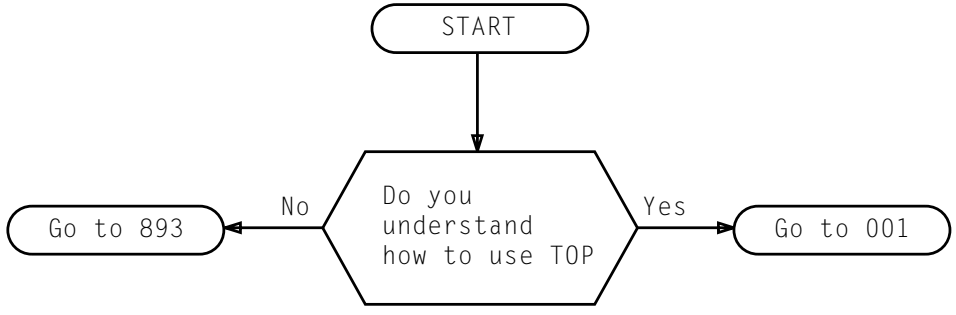
Lucent Technologies
Bell Labs Innovations

Task Oriented Practice (TOP)

4ESS™ Switch
With 1B Processor
Attached Processor
Interface Frame



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Notice

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Developed by:

Lucent Technologies Systems for Network Operators Switching and Access Information Development
Lucent Technologies is the successor to the business and assets of AT&T Network Systems business unit.

FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
133J Power Unit — Replace	NTP-004
Acceptance	NTP-002
Alarm Circuits; Power — Test	DLP-502
Automatic Power Monitor Test Failure — Clear	TAP-112
Blown +5V Fuse — Clear	TAP-117
Blown —48V Fuse — Clear	TAP-114
Circuit Pack, API Unit — Replace	NTP-003
Clear Battery Distribution Fuse Board (BDFB) Frame Blown 45 Amp Fuse Associated With 1B Processor Cabinet	TAP-122
Converter; Power — Replace	NTP-004
Diagnostic Failure — Clear Auxiliary Unit Bus (AUB) Diagnostic Failure By Analyzing Raw Data	TAP-120
Diagnostic Failure — Clear Auxiliary Unit Bus (AUB) Diagnostic Failure By Scoping AUB Using Phase 99 Diagnostic Tests	TAP-121
Diagnostic Failure — Clear By Replacing Packs on TLP Suspected Faulty Equipment List	TAP-102
Diagnostic Failure — Clear By Analyzing Raw Data And Replacing Suspect Packs	TAP-103
Diagnostic Failure — TLP Abort — Clear	TAP-108
Diagnostic Failure — TLP Disk Queue Full — Clear	TAP-105
Diagnostic Failure — TLP Inhibit — Clear	TAP-107
Diagnostic Failure — TLP Tape Acquisition Error — Clear	TAP-110
Diagnostic Failure — TLP Tape Not Mounted — Clear	TAP-111
Diagnostic Failure — TLP Tape Version x Does Not Match Expected Version y — Clear	TAP-109
Diagnostic Failure — TLP Queue Blockage — Clear	TAP-106

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

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

No acceptance test procedures are required for this frame.
Readiness of frame to become part of working system was
established by successful completion of Installation
Handbook test procedures

ACCEPTANCE

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

1	At 1B Processor MTC Terminal, Remove Unit From Service (**RMV** a b!)	DLP-526
2	At API Unit Power Switch, Rotate **ROS/OFF** Switch Clockwise to **ROS** *Response:* **OFF NORM** Lamp Lights	—
	WARNING: Due to Static Charges, Precautions Must be Taken When Handling Circuit Packs	—
3	Replace Circuit Pack	DLP-500
4	At Power Switch, Rotate **ROS/OFF** Switch Counterclockwise to Normal Position *Response:* **OFF NORM** Lamp Goes Off	—
5	At 1B Processor MTC Terminal, Restore Unit To Service (**RST** a b!)	DLP-525

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
1	At 1B Processor MTC Terminal, Remove Unit From Service (**RMV** a b!)	DLP-526
2	At API Unit Power Switch, Rotate **ROS/OFF** Switch Clockwise to **ROS** *Response:* **OFF NORM** Lamps Light	–
3	Replace Power Unit	DLP-508
4	At Power Switch, Rotate **ROS/OFF** Switch Counterclockwise to Normal Position *Response:* **OFF NORM** Lamps Go Off	–
5	At 1B Processor MTC Terminal, Restore Unit To Service (**RST** a b!)	DLP-525

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	At TTY, Type: **RMV:API** a ! a = API Unit Member Number (0-1) *Response:* RMV:API a COMPLETED; **OS** Lamp Lights	—
2	At Power Switch, Rotate **ROS/OFF** Switch Clockwise to **ROS** *Response:* **OFF NORM** Lamp Lights	—
3	Replace Power Switch	DLP-503
4	Rotate **ROS/OFF** Switch Counterclockwise to Normal Position *Response:* **OFF NORM** Lamp Goes Off	—
5	At TTY, Type: **RST:API**a ! a = API Unit Member Number (0-1) *Response:* RST:API a COMPLETED; **OS** Lamp Goes Off	—

GENERAL

The Data Unit Selector (DUS) is not covered in this practice although it is physically located in the API frame. The DUS is electrically and functionally a part of the Auxiliary Data System and is therefore covered in TOP 234-351-010.

The maintenance philosophy contained in this pratice is based upon design of equipment (hardware), diagnostic software and test equipment employed. Procedures are intended to aid personnel in performing trouble-clearing tasks. The degree to which these procedures accomplish the intended depends upon input and feedback from the user. Submittal of additions, corrections, and improvements to the data are encouraged. Manufacturer, engineering, and software documentation such as I/O Manuals, SDs, PKs, PRs, etc, which are available to operating telephone company offices, are referenced where applicable rather than duplicating that information in the TOP. Some portions of those documents may be utilized in procedures but only as examples for purposes of explanation. Test equipment (oscilloscopes, voltmeters, etc) and parameters involved in circuits being tested, adjusted, or checked are usually prescribed. However, setup and method operation is not described unless it is unusual or unique.

IXL PHILOSOPHY

The IXL is structured to provide fast access to those procedures pertinent to symptoms identified. Power problems are sensed by scan points which generate an alarm. The user should be able to follow aisle pilot lights thereby locating the frame with the power fault that is automatically powered down (**PWR OFF** lamp lighted and **OFF NORM** lamp off) or by reading the REPT:PA printout which would identify the frame with the power fault. The precise structure of the power alarm message is given in the Input/Output (I/O) message manuals. Symptoms described in the IXL reflect the preceding assumptions, and indicate other conditions that are observable at the frame that would enable the user to access the proper trouble-clearing procedure. These conditions are blown fuses and lighted LEDs on converters and power function circuit packs.

In general, logic circuit failures cause the fault recovery program to request a diagnostic program. This method of requesting the diagnostic program includes the TLP option. The IXL reflects this in the TTY messages listed. Two supplementary messages, ANALY:TLPFILE:SUSPECTED FAULTY EQUIPMENT and ANALY: TLPFILE:NULL PACK TEST GENERATED, reference to procedures that are designed to clear equipment problems. All other supplementary messages pertain to problems in generating a SUSPECTED FAULTY EQUIPMENT list and reference to procedures (TAPs) which attempt to correct the problem. If successful in generating a SUSPECTED FAULTY EQUIPMENT list, those procedures reference the appropriate procedure which identifies what to do with this list. If not successful, these procedures reference the next level of trouble clearing, raw data analysis, which is an alternative to the first and most common trouble-clearing approach.

TAP PHILOSOPHY

When documenting a procedural approach to trouble clearing, certain assumptions are made. It is assumed that only one fault is being cleared at a time. When directing the user to perform an action, the action is assumed to have performed correctly. Similarly, when directed to make replacements, the replacement part is always assumed to be good. Equipment used for testing, both built-in (hardware and software) and commercial, is assumed to be good.

TAP PHILOSOPHY (Contd)

These assumptions and the fact that trouble-clearing procedures are designed for faults with consistent fault signatures provide procedures with a clean straightline approach to trouble clearing. A possibility exists that some faults do not present a consistent fault signature or TLP pack list. If this occurs, the diagnostic is repeated a number of times, and the most consistent signature and list are used following the same general approach provided in the procedures. This repetitive diagnostic method is used each time to detect any change in the fault signature when any corrective action is taken unless that action results in clearing the problem.

Trouble-clearing TAPs provided for diagnostic failures are provided on three levels. The *first* level addresses what to do with a software-generated (TLP) SUSPECTED FAULTY EQUIPMENT list and provides a step-by-step procedure for replacing circuit packs one at a time, and analyzing the results. This level is straightforward and requires some familiarity with the equipment (descriptive and theory AT&T Practices), TTY techniques, and diagnostic printouts.

The *second* level of trouble clearing is accessed from the first level of trouble clearing; directly from the IXL or any TAP which produces a NULL PACK TEST GENERATED response. This level is known as *raw data analysis* and describes what to do with the summary and supplemental data printed either with or instead of the SUSPECTED FAULTY EQUIPMENT list. This is expected to lead to an identification of faulty circuits and possibly additional suspect circuit packs not previously identified. This level of trouble clearing is more complex and requires knowledge of the equipment, TTY techniques and printouts, and SDs, PKs, PRs, etc.

The *third* level of trouble clearing is signal tracing using interactive diagnostics. This procedure is accessible only from the previous level and uses information derived in the performance of that procedure. This level of trouble clearing requires an increase in the capabilities cited in the first two levels with additional knowledge and skill in the setup and use of test equipment (oscilloscopes, voltmeters, etc).

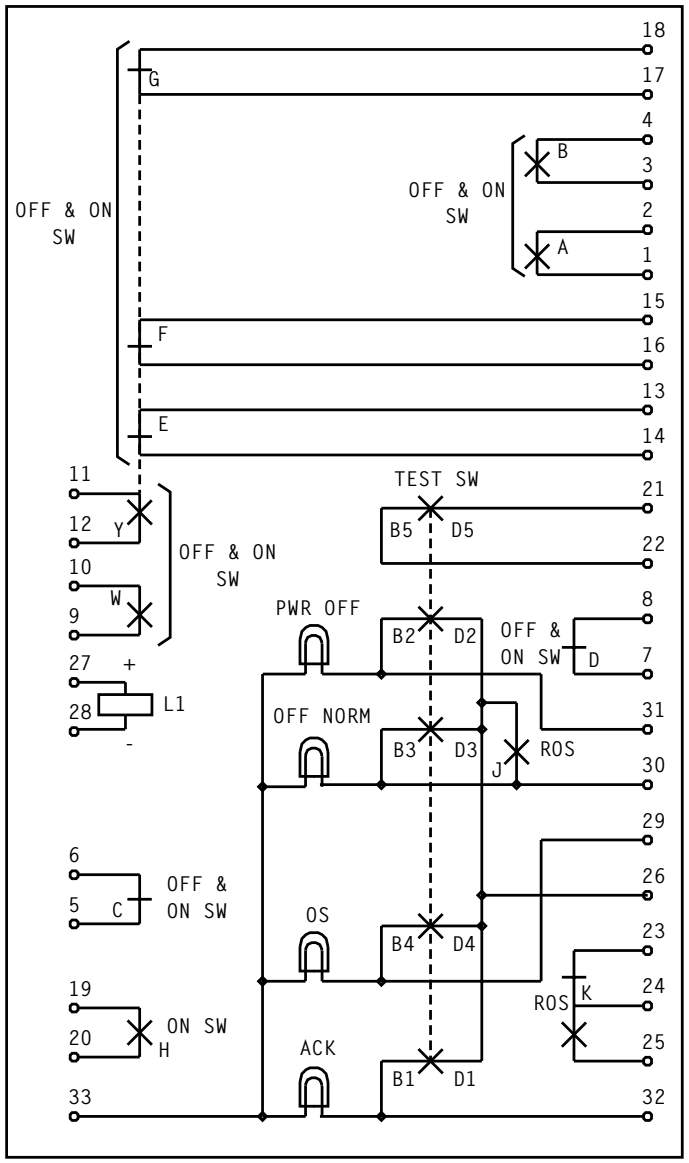
ALTERNATE METHODS

The more knowledgeable and experienced personnel may access TOP documents at a point in trouble clearing where analyzation is completed (the faulty component determined) and only repair or replacement is required. In many instances, access to these procedures may be obtained by locating procedural data (DLPs) using a hunt-and-find method. Most DLPs are designed to support TAPs and NTPs with preconditioning and system restoration steps covered in those level procedures (TAPs, NTPs). Therefore, access to data (DLPs) on a hunt-and-find basis is a threat to equipment operation and may compound trouble-clearing problems.

EQUIPMENT TEST LIST

This is a list of tasks recommended for routine preventive maintenance. Information on this list is arranged in the following order from left to right: Frequency, title, and procedure number

6M	Test Power Alarm Circuits	DLP-502
6M	Test Power Lamps on Power Switch	DLP-505



POWER SWITCH (KS-20738)

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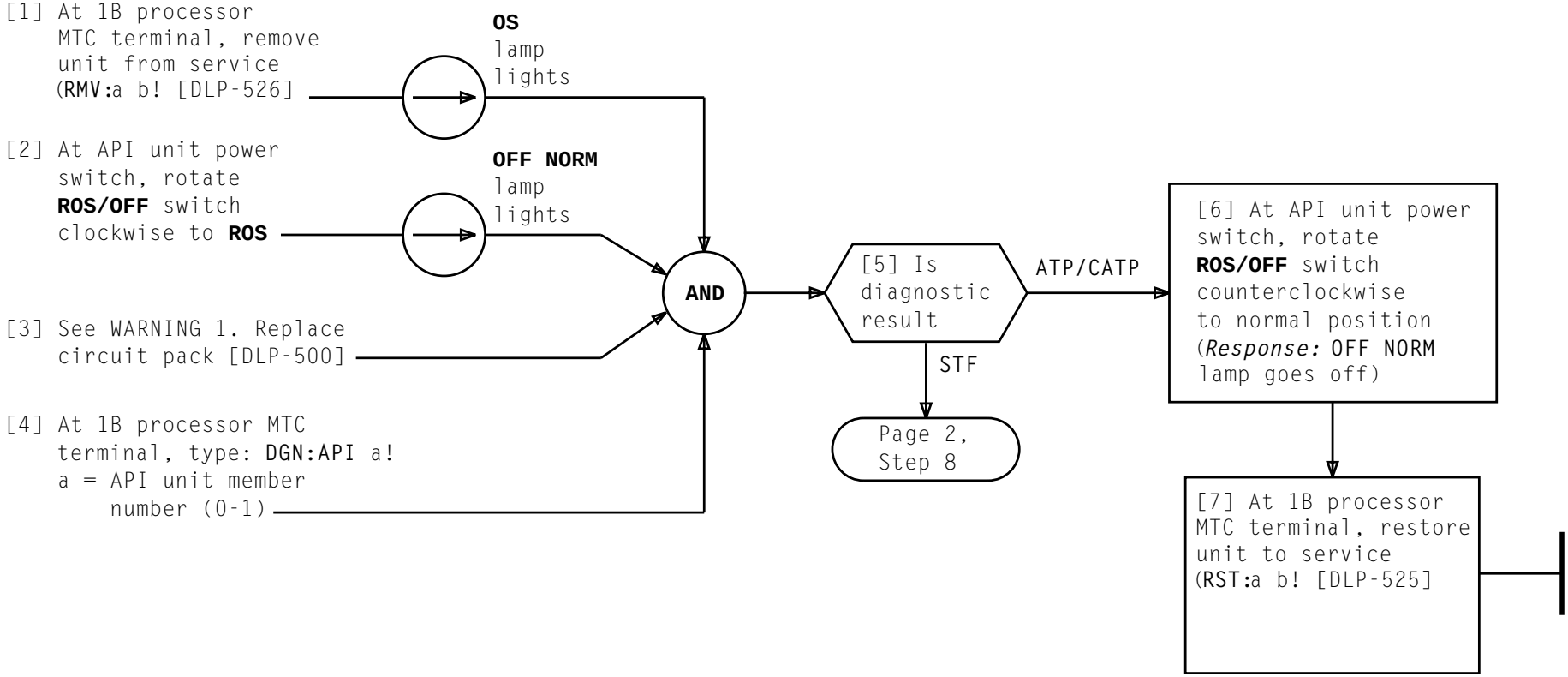
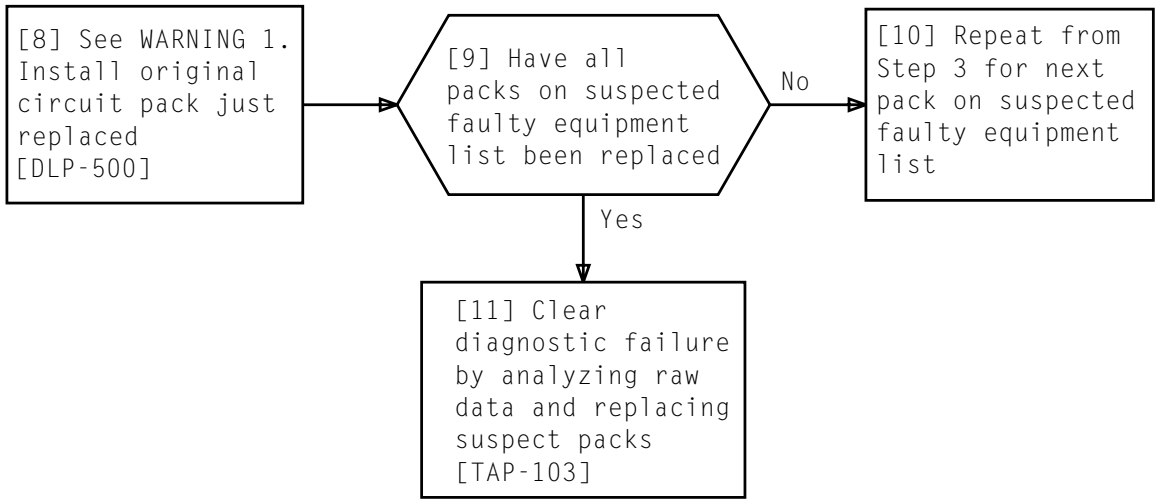
SUMMARY	
Replace each circuit pack on TLP suspected faulty equipment list beginning with first pack. After each replacement, check diagnostic results to determine if trouble is cleared.	If failure recurs, reinsert original pack. Repeat procedure for each succeeding pack on list until trouble is cleared. If trouble is not cleared, clear diagnostic failure by analyzing raw data and replacing suspect packs [TAP-103]



WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR DIAGNOSTIC FAILURE BY REPLACING PACKS ON TLP SUSPECTED FAULTY EQUIPMENT LIST



WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR DIAGNOSTIC FAILURE BY REPLACING PACKS ON TLP SUSPECTED FAULTY EQUIPMENT LIST

SUMMARY

Identify suspect hardware by analyzing raw data printout. Replace each suspect circuit pack or unit identified beginning with the first. After each replacement, check diagnostic results to determine if trouble is cleared. If failure recurs, reinsert original pack or unit. Repeat procedure for each succeeding circuit pack or unit on list until trouble is cleared. If trouble is not cleared, clear diagnostic failure by looping over first failing test and signal tracing [TAP-104]

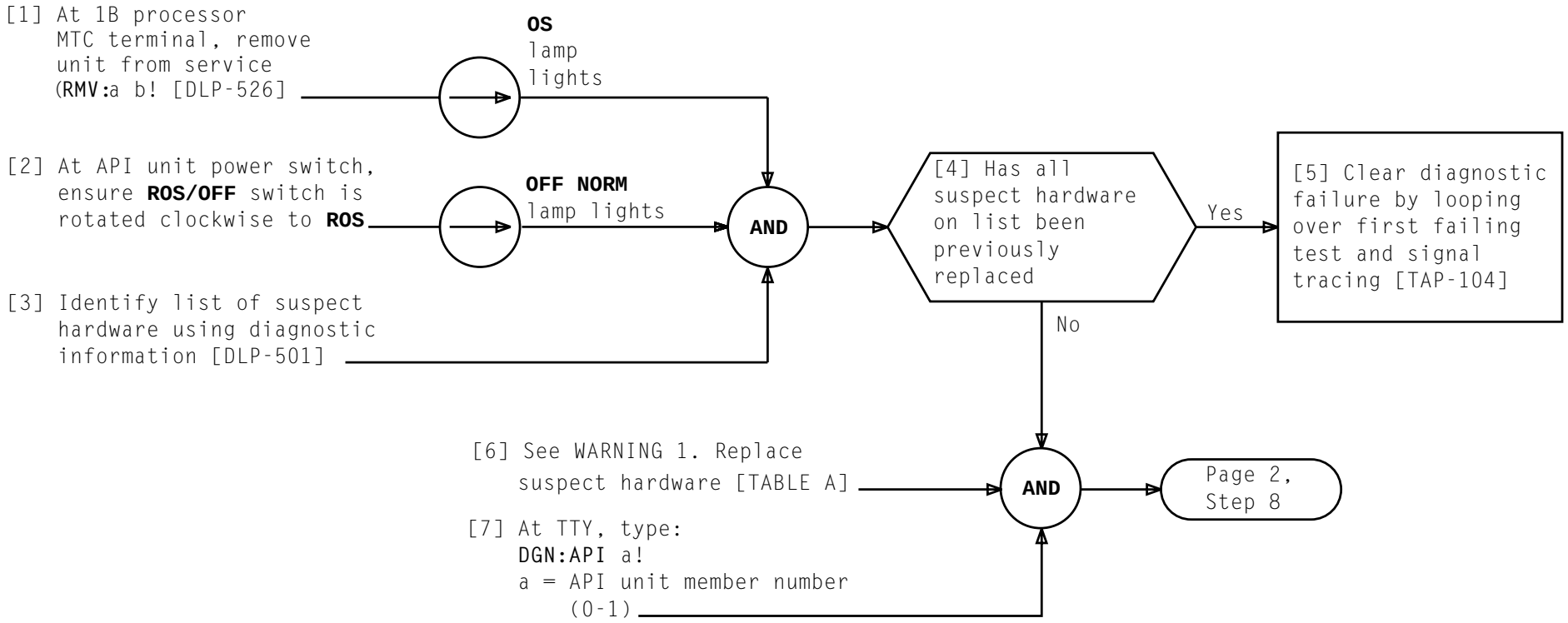
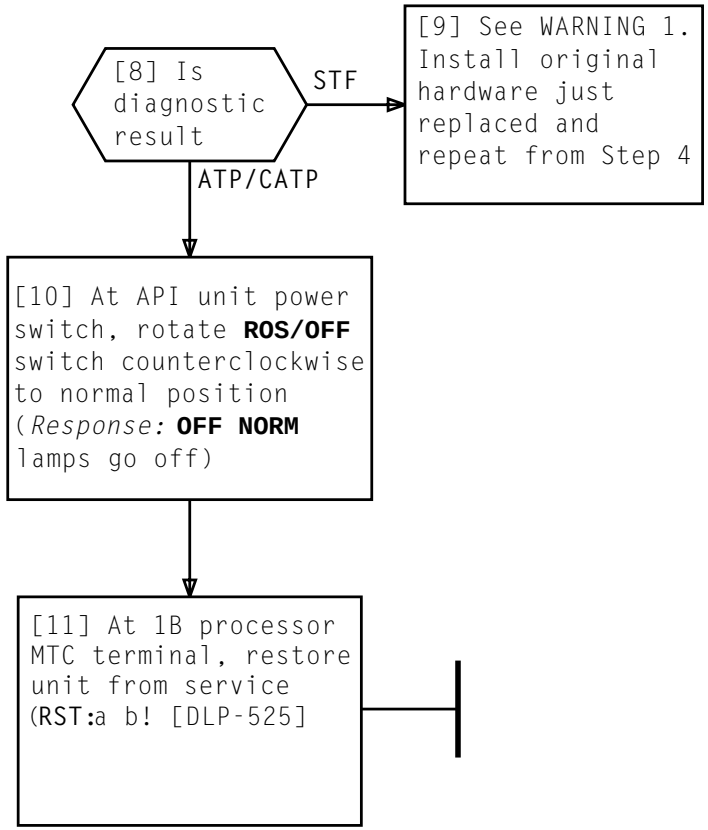


TABLE A	
Circuit pack	DLP-500
Power unit	DLP-508
Power switch	DLP-503

WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING SUSPECT PACKS



CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING SUSPECT PACKS

WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR DIAGNOSTIC FAILURE BY LOOPING OVER FIRST FAILING TEST AND SIGNAL TRACING

[1] Obtain and power up oscilloscope allowing period for stabilization

[2] Determine failing phase and looping parameters [DLP-504]

[3] See NOTE 1. At TTY, type:
EX:API a**;START!**
a = API unit member number (0-1)

[4] Type: **EX:API** a**:SYNC** b**,ENABLE** c!
a = API unit member number (0-1)
b = Identified looping parameters
c = Failing test number

[5] Type: **EX:API** a**;RPT 2:PH** b**,ADR** c!
a = API unit member number (0-1)
b = Failing phase number
c = Identified looping parameters

AND

[6] Is first failing test raw data printed twice

Yes → Page 2

No

[7] Type:
OP:MACLI,CLASS MTCE!
(System responds with **OP:MACLI** message indicating subclass assigned to unit [Figure 1])

[8] Is MTCE subclass available

No → [9] After short period, repeat from Step 2

Yes → [10] Repeat from Step 3

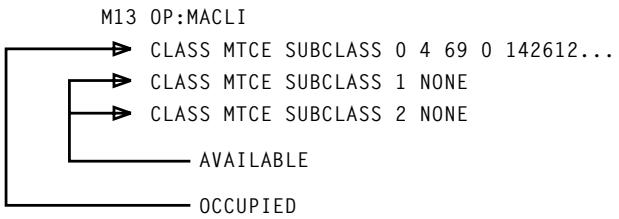


Figure 1 – Example of MACLI Output Message

NOTE 1
To discontinue looping condition, the **MACLI MTCE SUBCLASS** assigned to frame under test should be identified. Type:
OP:MACLI,CLASS MTCE !
Then type:
STOP:MACLI,CLASS MTCE,SUBCLASS a!
a = Subclass assigned to frame under test

[11] Set up oscilloscope for signal tracing
using external sweep trigger [Figure 2]

[12] At TTY, type: **EX:API a;START!**
a = API unit member number (0-1)

[13] Type: **EX:API a:SYNC b,ENABLE c!**
a = API unit member number (0-1)
b = Identified looping parameters
c = Failing test number

[14] Type: **EX:API a:PH b,ADR c!**
a = API unit member number (0-1)
b = Failing phase number
c = Identified looping parameters

AND

[15] Use frame SD, CD, PK, circuit pack data, and raw data analysis to trace signal path of failing bits to isolate and clear fault

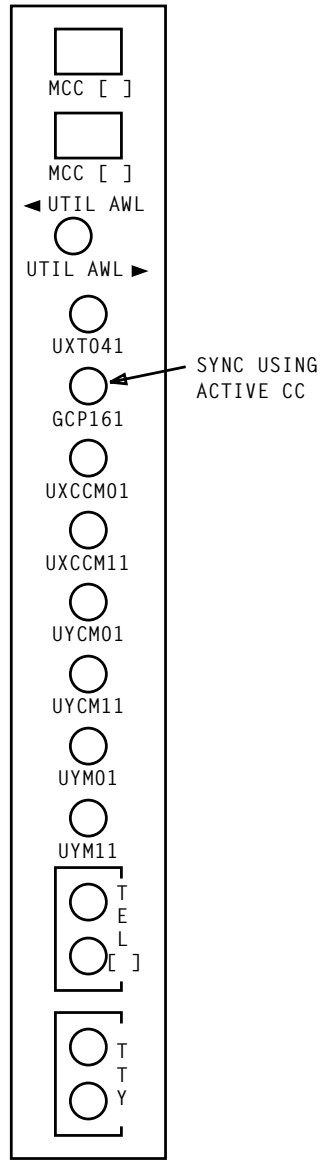
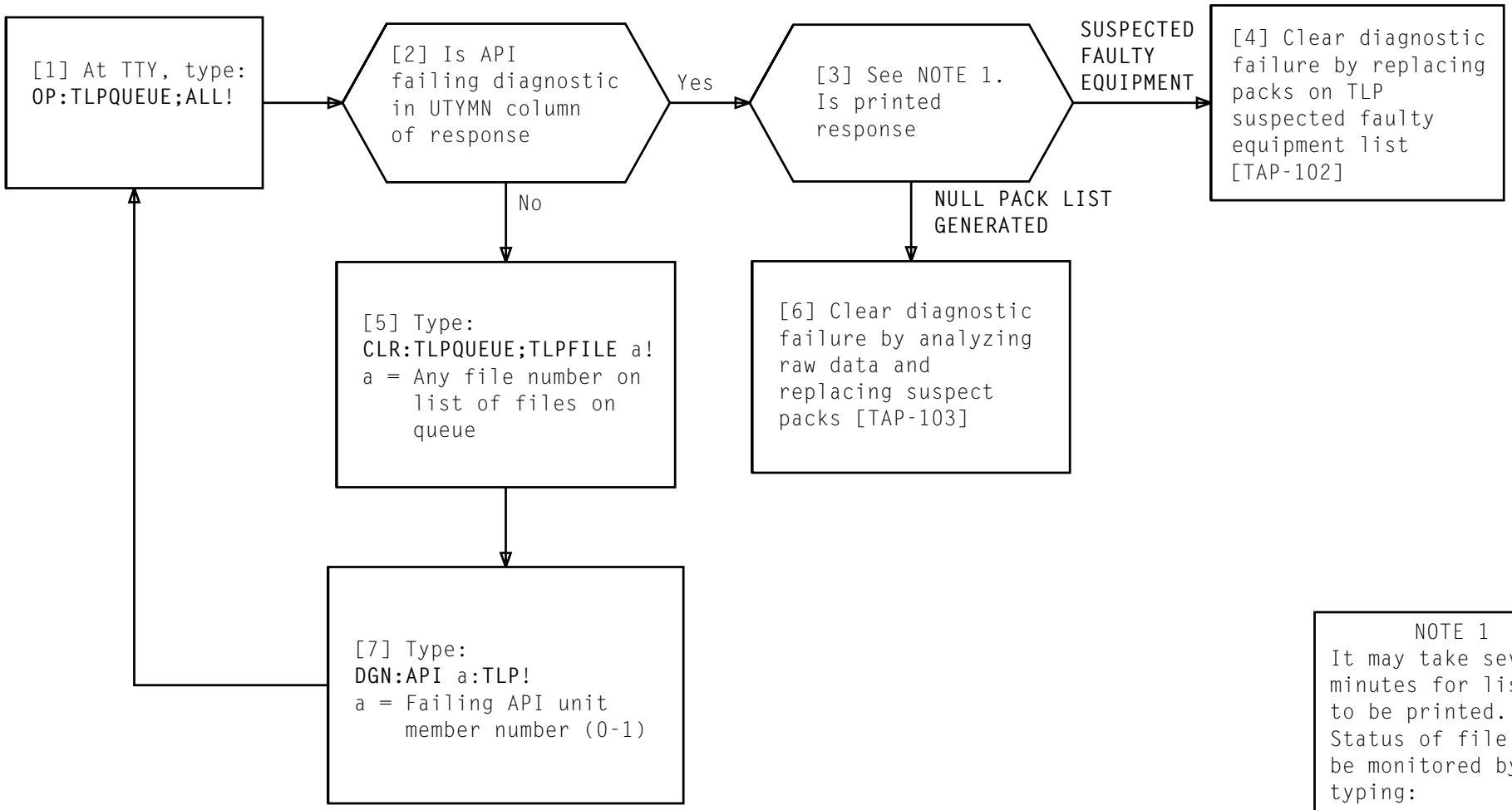


Figure 2 – SYNC Terminal Location

CLEAR DIAGNOSTIC FAILURE BY LOOPING OVER FIRST FAILING TEST AND SIGNAL TRACING



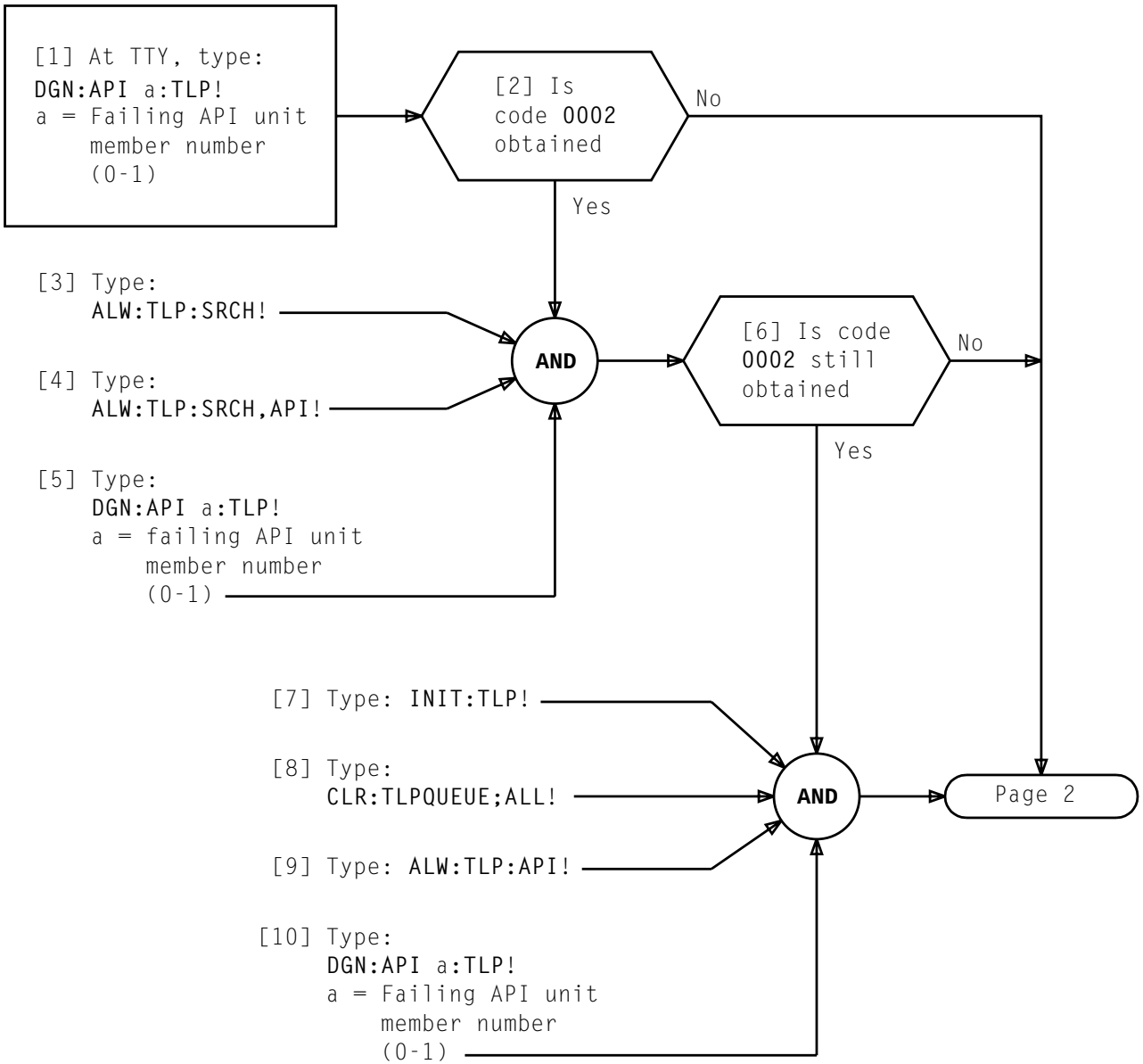
NOTE 1

It may take several minutes for list to be printed. Status of file may be monitored by typing:

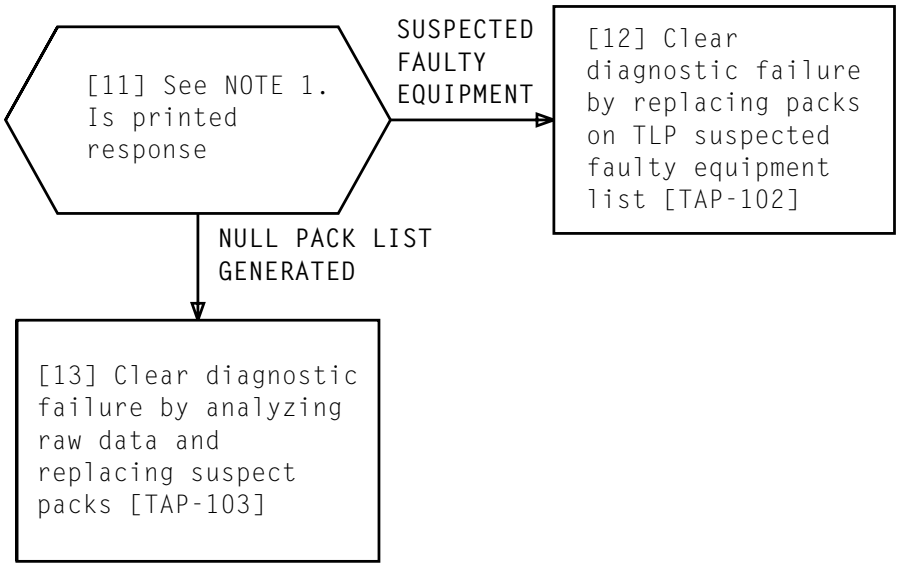
OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP DISK QUEUE FULL



CLEAR DIAGNOSTIC FAILURE, TLP QUEUE BLOCKAGE

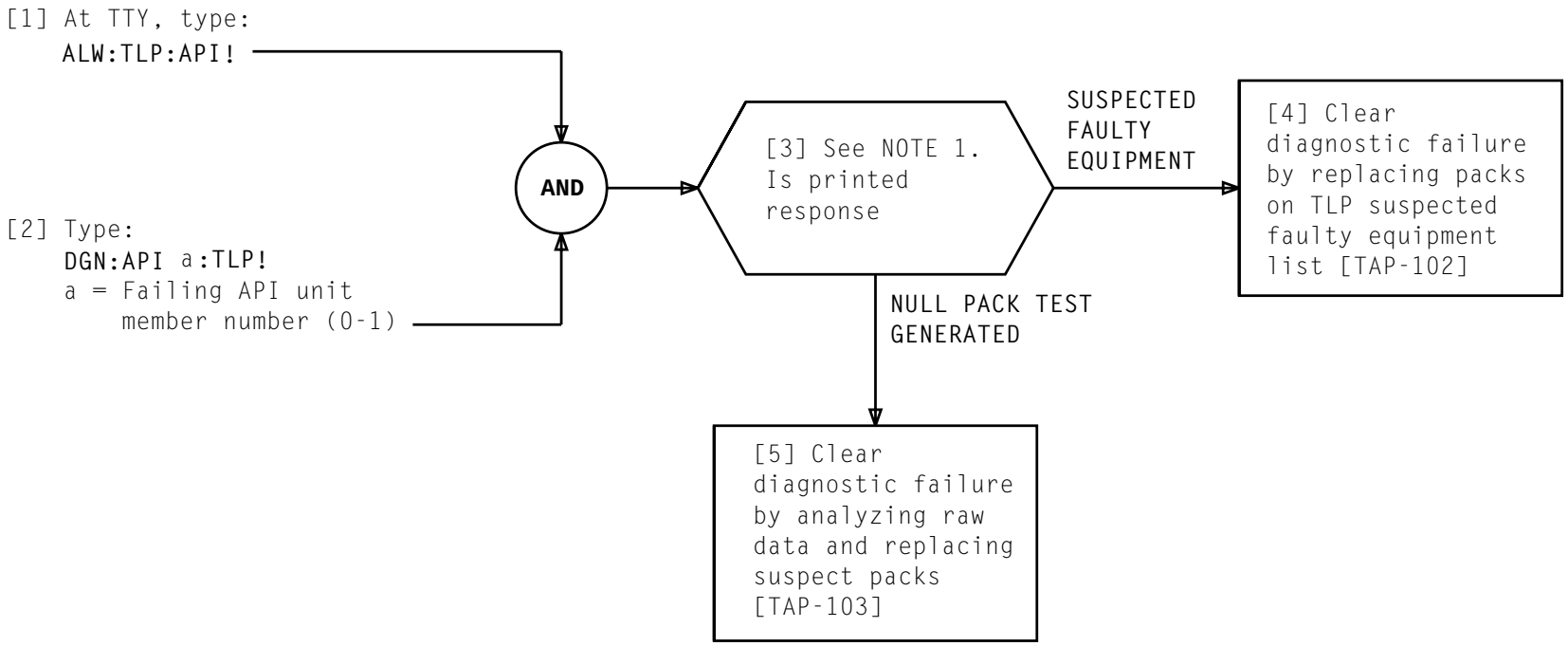


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing:

OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP QUEUE BLOCKAGE

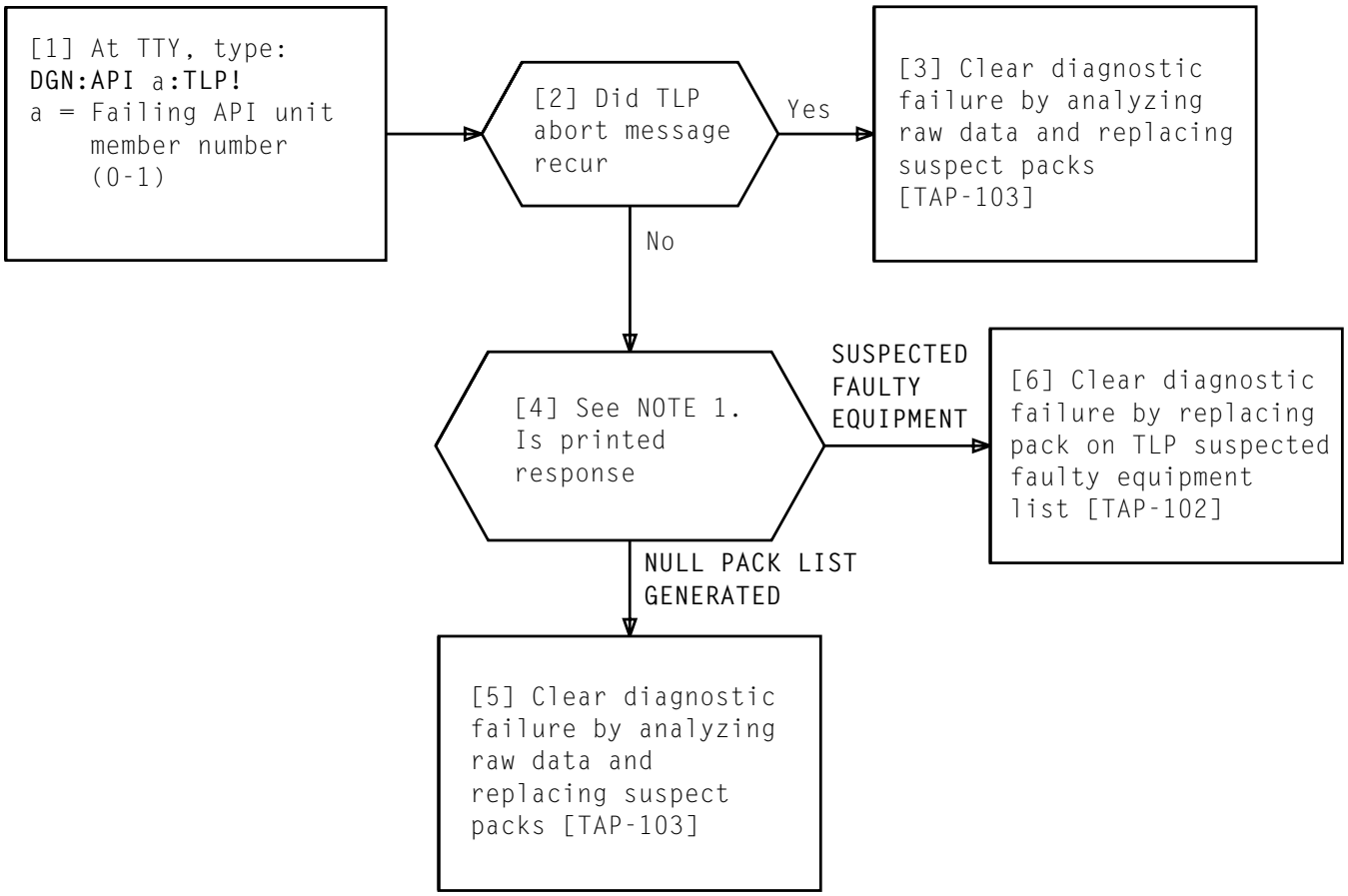


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing:

OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP INHIBIT

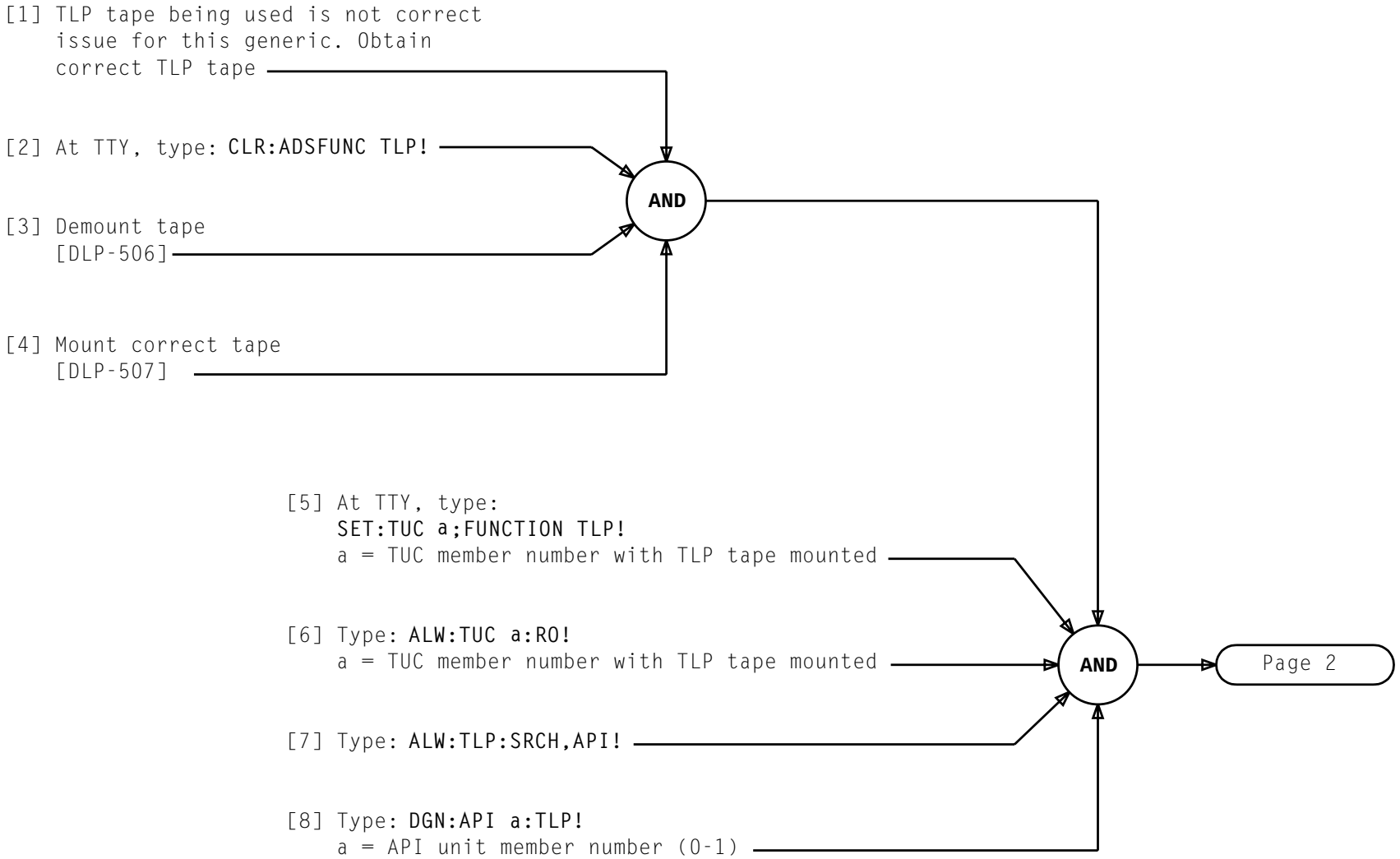


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing:

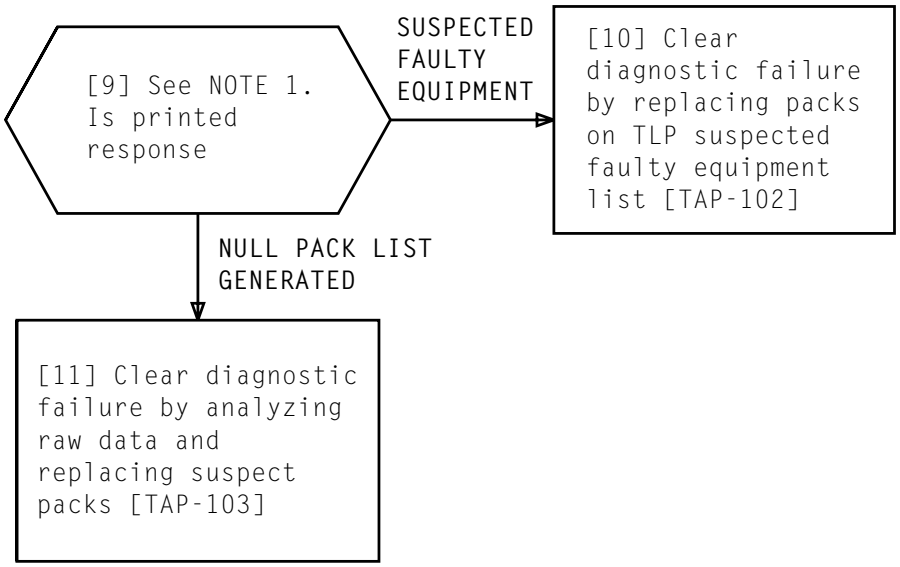
OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP ABORT



CLEAR DIAGNOSTIC FAILURE, TLP TAPE VERSION X DOES NOT MATCH EXPECTED VERSION Y



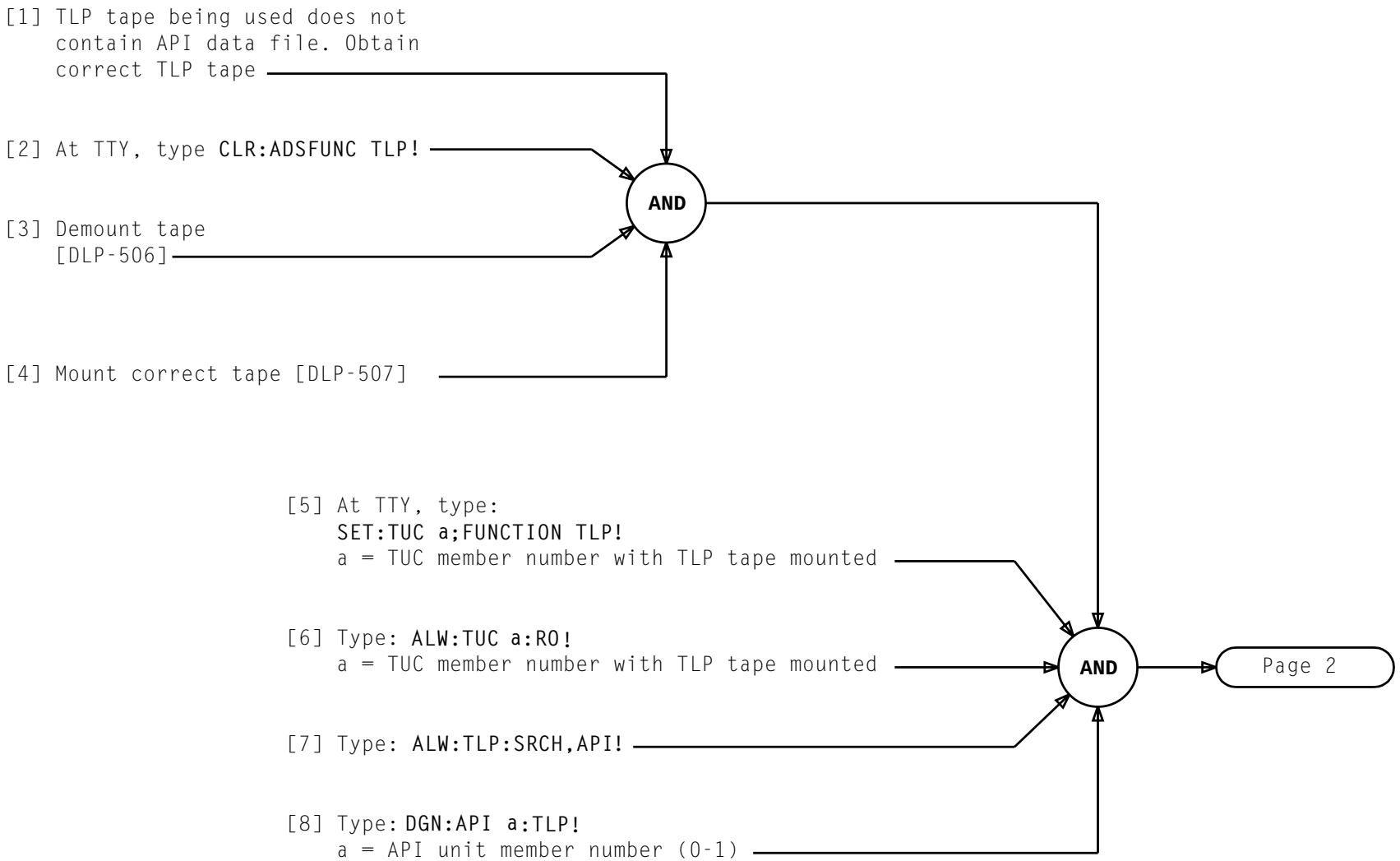
NOTE 1

It may take several minutes for list to be printed. Status of file may be monitored by typing:

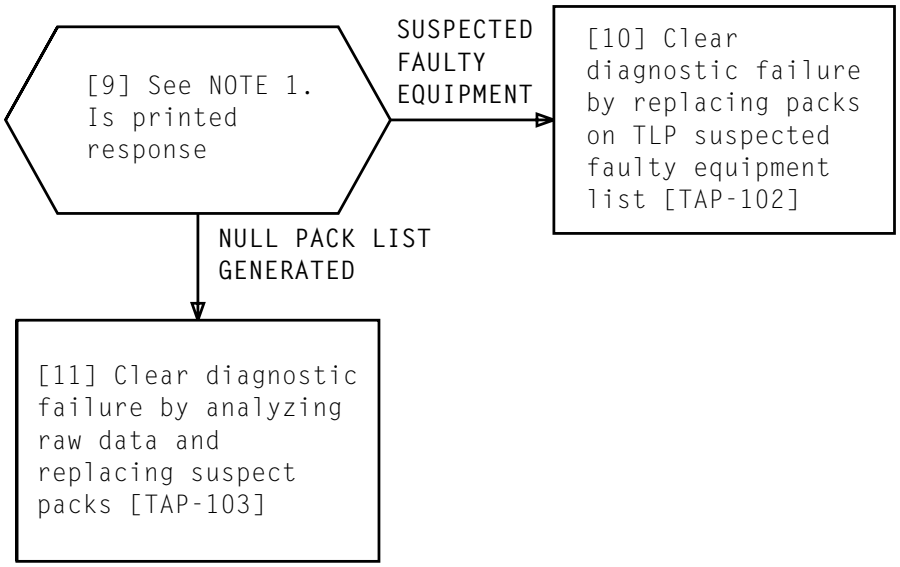
OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP TAPE VERSION X DOES NOT MATCH EXPECTED VERSION Y



CLEAR DIAGNOSTIC FAILURE, TLP TAPE ACQUISITION ERROR

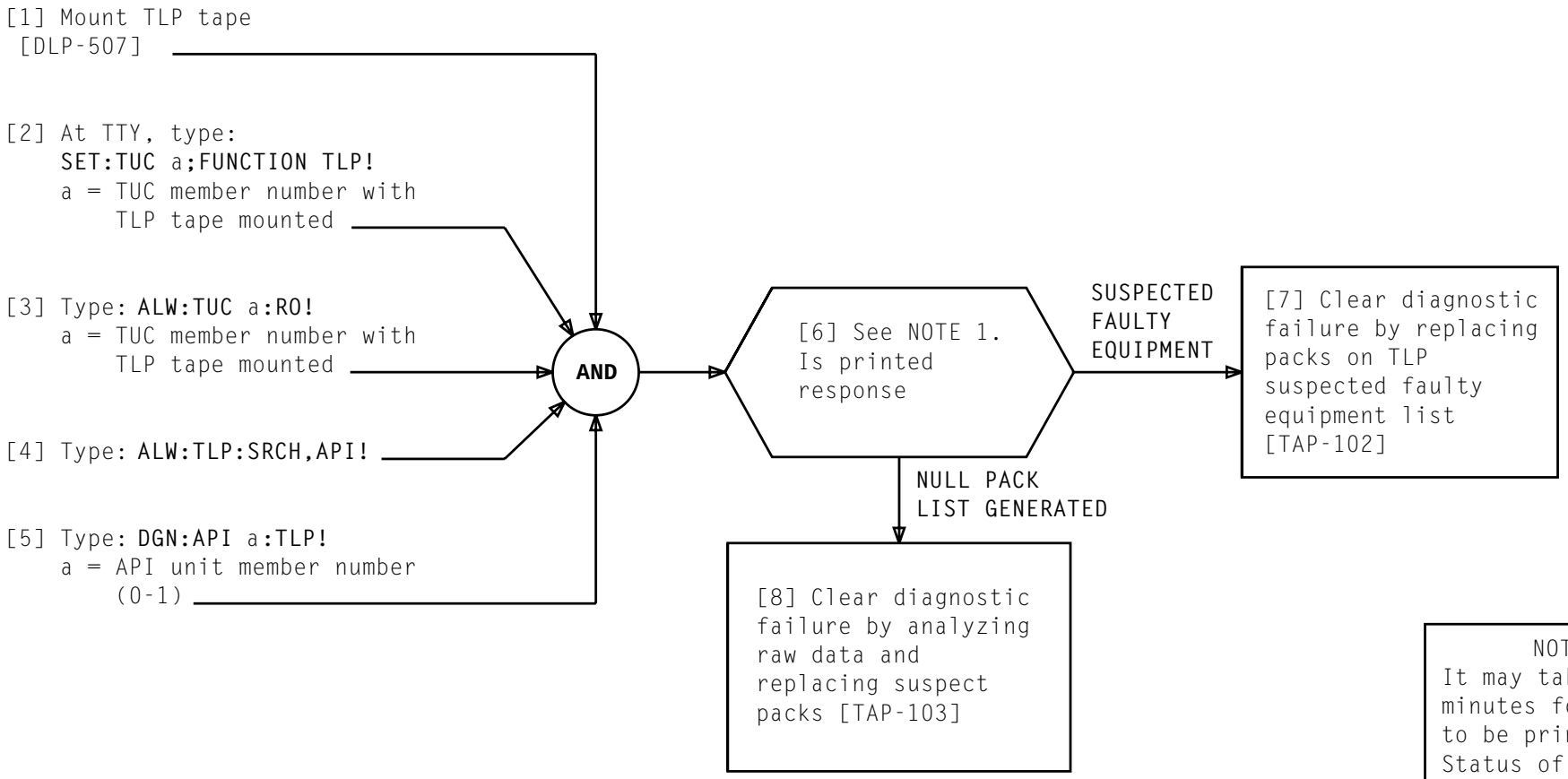


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing:

OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP TAPE ACQUISITION ERROR

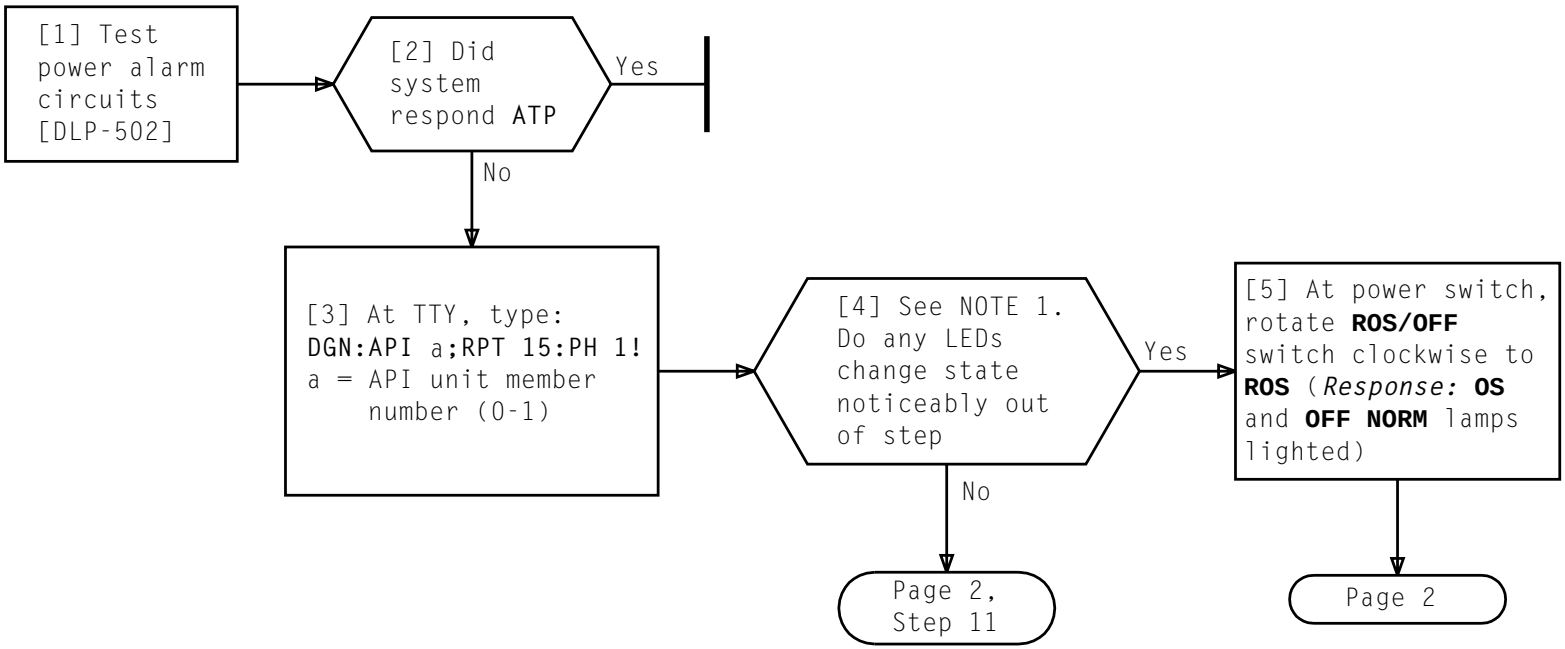


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing:

OP:TLPQUEUE;ALL!

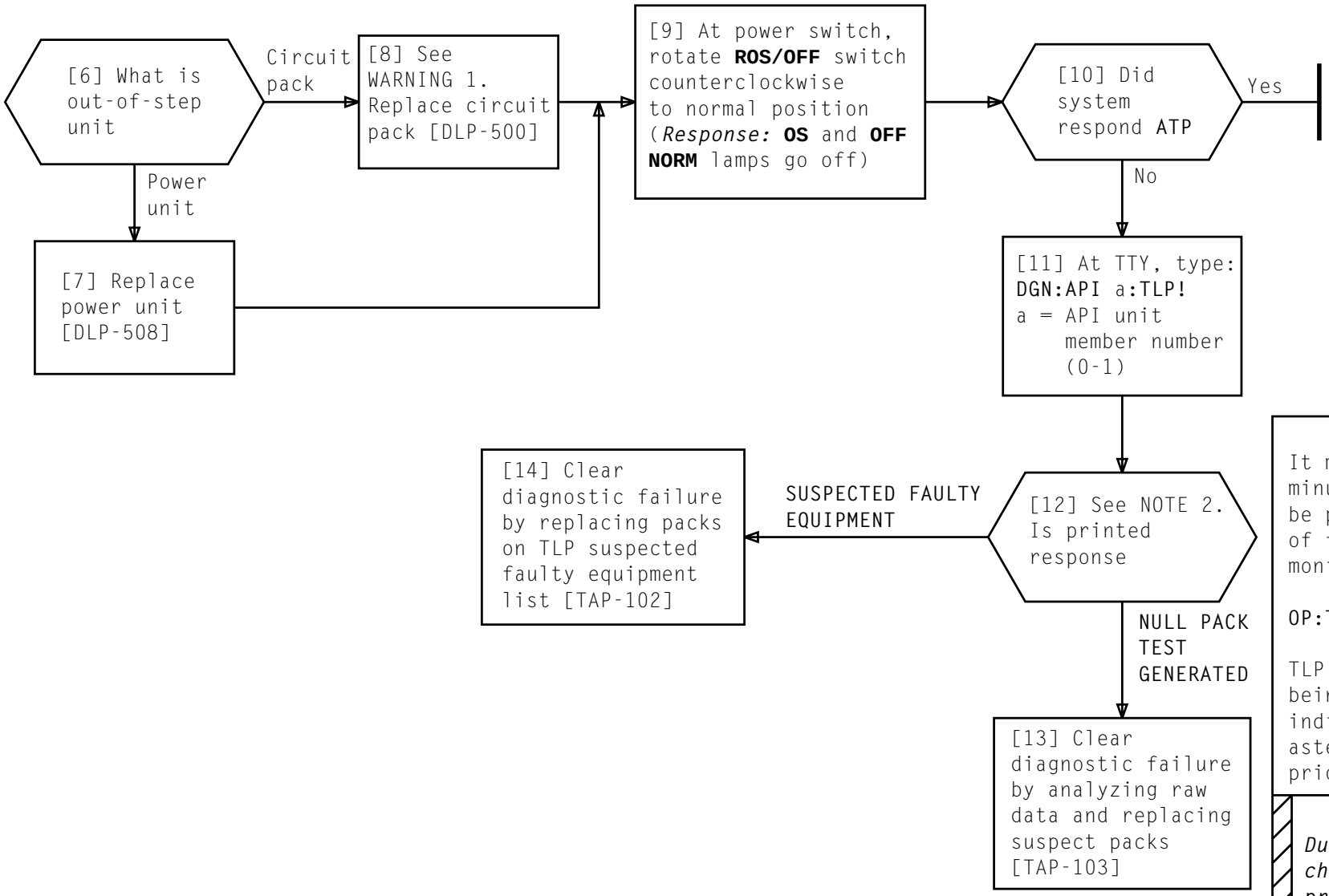
TLP file currently being processed is indicated by asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP TAPE NOT MOUNTED



CLEAR AUTOMATIC POWER MONITOR TEST FAILURE

NOTE 1
Normally, all LEDs do not change state simultaneously



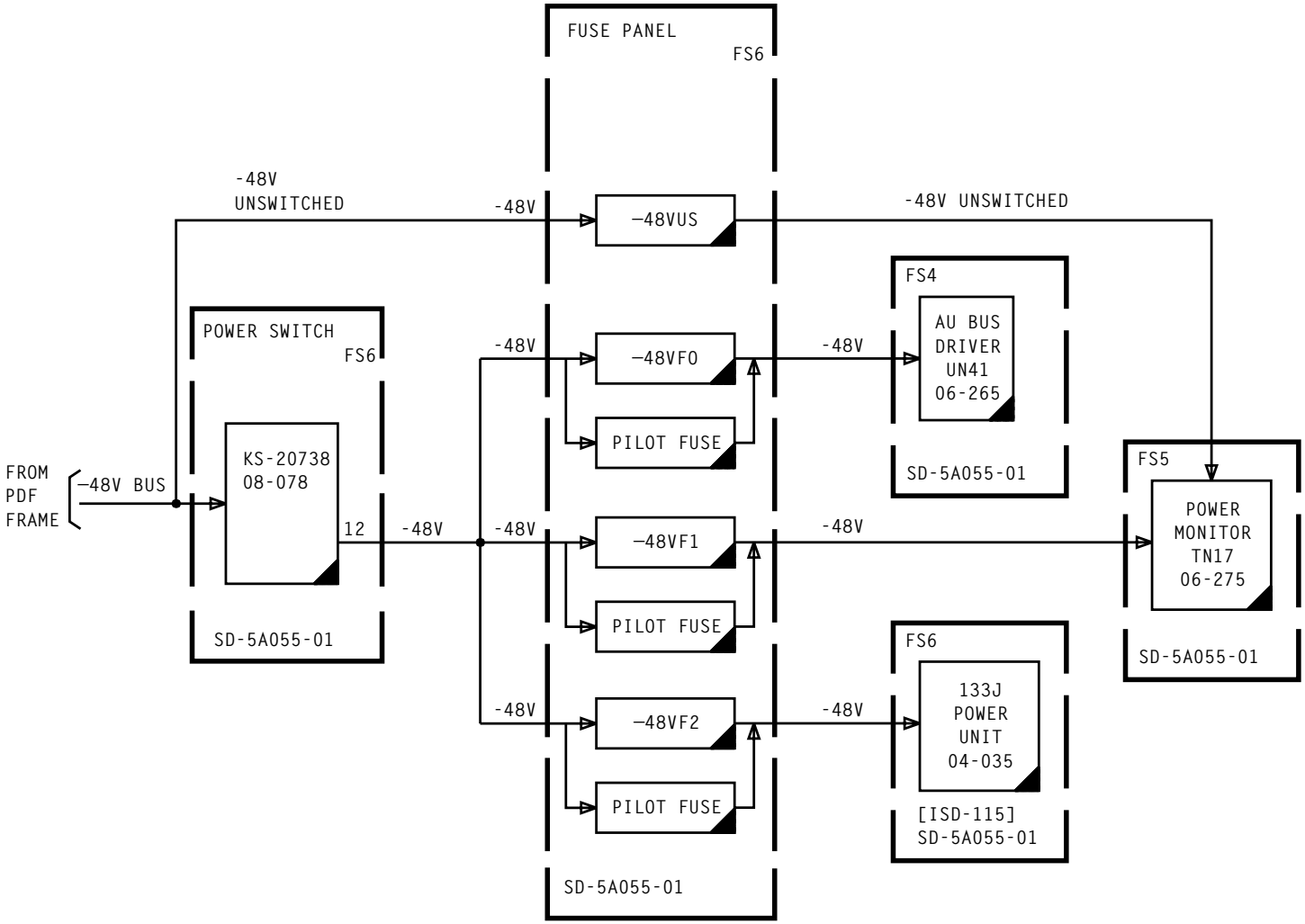
NOTE 2
It may take several minutes for list to be printed. Status of file may be monitored by typing:

OP:TLPQUEUE;ALL!

TLP file currently being processed is indicated by asterisk in priority column

WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR AUTOMATIC POWER MONITOR TEST FAILURE



−48 VOLT POWER DISTRIBUTION

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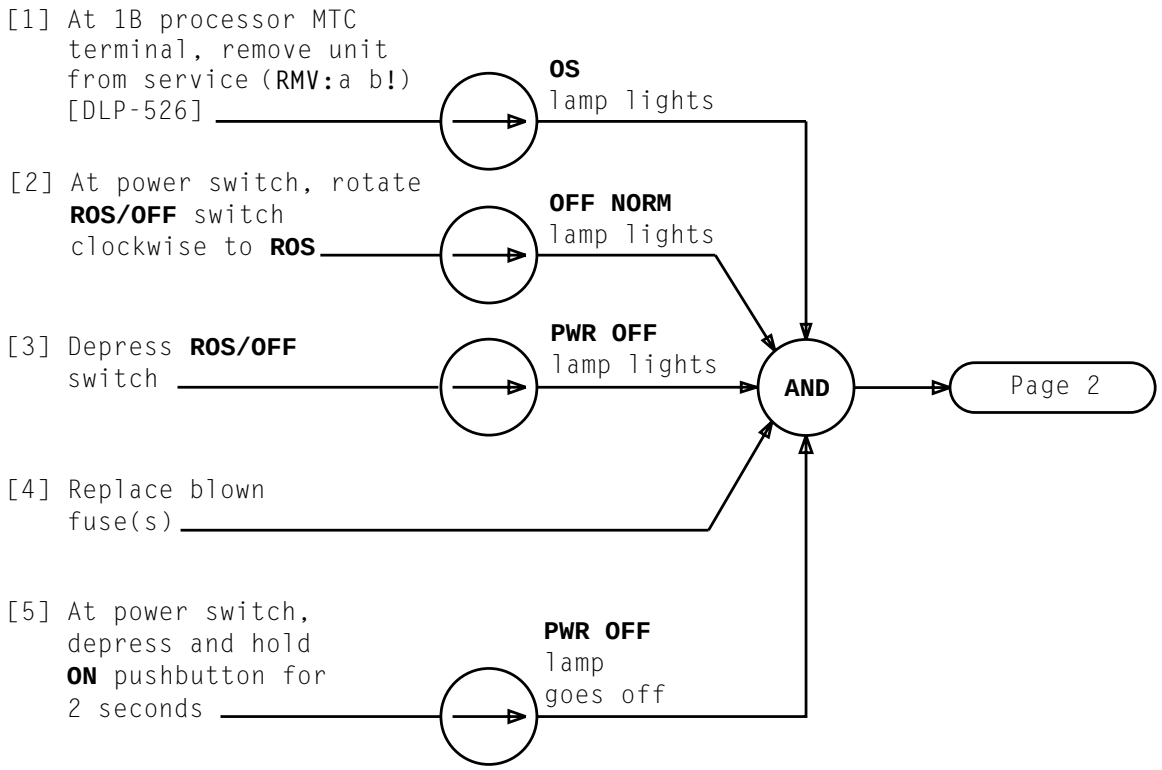


CLEAR BLOWN –48V FUSE

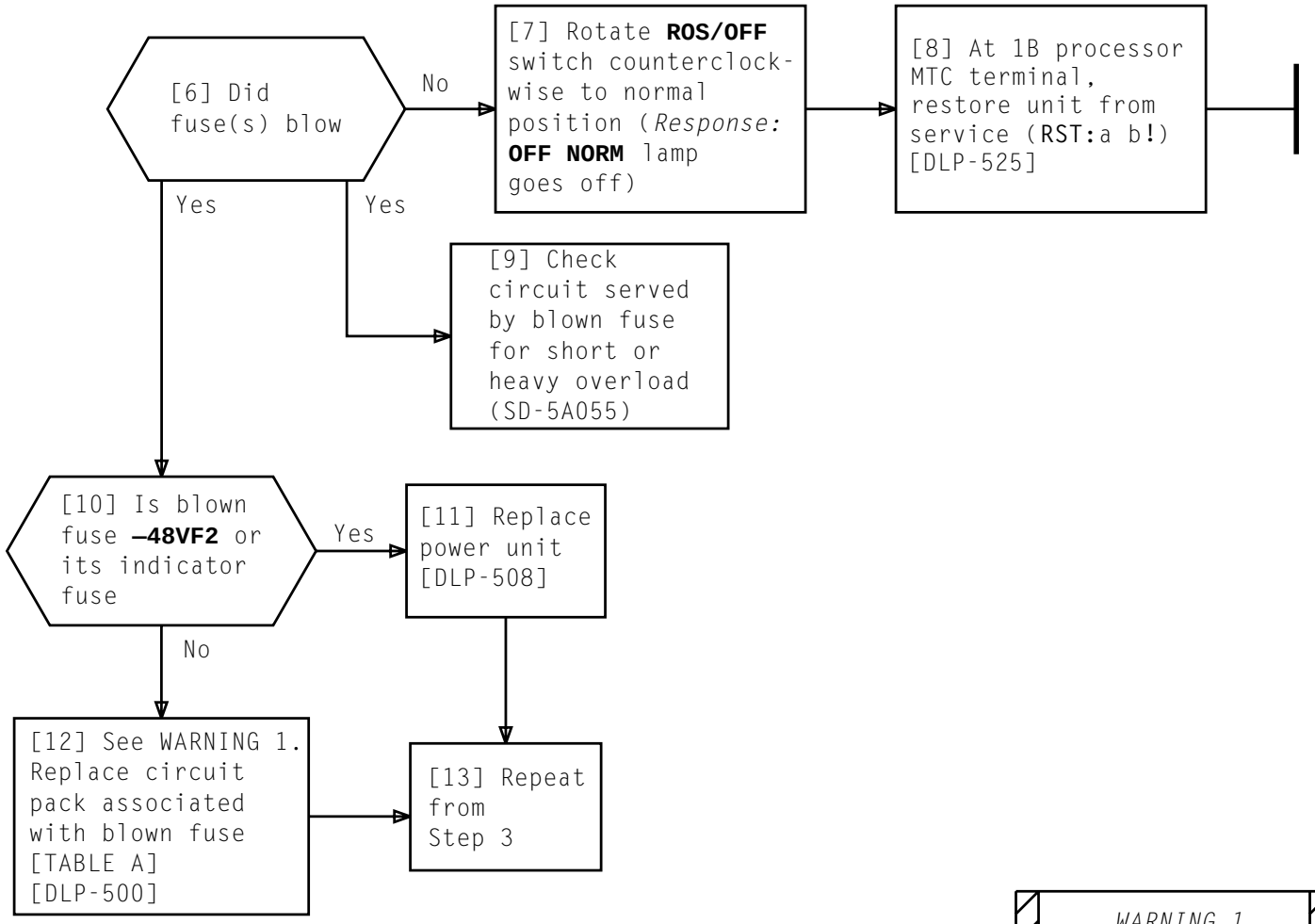
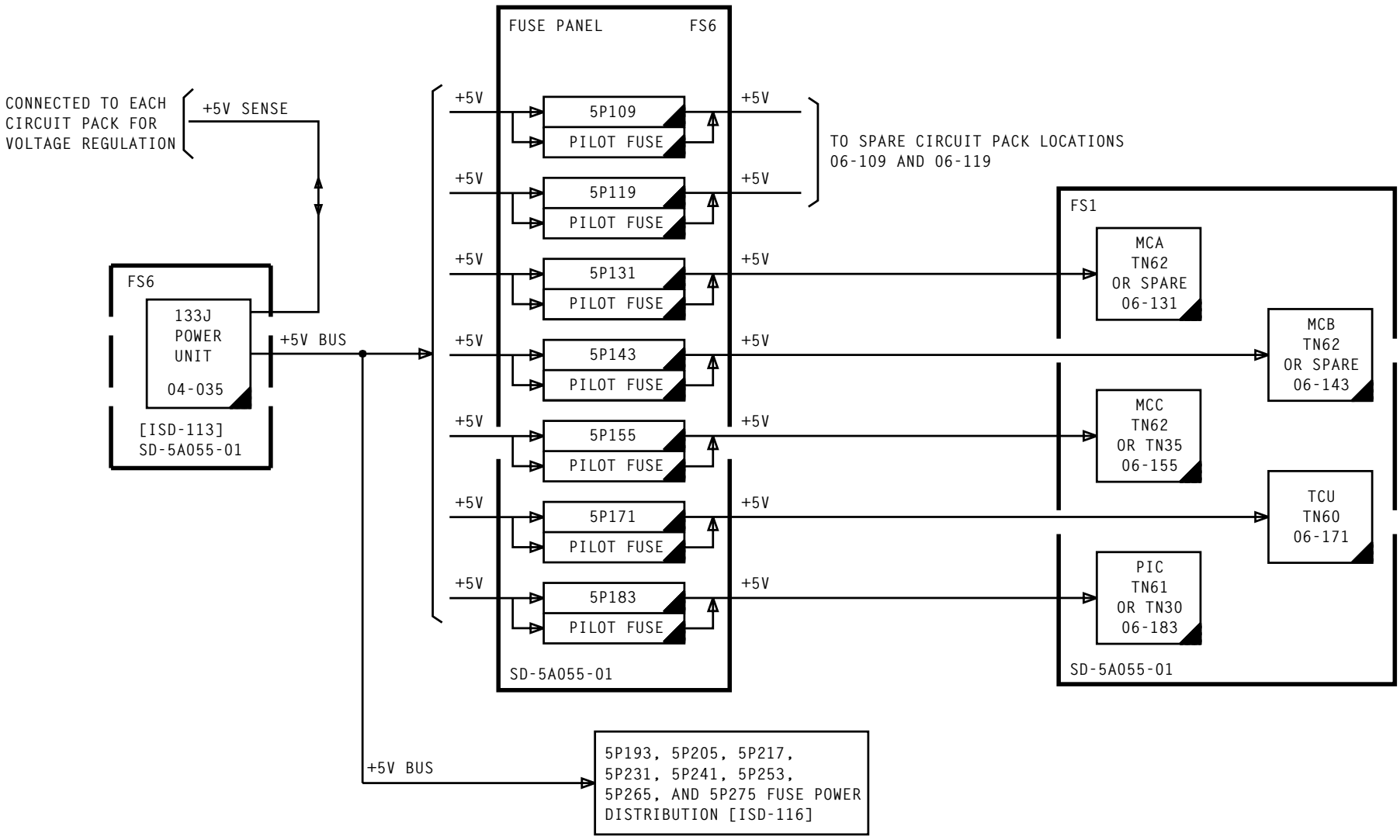


