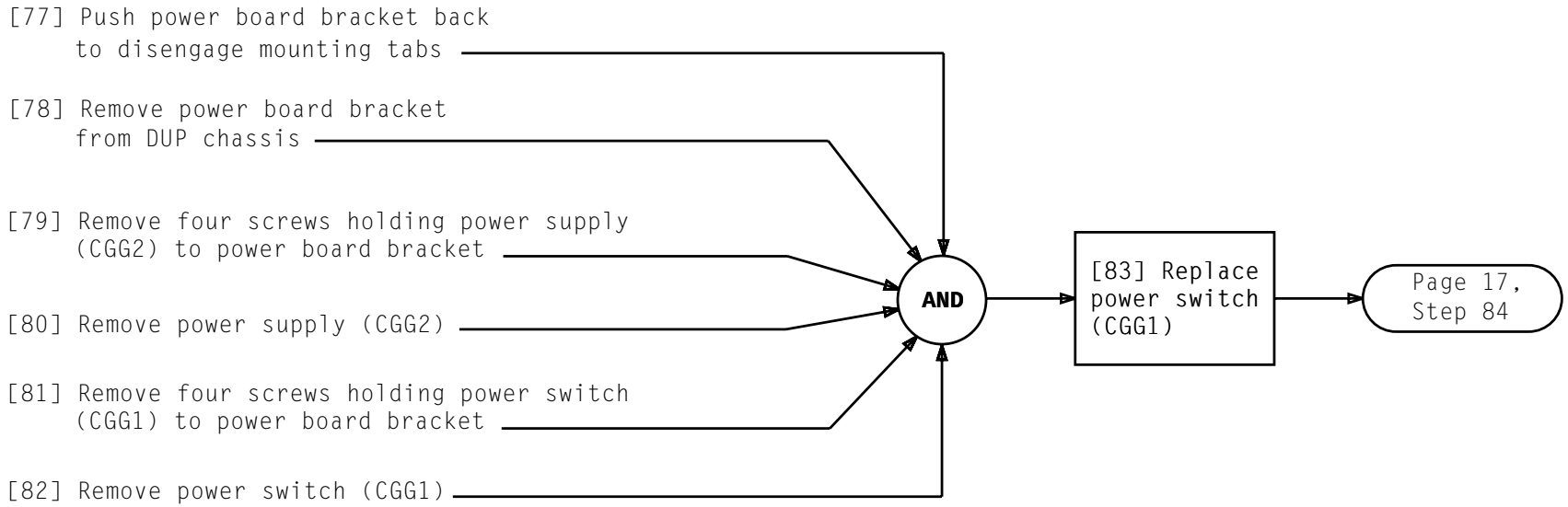
Remove power switch (CGG1).



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

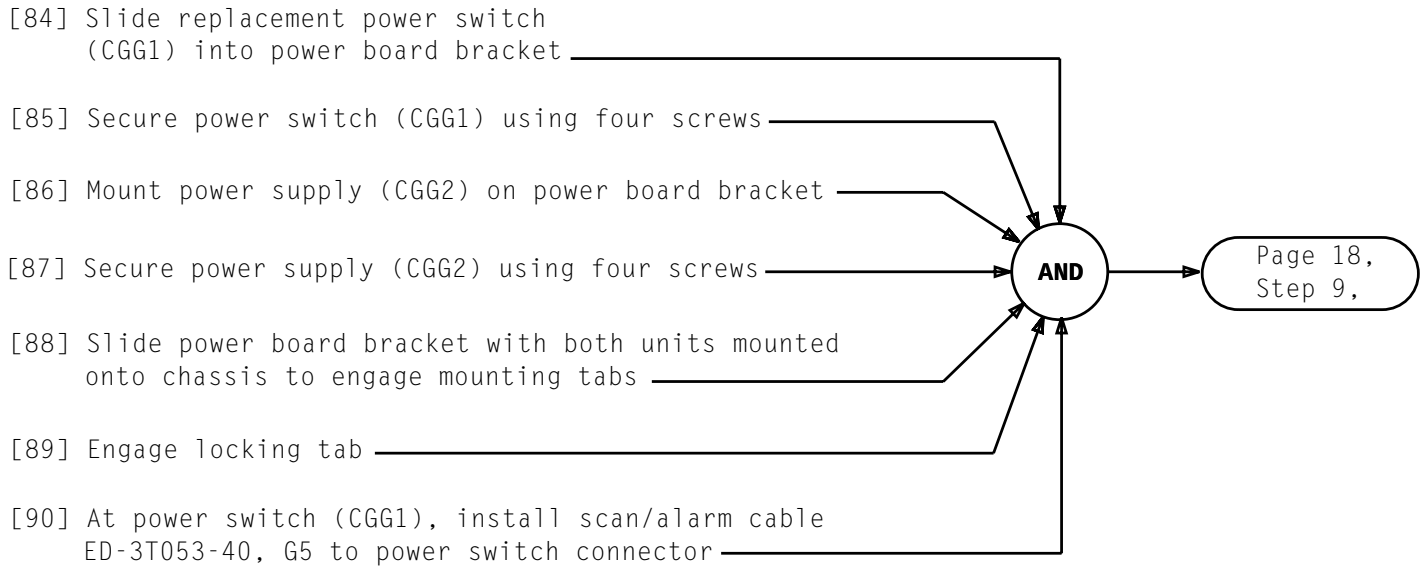
Remove power switch (CGG1).



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

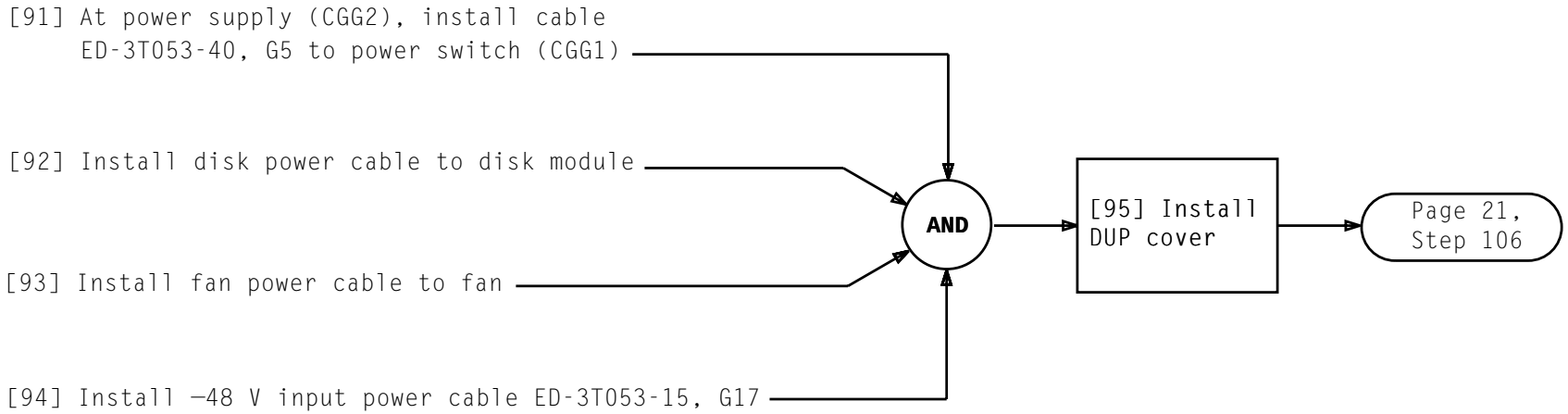
Replace power switch (CGG1).



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

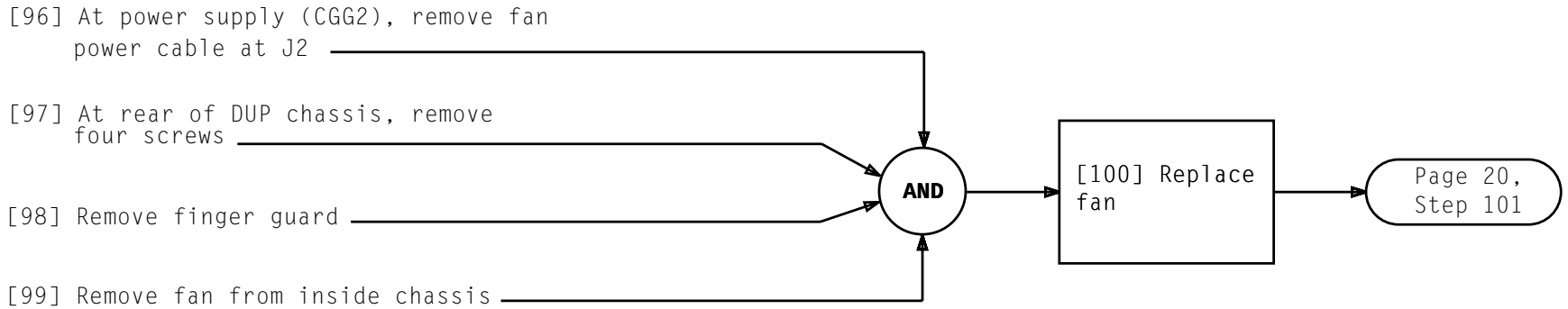
Replace power switch (CGG1).