TABLE A

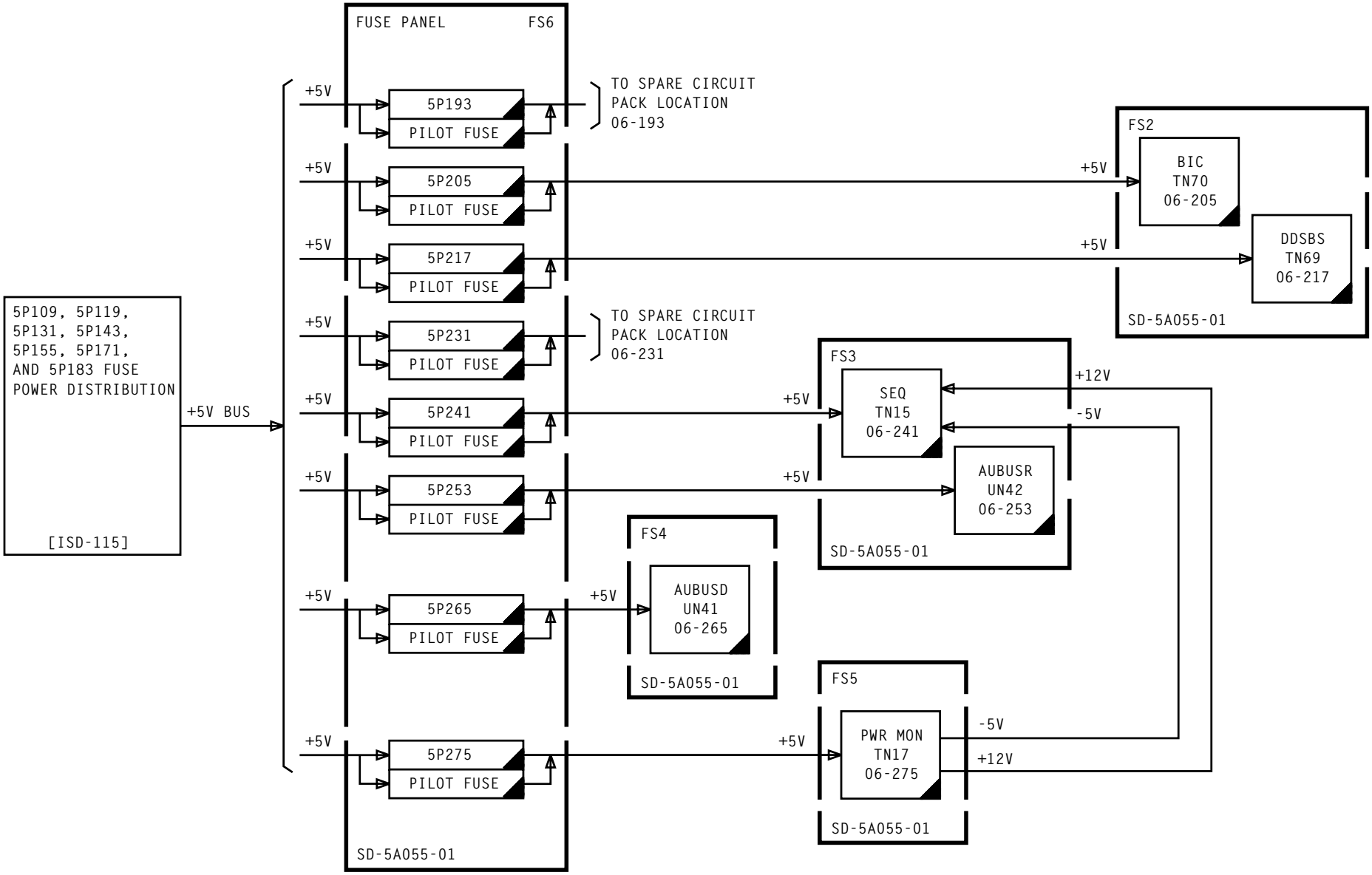
BLOWN FUSE	CIRCUIT PACK	
	TYPE	LOCATION
–48VUS **–48VF1**	**TN17**	06-275
–48VFD	**UN41**	06-265

WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR BLOWN –48V FUSE



5P109, 5P119, 5P131, 5P143, 5P155, 5P171, AND 5P183 FUSE POWER DISTRIBUTION



5P193, 5P205, 5P217, 5P231, 5P241, 5P253, 5P265, AND 5P275 FUSE POWER DISTRIBUTION

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ISD-115 FOR FUSES 5P109-5P183
ISD-116 FOR FUSES 5P193-5P275

[1] At 1B processor MTC terminal, remove unit from service (RMV:a b!) [DLP-526]

OS lamp lights

[2] At power switch, rotate **ROS/OFF** switch clockwise to **ROS**

OFF NORM lamp lights

[3] Depress **ROS/OFF** switch

PWR OFF lamp lights

[4] Replace blown fuse(s)

[5] At power switch, depress and hold **ON** pushbutton for 2 seconds

PWR OFF lamp goes off

AND

[6] Did fuse(s) blow

No

[7] Rotate **ROS/OFF** switch counterclockwise to normal position (*Response:* **OFF NORM** lamp goes off)

Yes

[9] See WARNING 1. Replace circuit pack associated with blown fuse [TABLE A] [DLP-500] and repeat from Step 3

Yes

[10] Check circuit served by blown fuse for short or heavy overload (SD-5A055)

[8] At 1B processor MTC terminal, restore unit from service (RST:a b!) [DLP-525]

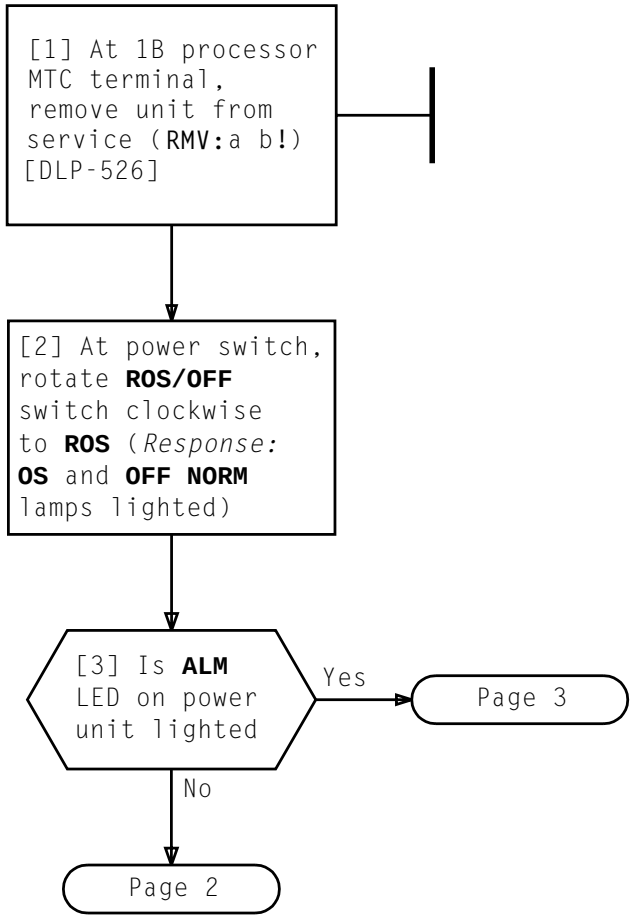
TABLE A

BLOWN FUSE	CIRCUIT PACK		BLOWN FUSE	CIRCUIT PACK	
	TYPE	LOCATION		TYPE	LOCATION
5P131	TN62 OR SPARE	06-131	5P205	TN70	06-205
5P143	TN62 OR SPARE	06-143	5P217	TN69	06-217
5P155	TN62 OR TN35	06-155	5P241	TN15	06-241
5P171	TN60	06-171	5P253	UN42	06-253
5P183	TN61 OR TN30	06-183	5P265	UN41	06-265
			5P275	TN17	06-275

WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

CLEAR BLOWN +5V FUSE

ISD-115 FOR FUSES 5P109-5P183
ISD-116 FOR FUSES 5P193-5P275



CLEAR POWER ALARM

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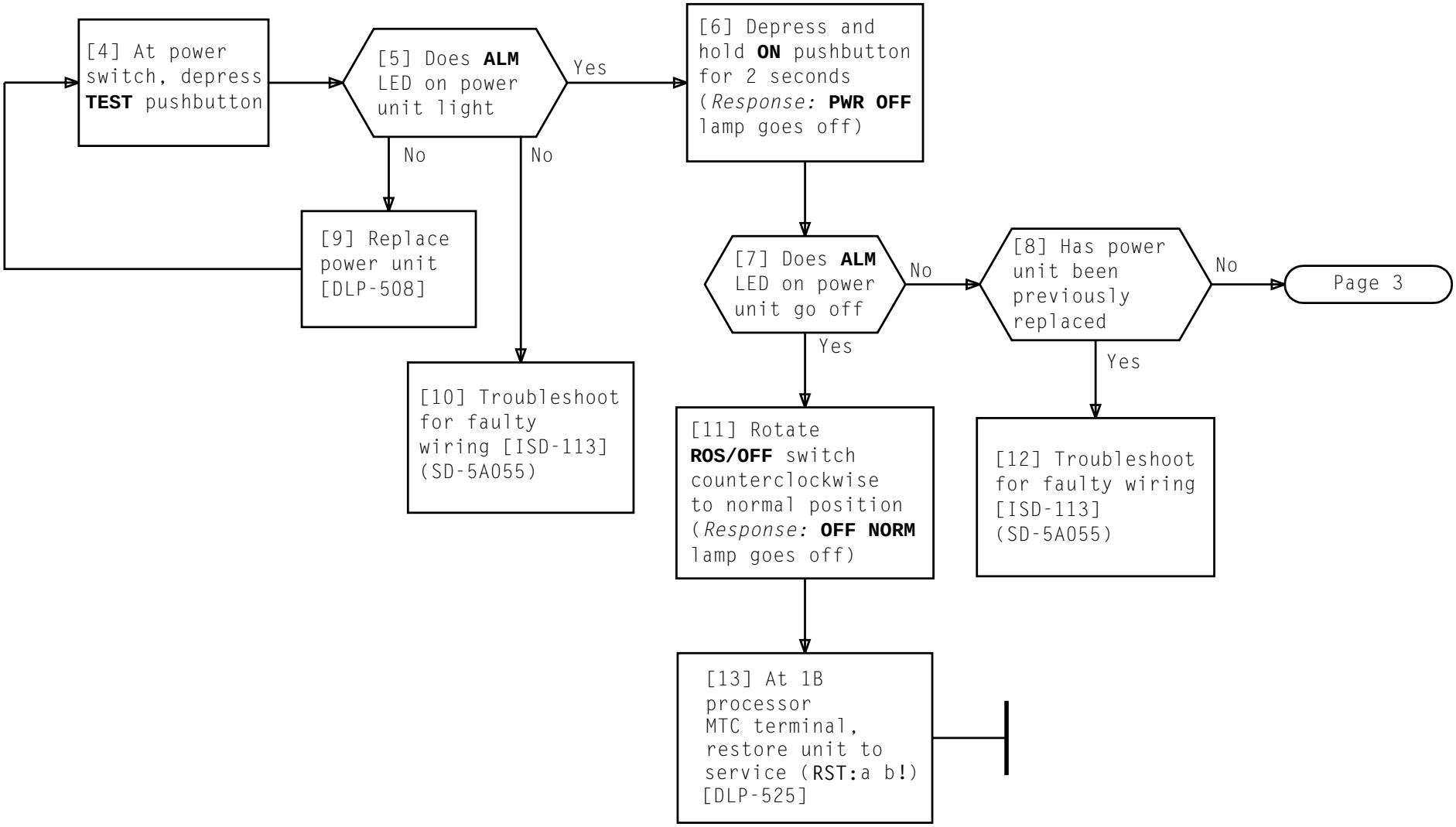
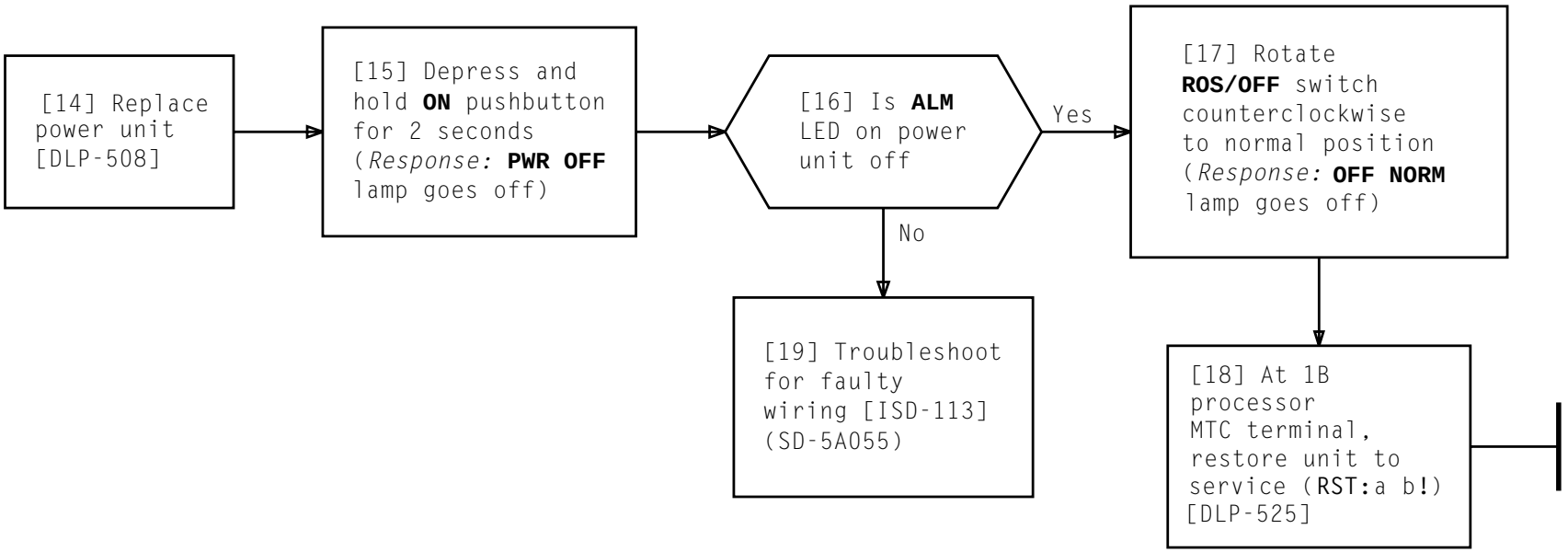


CLEAR POWER ALARM



CLEAR POWER ALARM

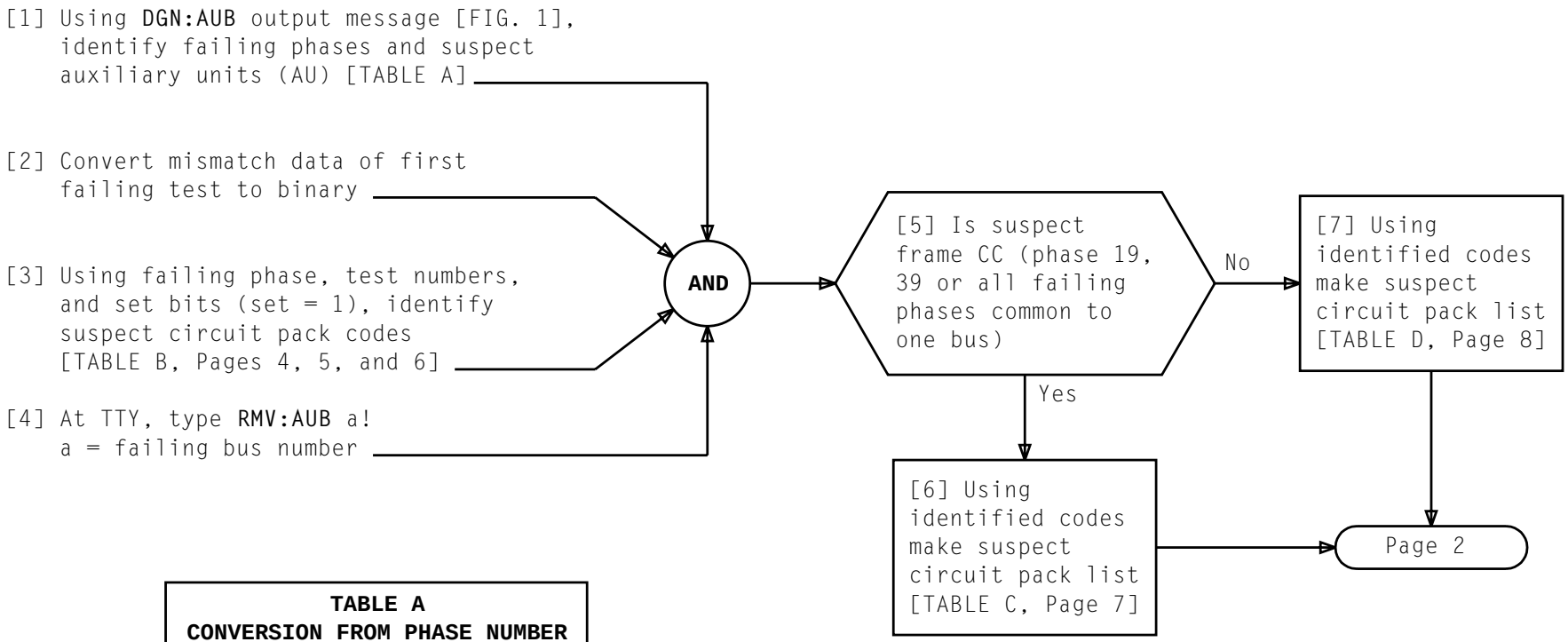


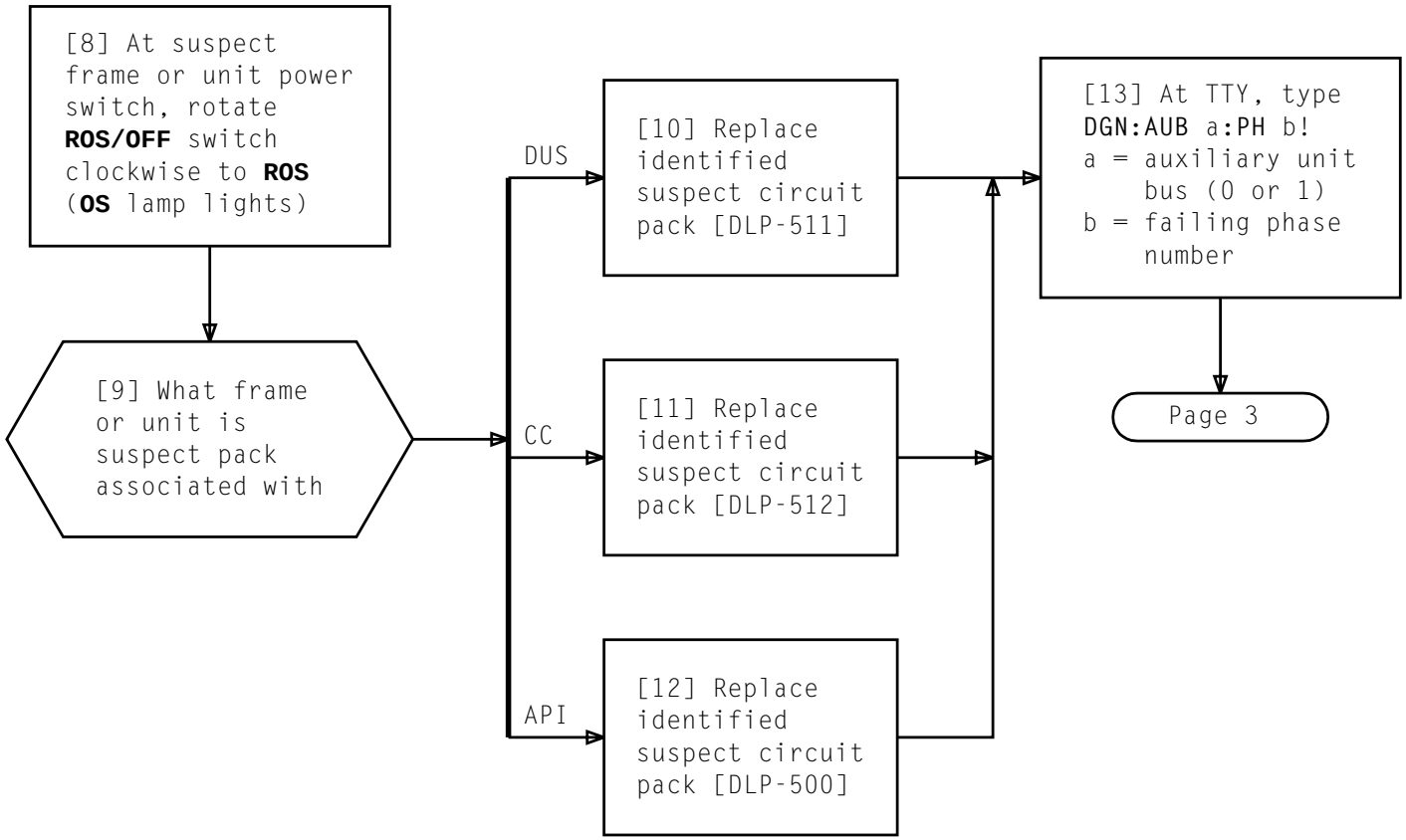
TABLE A
CONVERSION FROM PHASE NUMBER TO AUXILIARY UNIT AND BUS

PHASE NUMBER	SUSPECT UNIT	AUB NUMBER
11	API 0	0
12	API 2	0
17	DUS 0	0
18	DUS 2	0
19	All even numbered AUs	0
31	API 1	1
32	API 3	1
37	DUS 1	1
38	DUS 3	1
39	All odd numbered AUs	1

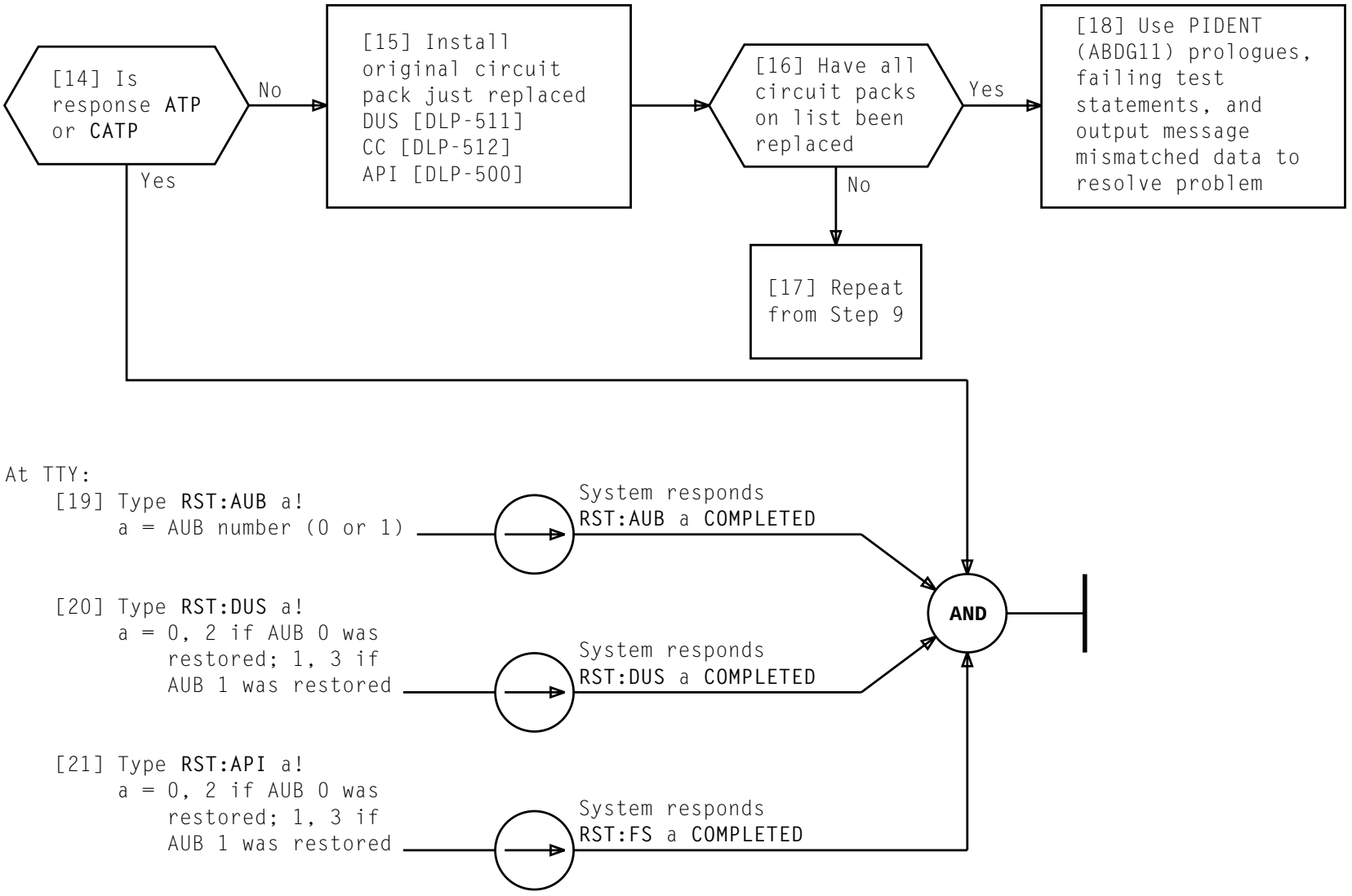
```
DGN:AUB a PH b c d
   TEST    MISMATCH  SUPPLEMENTARY  DATA
    ee     ffffffff   gggggggg     gggggggg

a = Bus number (0 or 1)
b = Phase number
c = Diagnostic results
d = Optional field that appears when results
    are not ATP
e = Failing test number
f = Bits that are in error
g = Supplemental data concerning failing test
```

FIG. 1 — Explanation of Output Format for Raw Data Diagnostics

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE

TABLE B
CONVERSION FROM TEST NUMBER TO CIRCUIT PACK CODE

TEST NUMBER	MISMATCH BIT NUMBER					BUS GROUP
	21	20	19	18	6	
000	C	ABC	A	A	—	ADDRESS
001	↓	↓	↓	↓	↓	↓
002	↓	↓	↓	↓	↓	↓
003	↓	↓	↓	↓	↓	↓
004	↓	↓	↓	↓	↓	↓
005	↓	↓	↓	↓	↓	↓
006	C	↓	↓	↓	↓	↓
007	B	↓	↓	↓	↓	↓
008	↓	↓	↓	↓	↓	↓
009	↓	↓	↓	↓	↓	↓
010	↓	↓	↓	↓	↓	↓
011	↓	↓	↓	↓	↓	↓
012	↓	↓	↓	↓	↓	↓
013	↓	↓	↓	↓	↓	↓
014	↓	↓	↓	↓	↓	↓
015	B	ABC	↓	↓	↓	↓
016	A	BC	↓	↓	—	↓
017	ABC	ABC	↓	↓	A	↓
018	↓	↓	↓	↓	↓	↓
019	↓	↓	↓	↓	↓	↓
020	↓	ABC	↓	↓	A	↓
021	↓	C	↓	↓	—	↓
022	↓	↓	↓	↓	↓	↓
023	↓	↓	↓	↓	↓	↓
024	↓	↓	↓	↓	↓	↓
025	↓	↓	↓	↓	↓	↓
026	↓	↓	↓	↓	↓	↓
027	↓	↓	↓	↓	↓	↓
028	ABC	C	A	A	—	ADDRESS

TEST NUMBER	MISMATCH BIT NUMBER					BUS GROUP
	21	20	19	18	6	
029	ABC	B	A	A	—	ADDRESS
030	↓	↓	↓	↓	↓	↓
031	↓	↓	↓	↓	↓	↓
032	↓	↓	↓	↓	↓	↓
033	↓	↓	↓	↓	↓	↓
034	↓	↓	↓	↓	↓	↓
035	↓	↓	↓	↓	↓	↓
036	ABC	B	↓	↓	↓	↓
037	BC	A	↓	↓	↓	↓
038	↓	↓	↓	↓	↓	↓
039	BC	↓	↓	↓	↓	↓
040	ABC	A	↓	↓	—	↓
041	AC	BC	↓	↓	A	↓
042	↓	↓	↓	↓	↓	↓
043	↓	↓	↓	↓	↓	↓
044	↓	↓	↓	↓	↓	↓
045	↓	↓	↓	↓	↓	↓
046	↓	↓	↓	↓	↓	↓
047	↓	↓	↓	↓	↓	↓
048	AC	↓	↓	↓	↓	↓
049	AB	↓	↓	↓	↓	↓
050	↓	↓	↓	↓	↓	↓
051	↓	↓	↓	↓	↓	↓
052	↓	↓	↓	↓	↓	↓
053	↓	↓	↓	↓	↓	↓
054	↓	↓	↓	↓	↓	↓
055	↓	↓	↓	↓	↓	↓
056	AB	BC	A	A	A	ADDRESS

TEST NUMBER	MISMATCH BIT NUMBER				BUS GROUP
	7	17	22	23	
057	—	B	DEFG	G	WRITE
064	↓	↓	↓	↓	↓
065	↓	↓	↓	G	↓
072	↓	↓	↓	F	↓
073	↓	↓	↓	↓	↓
080	↓	↓	↓	E	↓
081	↓	↓	↓	↓	↓
082	↓	↓	↓	D	↓
083	↓	↓	DEFG	DEFG	↓
084	↓	↓	G	↓	↓
091	↓	↓	↓	↓	↓
092	↓	↓	G	↓	↓
099	↓	↓	F	↓	↓
100	↓	↓	↓	↓	↓
107	↓	↓	E	↓	↓
108	↓	↓	↓	↓	↓
109	↓	↓	D	↓	↓
110	↓	↓	DEFG	DEFG	↓
111	↓	↓	↓	G	↓
118	↓	↓	↓	↓	↓
119	↓	↓	↓	F	↓
126	↓	↓	↓	↓	↓
127	↓	↓	↓	E	↓
134	—	B	DEFG	E	WRITE

(TABLE B continued on Page 5)

TABLE B (Contd)
CONVERSION FROM TEST NUMBER TO CIRCUIT PACK CODE

TEST NUMBER	MISMATCH BIT NUMBER				BUS GROUP	ODD TEST NUMBER	MISMATCH BIT NUMBER			BUS GROUP	EVEN TEST NUMBER	MISMATCH BIT NUMBER		BUS GROUP
	7	17	22	23			23-16	15-8	7-0			21	20	
135	—	B	DEFG	D	WRITE	189	J	K	L	REPLY	190	H	H	REPLY
136			↓	D		191					192			
137			DEFG	DEFG		193					194			
138			G			195					196			
↓			↓			197					198			
145			G			199					200			
146			F			201					202			
↓			↓			203					204			
153			F			205					206			
154			E			207					208			
↓			↓			209					210			
161			E			211					212			
162			D			213					214			
163			D			215					216			
164	—		DEFG	DEFG		217					218			
165	D			G		219					220			
↓				↓		221					222			
172				G		223					224			
173				F		225					226			
↓				↓		227					228			
180				F		229					230			
181				E		231					232			
↓				↓		233					234			
188	D	B	DEFG	E	WRITE	235					236			
						237					238			
						239					240			
						241					242			
						243					244			
						245	J	K	L	REPLY	246	H	H	REPLY

(TABLE B continued on Page 6)

TABLE B (Contd)
CONVERSION FROM TEST NUMBER TO CIRCUIT PACK CODE

TEST NUMBER	MISMATCH BIT NUMBER 0	BUS GROUP	ODD TEST NUMBER	MISMATCH BIT NUMBER 21-16	MISMATCH BIT NUMBER 15-8	MISMATCH BIT NUMBER 7-0	BUS GROUP	EVEN TEST NUMBER	MISMATCH BIT NUMBER 24-22	BUS GROUP	TEST NUMBER	MISMATCH BIT NUMBER 0	BUS GROUP
247	H	CONTROL	261	V	U	T	STORE ADDRESS	262	VW	STORE ADDRESS	313	*XY	CONTROL
248	H	↓	263	↓	↓	↓	↓	264	↓	↓	314	↓	↓
249	M		265					266			315		
250	M		267					268			316	↓	↓
251	NPQR		269					270			317	*XY	CONTROL
252	↓		271					272			318	D	WRITE
253			273					274			319	D	WRITE
254			275					276			320	D	WRITE
255			277					278					
256			279					280					
257			281					282					
258	NPQR		283					284					
259	S		285					286					
260	NPQR	CONTROL	287					288					
			289					290					
			291					292					
			293					294					
			295					296					
			297					298					
			299					300					
			301					302					
			303					304					
			305					306					
			307					308					
			309	↓	↓	↓	↓	310	↓	↓			
			311	V	U	T	STORE ADDRESS	312	VW	STORE ADDRESS			

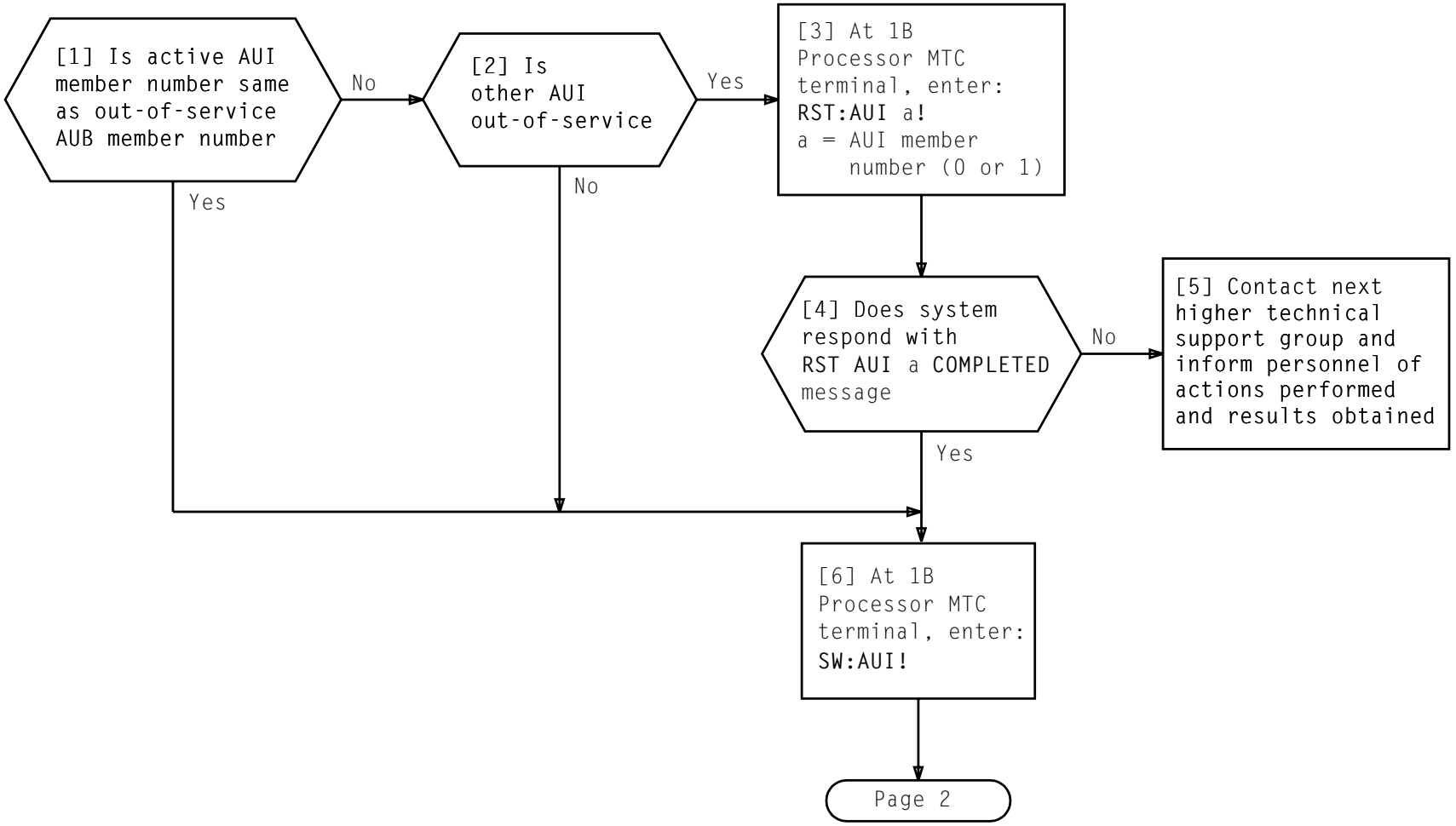
* X IS FOR BUS 0
Y IS FOR BUS 1

TABLE C
CONVERSION FROM CIRCUIT PACK CODE TO CC CIRCUIT PACK LOCATION

CIRCUIT PACK CODE	CIRCUIT PACK LOCATION CC	BUS	CIRCUIT PACK TYPE	CIRCUIT PACK CODE	CIRCUIT PACK LOCATION CC	BUS	CIRCUIT PACK TYPE
A	030-34	0	**FC11**	L	030-25	0	**FC28**
	030-55	1	**FC11**		030-47	1	**FC28**
B	030-33	0	**FC11**	M	030-23	0	**FC28**
	030-54	1	**FC11**		030-45	1	**FC28**
C	030-32	0	**FC11**	N	030-30	—	**FC28**
	030-53	1	**FC11**	P	030-30	—	**FC28**
D	030-16	0	**FC11**	Q	030-57	—	**FC28**
	030-40	1	**FC11**	R	030-57	—	**FC28**
E	030-15	0	**FC11**	S	030-47	—	**FC28**
	030-39	1	**FC11**	T	030-21	0	**FC28**
F	030-14	0	**FC11**		030-43	1	**FC28**
	030-38	1	**FC11**	U	030-21	0	**FC28**
G	030-13	0	**FC11**		030-43	1	**FC28**
	030-37	1	**FC11**	V	030-23	0	**FC28**
H	030-28	0	**FC28**		030-45	1	**FC28**
	030-49	1	**FC28**	W	030-23	0	**FC28**
J	030-27	0	**FC28**		030-45	1	**FC28**
	030-49	1	**FC28**	X	076-53	0	**AUCD20**
K	030-25	0	**FC28**	Y	076-56	1	**AUCD20**
	030-47	1	**FC28**				

TABLE D
CONVERSION FROM CIRCUIT PACK CODE TO DUS OR API CIRCUIT PACK LOCATION

CIRCUIT PACK CODE	DUS CIRCUIT PACK LOCATION	DUS CIRCUIT PACK TYPE	BUS	API CIRCUIT PACK LOCATION	API CIRCUIT PACK TYPE
A	070-63	FC10	—	056-253	UN42
B	070-64	FC10	—	056-253	UN42
C	070-65	FC10	—	056-253	UN42
D	070-66	FC10	—	056-253	UN42
E	070-67	FC10	—	056-253	UN42
F	070-68	FC10	—	056-253	UN42
G	070-69	FC10	—	056-253	UN42
H	070-42	FC11	—	056-265	UN41
J	070-43	FC11	—	056-265	UN41
K	070-44	FC11	—	056-265	UN41
L	070-45	FC11	—	056-265	UN41
M	070-39	FC11	—	---	
N	--	--	—	056-265	UN41
P	070-38	FC11	—	---	
Q	--	--	—	056-265	UN41
R	070-38	FC11	—	---	
S	070-42	FC11	—	056-265	UN41
T	070-41	FC11	—	056-265	UN41
U	070-40	FC11	—	056-265	UN41
V	070-39	FC11	—	056-265	UN41
W	070-42	FC11	—	056-265	UN41
X	070-47	FC16	0	056-241	TN15
Y	070-46	FC16	1	056-241	TN15



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

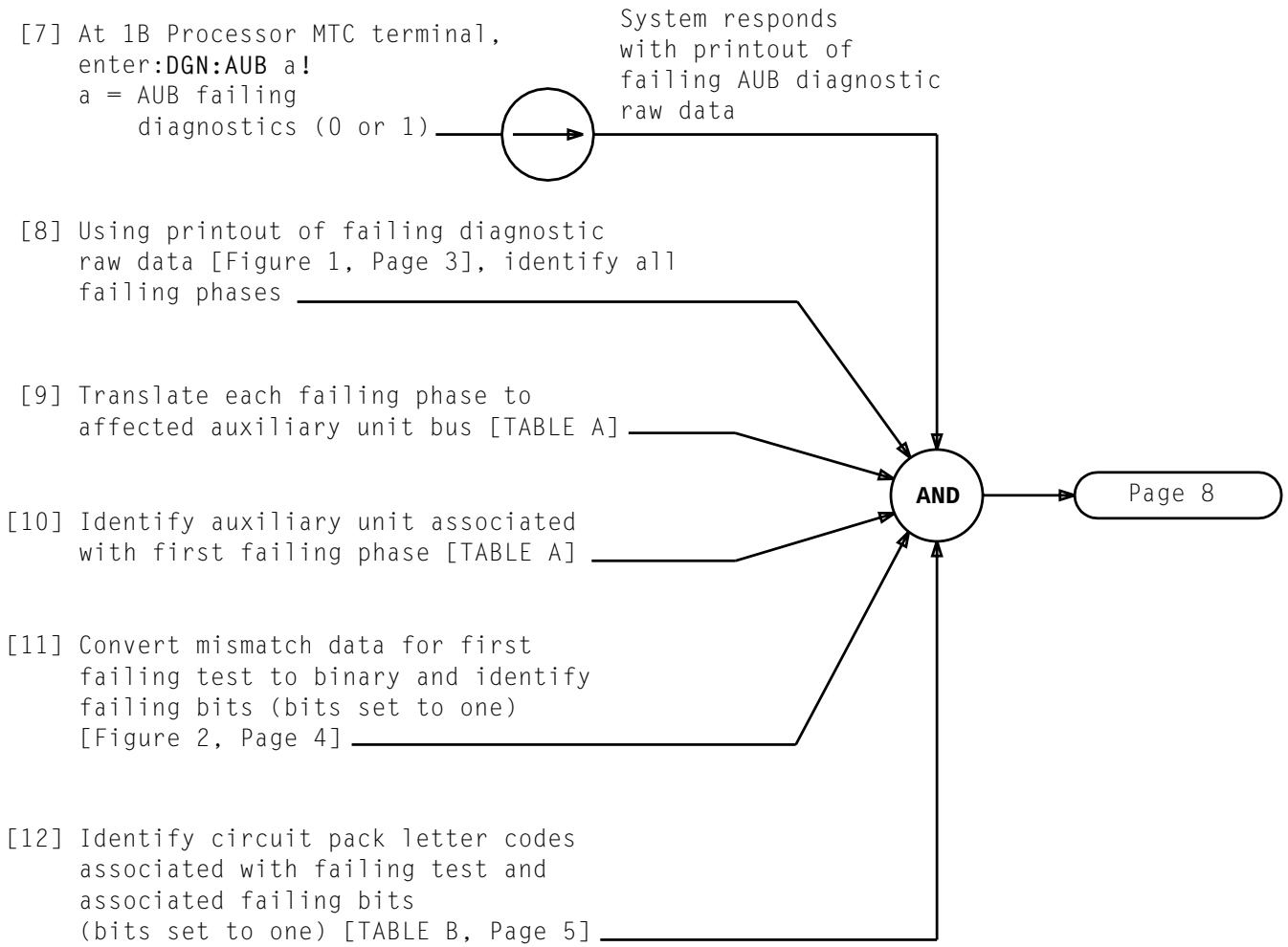


TABLE A
PHASES ASSOCIATED WITH AUXILIARY UNITS AND AUXILIARY UNIT BUSES

PHASE NUMBER	AUXILIARY UNIT	AUXILIARY UNIT BUS
11	API0	0
17	DUS0	0
31	API1	1
37	DUS1	1

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

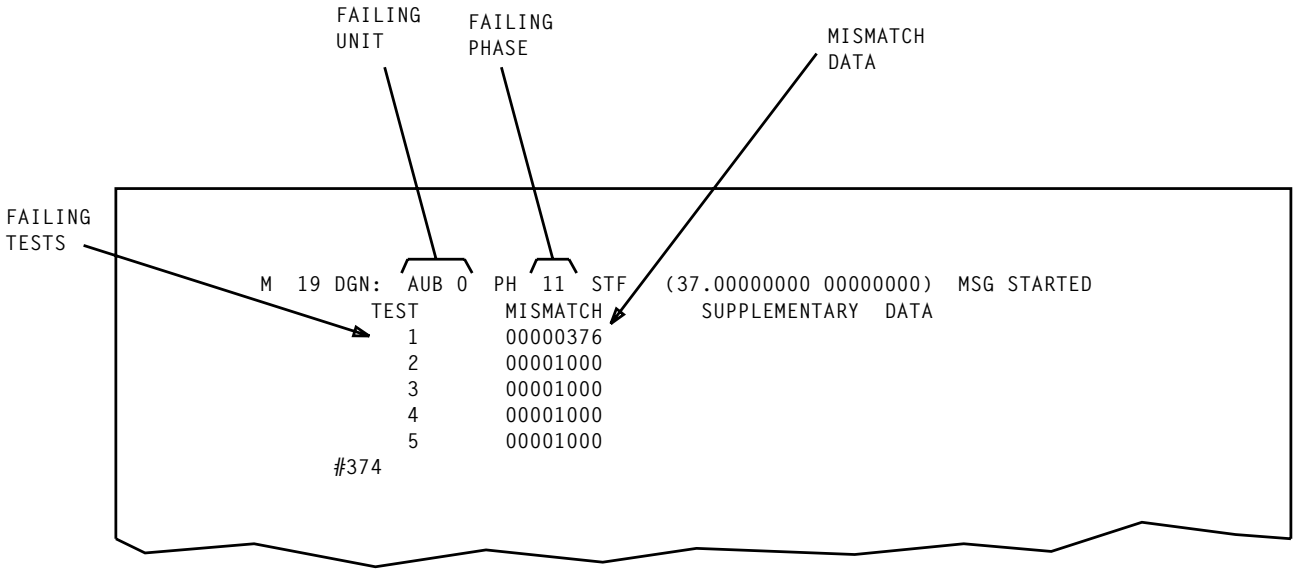


Figure 1 - Sample Printout of Failing Diagnostic Raw Data

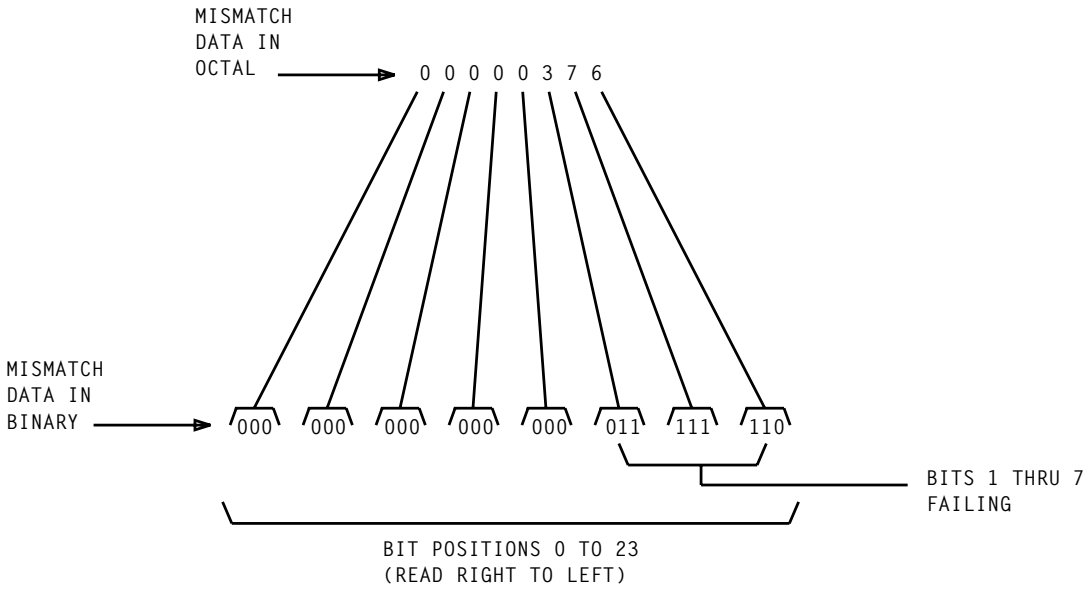


Figure 2 - Example of Mismatch Data Octal To Binary Conversion

TABLE B
CIRCUIT PACK LETTER CODES ASSOCIATED WITH DIAGNOSTIC TEST AND FAILING BITS

TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS					BUS GROUP	TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS					BUS GROUP	TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS				BUS GROUP
	21	20	19	18	6			21	20	19	18	6			7	17	22	23	
000	C	ABC	A	A	–	ADDRESS	029	ABC	B	A	A	–	ADDRESS	057	–	B	DEFG	G	WRITE
001							030												
002							031							064				G	
003							032							065				F	
004							033												
005							034							072				F	
006							035							073				E	
007	C						036	ABC	B										
008	B						037	BC	A					080				E	
009							038							081				D	
010							039	BC						082				D	
011							040	ABC	A			–		083			DEFG	DEFG	
012							041	AC	BC			A		084			G		
013							042												
014							043							091			G		
015	B	ABC			–		044							092			F		
016	A	BC					045												
017	ABC	ABC			A		046							099			F		
018							047							100			E		
019							048	AC											
020		ABC			A		049	AB						107			E		
021		C			–		050							108			D		
022							051							109			D		
023							052							110			DEFG	DEFG	
024							053							111				G	
025							054												
026							055							118				G	
027							056	AB	BC	A	A	A	ADDRESS	119				F	
028	ABC	C	A	A	–	ADDRESS													
														126				F	
														127				E	
														134	–	B	DEFG	E	WRITE

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

TABLE B (Contd)
CIRCUIT PACK LETTER CODES ASSOCIATED WITH DIAGNOSTIC TEST AND FAILING BITS

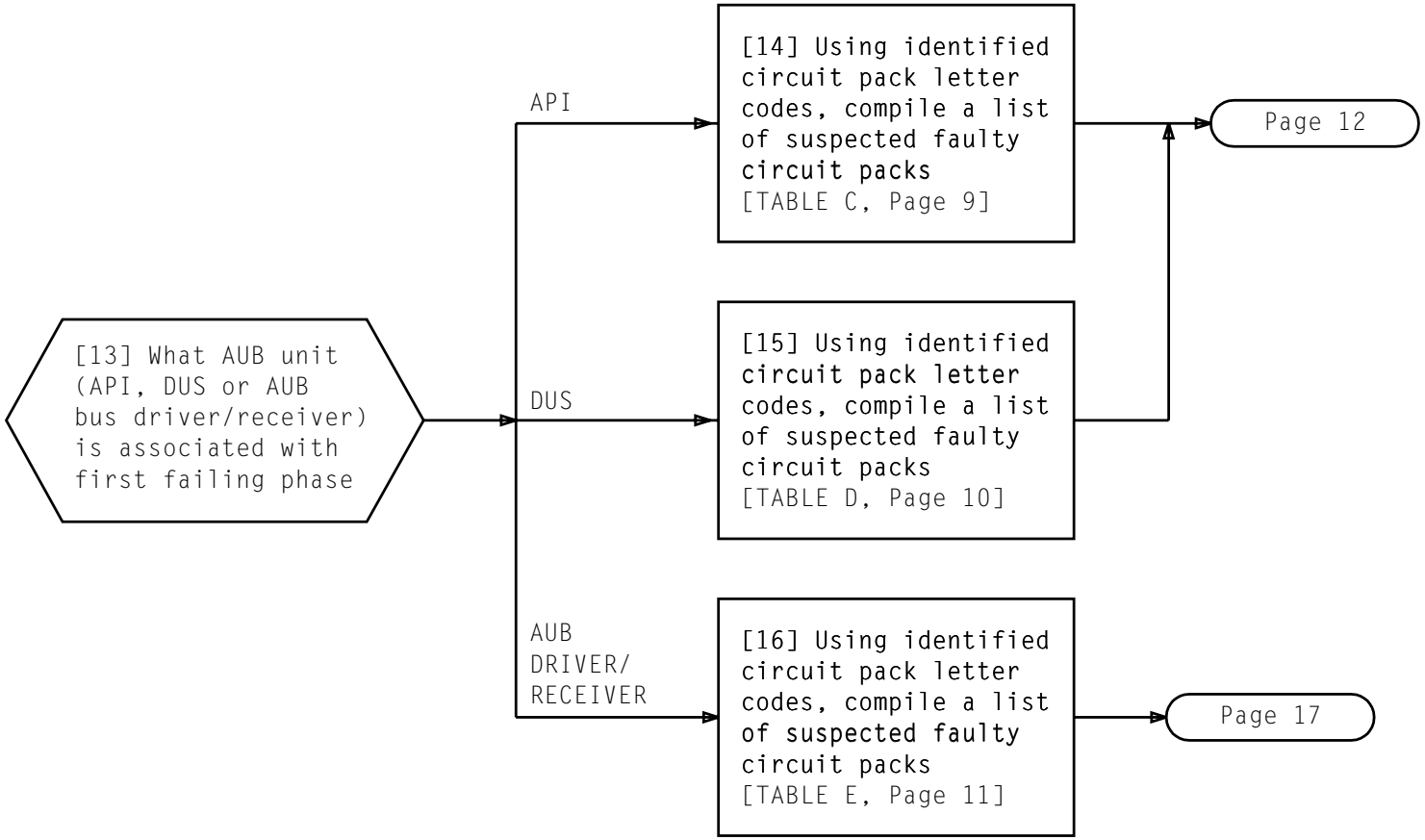
TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS				BUS GROUP	ODD TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS			BUS GROUP	EVEN TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS		BUS GROUP
	7	17	22	23			23-16	15-8	7-0			21	20	
135	–	B	DEFG	D	WRITE	189	J	K	L	REPLY	190	H	H	REPLY
136	↓	↓	↓	D	↓	191	↓	↓	↓	↓	192	↓	↓	↓
137	↓	↓	DEFG	DEFG	↓	193	↓	↓	↓	↓	194	↓	↓	↓
138	↓	↓	G	↓	↓	195	↓	↓	↓	↓	196	↓	↓	↓
↓	↓	↓	↓	↓	↓	197	↓	↓	↓	↓	198	↓	↓	↓
145	↓	↓	G	↓	↓	199	↓	↓	↓	↓	200	↓	↓	↓
146	↓	↓	F	↓	↓	201	↓	↓	↓	↓	202	↓	↓	↓
↓	↓	↓	↓	↓	↓	203	↓	↓	↓	↓	204	↓	↓	↓
153	↓	↓	F	↓	↓	205	↓	↓	↓	↓	206	↓	↓	↓
154	↓	↓	E	↓	↓	207	↓	↓	↓	↓	208	↓	↓	↓
↓	↓	↓	↓	↓	↓	209	↓	↓	↓	↓	210	↓	↓	↓
161	↓	↓	E	↓	↓	211	↓	↓	↓	↓	212	↓	↓	↓
162	↓	↓	D	↓	↓	213	↓	↓	↓	↓	214	↓	↓	↓
163	↓	↓	D	↓	↓	215	↓	↓	↓	↓	216	↓	↓	↓
164	–	↓	DEFG	DEFG	↓	217	↓	↓	↓	↓	218	↓	↓	↓
165	D	↓	↓	G	↓	219	↓	↓	↓	↓	220	↓	↓	↓
↓	↓	↓	↓	↓	↓	221	↓	↓	↓	↓	222	↓	↓	↓
172	↓	↓	↓	G	↓	223	↓	↓	↓	↓	224	↓	↓	↓
173	↓	↓	↓	F	↓	225	↓	↓	↓	↓	226	↓	↓	↓
↓	↓	↓	↓	↓	↓	227	↓	↓	↓	↓	228	↓	↓	↓
180	↓	↓	↓	F	↓	229	↓	↓	↓	↓	230	↓	↓	↓
181	↓	↓	↓	E	↓	231	↓	↓	↓	↓	232	↓	↓	↓
↓	↓	↓	↓	↓	↓	233	↓	↓	↓	↓	234	↓	↓	↓
188	D	B	DEFG	E	WRITE	235	↓	↓	↓	↓	236	↓	↓	↓
						237	↓	↓	↓	↓	238	↓	↓	↓
						239	↓	↓	↓	↓	240	↓	↓	↓
						241	↓	↓	↓	↓	242	↓	↓	↓
						243	↓	↓	↓	↓	244	↓	↓	↓
						245	J	K	L	REPLY	246	H	H	REPLY

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

TABLE B (Contd)
CIRCUIT PACK LETTER CODES ASSOCIATED WITH DIAGNOSTIC TEST AND FAILING BITS

TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS 0	BUS GROUP	ODD TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS 21-16	15-8	7-0	BUS GROUP	EVEN TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS 24-22	BUS GROUP	TEST NUMBER	CIRCUIT PACK LETTER CODES ASSOCIATED WITH FAILING BITS 0	BUS GROUP
247	H	CONTROL	261	V	U	T	STORE ADDRESS	262	VW	STORE ADDRESS	313	X/Y (**NOTE**)	CONTROL
248	H	↓	263	↓	↓	↓	↓	264	↓	↓	314	↓	↓
249	M		265					266			315		
250	M		267					268			316		
251	NPQR		269					270			317	X/Y (**NOTE**)	CONTROL
252	↓		271					272			318	D	WRITE
253			273					274			319	D	WRITE
254			275					276			320	D	WRITE
255			277					278					
256			279					280					
257	↓		281					282					
258	NPQR		283					284					
259	S	↓	285					286					
260	NPQR	CONTROL	287					288					
			289					290					
			291					292					
			293					294					
			295					296					
			297					298					
			299					300					
			301					302					
			303					304					
			305					306					
			307					308					
			309	↓	↓	↓	↓	310	↓	↓			
			311	V	U	T	STORE ADDRESS	312	VW	STORE ADDRESS			

NOTE: Use Circuit Pack Letter Code X for Bus 0
Use Circuit Pack Letter Code Y for Bus 1



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

TABLE C
ATTACHED PROCESSOR INTERFACE (API)
SUSPECTED CIRCUIT PACK LOCATIONS

CIRCUIT PACK LETTER CODE	API SUSPECTED CIRCUIT PACK LOCATION	BUS	CIRCUIT PACK LETTER CODE	API SUSPECTED CIRCUIT PACK LOCATION	BUS
A	*76-253	—	N	*76-253	—
B	*76-253	—	P	*76-253	—
C	*76-253	—	Q	*76-253	—
D	*76-253	—	R	*76-253	—
E	*76-253	—	S	*76-253	—
F	*76-253	—	T	*76-265	—
G	*76-253	—	U	*76-265	—
H	*76-265	—	V	*76-265	—
J	*76-265	—	W	*76-265	—
K	*76-265	—	X	*76-253	0
L	*76-265	—	Y	*76-253	1
M	*76-253	—			

* = AUB Being Diagnosed (0 or 1)

TABLE D
DATA UNIT SELECTOR (DUS)
SUSPECTED CIRCUIT PACK LOCATIONS

CIRCUIT PACK LETTER CODE	DUS SUSPECTED CIRCUIT PACK LOCATION	BUS	CIRCUIT PACK LETTER CODE	DUS SUSPECTED CIRCUIT PACK LOCATION	BUS
A	*80-63	–	N	–	–
B	*80-64	–	P	*80-38	–
C	*80-65	–	Q	–	–
D	*80-66	–	R	*80-38	–
E	*80-67	–	S	*80-42	–
F	*80-68	–	T	*80-41	–
G	*80-69	–	U	*80-40	–
H	*80-42	–	V	*80-39	–
J	*80-43	–	W	*80-42	–
K	*80-44	–	X	*80-47	0
L	*80-45	–	Y	*80-46	1
M	*80-39	–			

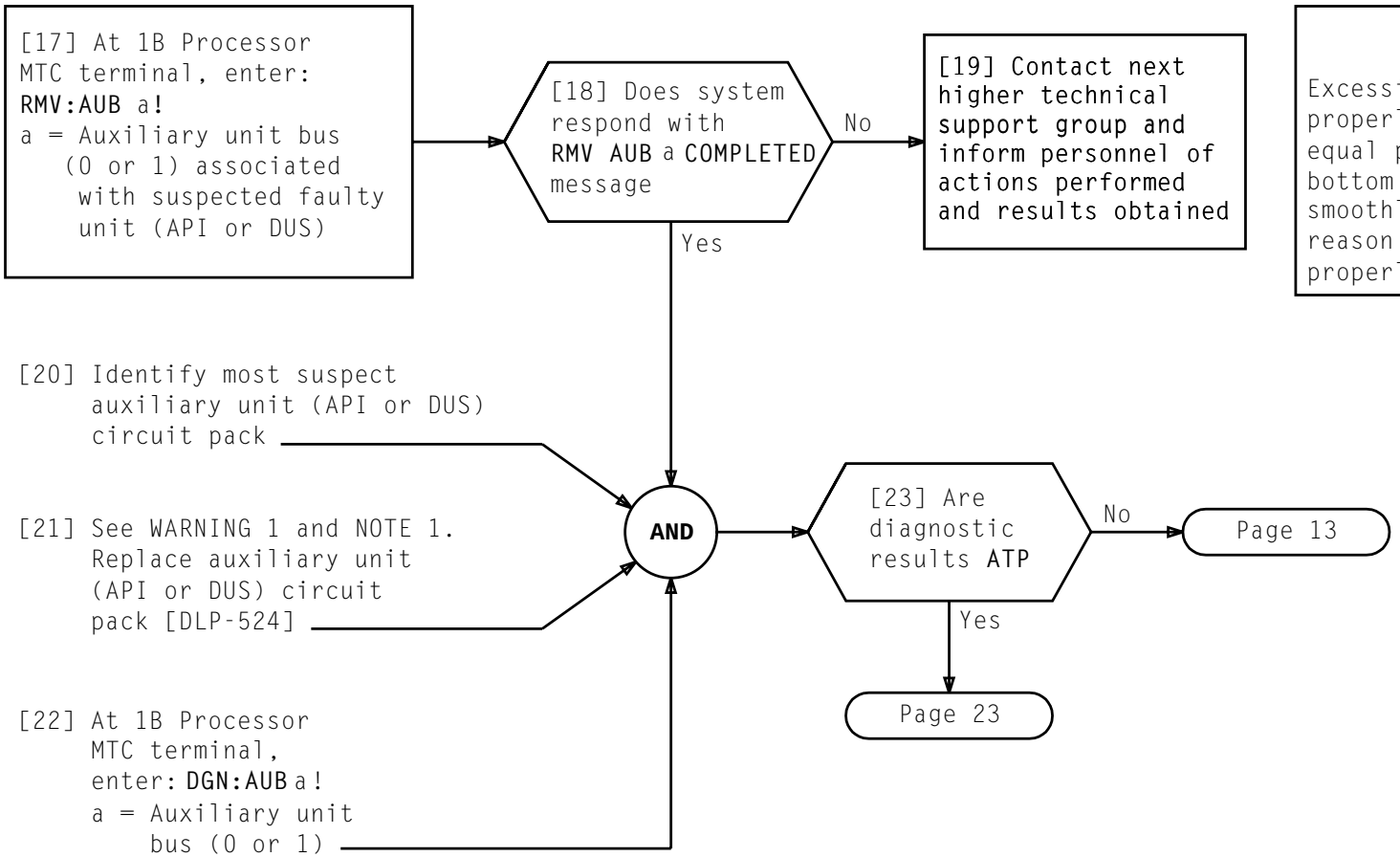
* = AUB Being Diagnosed (0 or 1)

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

TABLE E
AUXILIARY UNIT BUS (AUB) DRIVER/RECEIVER SUSPECTED CIRCUIT PACK LOCATIONS

CIRCUIT PACK LETTER CODE	AUB DRIVER/ RECEIVER SUSPECTED CIRCUIT PACK LOCATION	BUS	CIRCUIT PACK LETTER CODE	AUB DRIVER/ RECEIVER SUSPECTED CIRCUIT PACK LOCATION	BUS
A	*70-096 *70-144	0 1	L	*70-128 *70-176	0 1
B	*70-096 *70-144	0 1	M	*70-096 *70-144	0 1
C	*70-128 *70-176	0 1	N P	*70-128 *70-176	— —
D	*70-112 *70-160	0 1	Q R	*70-128 *70-176	— —
E	*70-112 *70-160	0 1	S T	*70-112 *70-160	— 0
F	*70-128 *70-176	0 1	U	*70-096 *70-144	0 1
G	*70-128 *70-176	0 1	V	*70-096 *70-144	0 1
H	*70-112 *70-160	0 1	W	*70-112 *70-116	0 1
J	*70-112 *70-160	0 1	X	*70-062 *70-062	0 1
K	*70-128 *70-176	0 1		*70-062 *70-062	0 1

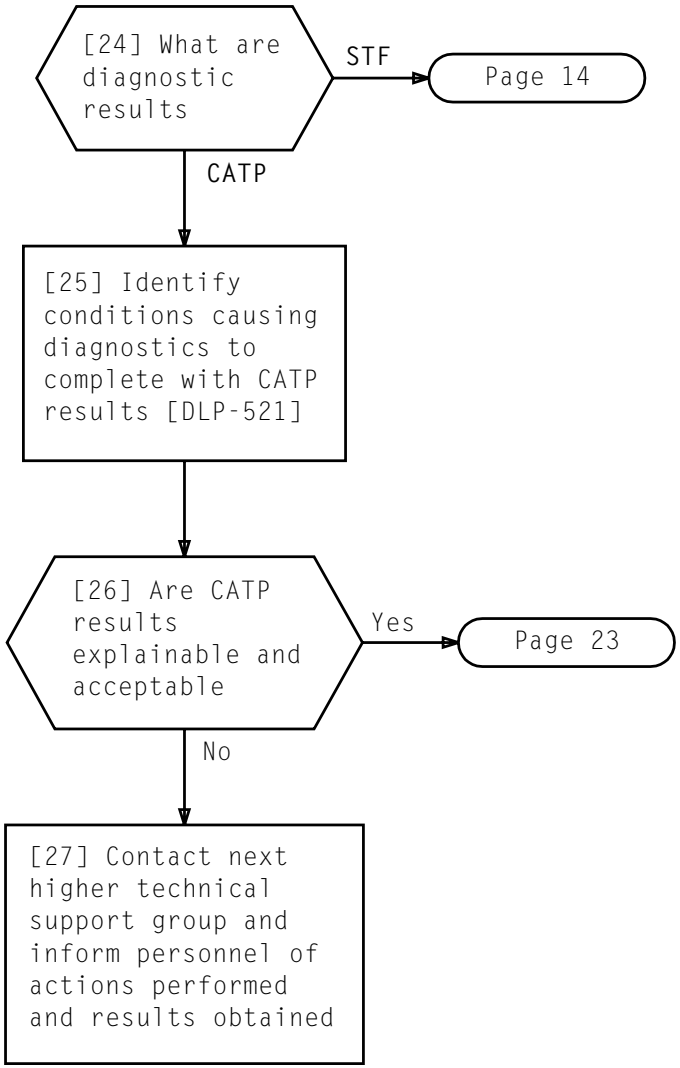
* = AUB Being Diagnosed (0 or 1)



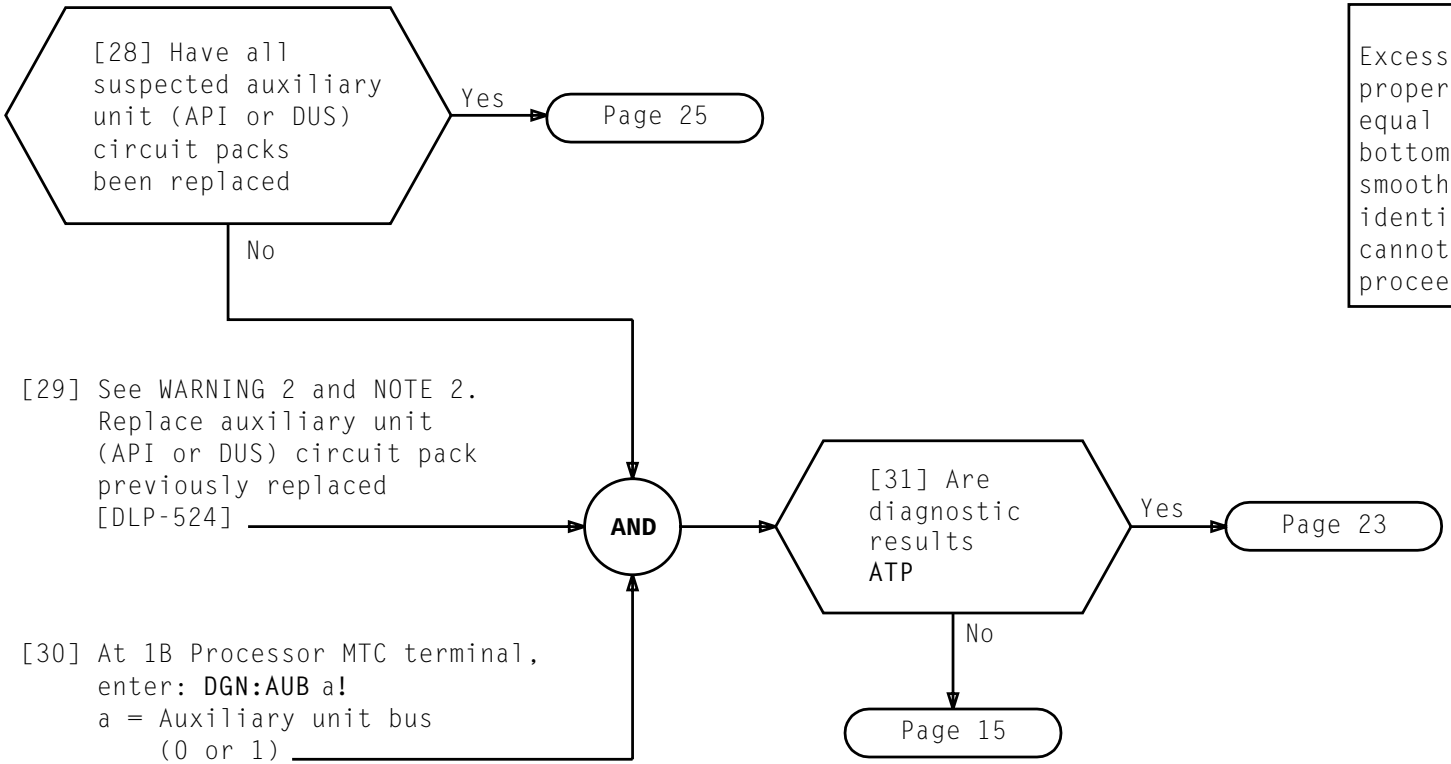
NOTE 1
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 1
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



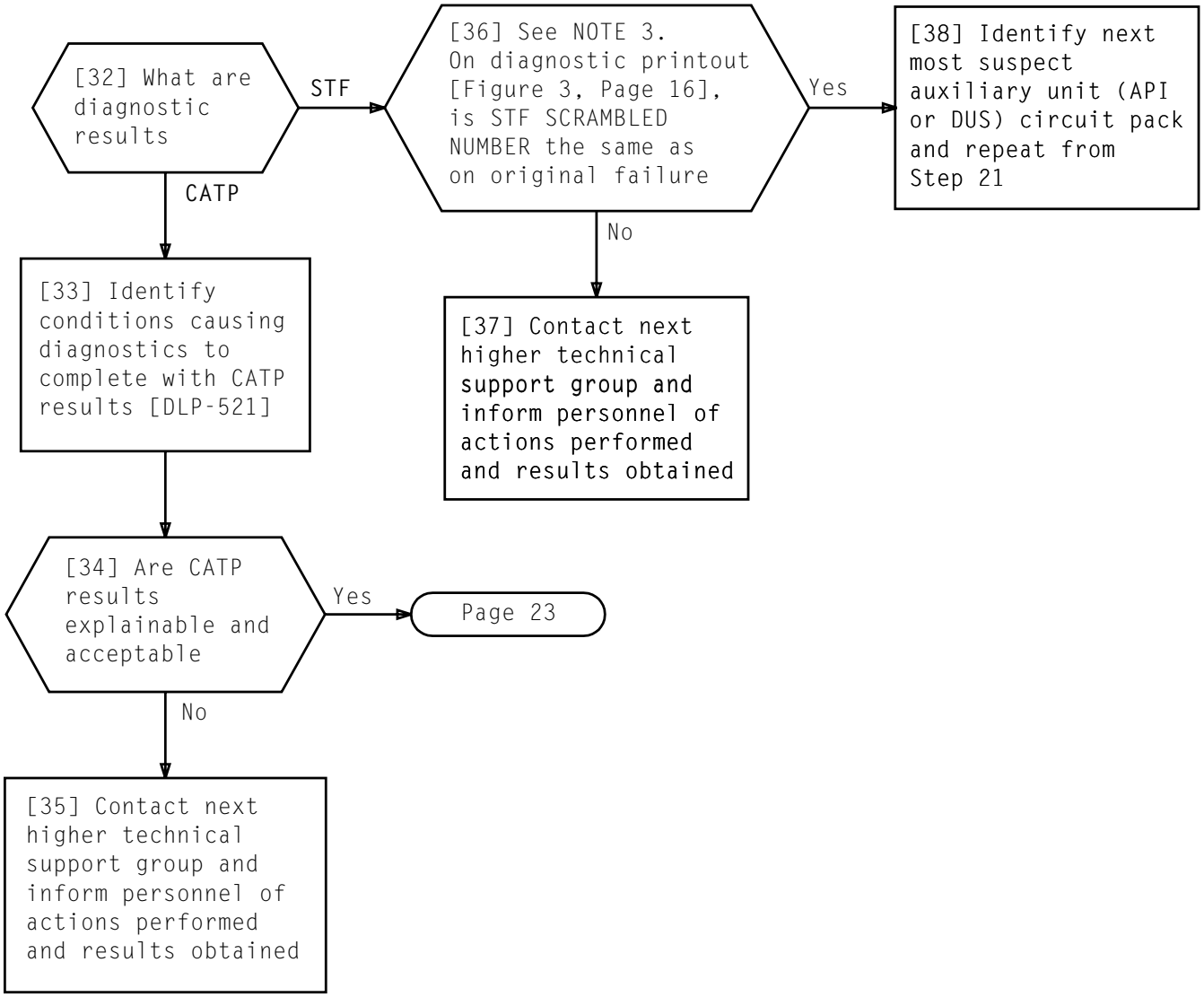
NOTE 2

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 2

A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



NOTE 3

The STF SCRAMBLED NUMBER indicates if all the diagnostic raw data (test and mismatch) is identical or different for two diagnostic runs. If TLP SCRAMBLED NUMBER value is same, diagnostic raw data is identical. Otherwise, diagnostic raw data has changed in some manner

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

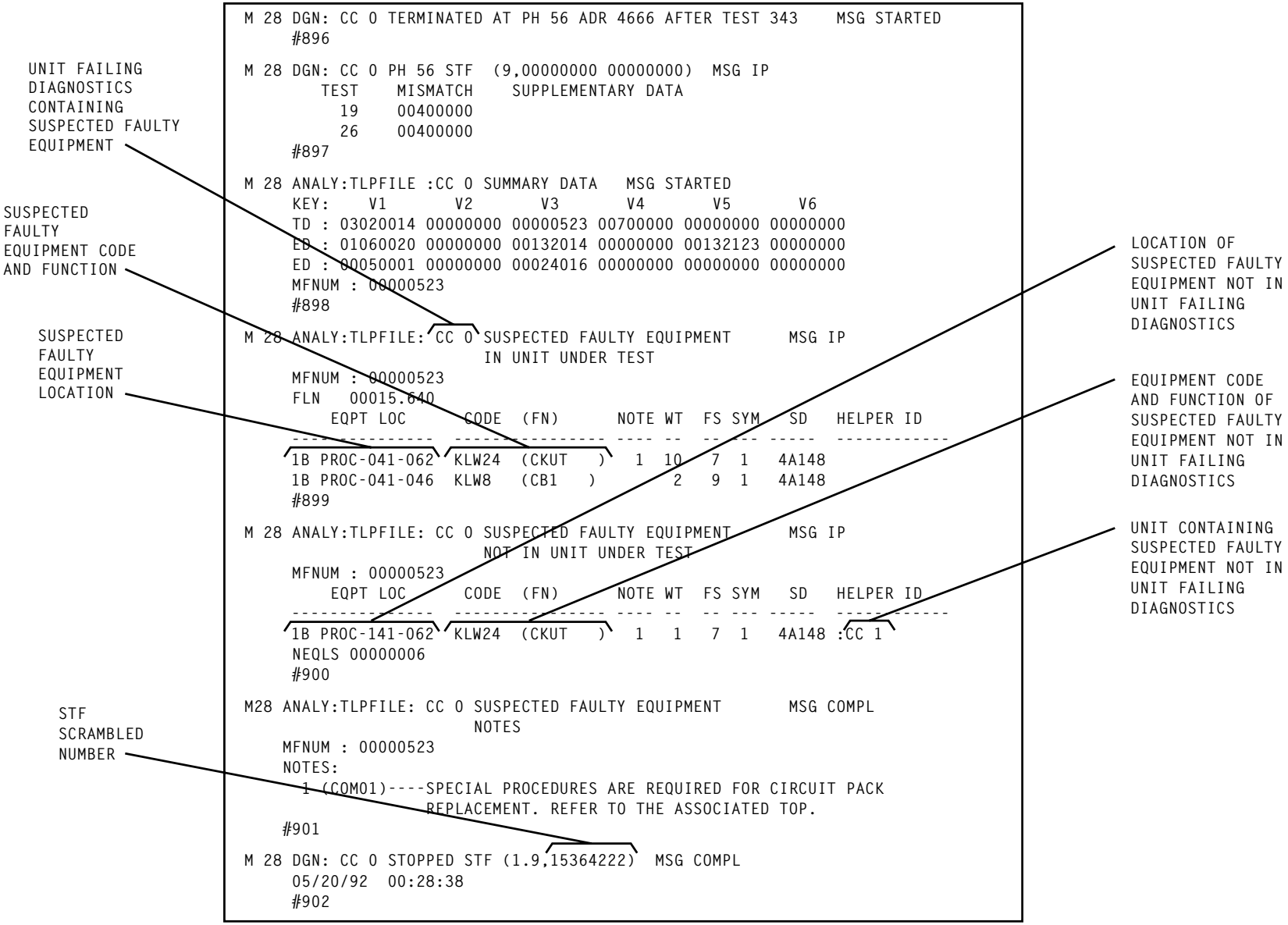
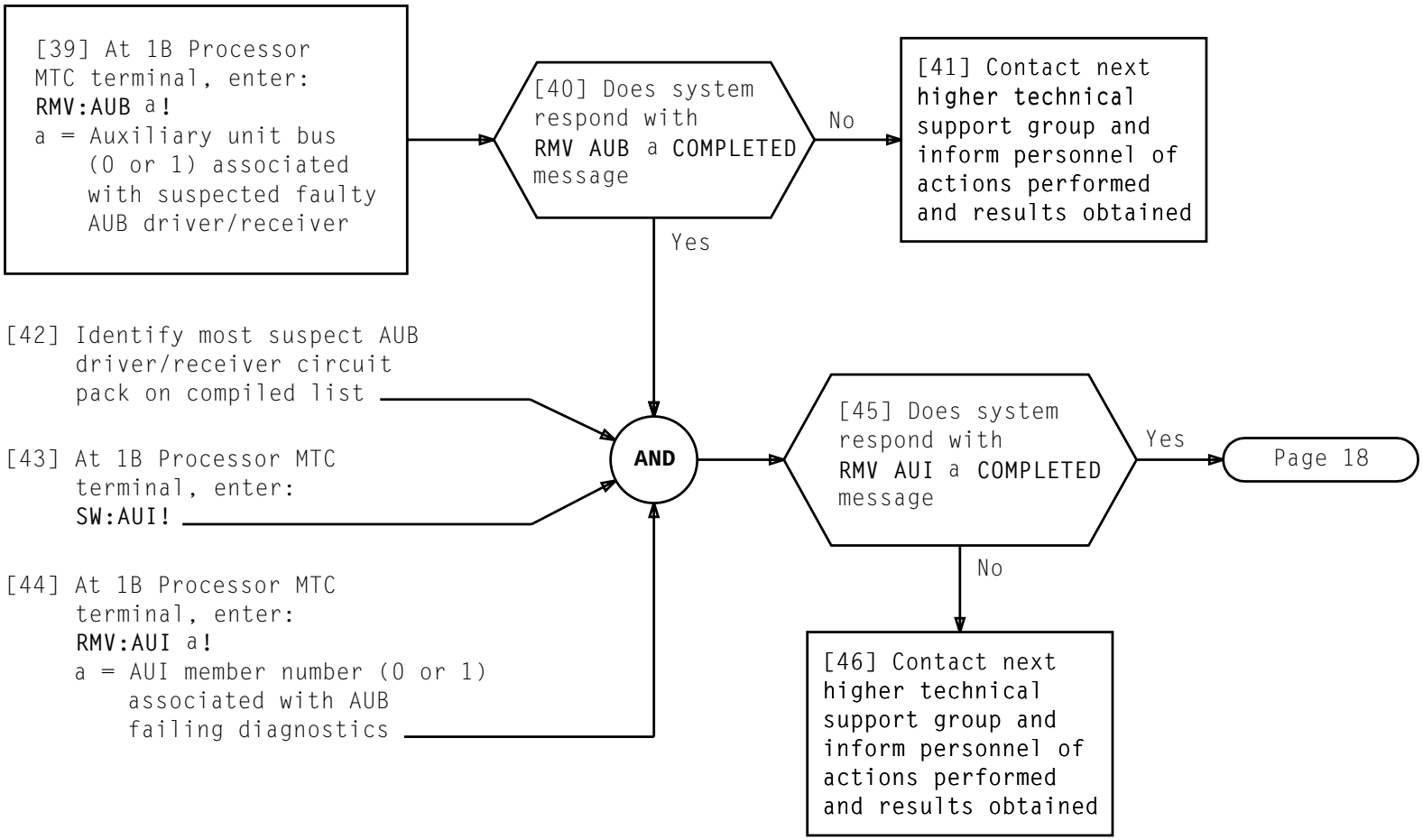


Figure 3 - Sample Printout of Diagnostic Failure With TLP Suspected Faulty Equipment List

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

[47] See WARNING 3 and NOTE 4. Replace suspect circuit pack [DLP-520]

[48] Allow ample time for diagnostics to complete

[49] At 1B Processor MTC terminal, enter:
RST:AUI a**!**
a = AUI member number (0 or 1)

[50] At 1B Processor MTC terminal, enter:
SW:AUI!