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

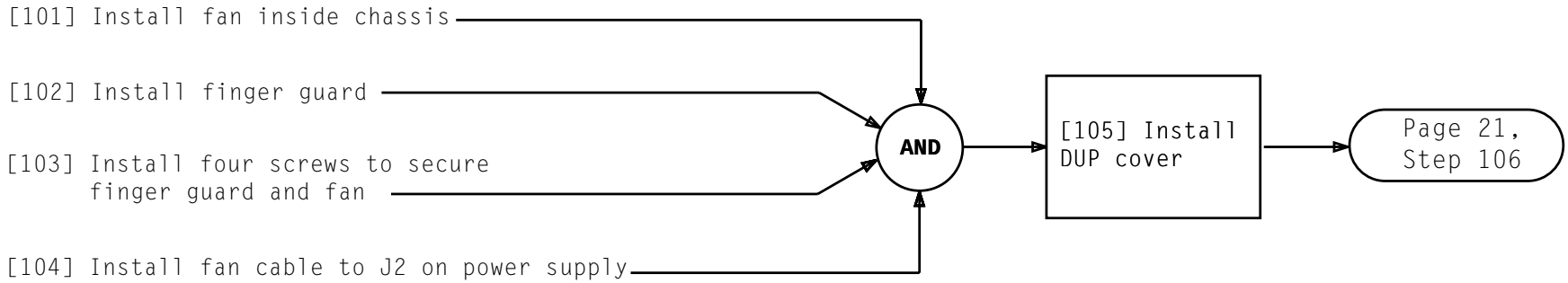
Remove Fan.



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

Replace Fan.



REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

SUMMARY

Install DUP cover.

[106] Hold DUP cover over chassis

[107] Connect **ID SELECTOR** cable to appropriate pins of disk module

[108] For DUP equipped with 5 1/4-inch disk module, **ID SELECTOR** and disk power cable must be restrained to power supply (CGG2) with a cable tie [NOTE 1; FIG. 7; FIG. 8]

[109] Route cables away from chassis screw tab to avoid pinching

[110] Place cover over DUP chassis [FIG. 7; FIG. 8]

[111] Install two screws on each side of DUP

[112] Install one screw on rear center of DUP

AND

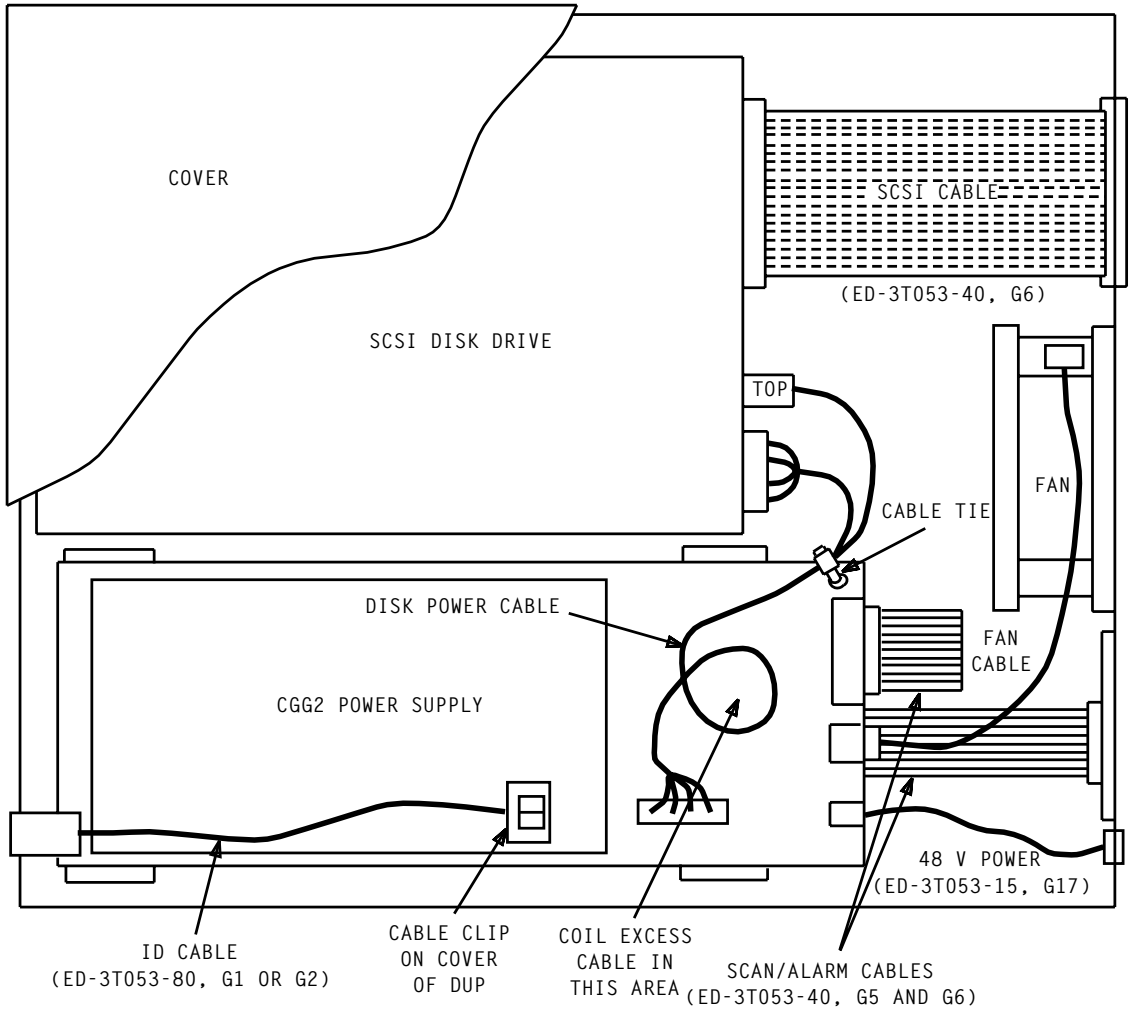
AND

[113] Set ID switch to same value saved when begining replacement procedure [NOTE 2]

NOTES

1. When restraining cables, keep them away from the fan.
2. Never set the ID switch to value 7, as this position is used by and reserved for the SCSI DFC.

REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS



Note: Disk power cable and ID cable must be restrained using a cable tie through a hole on CGG2 power supply board to keep cables away from the front of the fan and avoid cable damage to the ID cable when removing the cover. Internal cable connections may vary depending on the SCSI disk drive.

FIG. 7 — Top View of DUP Equipped With 5 1/4-Inch Disk Showing Internal Cabling

REPLACE SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK UNIT PACKAGE (DUP) SUBUNITS

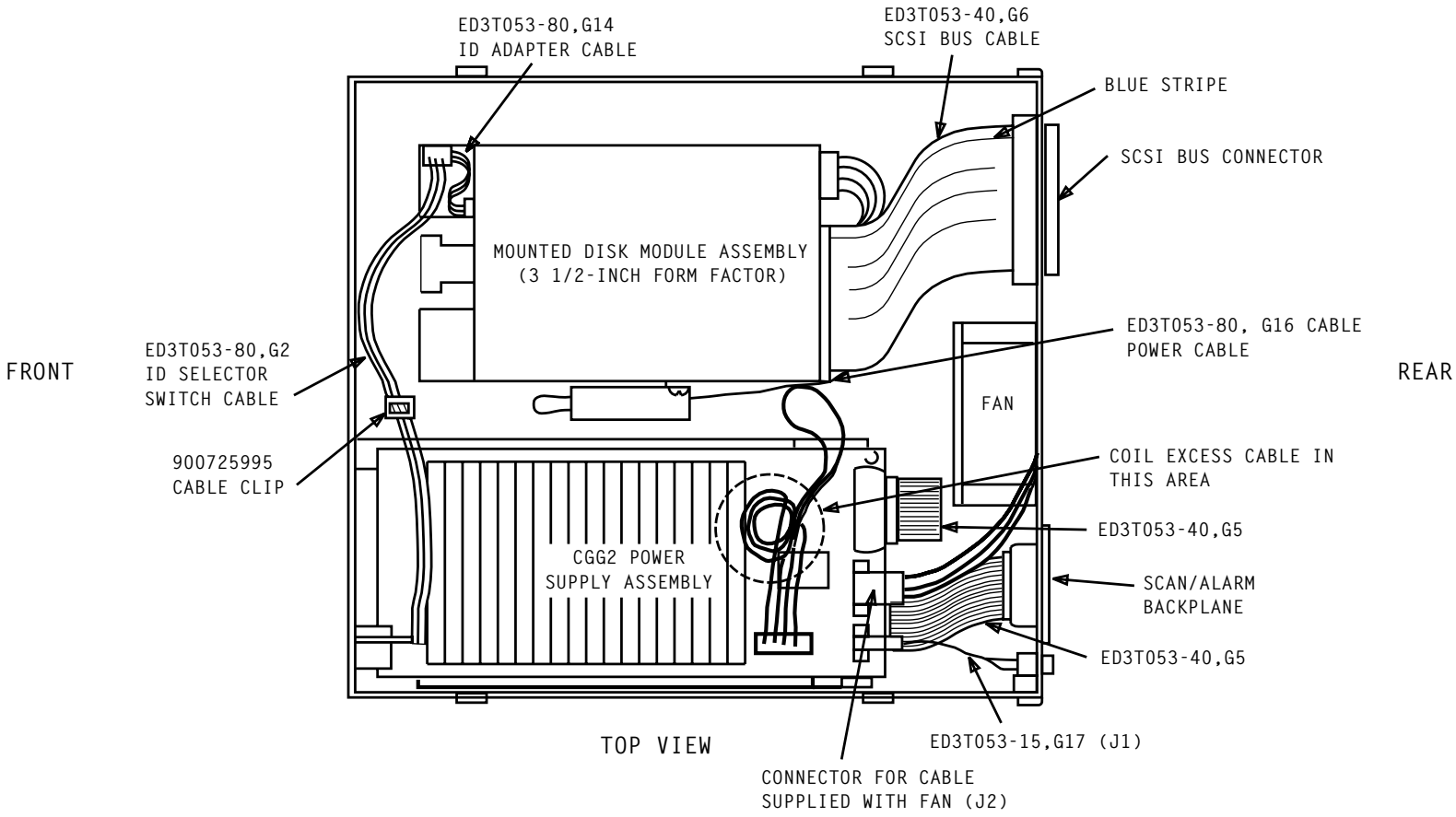


FIG. 8 — Top View of DUP Equipped With a 3 1/2-Inch SCSI Disk (KS-23908,L20) Showing Internal Cabling