[51] At 1B Processor MTC terminal, enter:
DGN:AUB a**!**
a = AUB member number (0 or 1)

AND

[52] Are diagnostic results **ATP**

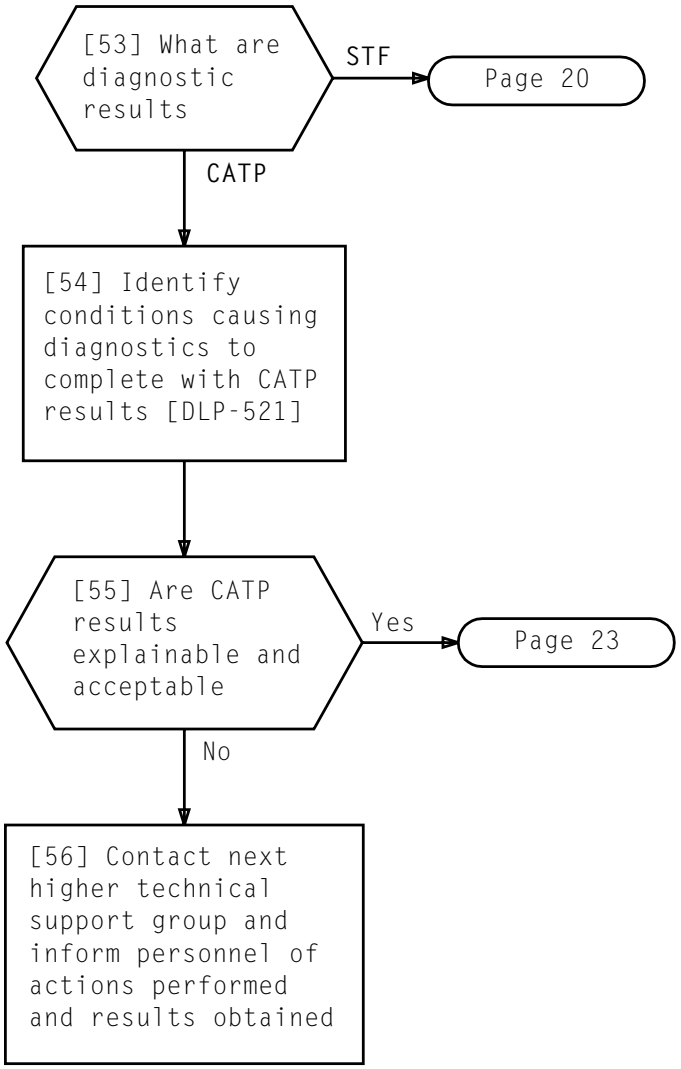
No → Page 19

Yes → Page 23

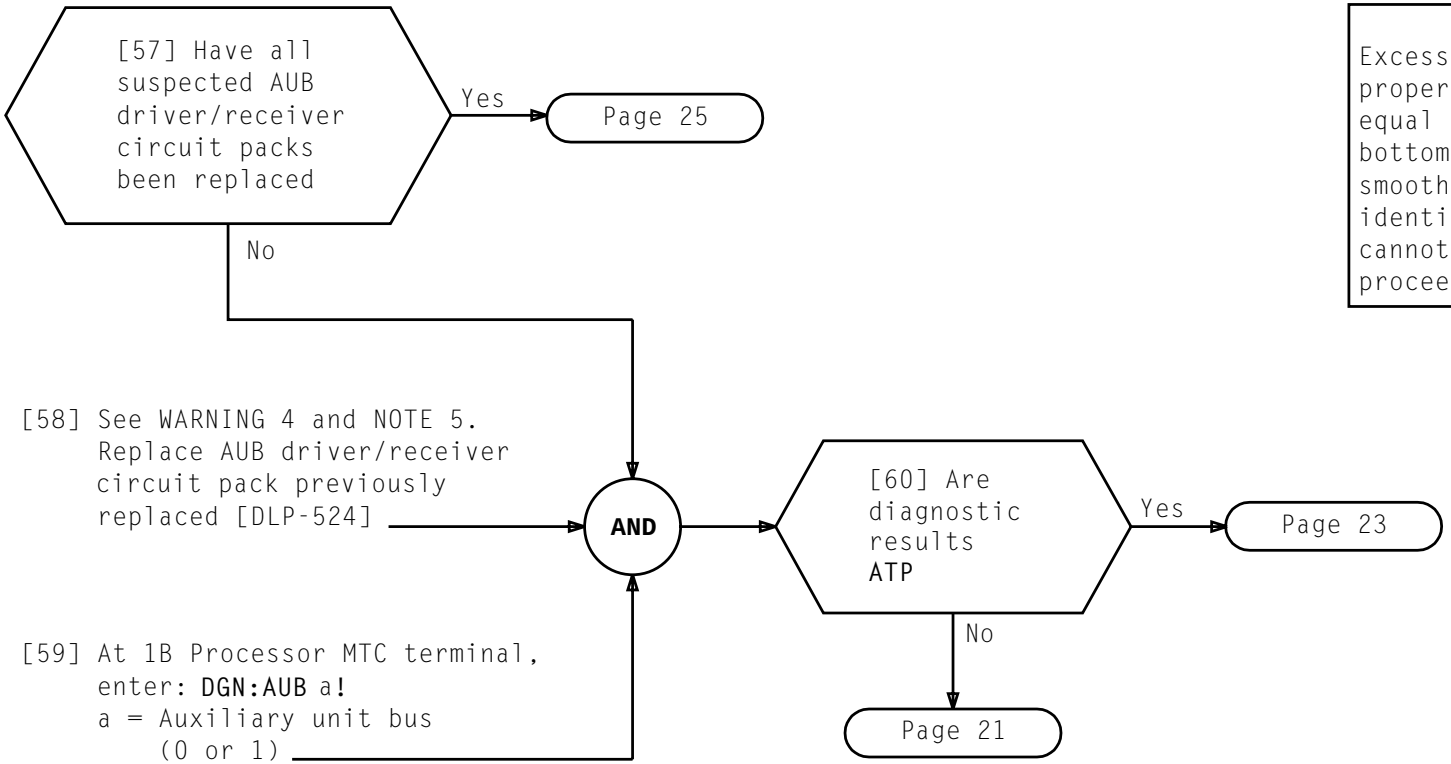
NOTE 4
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 3
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads, or connector pins

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



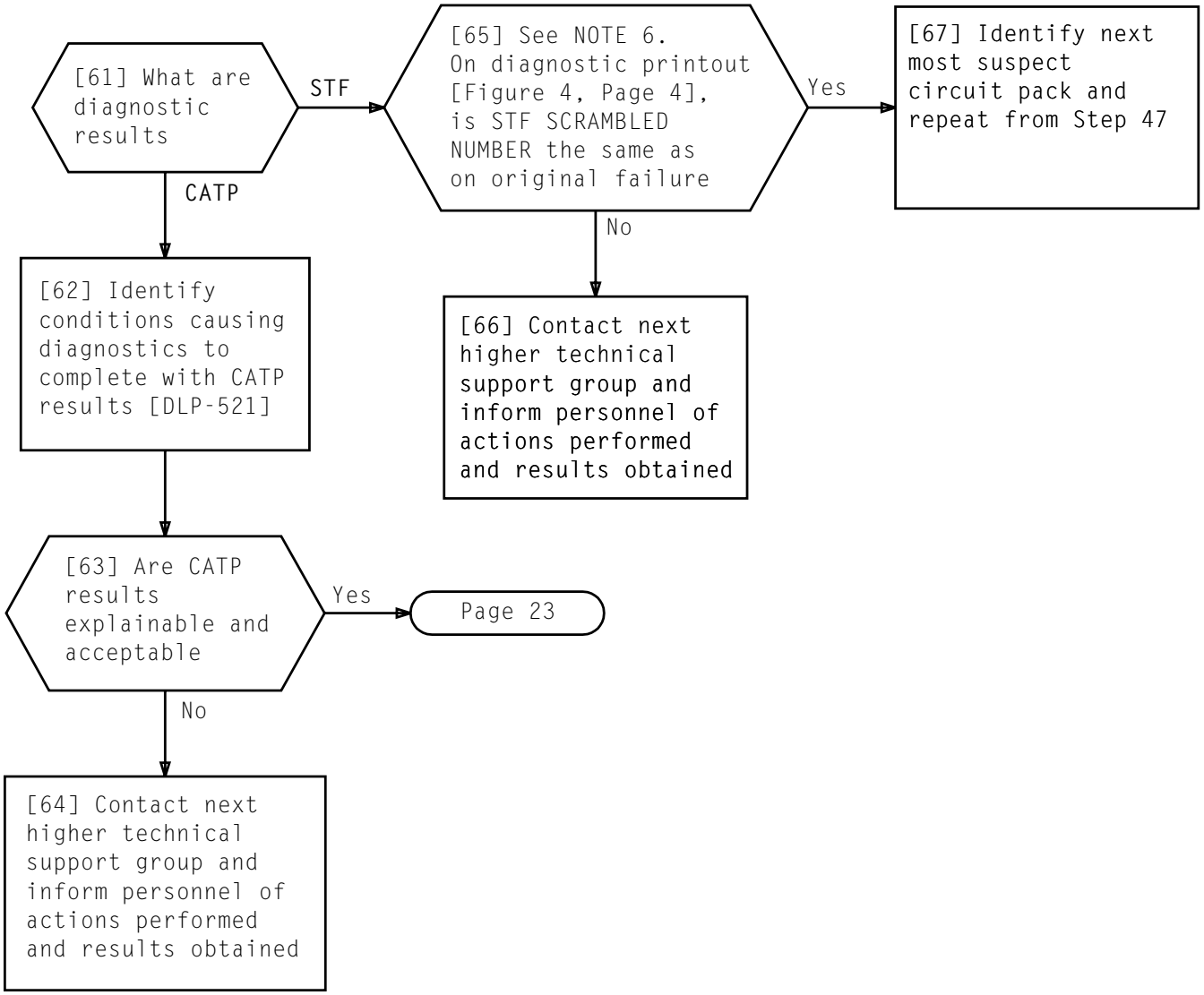
NOTE 5

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 4

*A grounded antistatic wrist strap (**R-4987** or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



NOTE 6

The STF SCRAMBLED NUMBER indicates if all the diagnostic raw data (test and mismatch) is identical or different for two diagnostic runs. If TLP SCRAMBLED NUMBER value is same, diagnostic raw data is identical. Otherwise, diagnostic raw data has changed in some manner

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

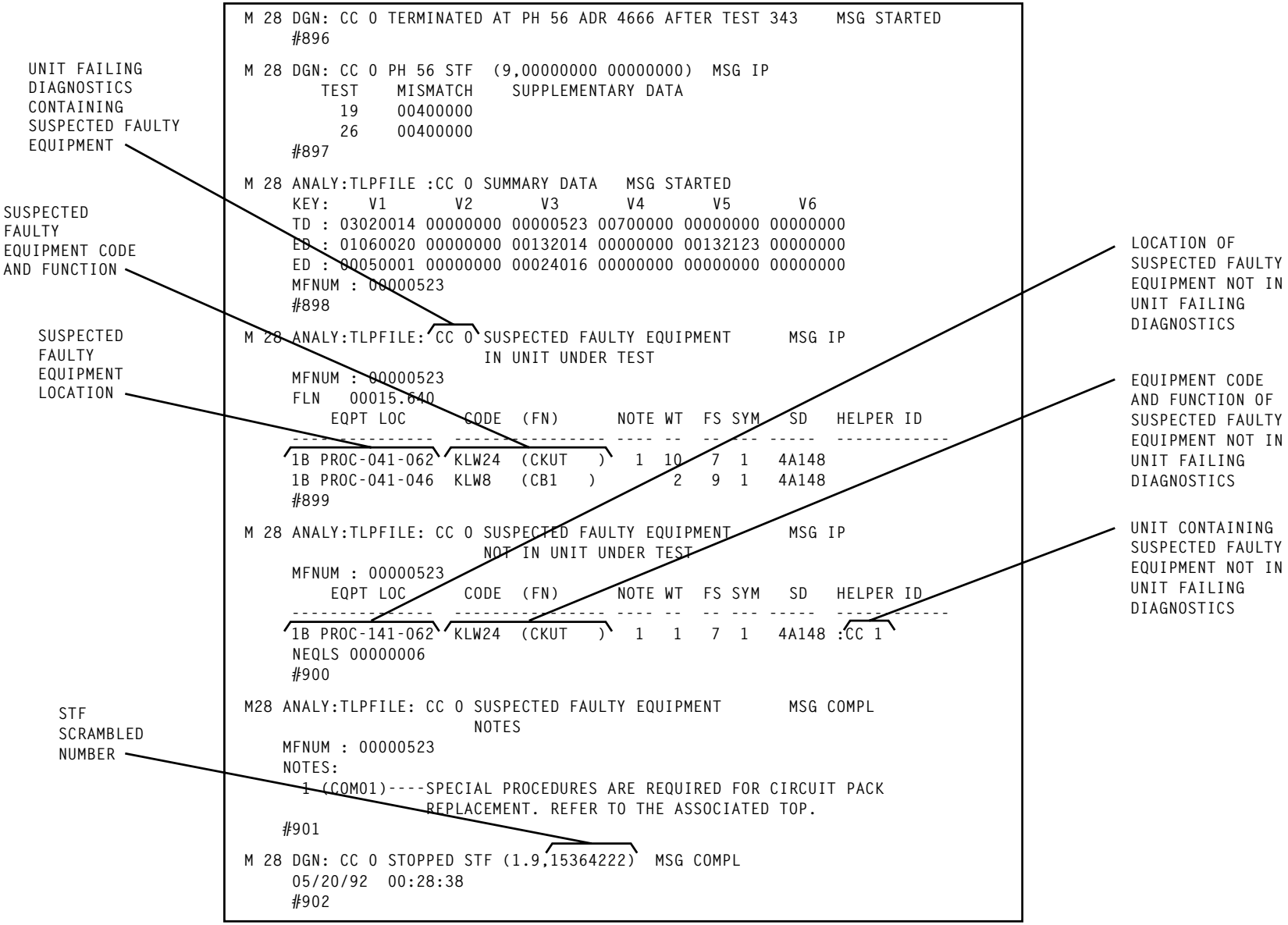
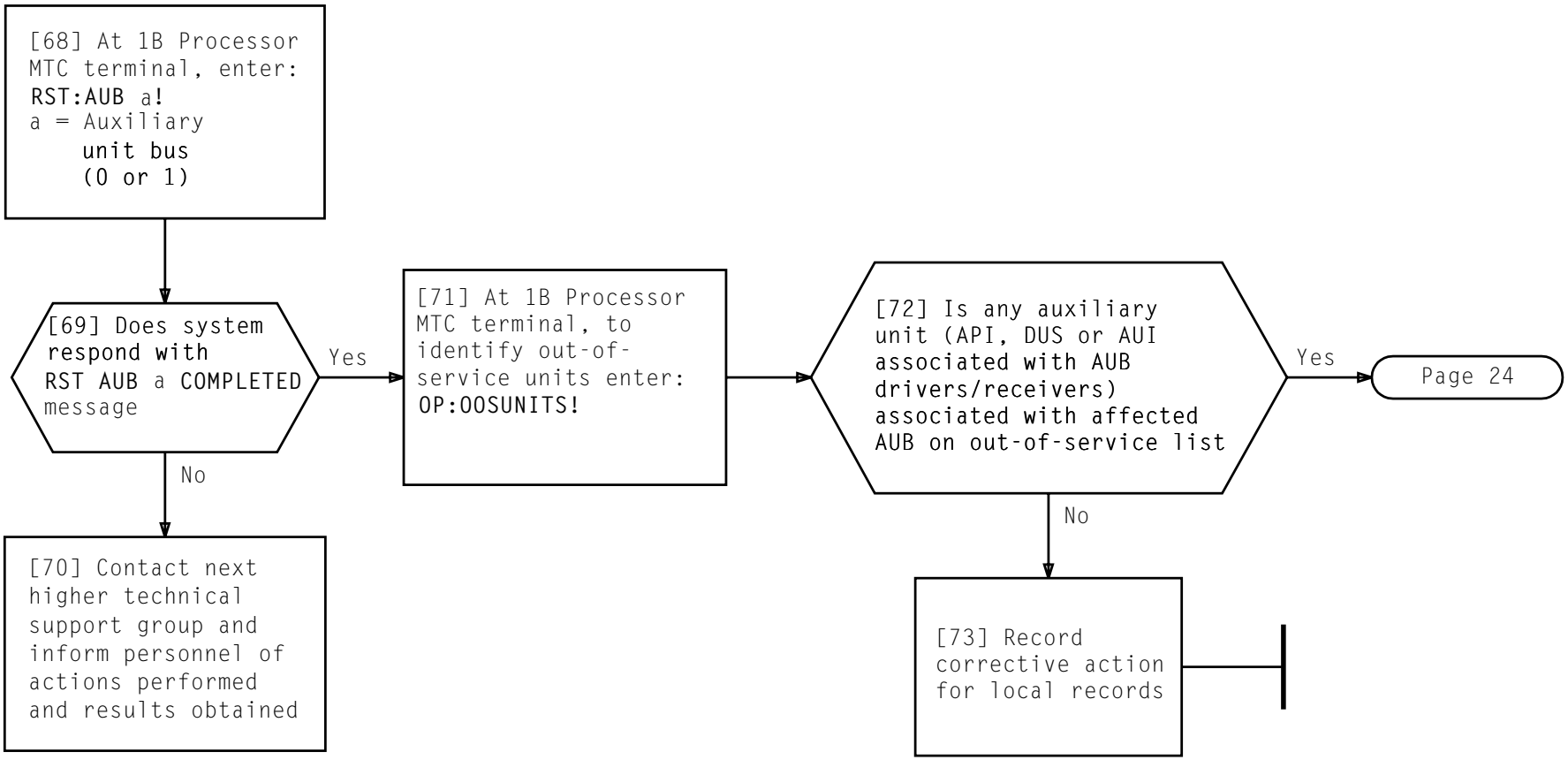
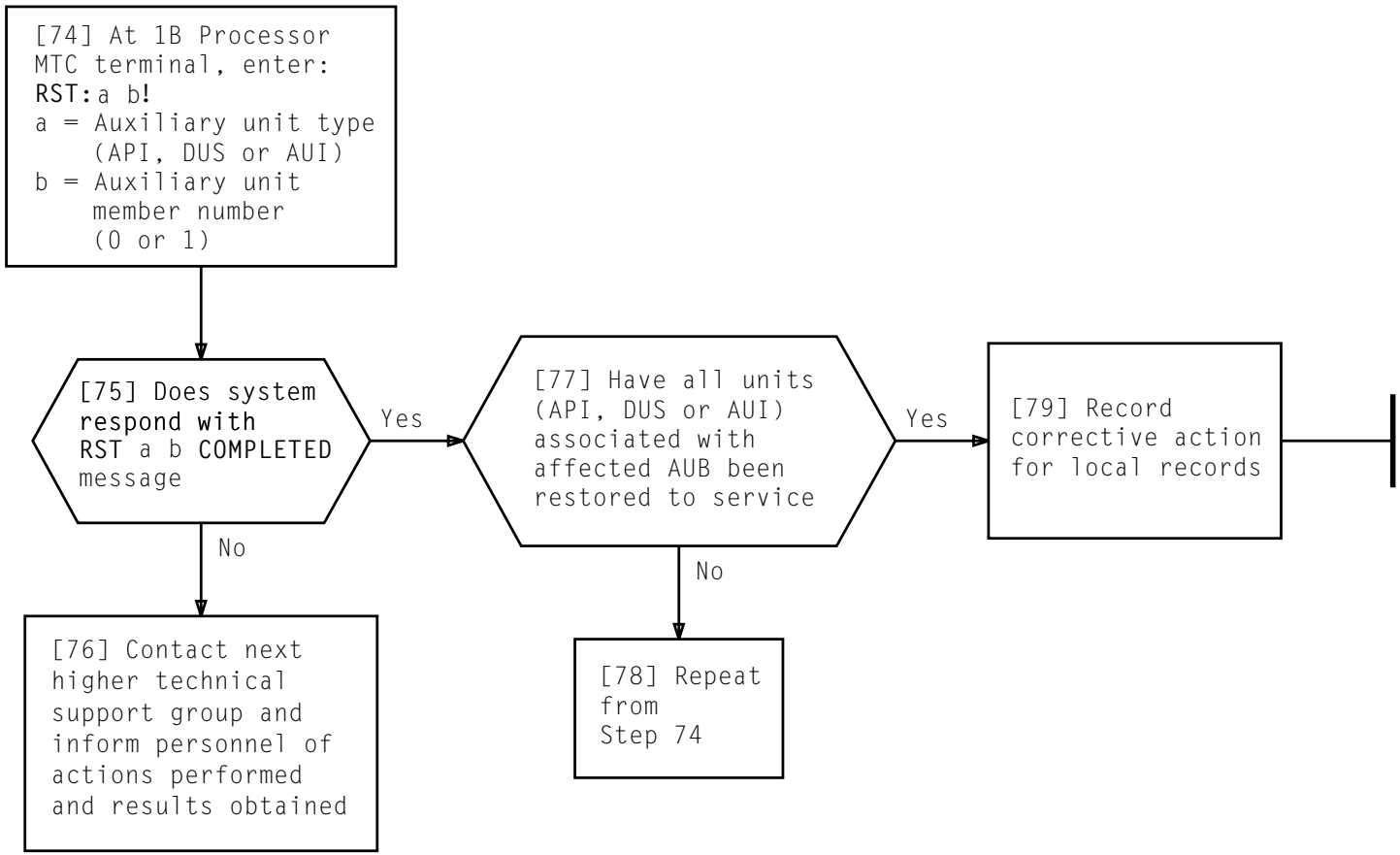


Figure 4 - Sample Printout of Diagnostic Failure With TLP Suspected Faulty Equipment List

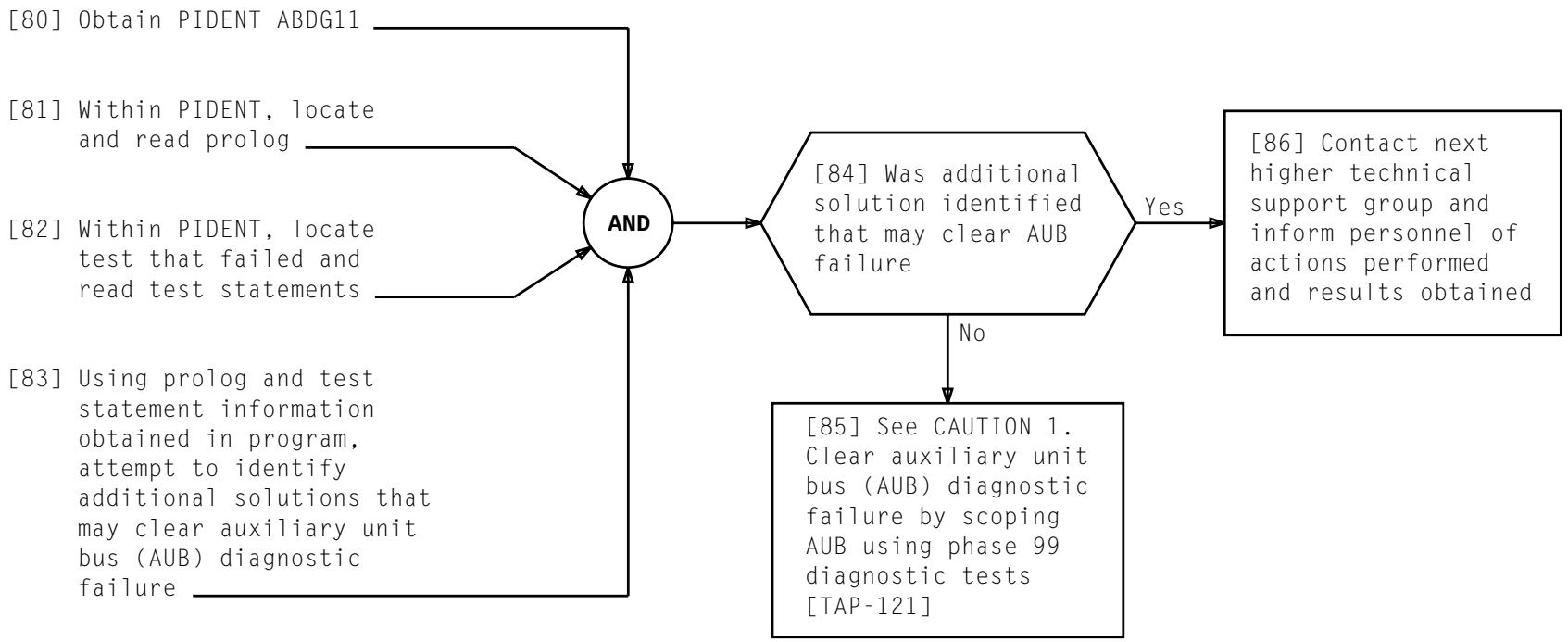
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

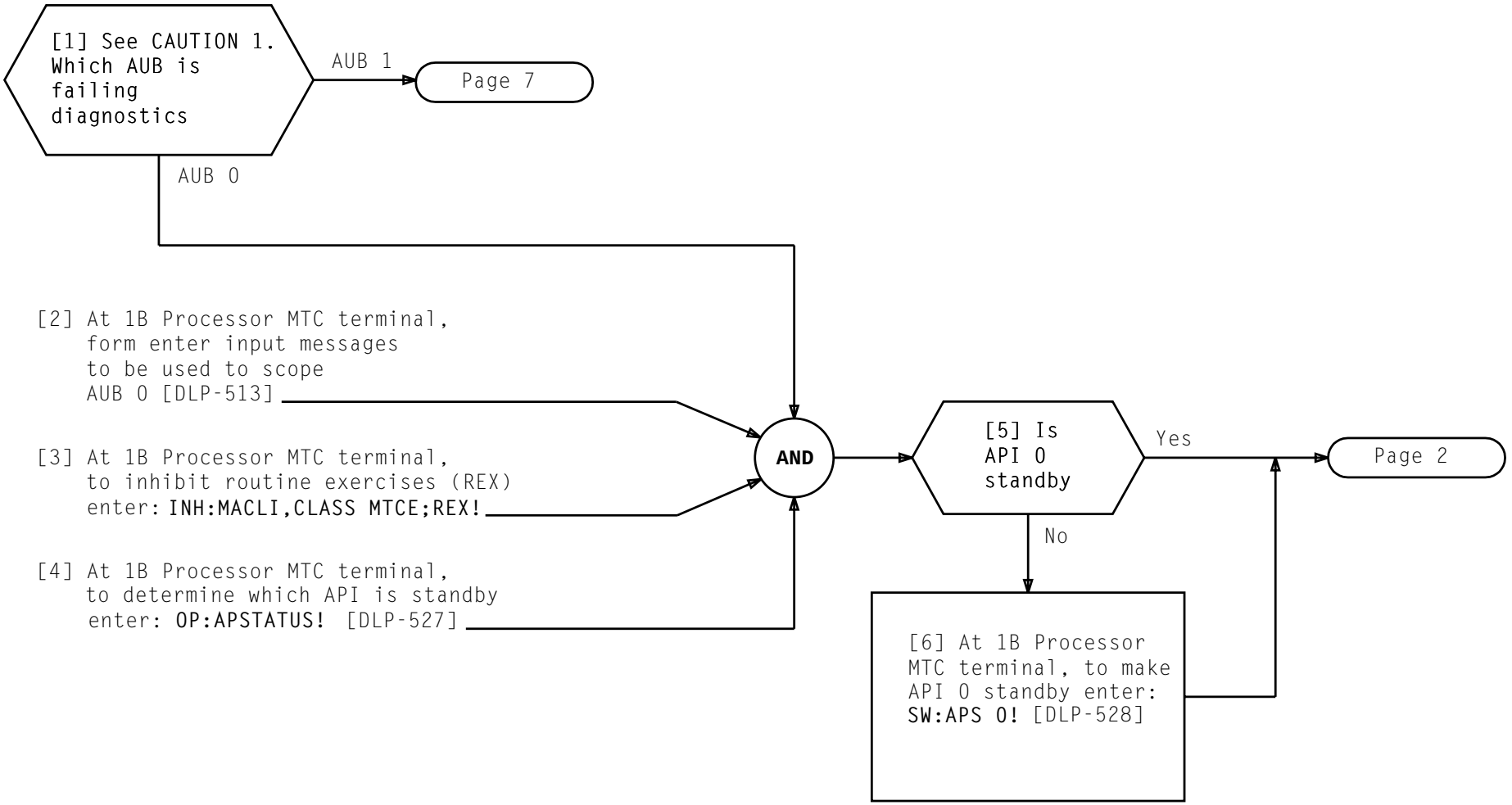


CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA



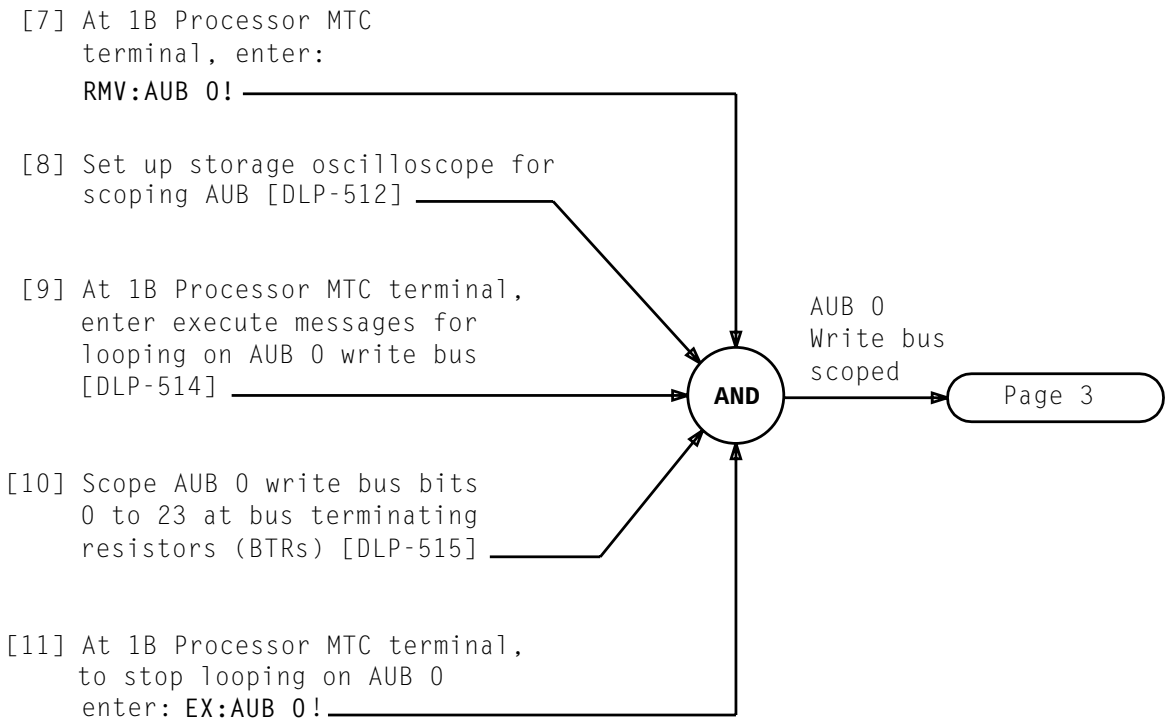
CAUTION 1
To avoid service interruption, bus scoping must be performed at low traffic periods

CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY ANALYZING RAW DATA

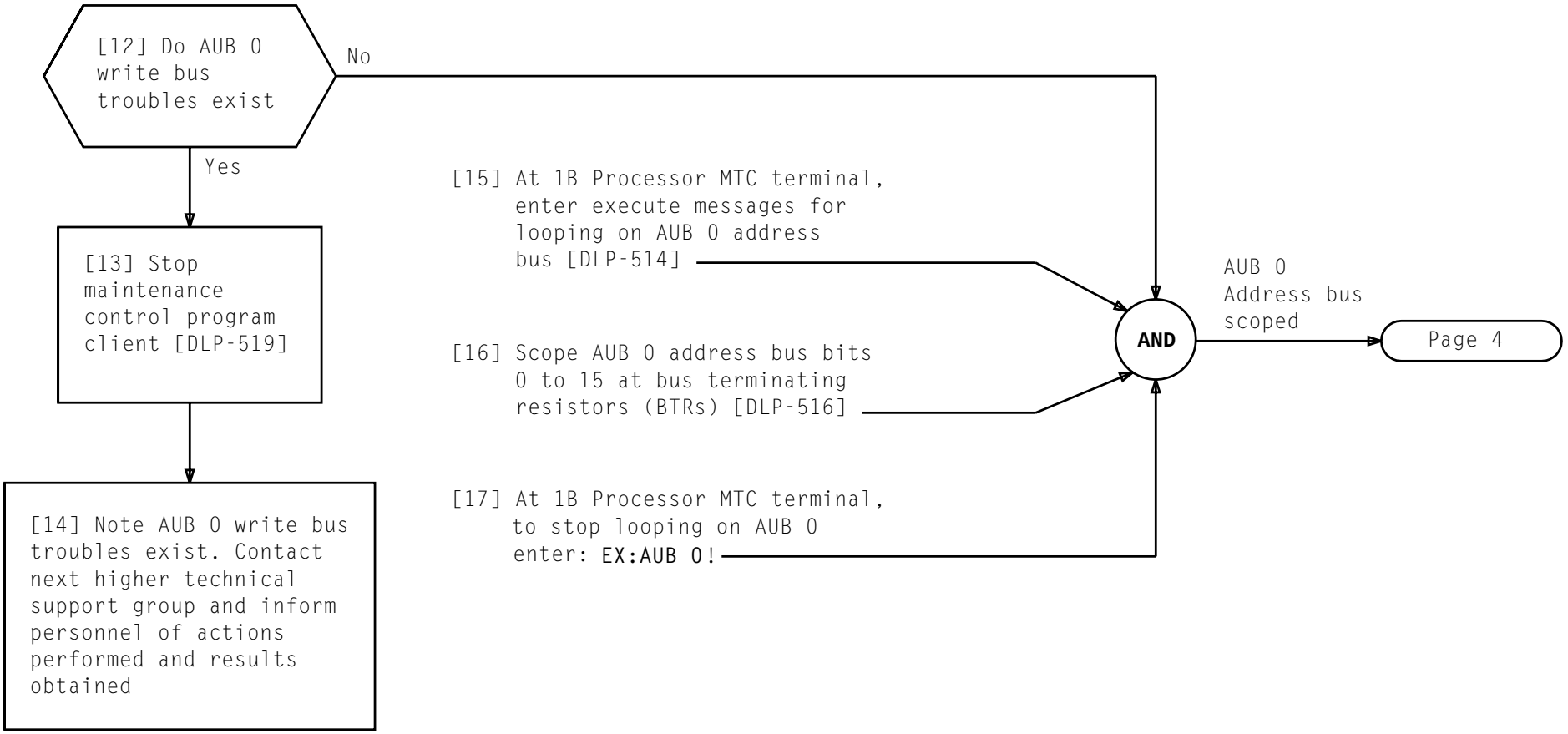


CAUTION 1
To avoid service interruption, bus scoping must be performed at low-traffic periods

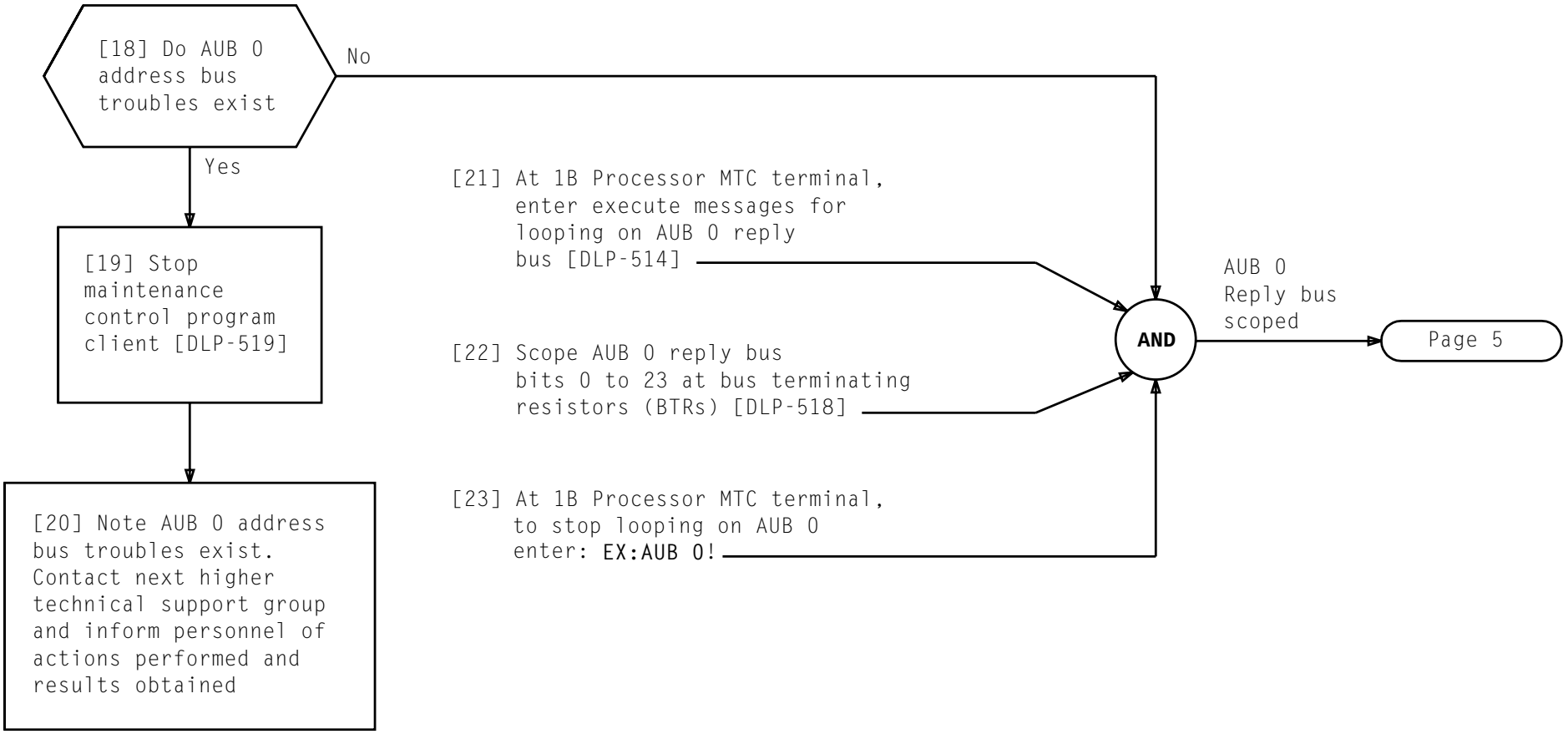
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