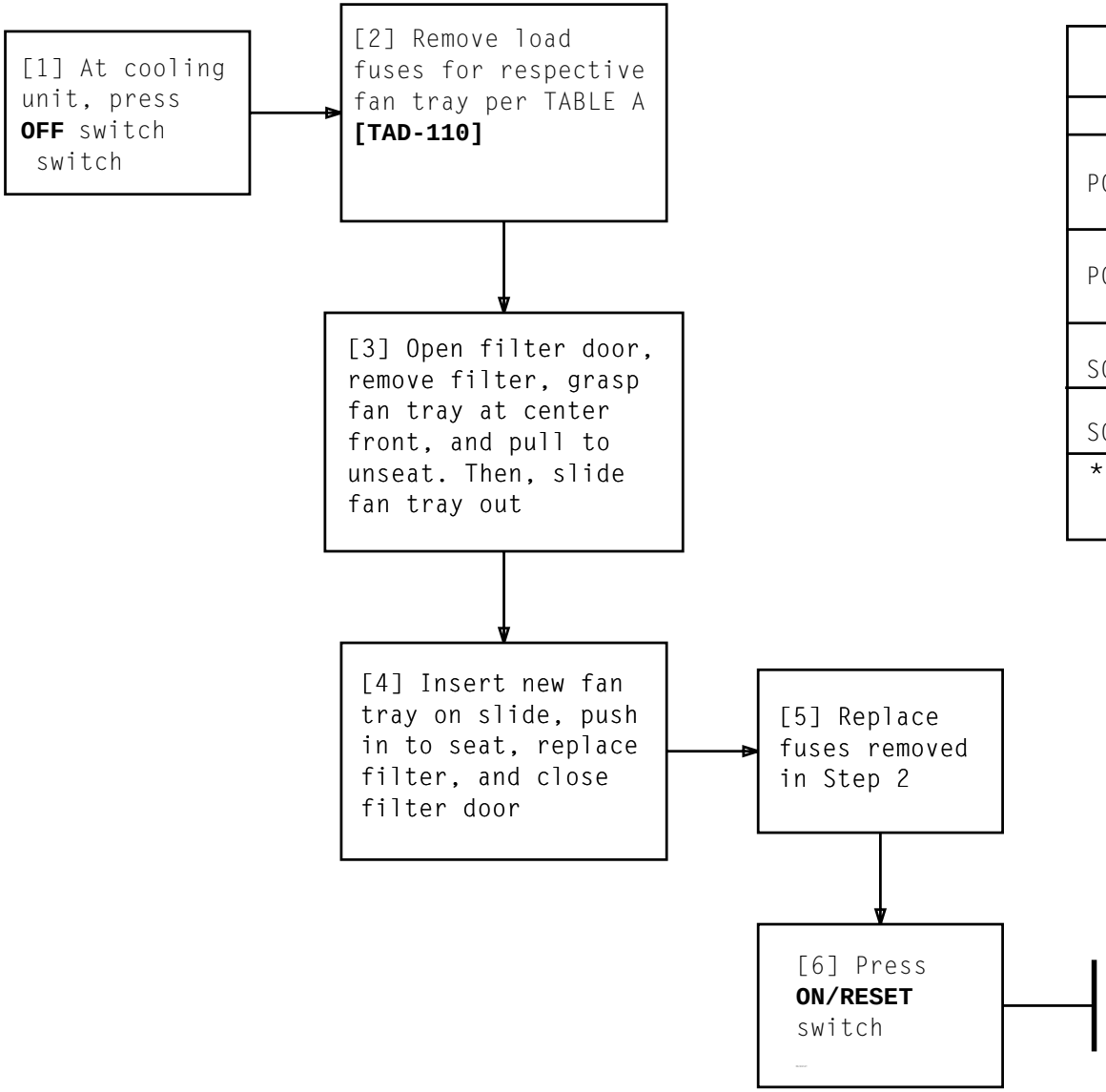


TABLE A
COOLING UNITS AND CORRESPONDING FUSES

CABINET	COOLING UNIT	LOAD FUSE
PC Bay 0	Left Fan Tray	F8A F4A F3A
PC Bay 1	Right Fan Tray	F7A F2A F1A
SCSI Disk 0	Left Fan Tray	F10A F9/F9A
SCSI Disk 1*	Right Fan Tray	F15A F16/F16A

* Fan equipped only when cabinet is equipped with DFC 2 and DFC 3.

REPLACE FAN TRAY

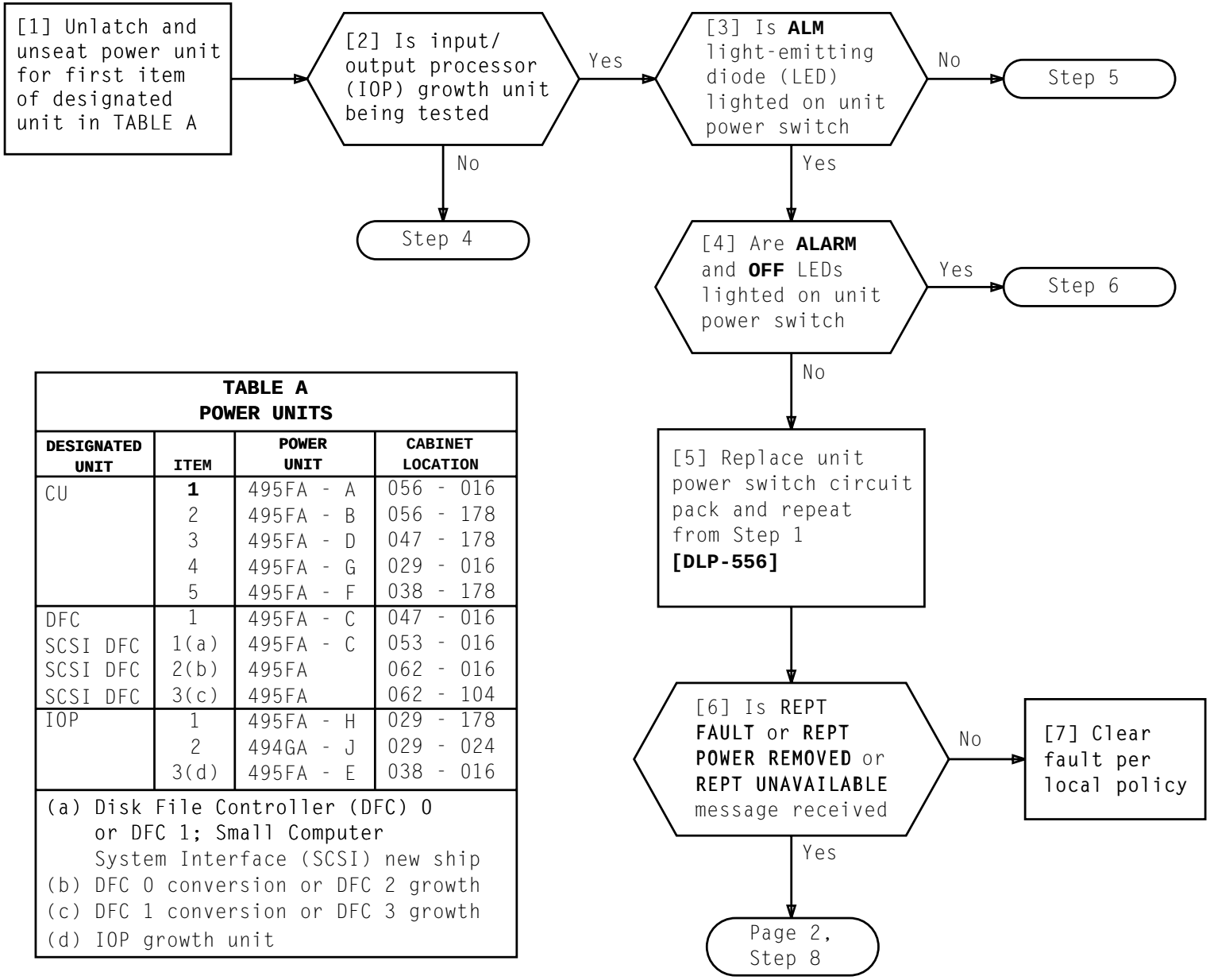


TABLE A
POWER UNITS

DESIGNATED UNIT	ITEM	POWER UNIT	CABINET LOCATION
CU	**1**	495FA - A	056 - 016
	2	495FA - B	056 - 178
	3	495FA - D	047 - 178
	4	495FA - G	029 - 016
	5	495FA - F	038 - 178
DFC	1	495FA - C	047 - 016
SCSI DFC	1(a)	495FA - C	053 - 016
SCSI DFC	2(b)	495FA	062 - 016
SCSI DFC	3(c)	495FA	062 - 104
IOP	1	495FA - H	029 - 178
	2	494GA - J	029 - 024
	3(d)	495FA - E	038 - 016

(a) Disk File Controller (DFC) 0 or DFC 1; Small Computer System Interface (SCSI) new ship
(b) DFC 0 conversion or DFC 2 growth
(c) DFC 1 conversion or DFC 3 growth
(d) IOP growth unit

TEST POWER UNIT ALARMS

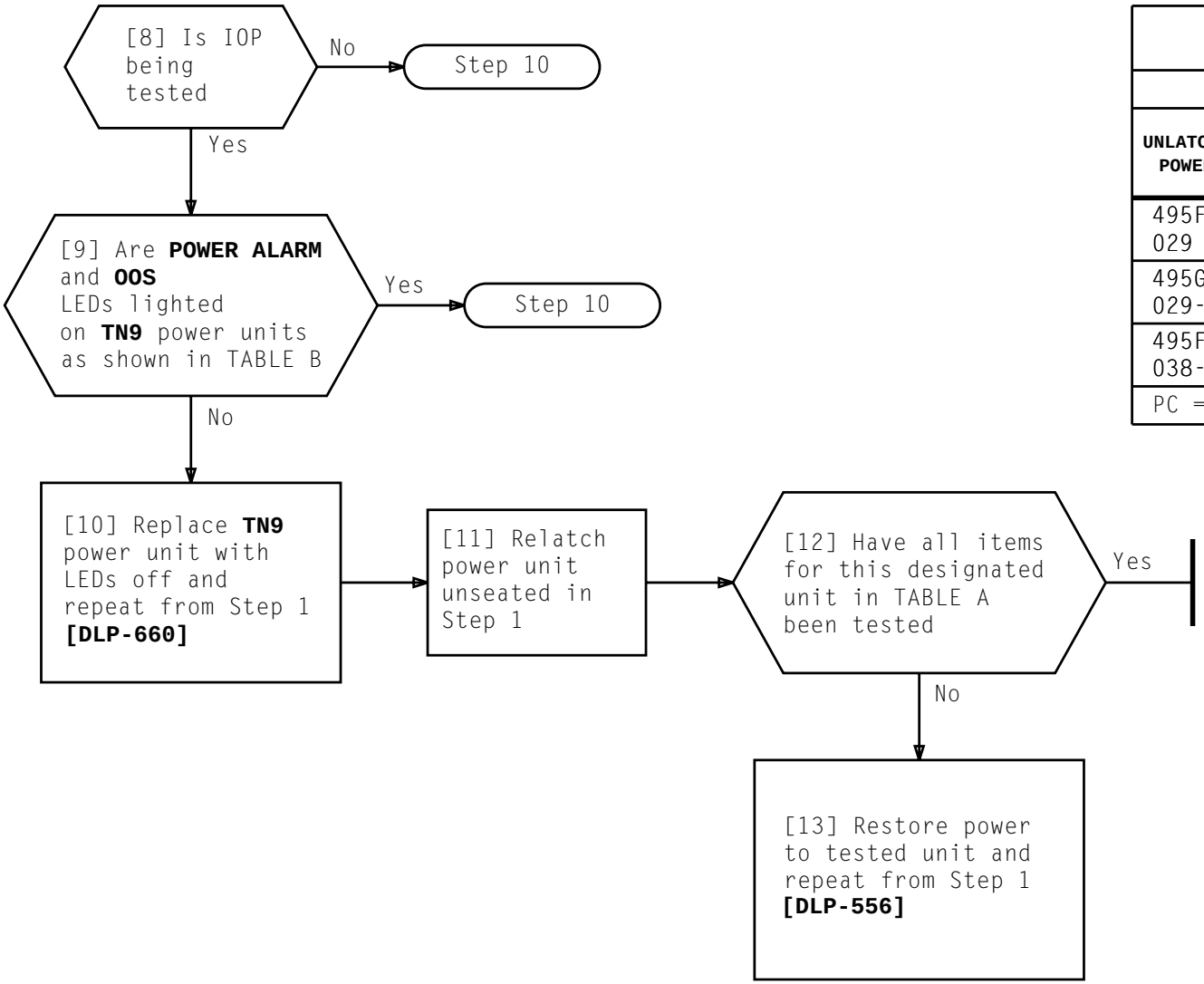


TABLE B
POWER UNIT LEDS

UNLATCHED IOP POWER UNIT	LIGHTED TN9 LEDS ON							
	PC 0 029-032		PC 1 029-072		PC 2 038-024		PC 3 038-056	
	ALM	OOS	ALM	OOS	ALM	OOS	ALM	OOS
495FA - H 029 - 178	X		X		X		X	
495GA - J 029-024			X	X				
495FA - E 038-016					X	X	X	X

PC = peripheral community

TEST POWER UNIT ALARMS

TEST POWER UNITS

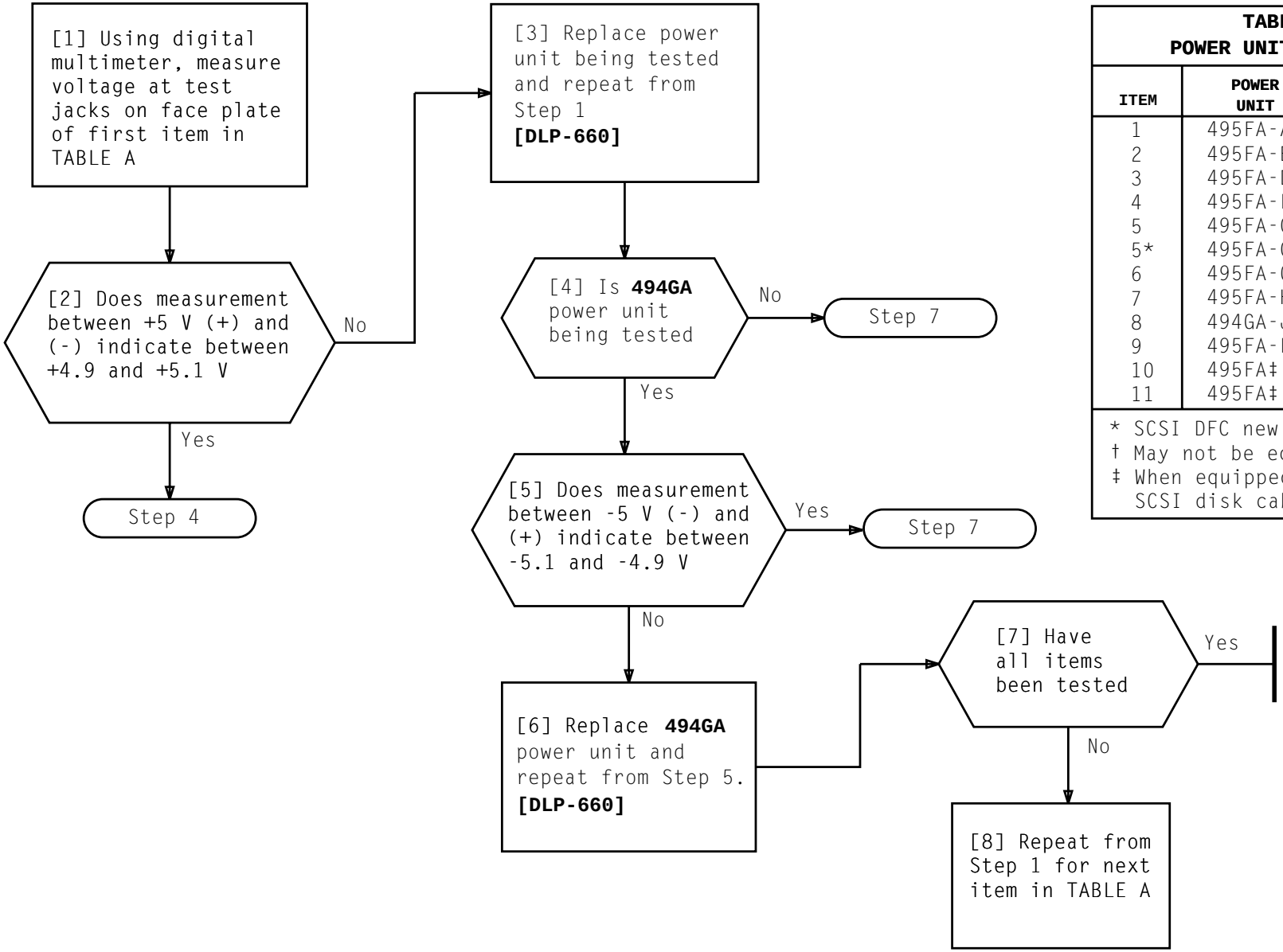


TABLE A
POWER UNIT LOCATION

ITEM	POWER UNIT	CABINET LOCATION
1	495FA-A	056-016
2	495FA-B	056-178
3	495FA-D	056-178
4	495FA-F†	038-178
5	495FA-C	047-016
5*	495FA-C	053-016
6	495FA-G	029-016
7	495FA-H	029-178
8	494GA-J	029-024
9	495FA-E†	038-016
10	495FA‡	062-016
11	495FA‡	062-104

* SCSI DFC new ship.
† May not be equipped.
‡ When equipped, located in SCSI disk cabinet.