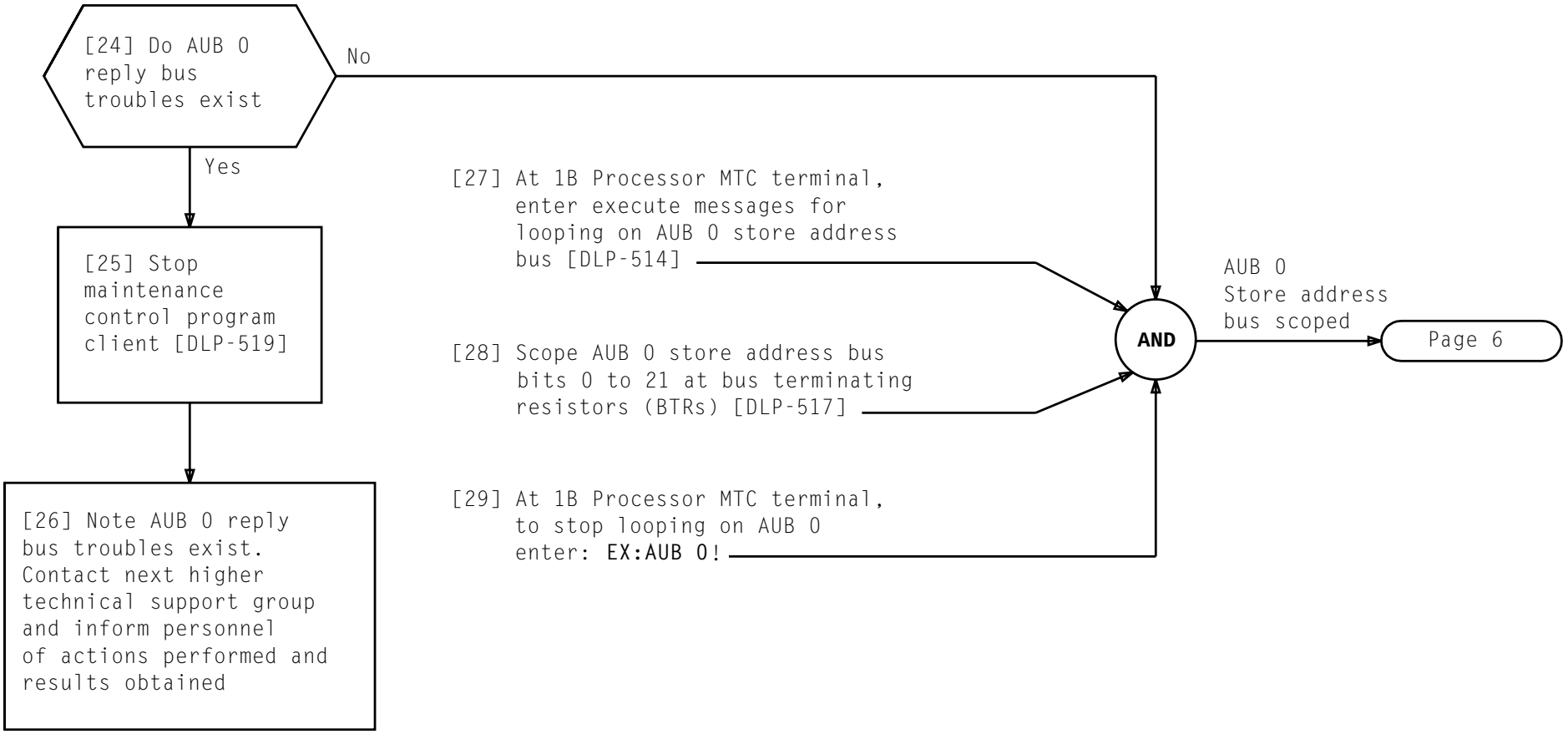
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



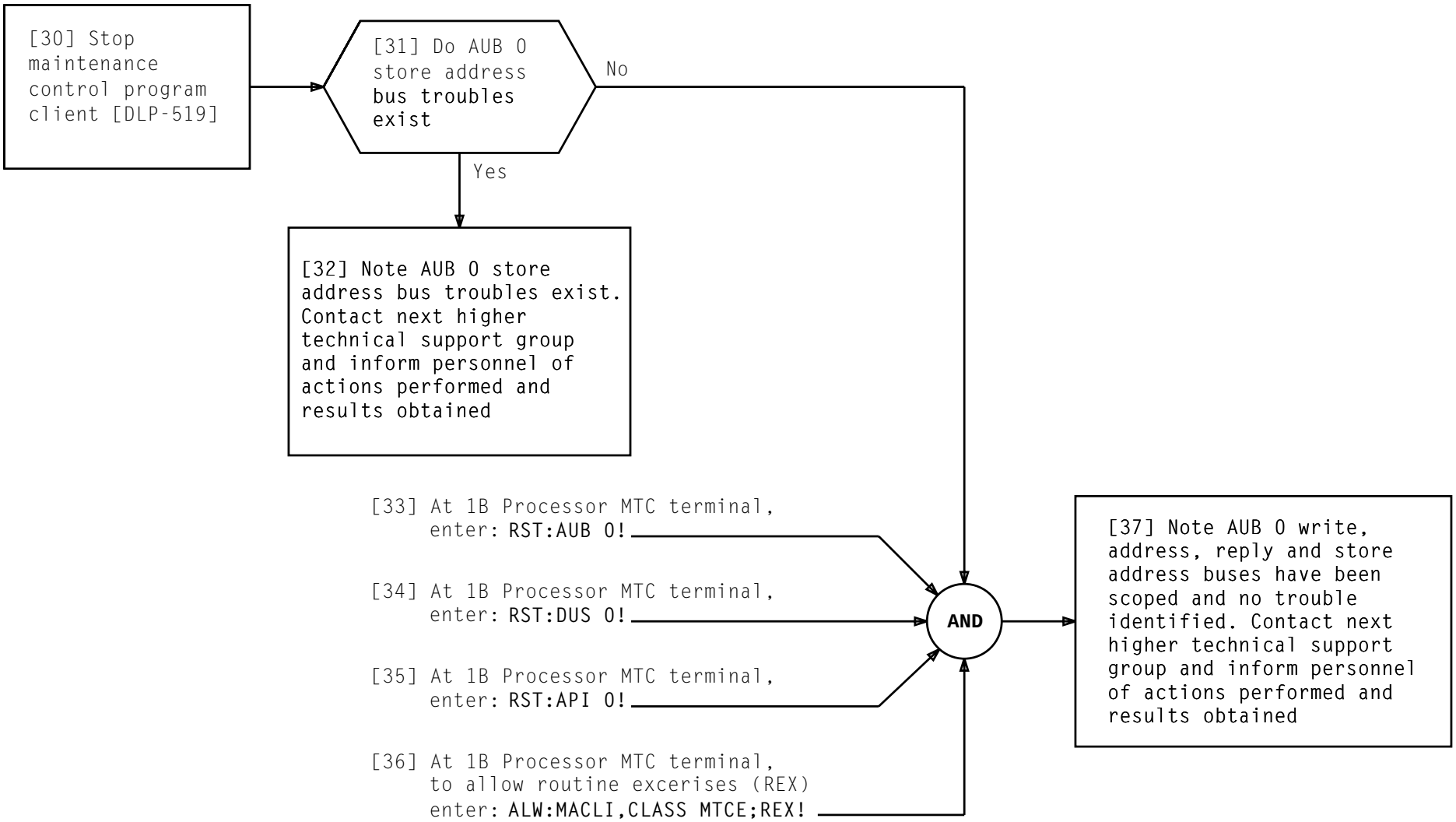
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



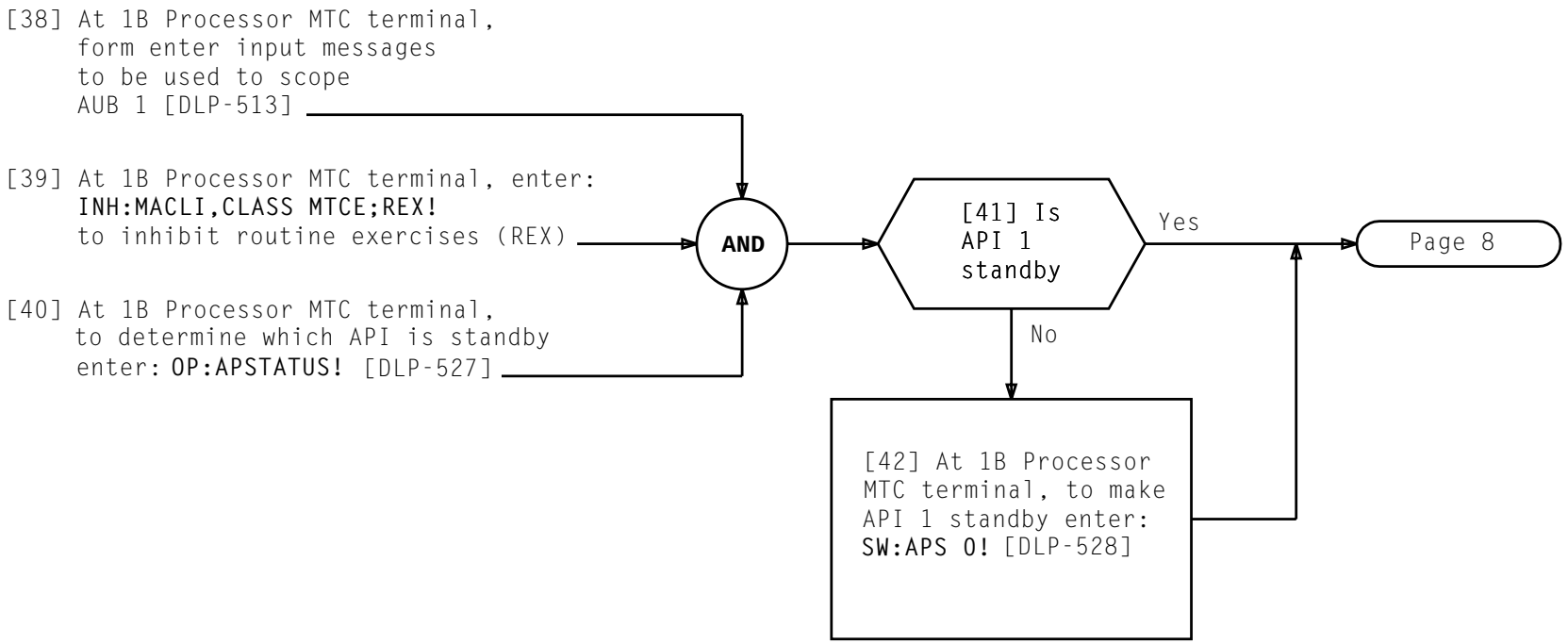
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



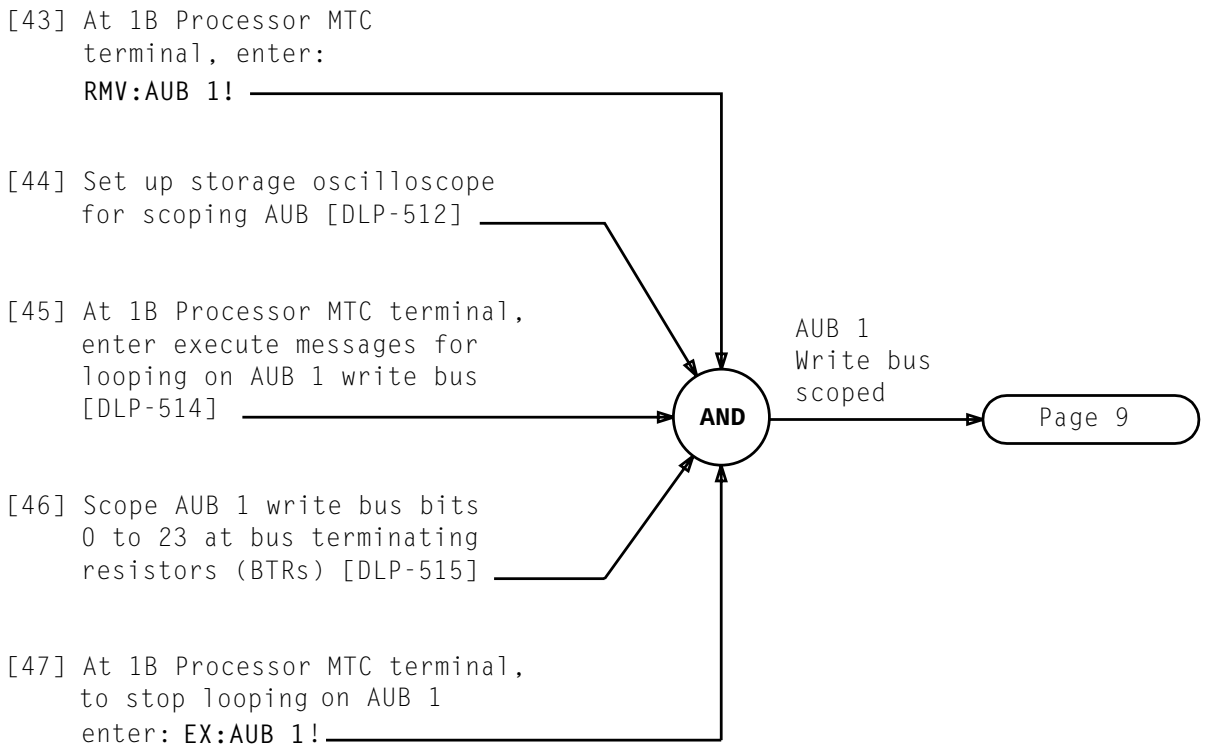
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



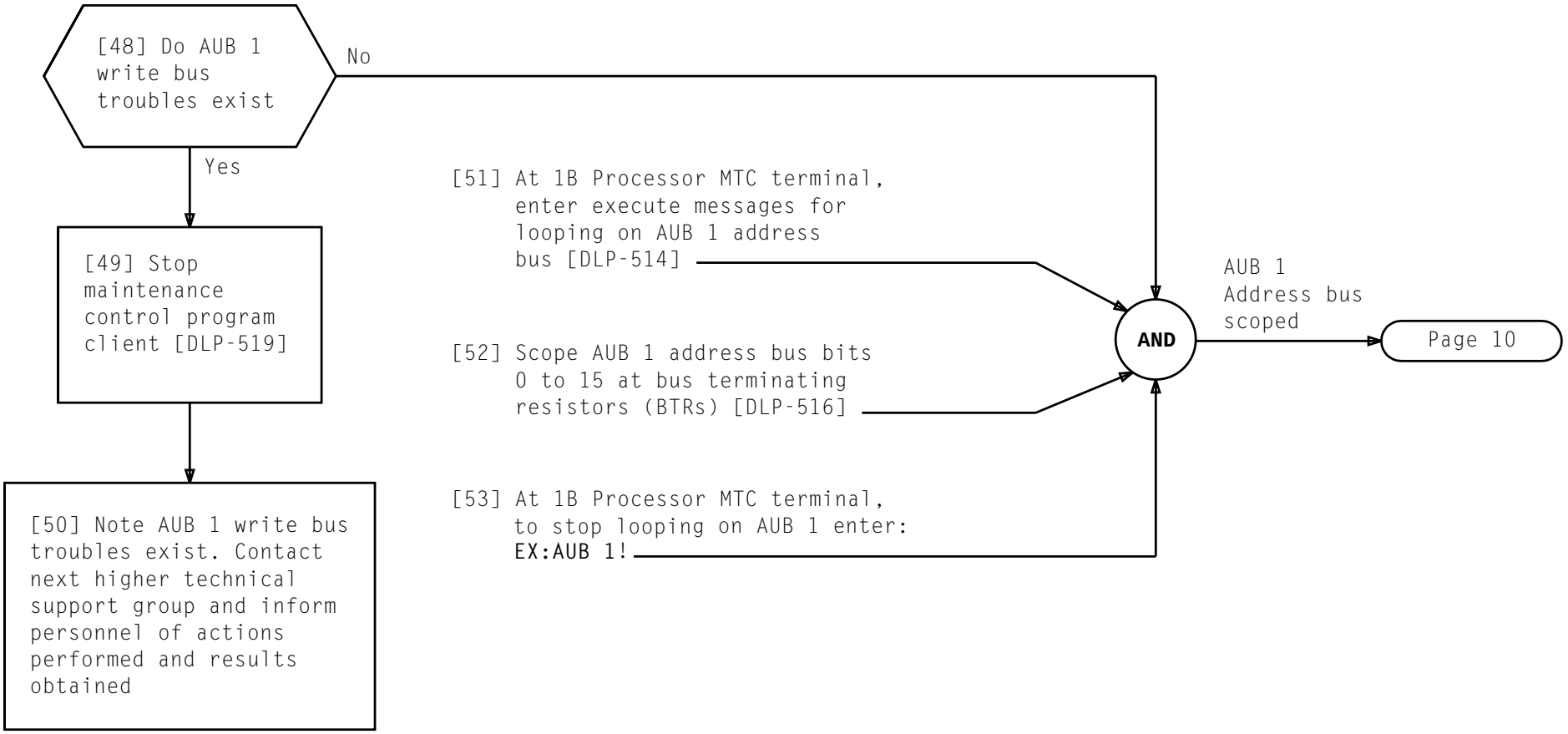
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



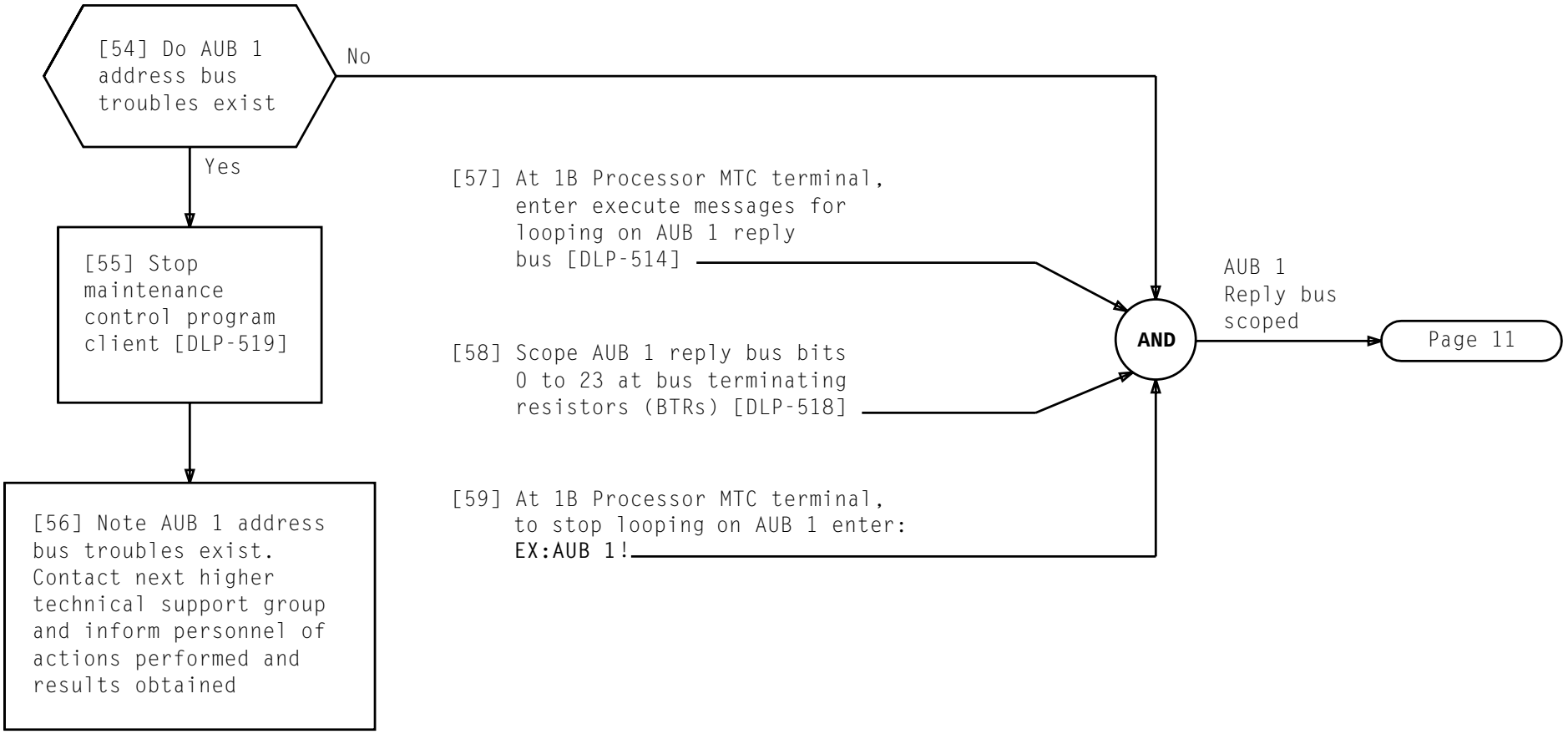
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



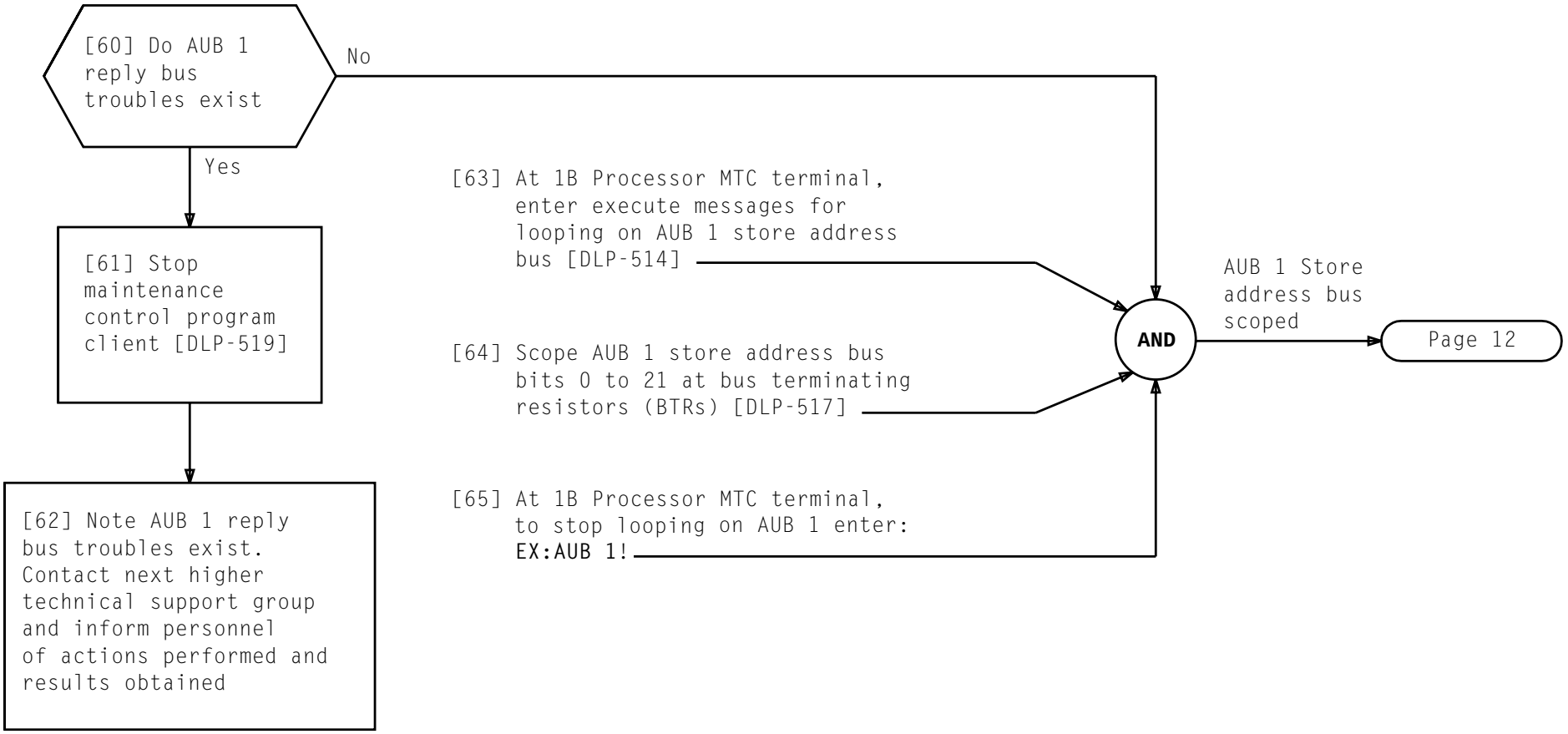
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



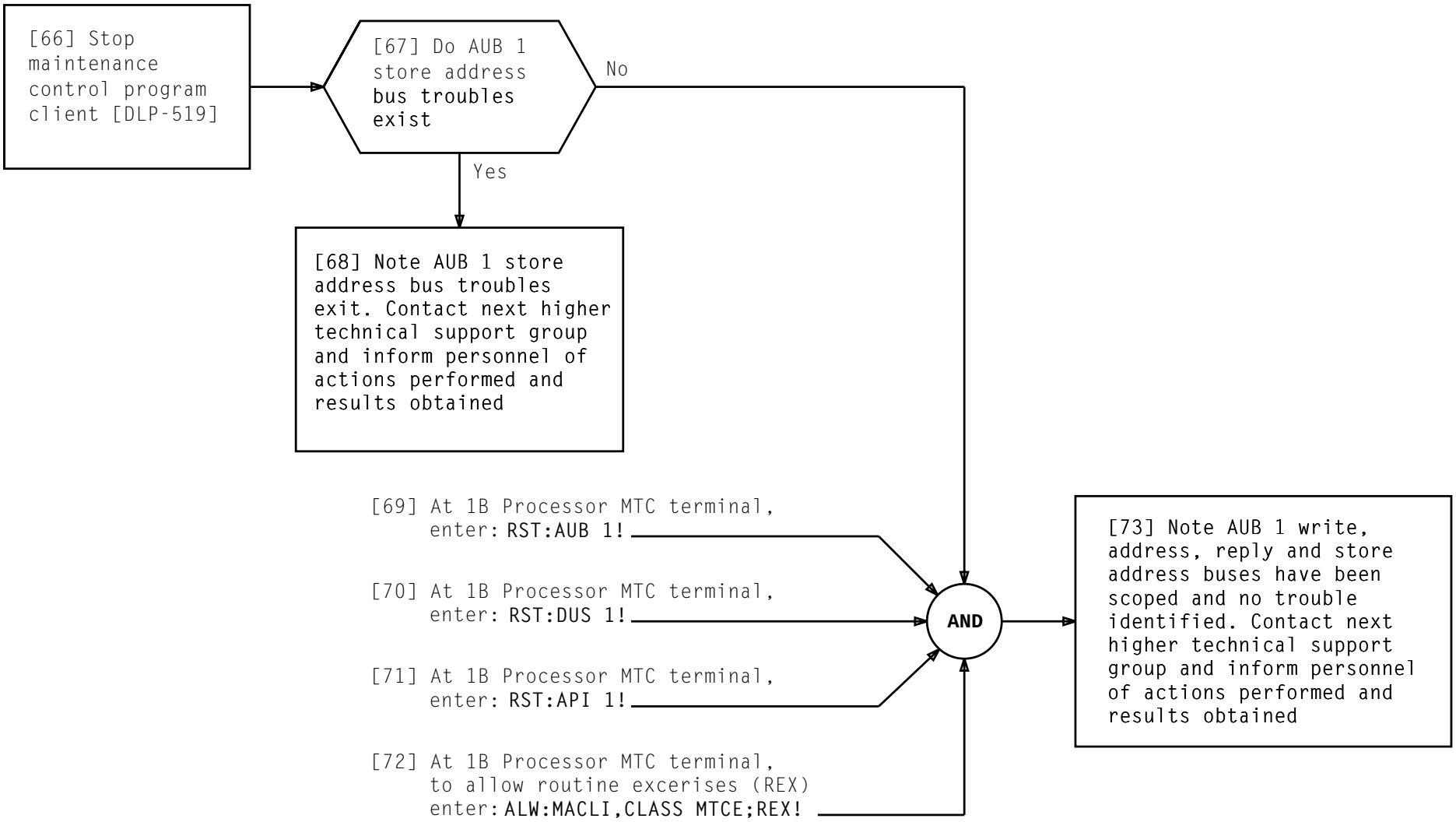
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



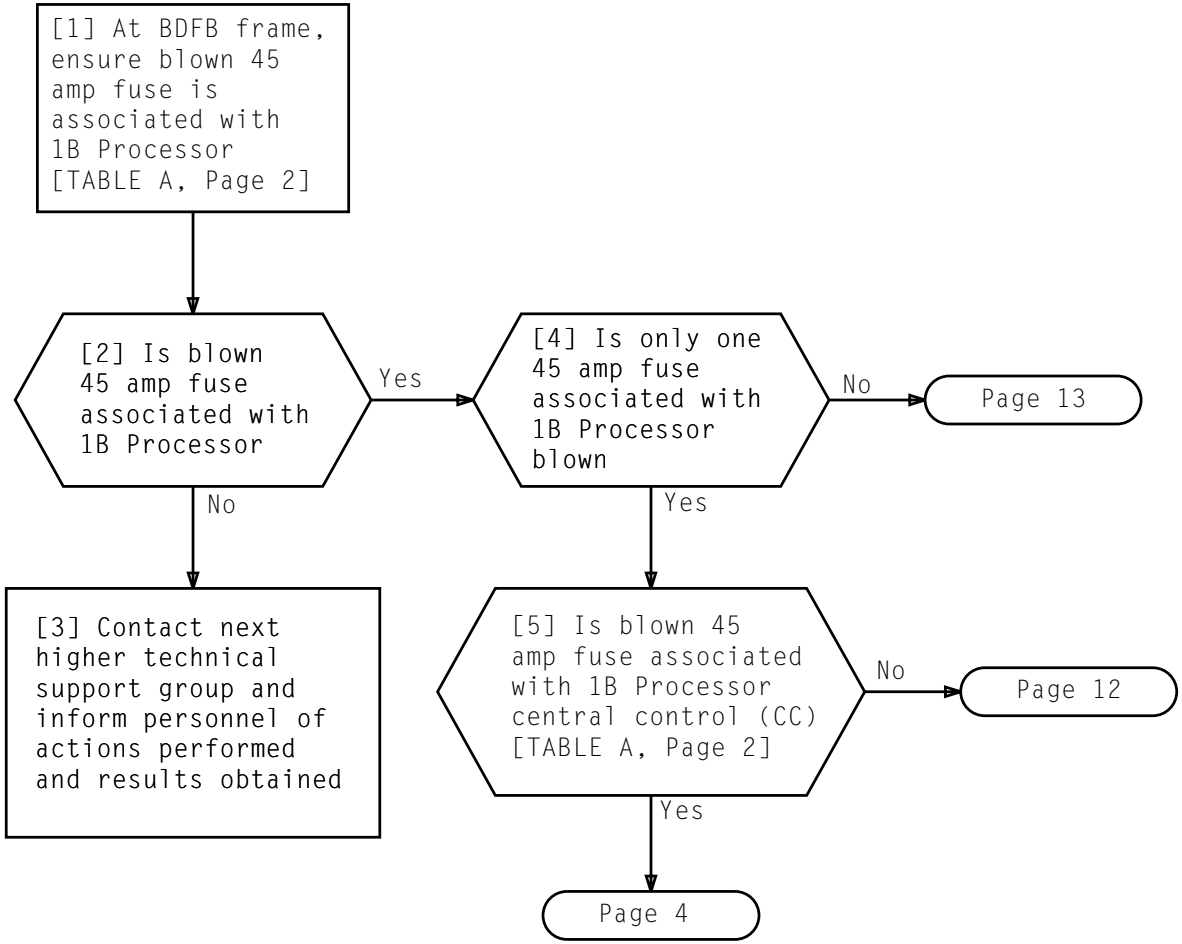
CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



CLEAR AUXILIARY UNIT BUS (AUB) DIAGNOSTIC FAILURE BY SCOPING AUB USING PHASE 99 DIAGNOSTIC TESTS



CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET

TABLE A BDFB FRAME 45 AMP FUSES AND ASSOCIATED 1B PROCESSOR UNITS/CIRCUIT PACKS		
BLOWN FUSE NAME	**AFFECTED 1B PROCESSOR**	
	UNITS	**CIRCUIT PACKS**
048V1A	CC0	**KLW03** (041-104), **KLW04** (041-112), **KLW05** (041-096), **KLW06** (041-054), **KLW07** (041-078), **KLW08** (041-046), **KLW09** (041-038), **KLW10** (041-030), **KLW11** (041-014), **KLW12** (058-014), **KLW13** (058-070), **KLW14** (058-038), **KLW17** (041-086), **KLW19** (041-070), **KLW20** (058-062), **KLW21** (058-046), **KLW22** (041-120), **KLW24** (041-062), **KLW28** (041-022), **UN339** (070-014, 070-030,070-070 & 070-086), **UN340** (070-038 & 070-062)
148V1B	CC1	**KLW03** (141-104), **KLW04** (141-112), **KLW05** (141-096), **KLW06** (141-054), **KLW07** (141-078), **KLW08** (141-046), **KLW09** (141-038), **KLW10** (141-030), **KLW11** (141-014), **KLW12** (158-014), **KLW13** (158-070), **KLW14** (158-038), **KLW17** (141-086), **KLW19** (141-070), **KLW20** (158-062), **KLW21** (158-046), **KLW22** (141-120), **KLW24** (141-062), **KLW28** (141-022), **UN339** (170-014, 170-030,170-070 & 170-086),**UN340** (170-038 & 170-062)
048V2A or **048V2B**	Even PSs (**KLW02**)	PS0 (041-128), PS2 (041-136), PS4 (041-144), PS6 (041-152), PS8 (041-160), PS10 (041-168), PS12 (041-176)
	MUP 0	**KLW16** (058-078) & **KLW25** (058-086)
	AUI 0	**KLW18** (058-120)
	SSD 0	**KLW15** (058-168)
	Fan System 0	**Fan Controller** (077-000)

TABLE A (Contd)

BDFB FRAME 45 AMP FUSES AND ASSOCIATED 1B PROCESSOR UNITS/CIRCUIT PACKS

BLOWN FUSE NAME	AFFECTED 1B PROCESSOR	
	UNITS	**CIRCUIT PACKS**
048V3A Or **048V3B**	Even CSs (**KLW01**)	CS0 (024-006), CS2 (024-176), CS4 (024-14), CS6 (024-168), CS8 (024-022), CS10 (024-160), CS12 (024-030), CS14 (024-152), CS16 (024-038), CS18 (024-144), CS20 (024-046), CS22 (024-136), CS24 (024-054), CS26 (024-128), CS28 (024-062), CS30 (024-120), CS32 (024-070), CS34 (024-112), CS36 (024-078), CS38 (024-104)
	BUS 0 BUF	**KLW26** (024-086)
	BUS 1 BUF	**KLW27** (024-096)
148V4A Or **148V4B**	Odd PSs (**KLW02**)	PS1 (141-128), PS3 (141-136), PS5 (141-144), PS7 (141-152), PS9 (141-160), PS11 (141-168), PS13 (141-176)
	MUP 1	**KLW16** (158-078) & **KLW25** (158-086)
	AUI 1	**KLW18** (158-120)
	SSD 1	**KLW15** (158-168)
	Fan System 1	**Fan Controller** (177-000)
148V5A Or **148V5B**	Odd CSs (**KLW01**)	CS1 (124-006), CS3 (124-176), CS5 (124-14), CS7 (124-168), CS9 (124-022), CS11 (124-160), CS13 (124-030), CS15 (124-152), CS17 (124-038), CS19 (124-144), CS21 (124-046), CS23 (124-136), CS25 (124-054), CS27 (124-128), CS29 (124-062), CS31 (124-120), CS33 (124-070), CS35 (124-112), CS37 (124-078), CS39 (124-104)
	BUS 0 BUF	**KLW26** (124-086)
	BUS 1 BUF	**KLW27** (124-096)

CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET

[6] Determine which CC (0 or 1) is associated with blown 45 amp fuse [TABLE A, Page 2]

[7] At **KLW11** circuit pack (41-014) associated with out-of-service CC, move **ROS/OFF** switch right to **ROS** position

[8] At **KLW11** circuit pack (41-014) associated with out-of-service CC, depress **OFF** pushbutton

[9] See CAUTION 1. Identify first circuit pack associated with out-of-service CC to be unseated [TABLE B]

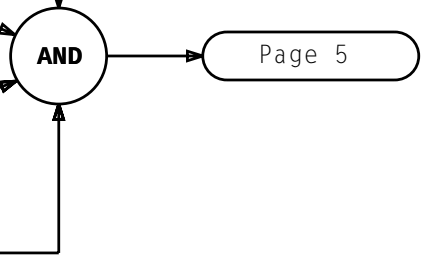


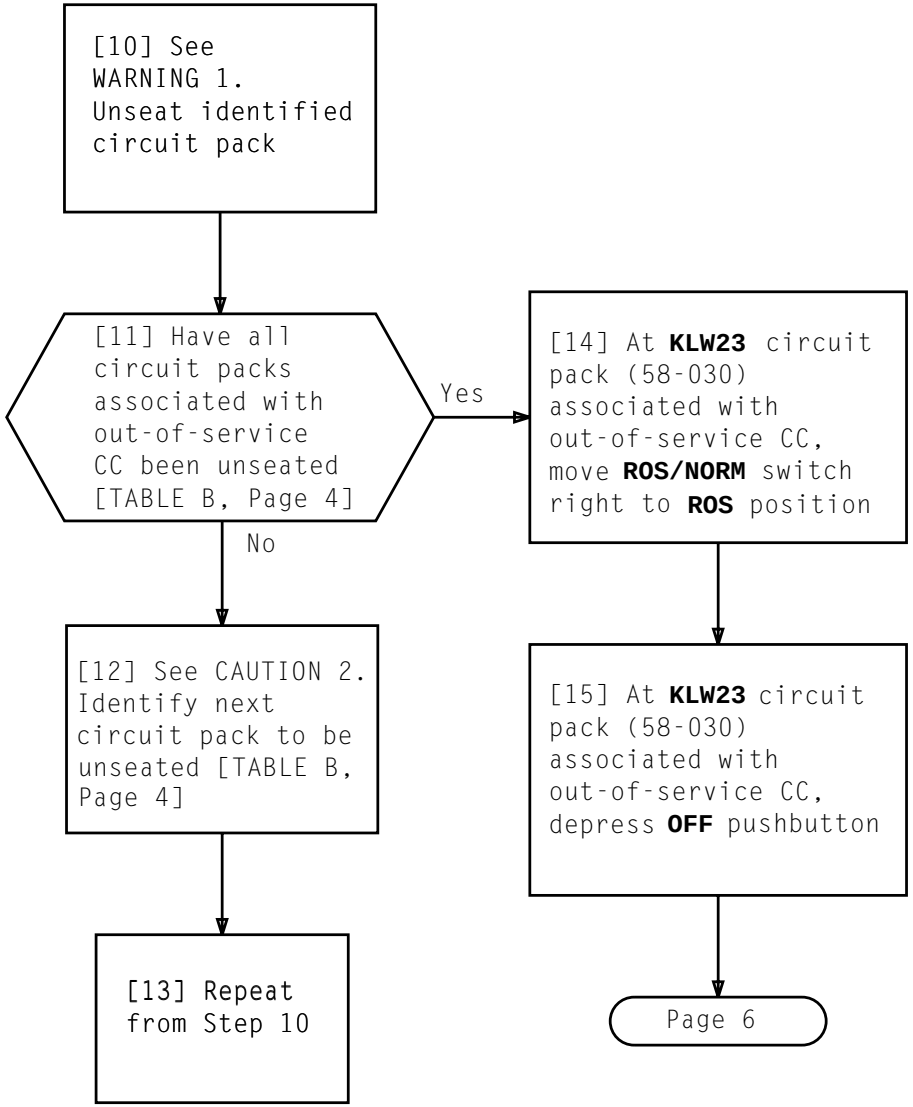
TABLE B

CENTRAL CONTROL CIRCUIT PACKS ASSOCIATED WITH BLOWN 45 AMP BDFB FUSE

CIRCUIT PACK	OUT-OF-SERVICE CC	
	CC0	CC1
KLW11	041-014	141-014
KLW12	058-014	158-014
KLW3	041-104	141-104
KLW4	041-112	141-112
KLW22	041-120	141-120