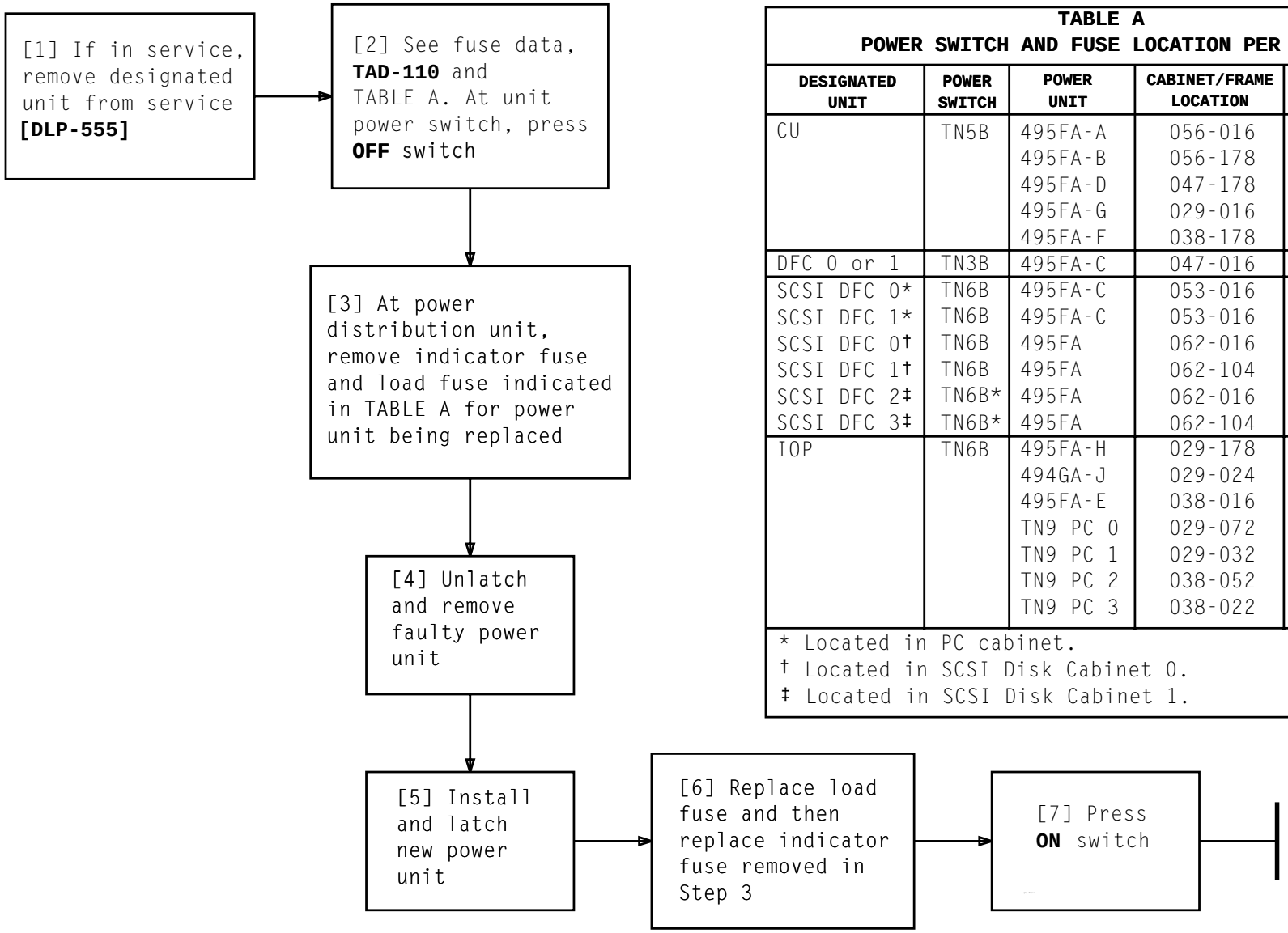
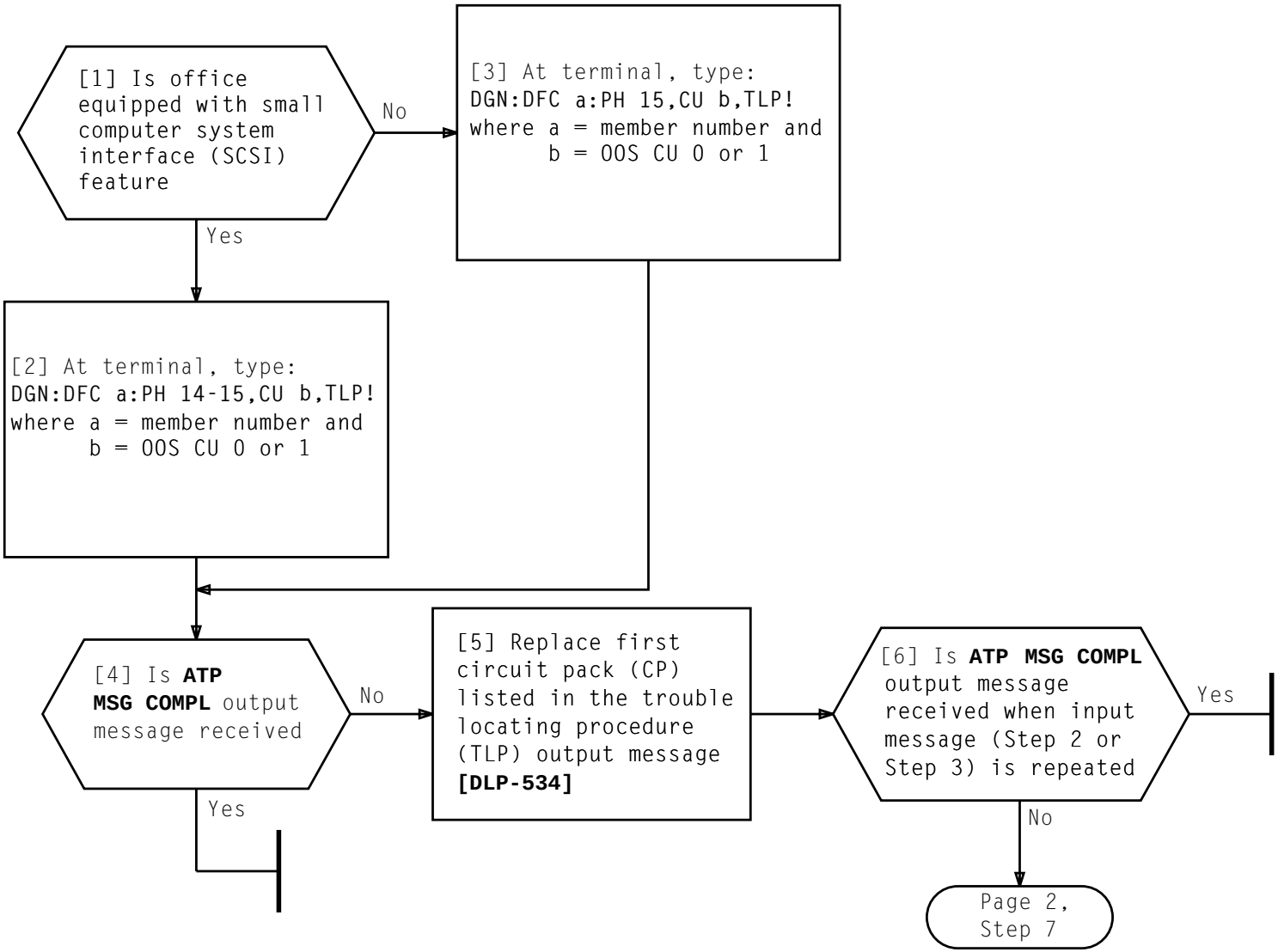


TABLE A
POWER SWITCH AND FUSE LOCATION PER UNIT

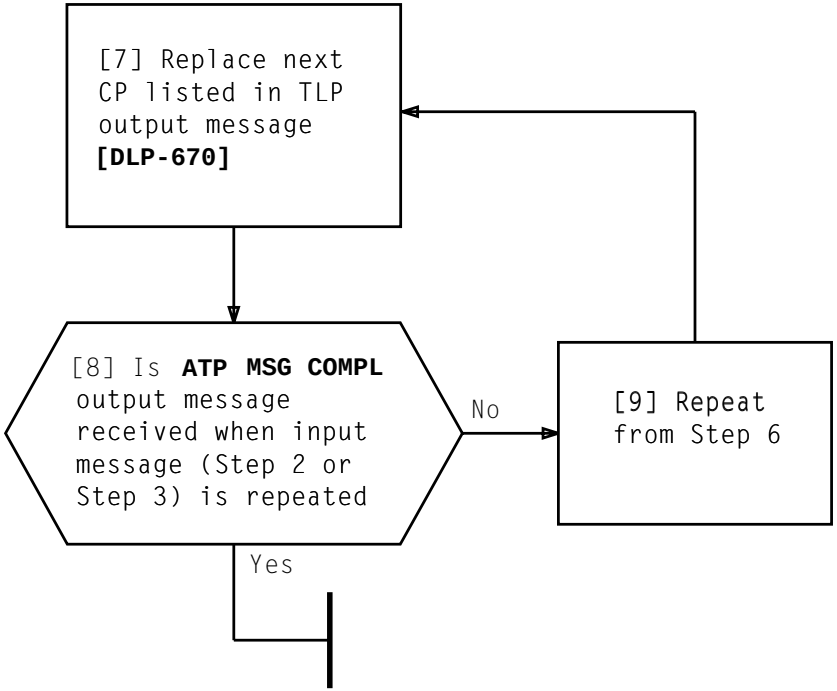
DESIGNATED UNIT	POWER SWITCH	POWER UNIT	CABINET/FRAME LOCATION	INDICATOR FUSE	LOAD FUSE
CU	TN5B	495FA-A	056-016	F12A	F12
		495FA-B	056-178	F11A	F11
		495FA-D	047-178	F9A	F9
		495FA-G	029-016	F15A	F15
		495FA-F	038-178	F16A	F16
DFC 0 or 1	TN3B	495FA-C	047-016	F6A	F6
SCSI DFC 0*	TN6B	495FA-C	053-016	F6A	F6
SCSI DFC 1*	TN6B	495FA-C	053-016	F6A	F6
SCSI DFC 0†	TN6B	495FA	062-016	F12A	F12
SCSI DFC 1†	TN6B	495FA	062-104	F13A	F13
SCSI DFC 2‡	TN6B*	495FA	062-016	F12A	F12
SCSI DFC 3‡	TN6B*	495FA	062-104	F13A	F13
IOP	TN6B	495FA-H	029-178	F23A	F23
		494GA-J	029-024	F24A	F24
		495FA-E	038-016	F20A	F20
		TN9 PC 0	029-072	F21A	F21
		TN9 PC 1	029-032	F17A	F17
		TN9 PC 2	038-052	F18A	F18
		TN9 PC 3	038-022	F19A	F19