CAUTION 1
Do not disturb circuit packs in active units. Unseating circuit packs in active unit causes severe service interruptions

CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



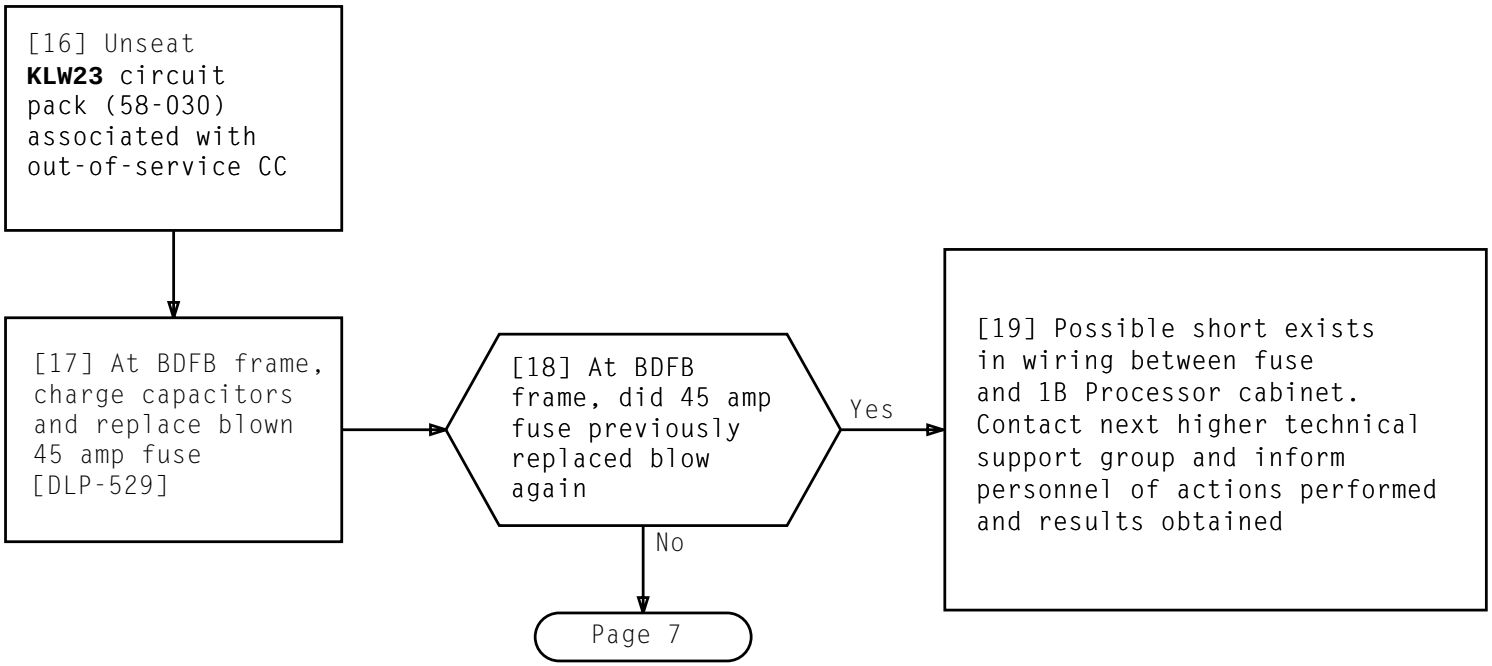
CAUTION 2

Do not disturb circuit packs in active units. Unseating circuit packs in active unit causes severe service interruptions

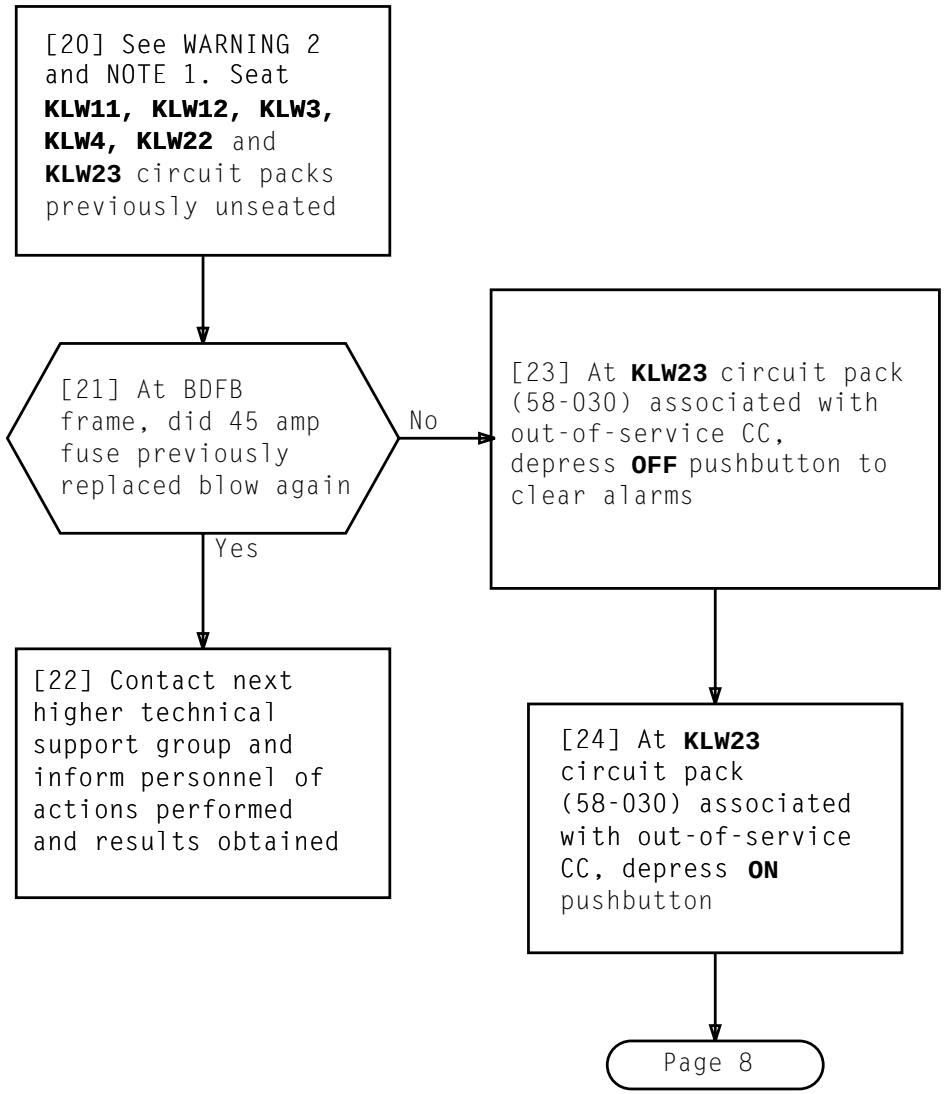
WARNING 1

A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



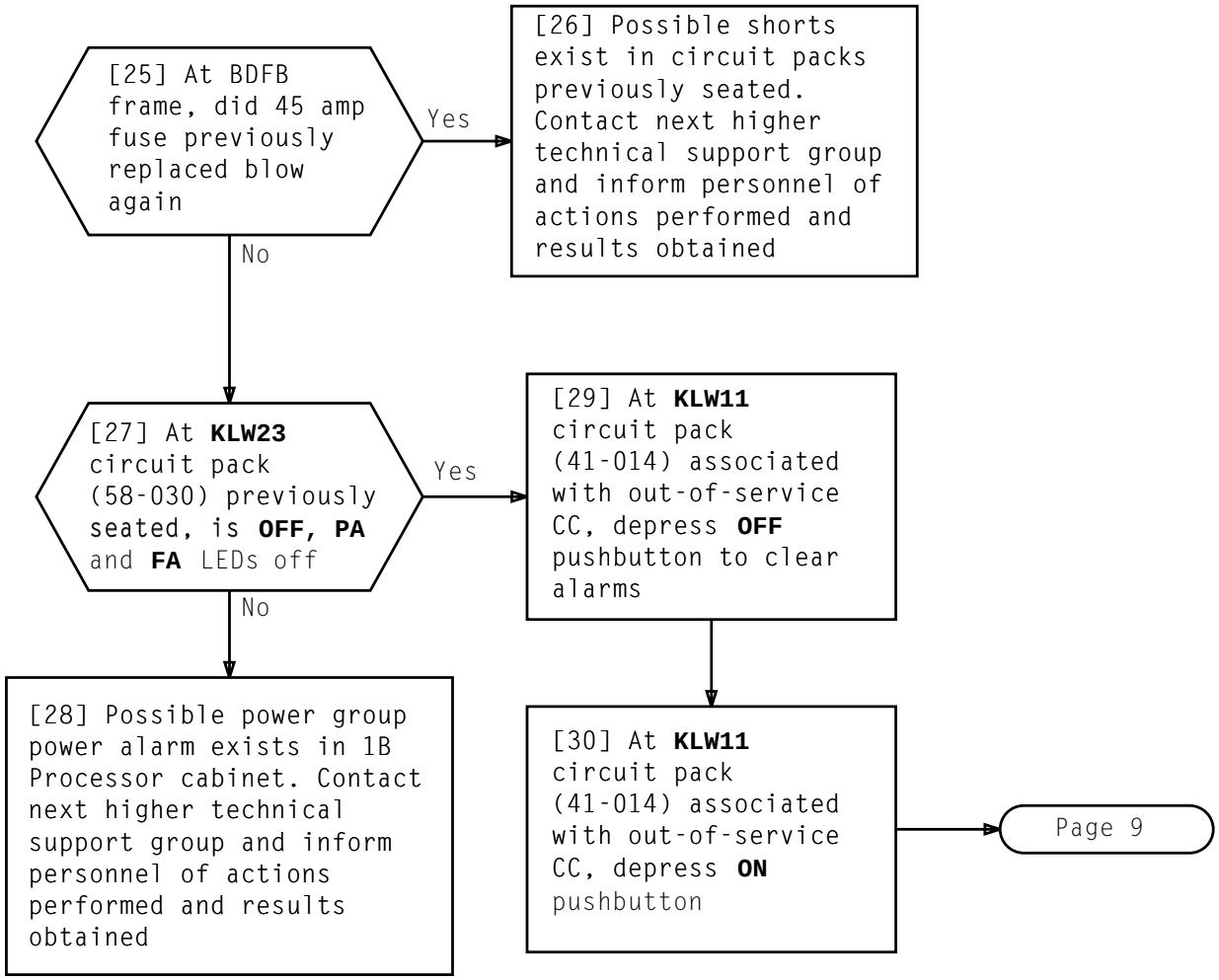
NOTE 1

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack (using pack seating mechanism) does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

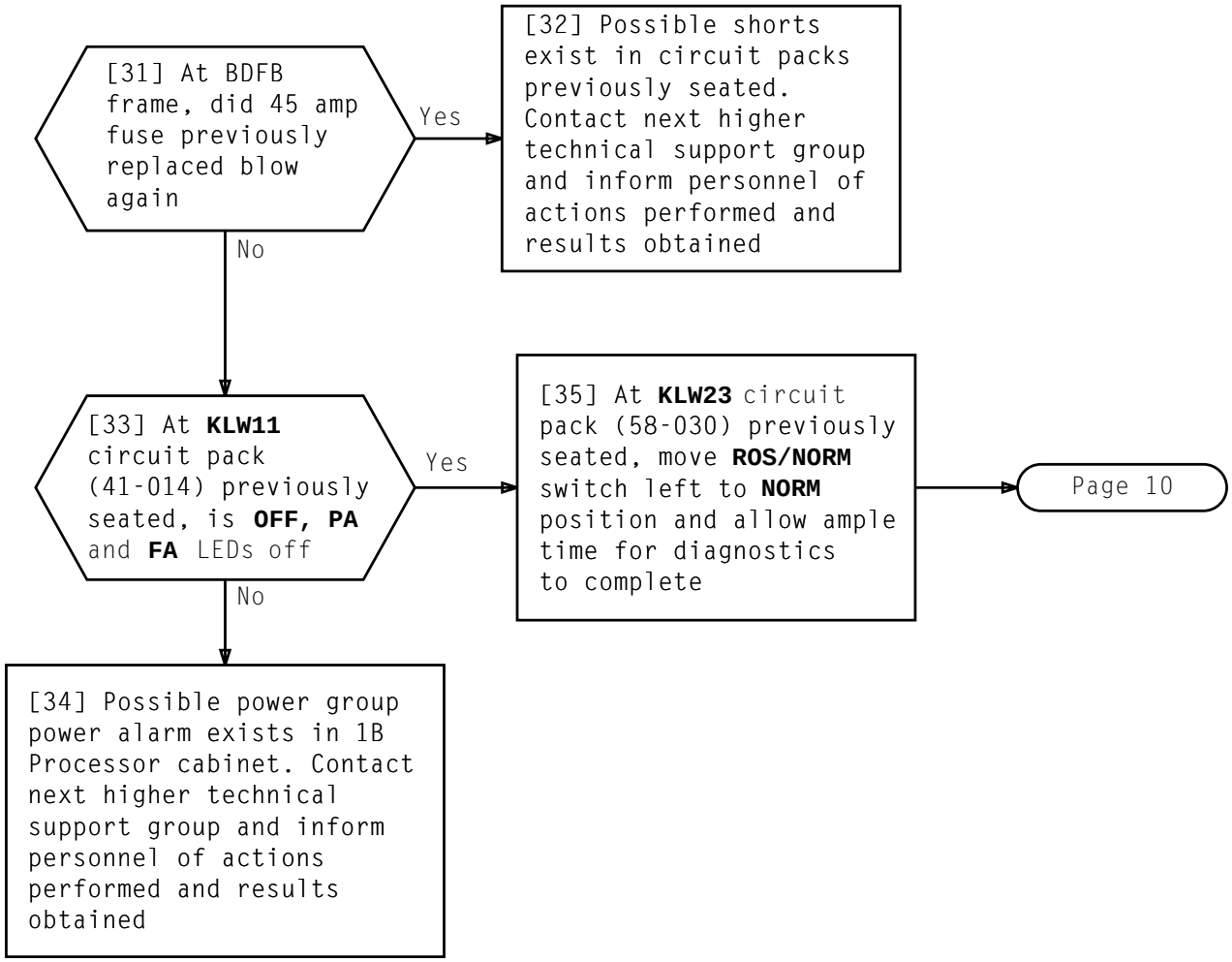
WARNING 2

A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

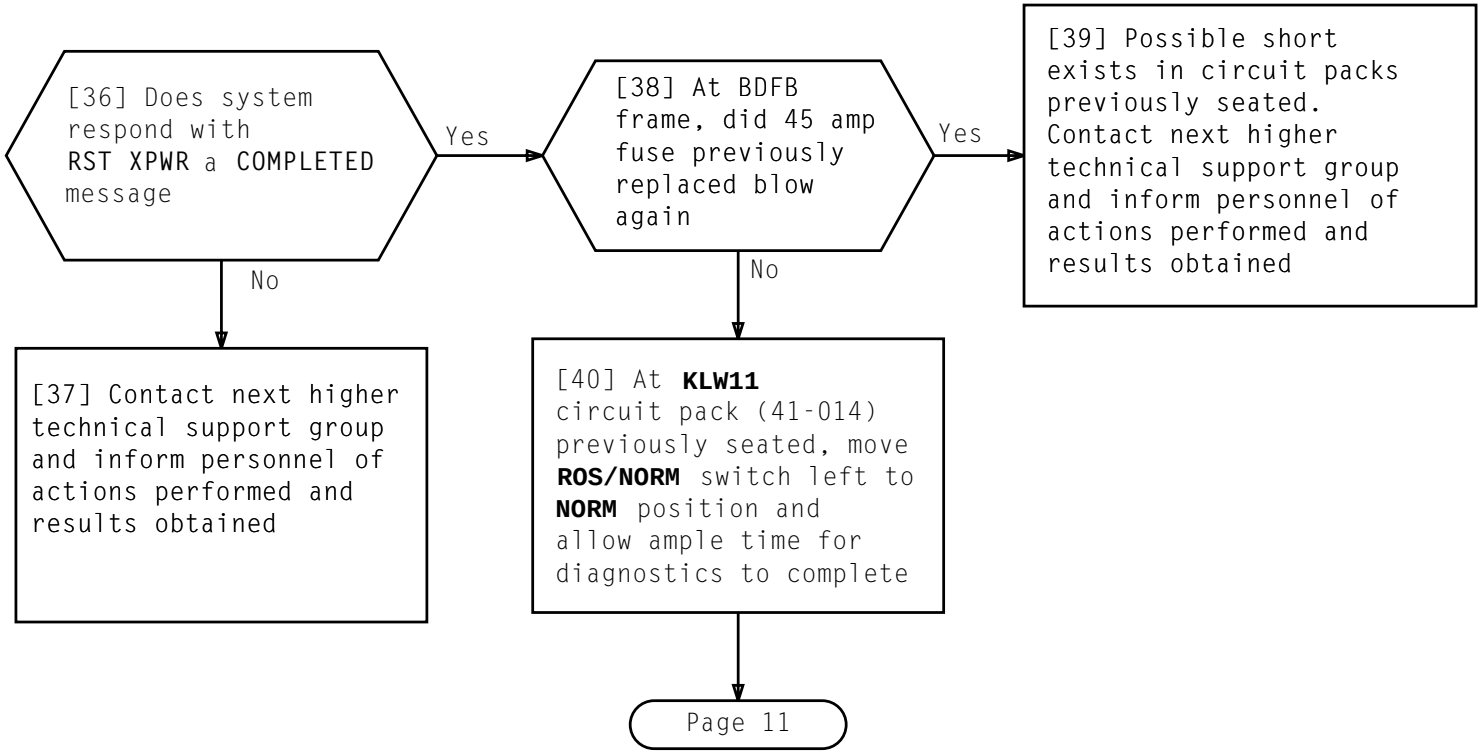
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



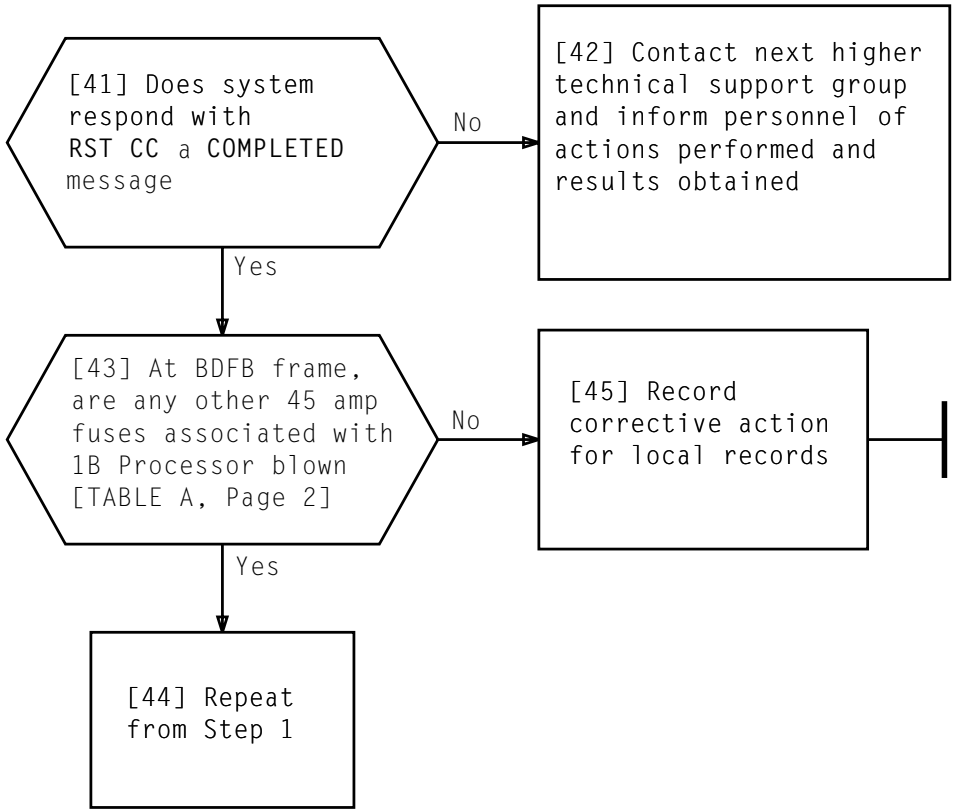
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



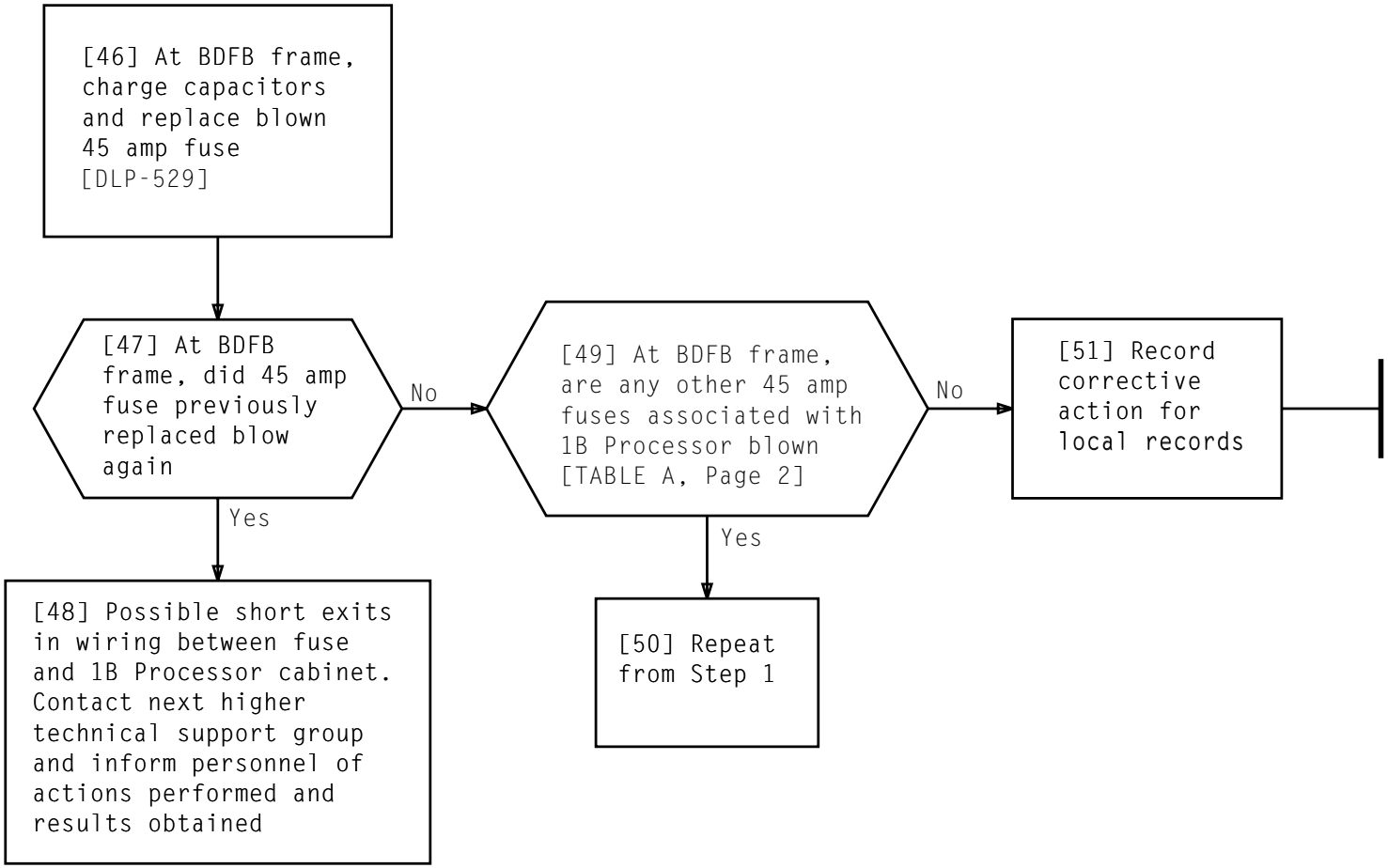
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



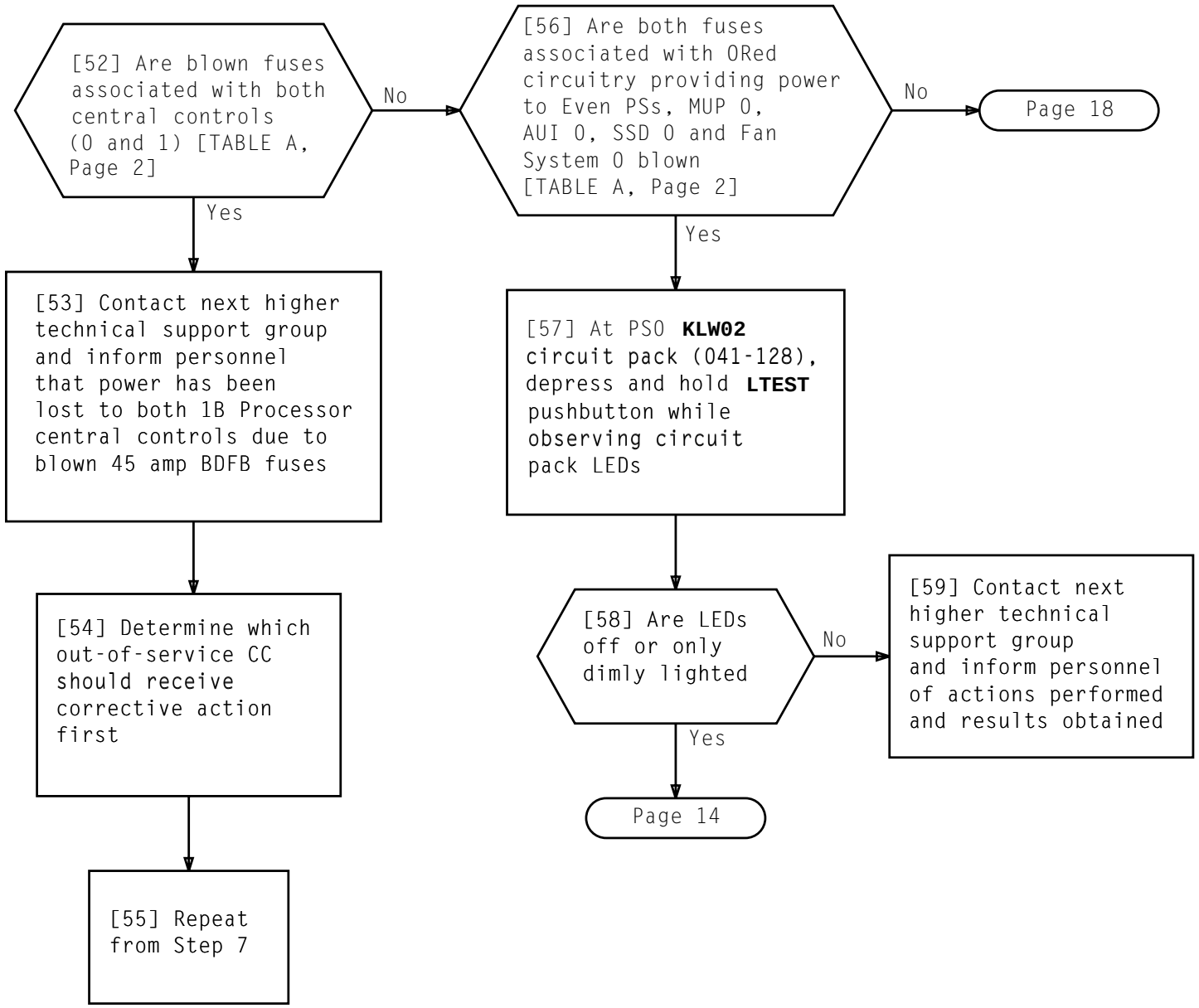
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



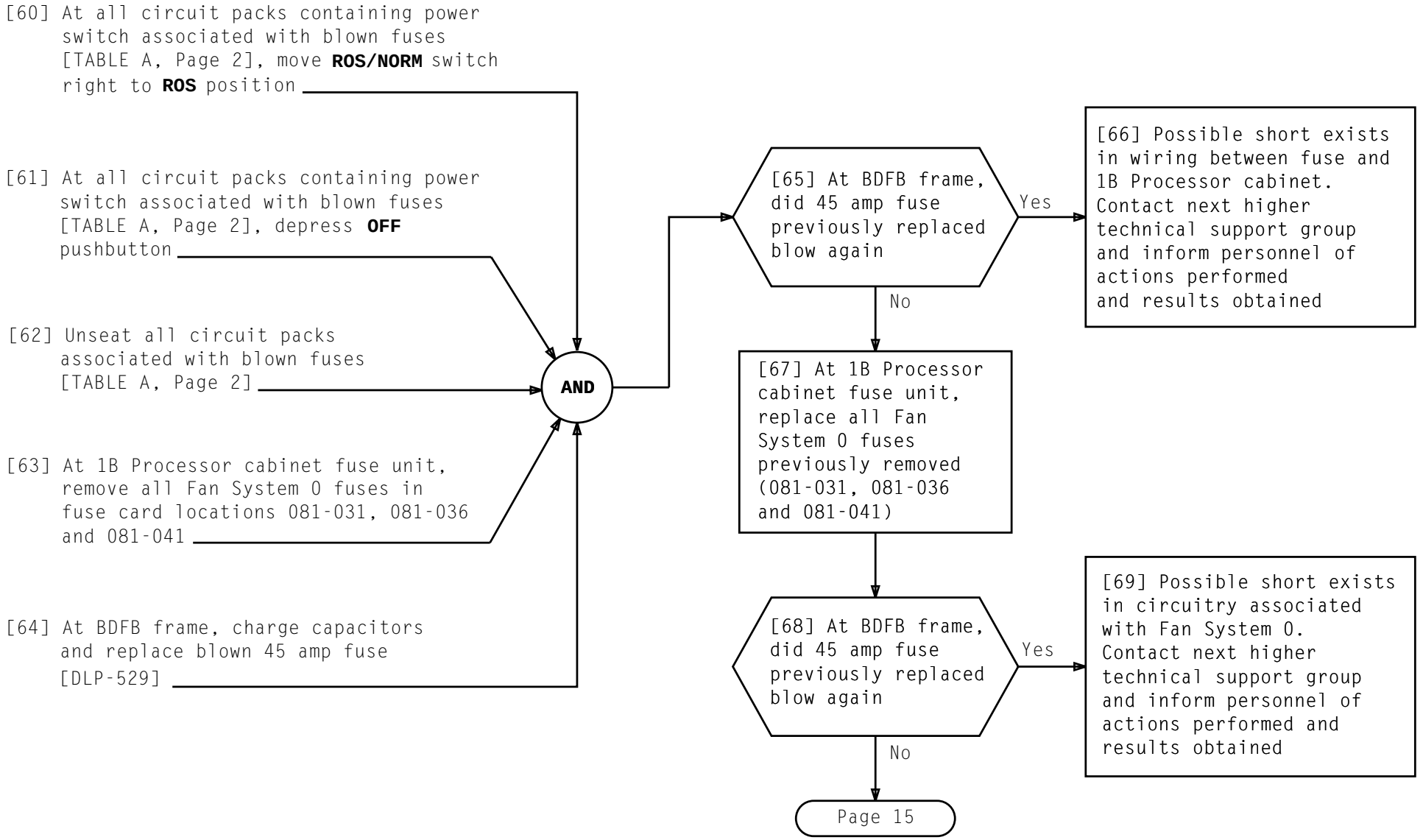
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



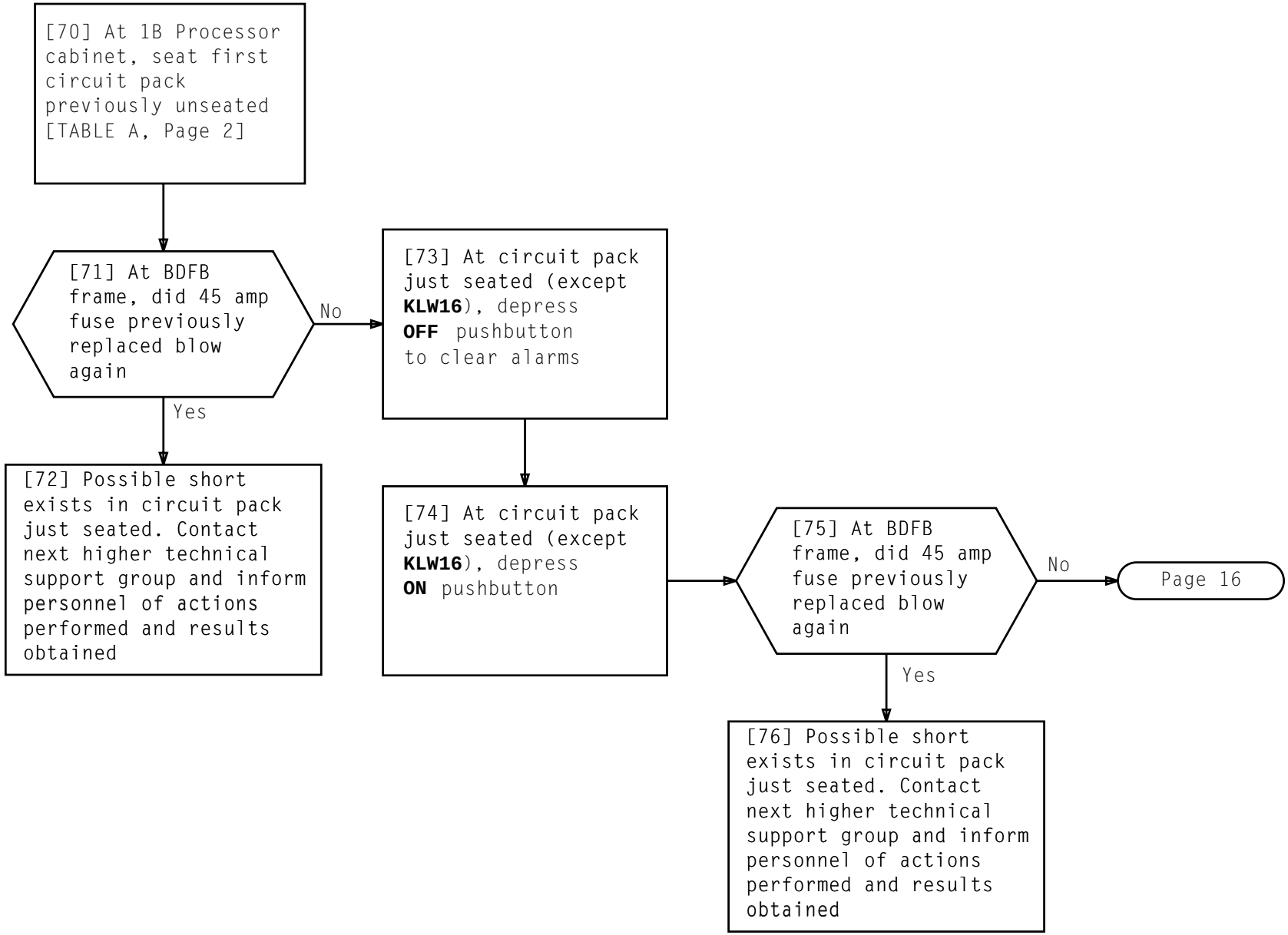
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



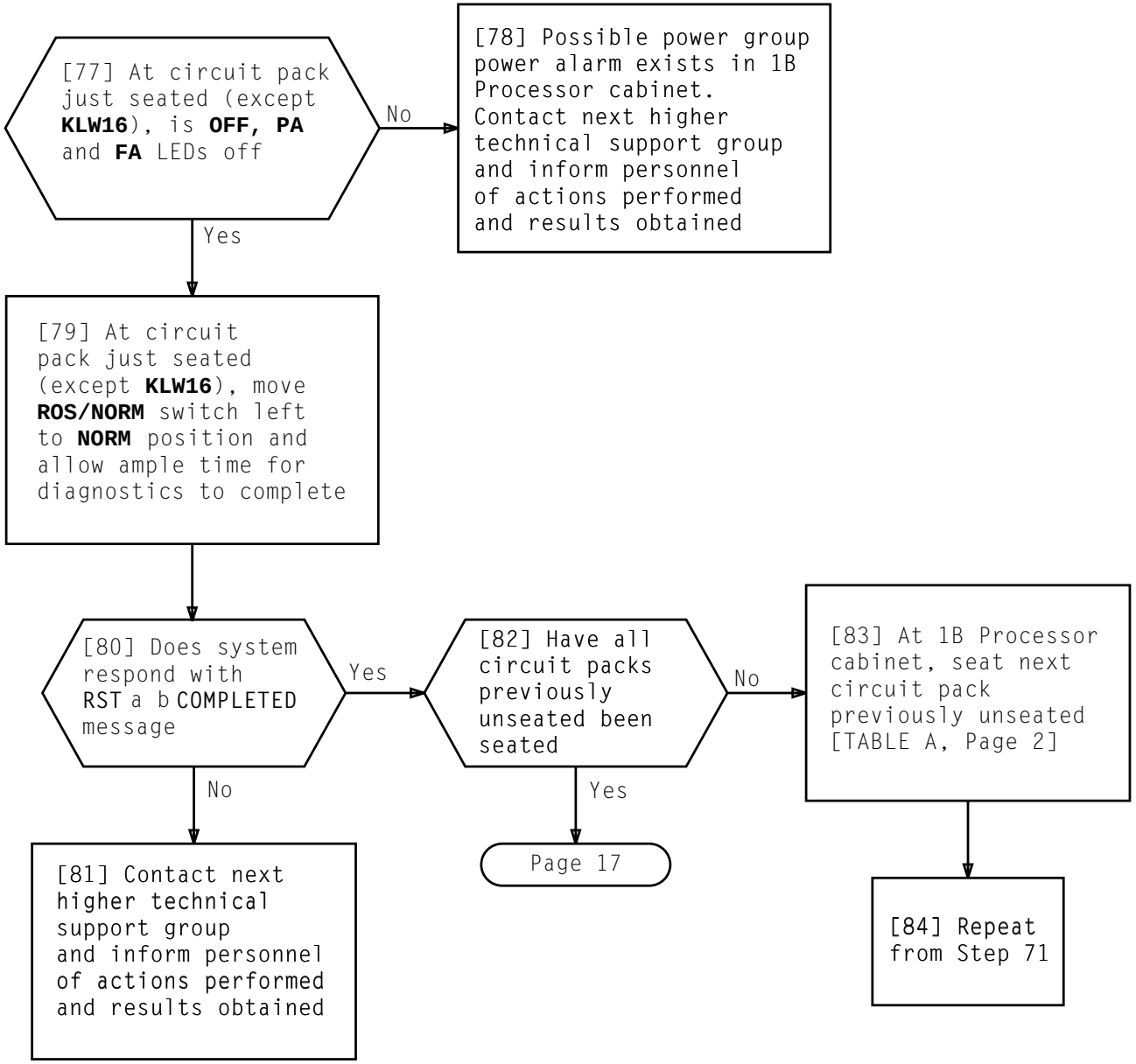
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