* Located in PC cabinet.
† Located in SCSI Disk Cabinet 0.
‡ Located in SCSI Disk Cabinet 1.

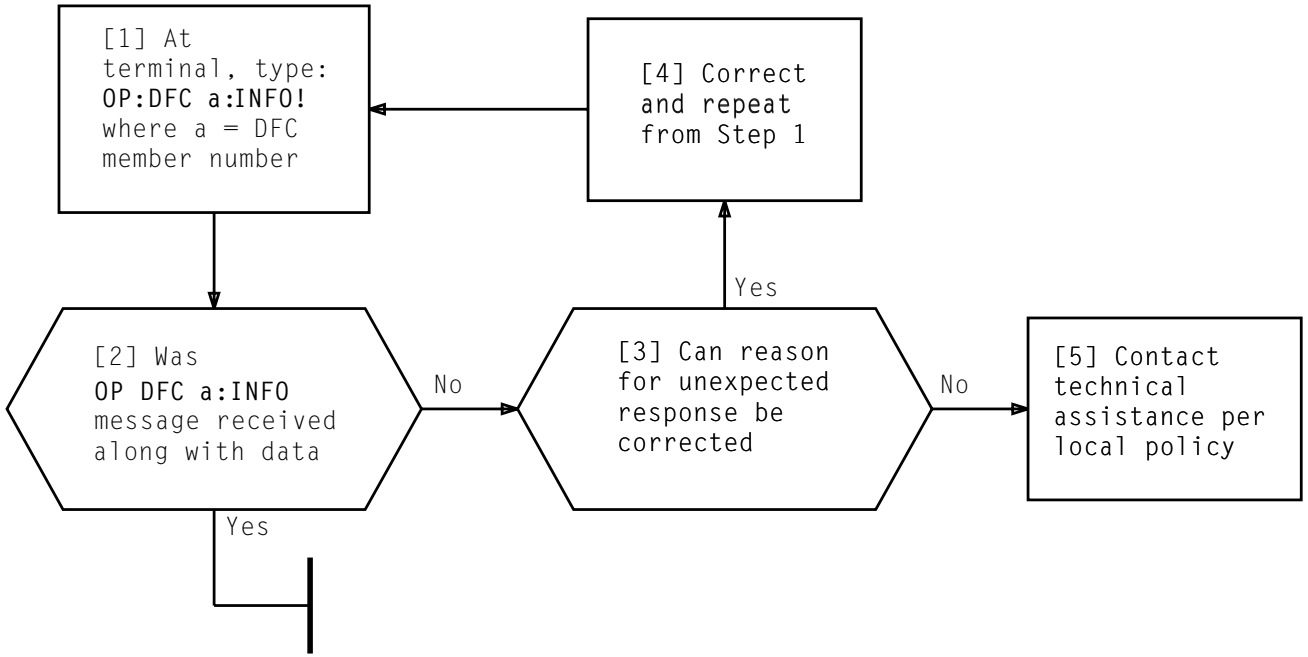
REPLACE POWER UNIT



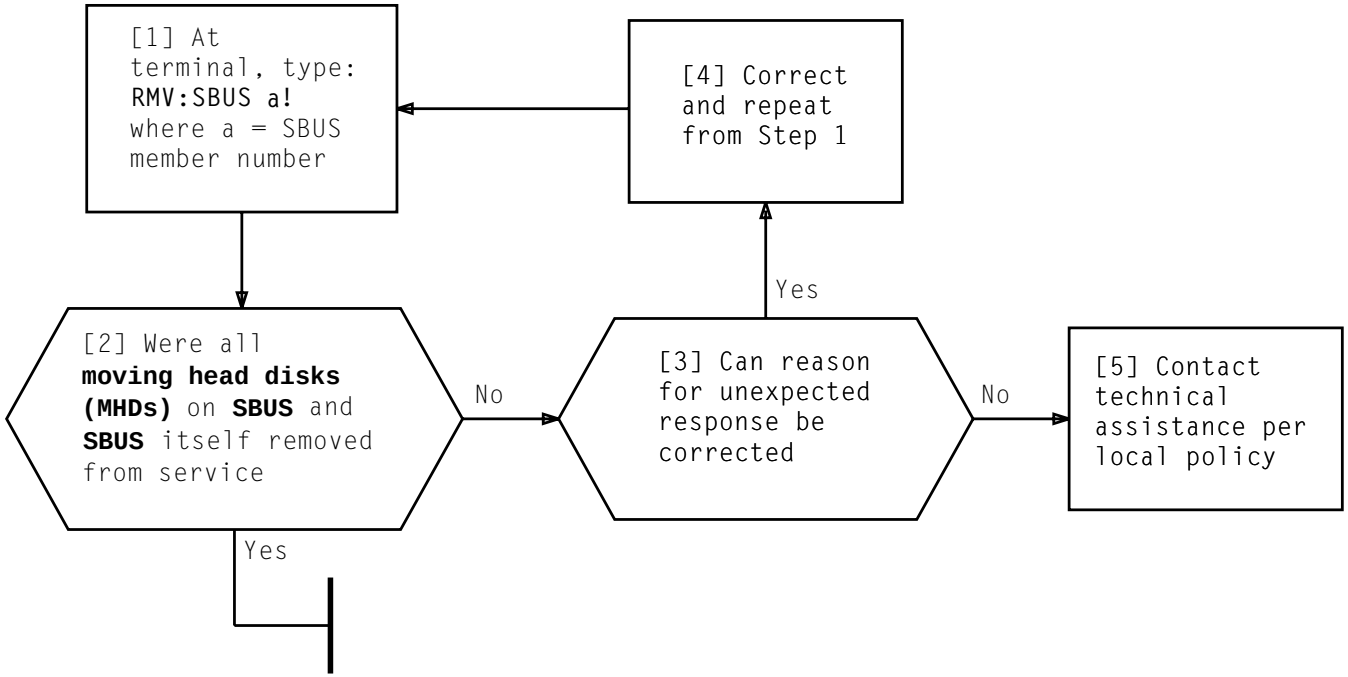
DIAGNOSE DISK FILE CONTROLLER (DFC) USING DEMAND DIAGNOSTICS



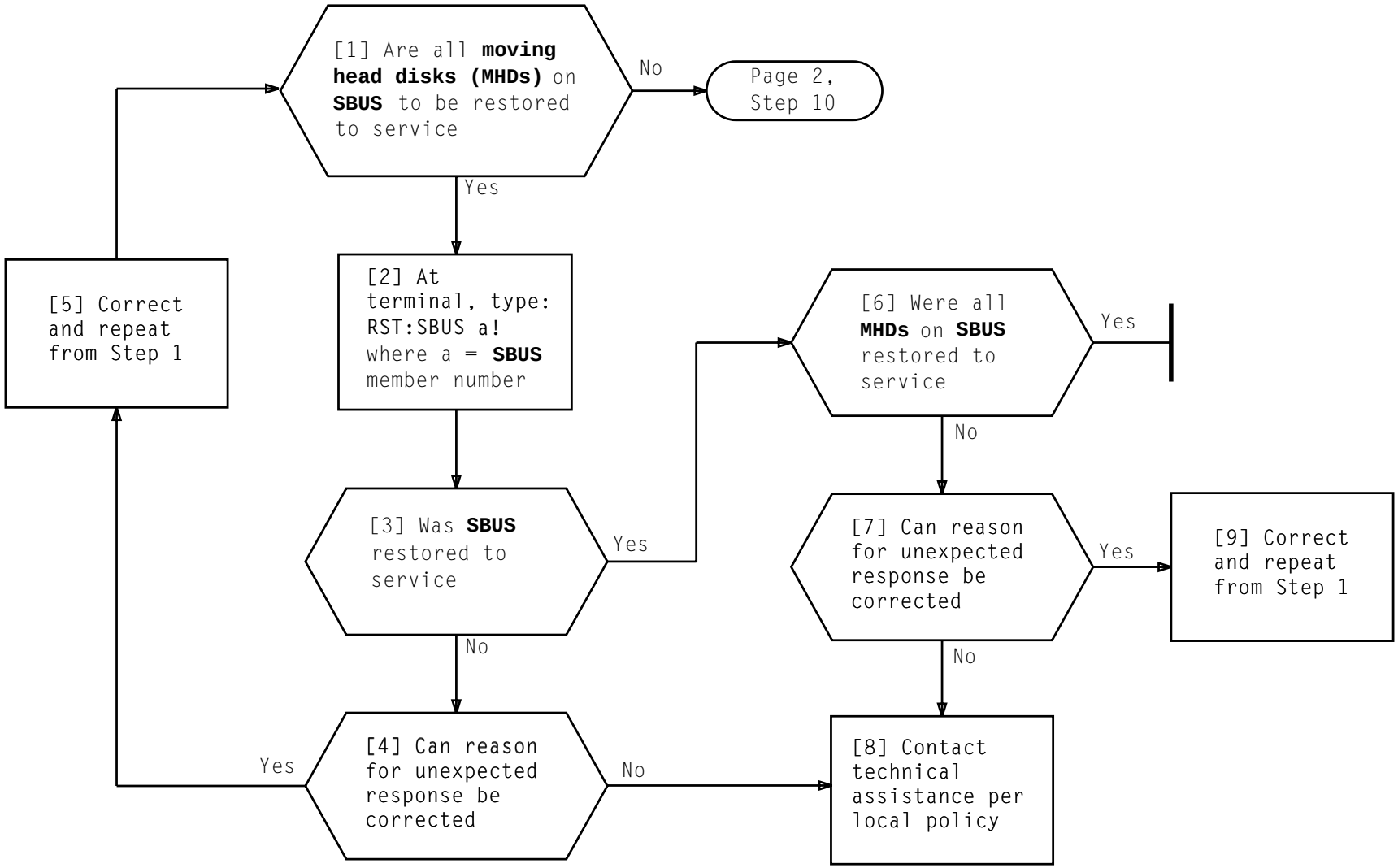
DIAGNOSE DISK FILE CONTROLLER (DFC) USING DEMAND DIAGNOSTICS



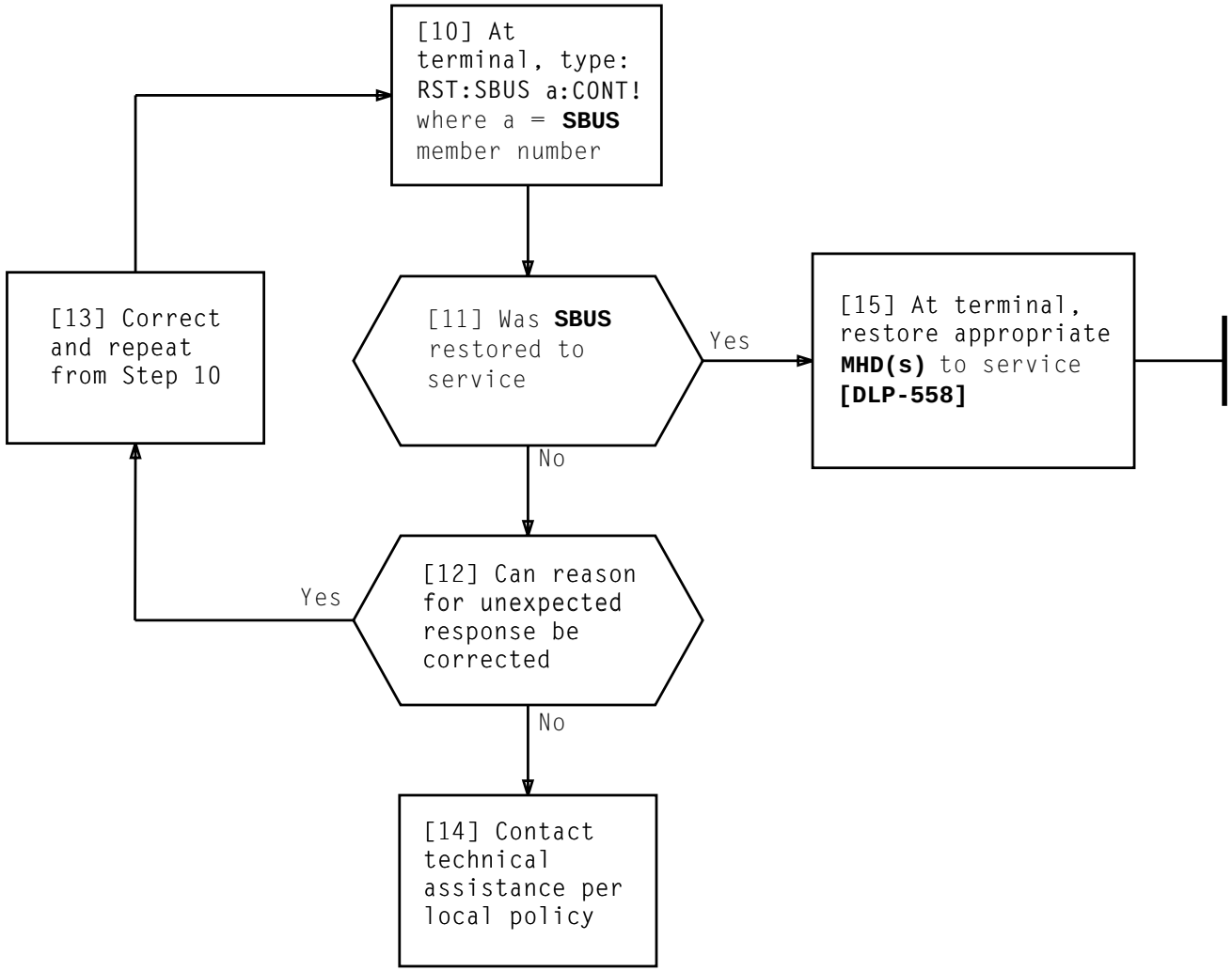
OBTAIN DISK FILE CONTROLLER (DFC) HARDWARE CONFIGURATION INFORMATION



REMOVE SBUS FROM SERVICE VIA INPUT MESSAGE



RESTORE SBUS TO SERVICE VIA INPUT MESSAGE



RESTORE SBUS TO SERVICE VIA INPUT MESSAGE

RESTORE POWER TO UNIT

[1] At unit power switch per TABLE A, Page 2, operate the **ON** switch [NOTE 1]

If a small computer system interface (SCSI) DUP, the amber **OOS** LED will be lighted, the red **OFF** LED will extinquish.

If a 300-MB MHD, the red **OFF** LED and the red **ALERT** LED extinquish.

If a 340-MB MHD, the red **OFF** LED lights and the amber **OOS** LED lights if not already lighted.

[2] Perform one of the following actions based on type of unit being powered up.

A. If a SCSI DUP, wait one minute for the disk to spin up

B. If a 300-MHD or 340-MB MHD, press drive **START** switch engaging it [See NOTE 2]

If the unit is a 300-MB MHD, the **START** LED lights and the **READY** LED flashes as the disk spins up and remains lighted when up to speed.

If the unit is 340-MB MHD, the **START** LED flashes as the disk spins up and remains steady on when the unit is up to speed.

REPT POWER RESTORED or REPT OUT OF SERVICE message received.

AND

NOTES

1. It may be necessary to toggle the **ACO/T** switch to power up moving head disks (MHDs).
2. If the Red LED on the **FAULT** switch is lighted, clear the fault by pressing the switch

TABLE A
POWER SWITCHES AND LOCATIONS PER UNIT

UNIT	POWER SWITCH	CABINET
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0	TN3B	PC Bay 0
DFC 1	TN3B	PC Bay 1
SCSI DFC 0	TN6B	PC Bay 0
SCSI DFC 1	TN6B	PC Bay 1
SCSI DFC 0	TN6B	SCSI Disk 0
SCSI DFC 1	TN6B	SCSI Disk 0
SCSI DFC 2	TN6B	SCSI Disk 1
SCSI DFC 3	TN6B	SCSI Disk 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
300-MB MHD (a)	ED-4C479	MHD (b)
340-MB MHD (c)	ED-4C481	Tape/Disk 0
340-MB MHD (d)	ED-4C481	Tape/Disk 1
SCSI MHD (e)	CGG1	SCSI Disk 0
SCSI MHD (f)	CGG1	SCSI Disk 1

(a) MHD Member Number
(b) MHD Frame Number
(c) MHD 0, 1, 2, and 3
(d) MHD 4 through 12
(e) SCSI MHD 0 through 15
(f) SCSI MHD 16 through 31

DIAGNOSE UNIT

[1] Locate unit in TABLE A

[2] Ensure mate moving head disk (MHD) has been verified before diagnosing MHDs

[3] Type input message indicated for unit

Output message received when all subunits are removed from service and diagnosed

[4] Does output message indicate ATP MSG COMPL or ATP MESSAGE COMPLETE

No

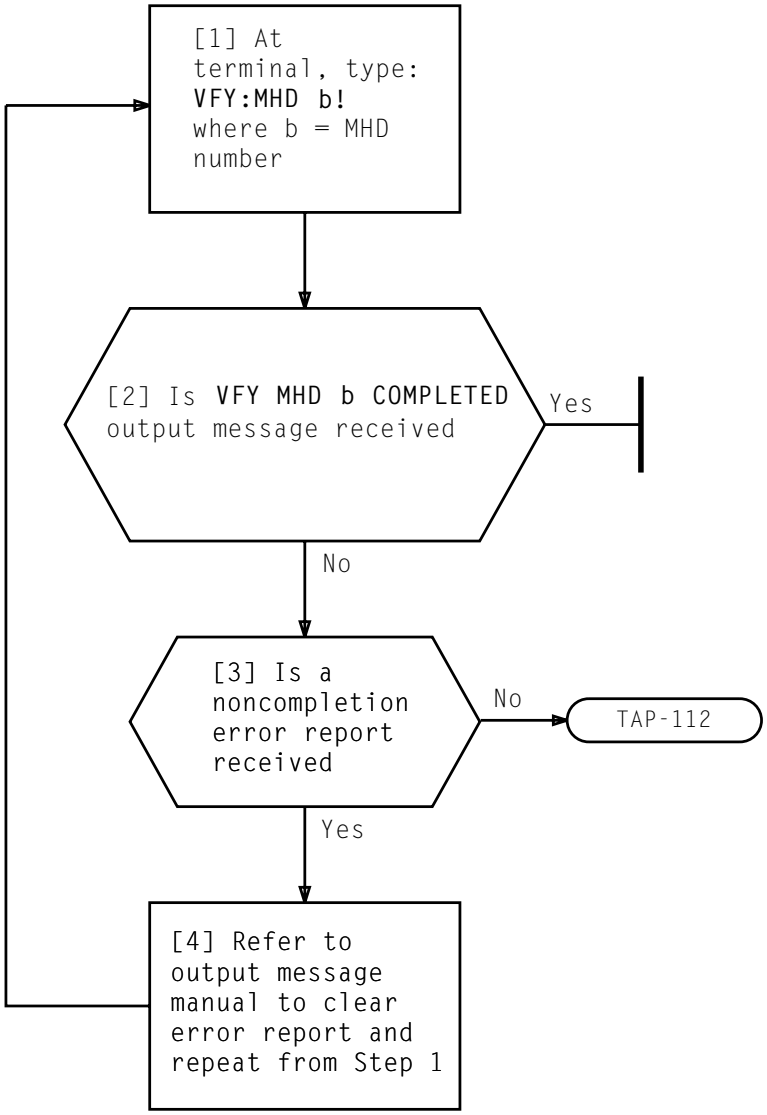
[5] Clear diagnostic fault per local policy, and repeat from Step 1

Yes

TABLE A
DIAGNOSTIC MESSAGES

UNIT	INPUT MESSAGE
CU	DGN:CU a;RAW,DEX!
DFC	DGN:DFC a;RAW,DEX:CONT!
IOP	DGN:IOP a;RAW,DEX:CONT!
MHD	DGN:MHD a;RAW,DEX!

a = member number



VERIFY MOVING HEAD DISK (MHD)

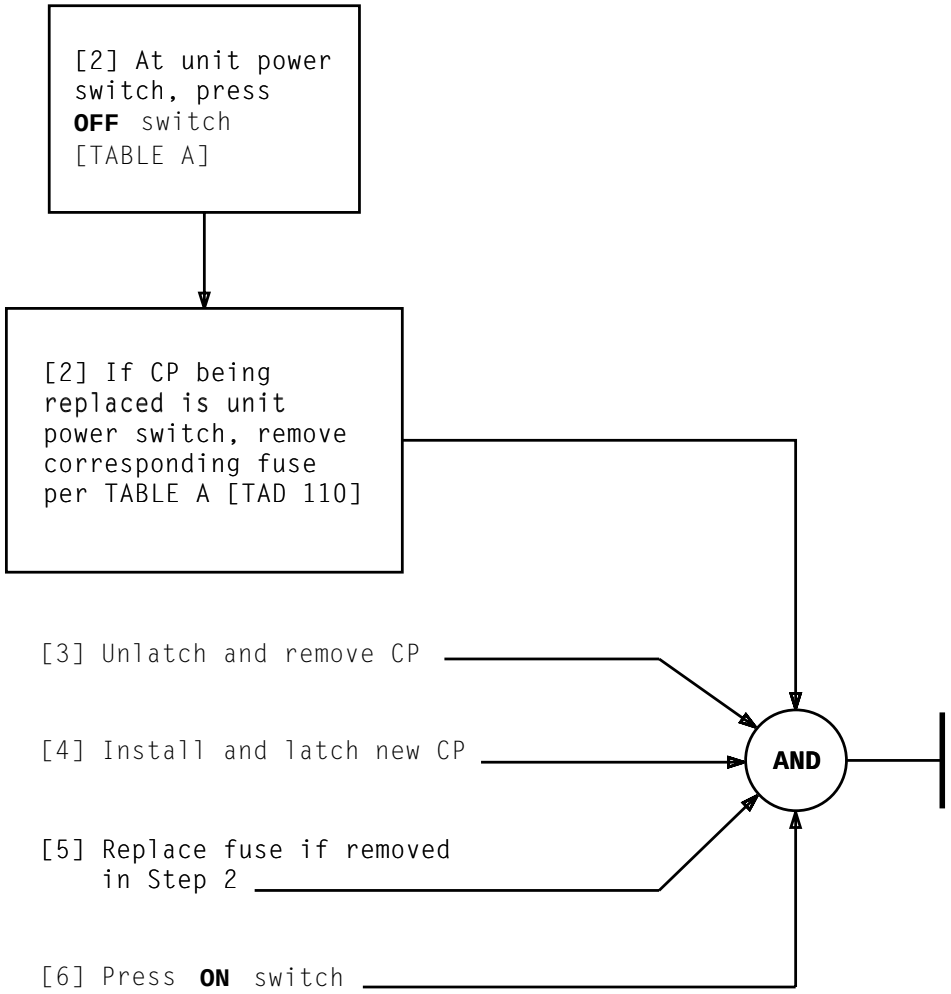


TABLE A
POWER SWITCHES AND CORRESPONDING FUSES PER UNIT

UNIT	POWER SWITCH	CABINET	FUSE
CU 0	TN5B	PC 0	F10A
CU 1	TN5B	PC 1	F10A
DFC 0	TN3B	PC 0	F5A
DFC 1	TN3B	PC 1	F5A
SCSI DFC 0	TN6B	PC 0	F5A
SCSI DFC 1	TN6B	PC 1	F5A
SCSI DFC 0	TN6B	SCSI Disk 0	F11A
SCSI DFC 1	TN6B	SCSI Disk 0	F14A
SCSI DFC 2	TN6B	SCSI Disk 1	F11A
SCSI DFC 3	TN6B	SCSI Disk 1	F14A
IOP 0	TN6B	PC 0	F22A
IOP 1	TN6B	PC 1	F22A

REPLACE CIRCUIT PACK (CP)

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
• IXL-001		TAP-101		DLP-537		DLP-582		DLP-623		DLP-670	
NTP-002		TAD-102		DLP-538		DLP-583		DLP-624		• CKL-891	
NTP-003		TAP-105		DLP-539		DLP-584		DLP-625		TNG-893	
NTP-004		TAP-106		DLP-540		DLP-585		DLP-626			
NTP-007		TAP-107		DLP-541		DLP-586		DLP-629			
• NTP-009		TAP-108		DLP-542		DLP-587		DLP-630			
□ NTP-010		TAP-109		DLP-543		DLP-588		DLP-631			
NTP-011		TAD-110		DLP-544		DLP-589		DLP-632			
NTP-014		TAP-111		DLP-545		DLP-590		DLP-633			
NTP-015		TAP-112		DLP-546		DLP-591		DLP-634			
NTP-016		DLP-500		DLP-547		DLP-595		DLP-635			
NTP-017		DLP-504		DLP-548		DLP-596		DLP-636			
NTP-019		DLP-505		DLP-550		DLP-599		DLP-637			
NTP-020		DLP-506		DLP-551		DLP-600		DLP-638			
NTP-021		DLP-507		DLP-552		DLP-601		DLP-639			
NTP-022		DLP-508		DLP-553		DLP-602		DLP-640			
NTP-023		DLP-509		DLP-554		DLP-603		DLP-641			
NTP-024		DLP-510		DLP-555		DLP-604		DLP-642			
NTP-025		DLP-511		DLP-556		DLP-605		DLP-643			
NTP-026		DLP-513		DLP-557		DLP-606		DLP-644			
NTP-027		DLP-514		DLP-558		DLP-607		DLP-645			
NTP-028		DLP-515		DLP-559		DLP-608		DLP-652			
NTP-030		DLP-516		DLP-561		DLP-609		DLP-653			
NTP-031		DLP-517		DLP-562		DLP-610		DLP-654			
NTP-032		DLP-518		DLP-563		DLP-611		DLP-656			
NTP-033		DLP-519		DLP-564		DLP-612		DLP-658			
NTP-034		DLP-520		DLP-565		DLP-613		DLP-659			
NTP-035		DLP-521		DLP-569		DLP-614		DLP-660			
NTP-036		DLP-523		DLP-571		DLP-615		DLP-661			
• NTP-037		DLP-524		DLP-572		DLP-616		DLP-662			
□ NTP-038		DLP-525		DLP-574		DLP-617		DLP-663			
NTP-039		DLP-526		DLP-575		DLP-618		DLP-664			
NTP-040		DLP-528		DLP-576		DLP-620		DLP-665			
NTP-041		DLP-529		DLP-580		DLP-621		DLP-666			
TAD-100		DLP-534		DLP-581		DLP-622		DLP-667			

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE

● REVISED OR ADDED ITEM ☐ CANCELED ITEM

CHECKLIST