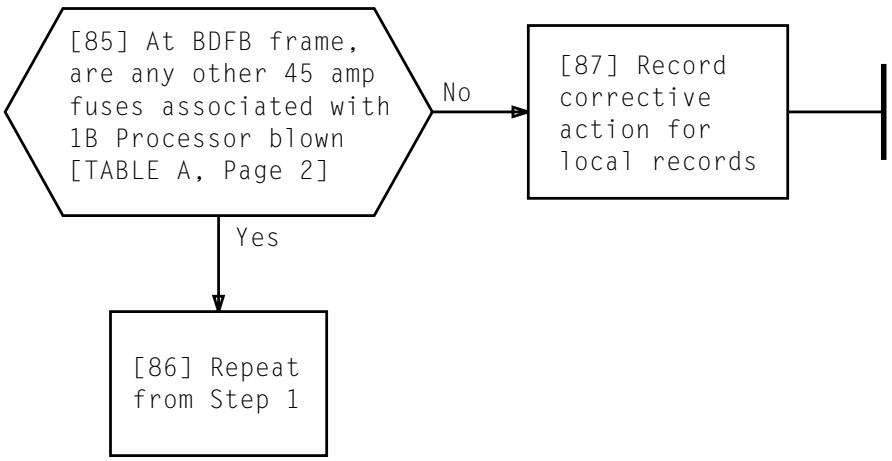
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



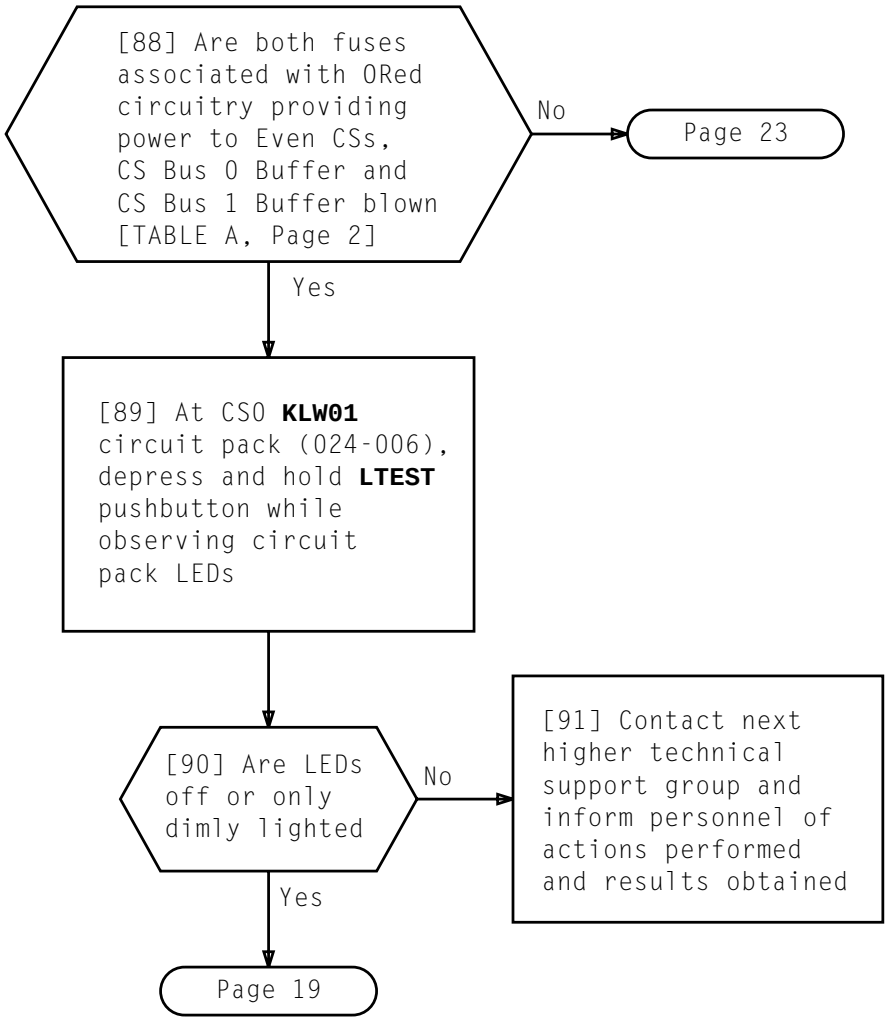
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



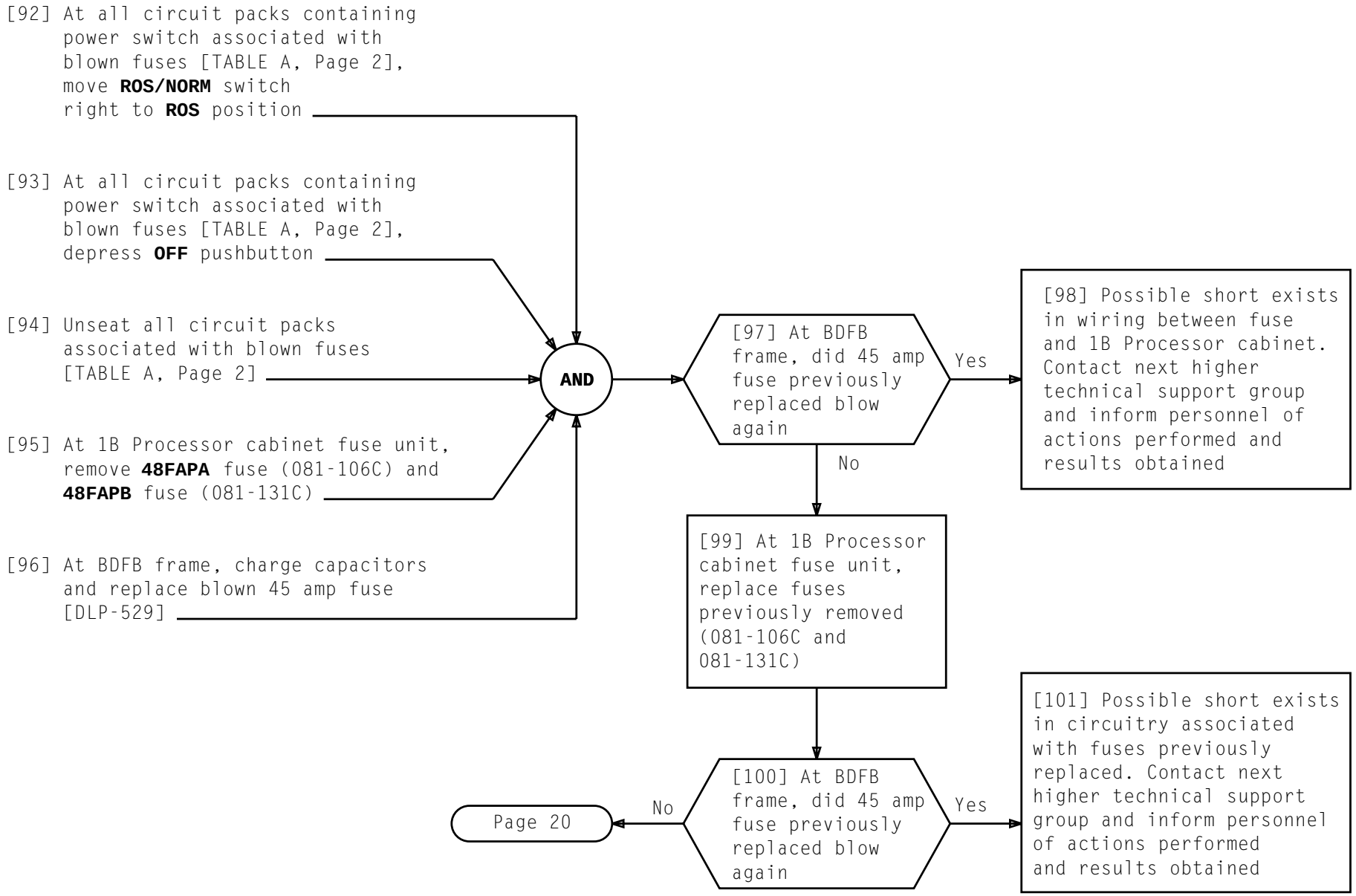
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



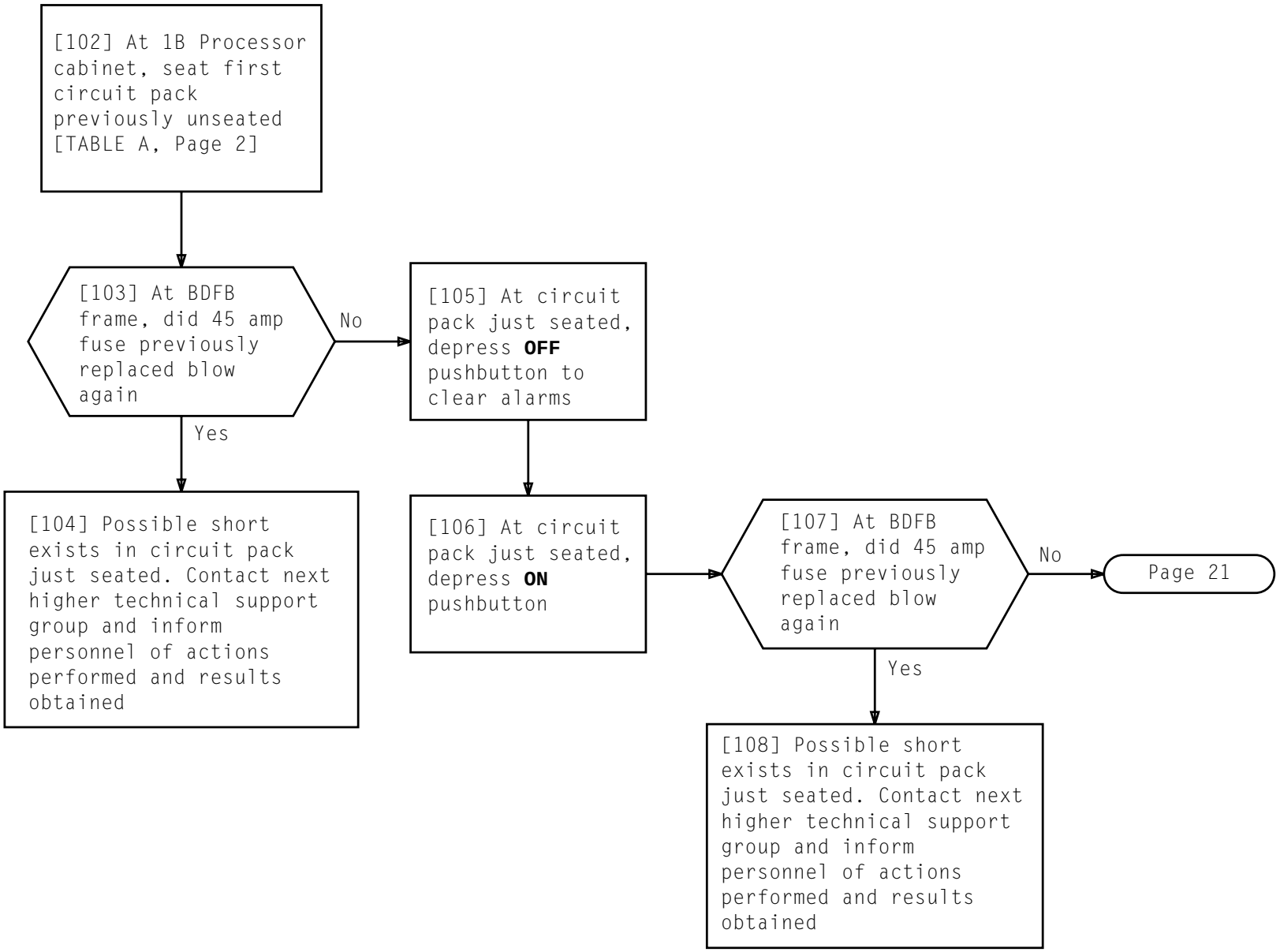
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



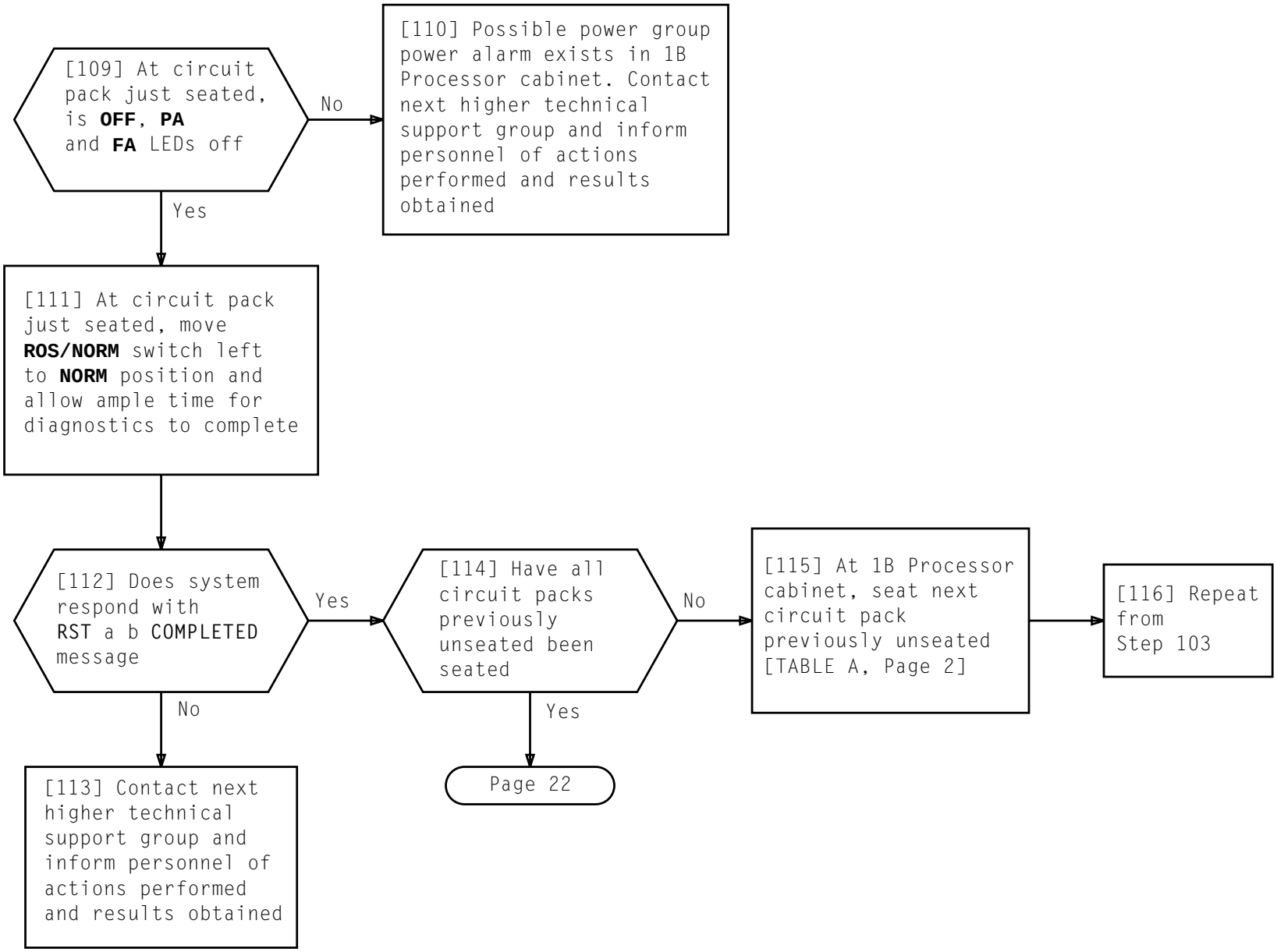
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



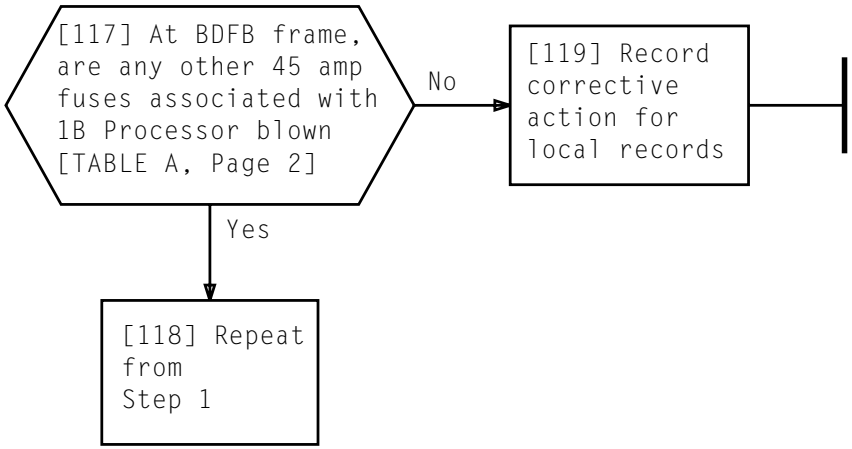
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



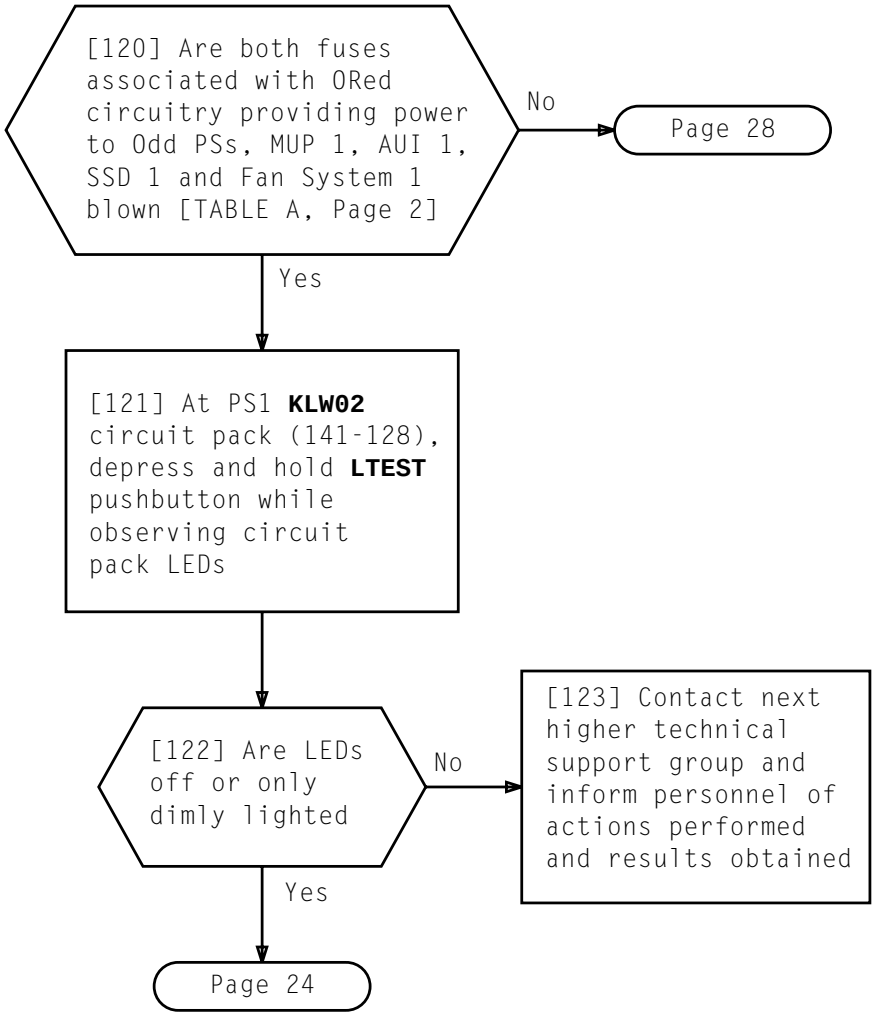
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



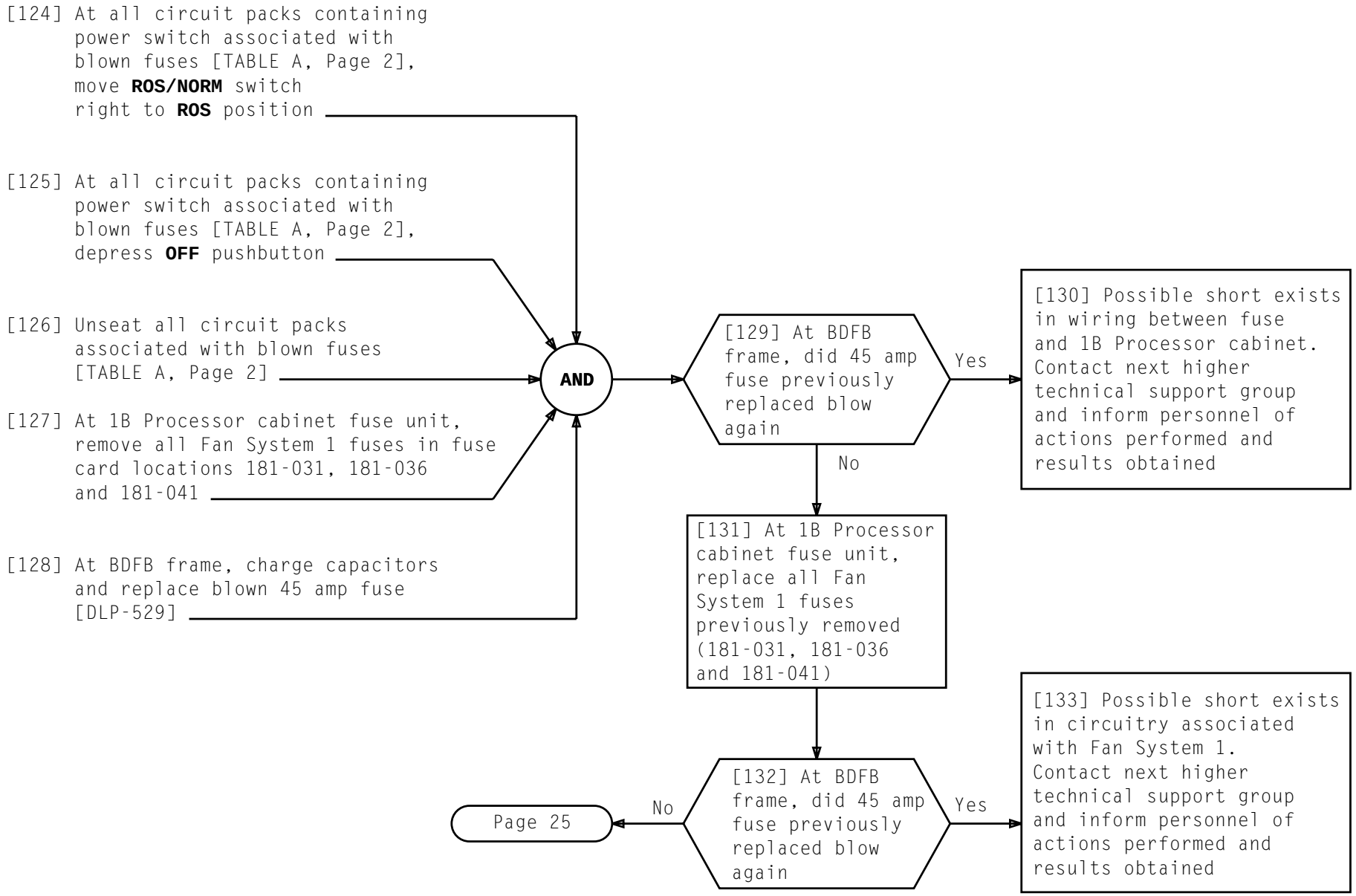
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



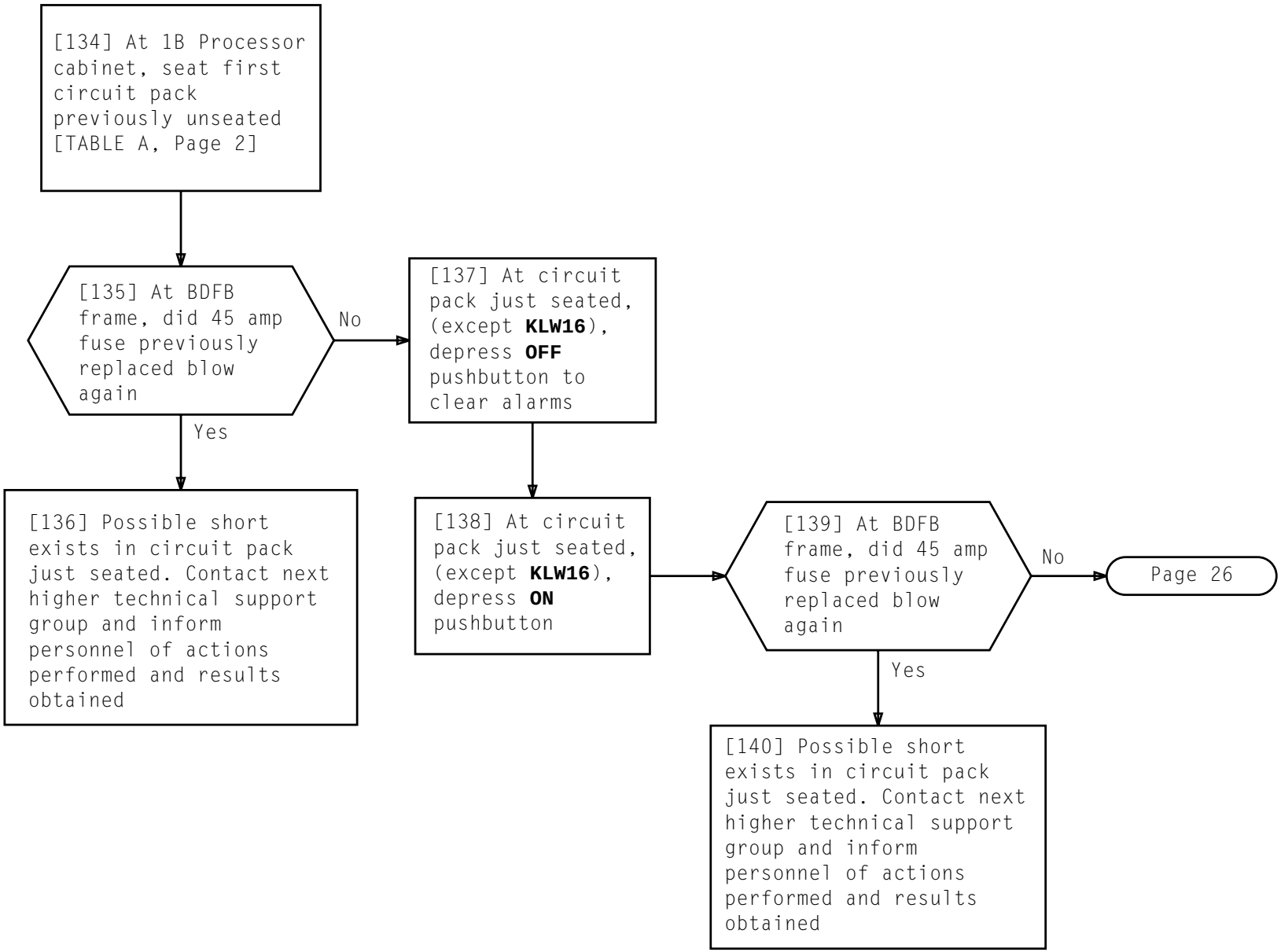
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



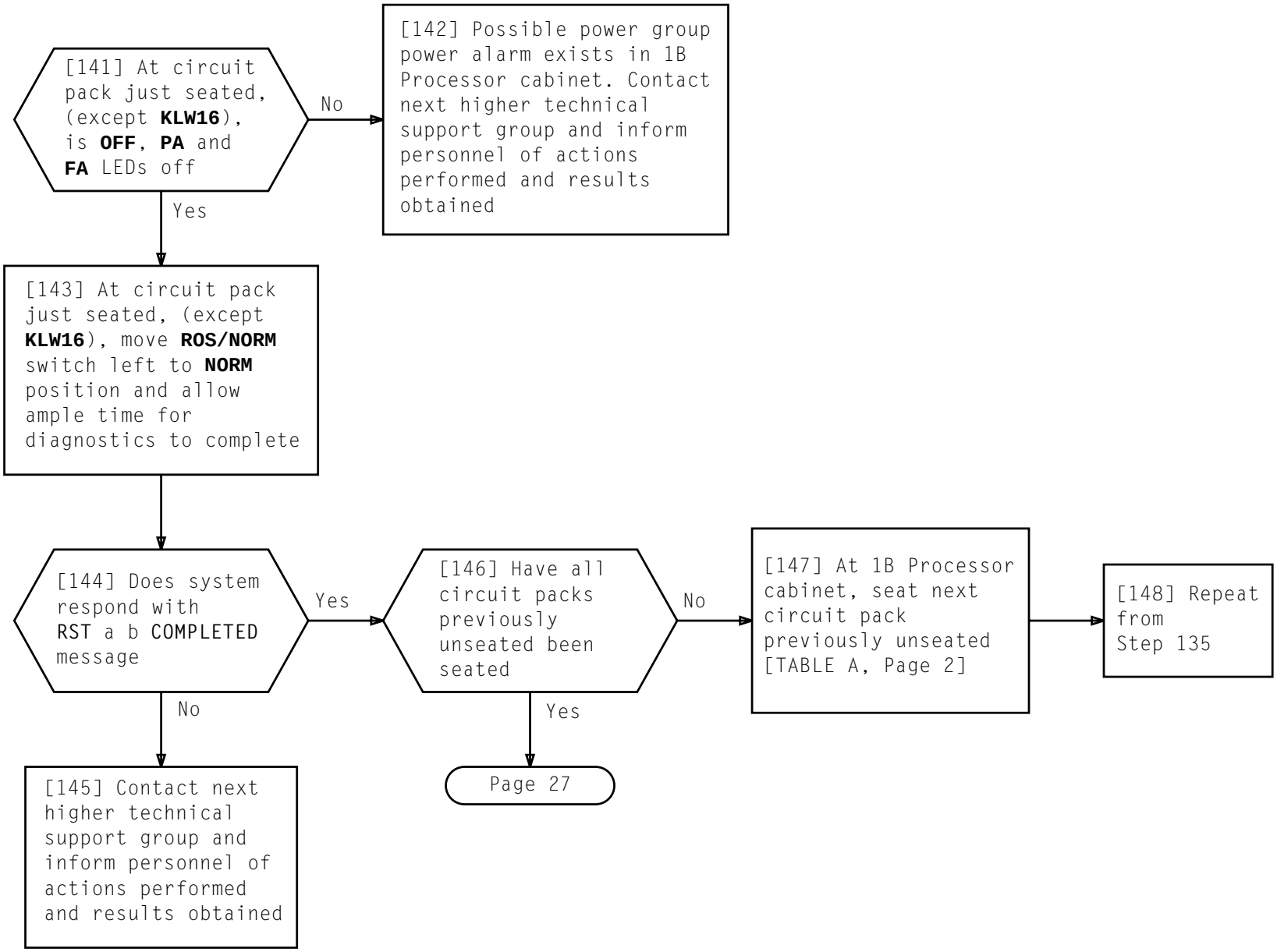
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



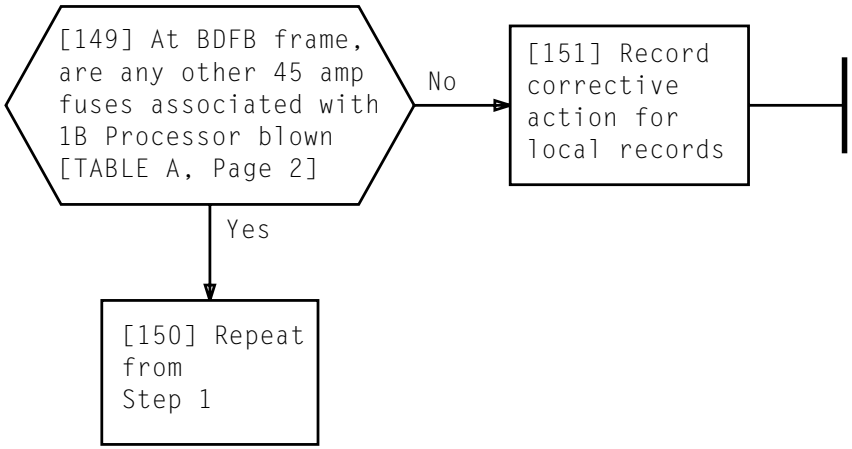
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



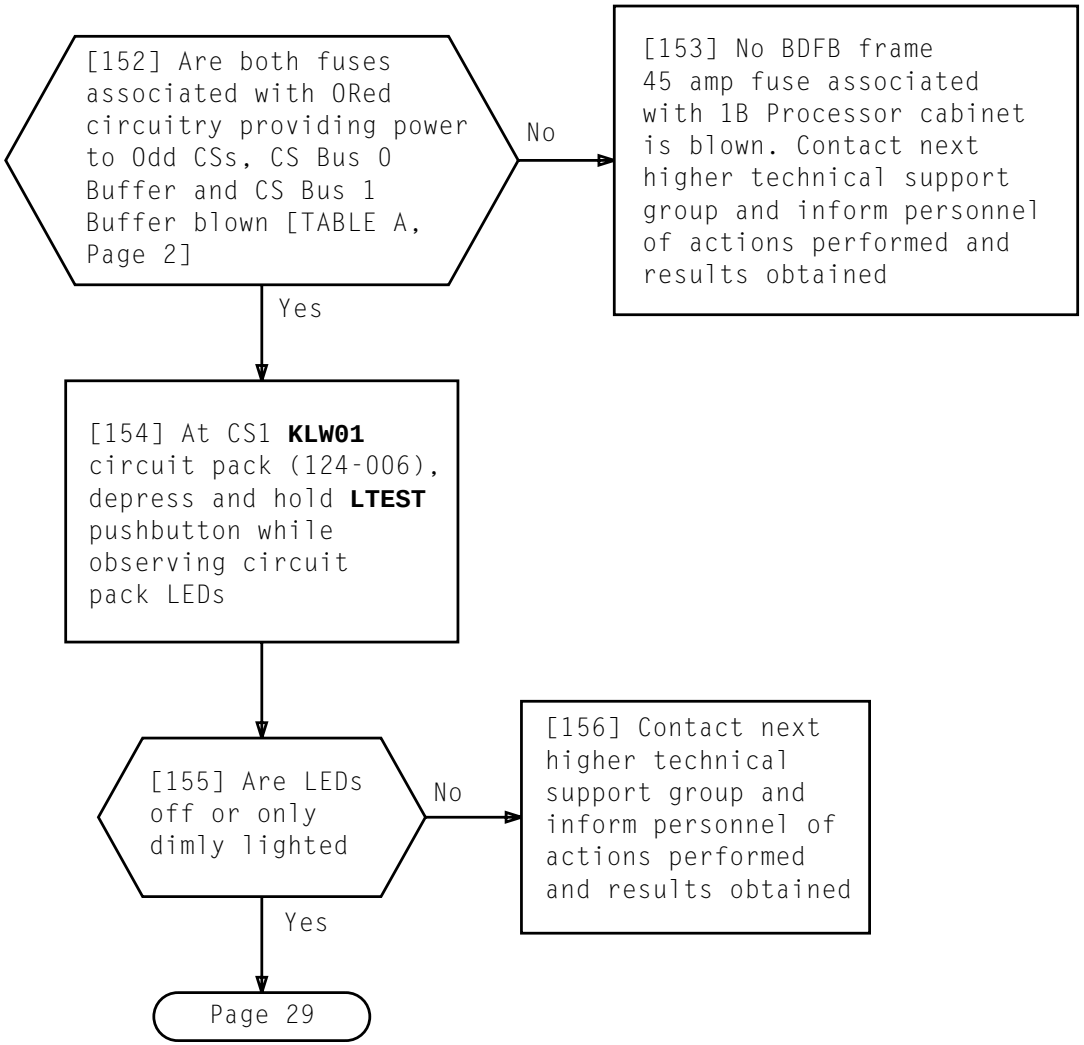
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



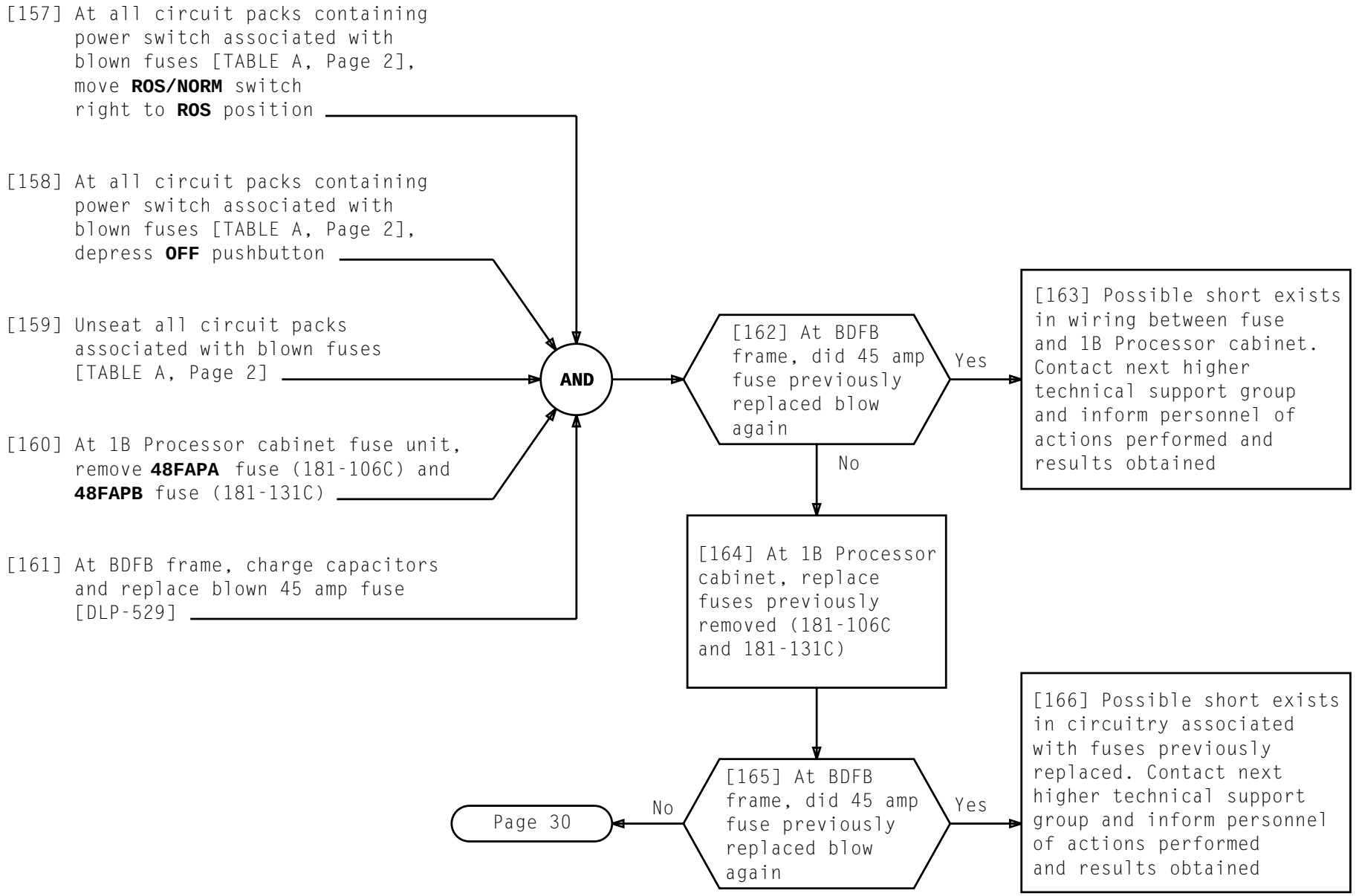
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



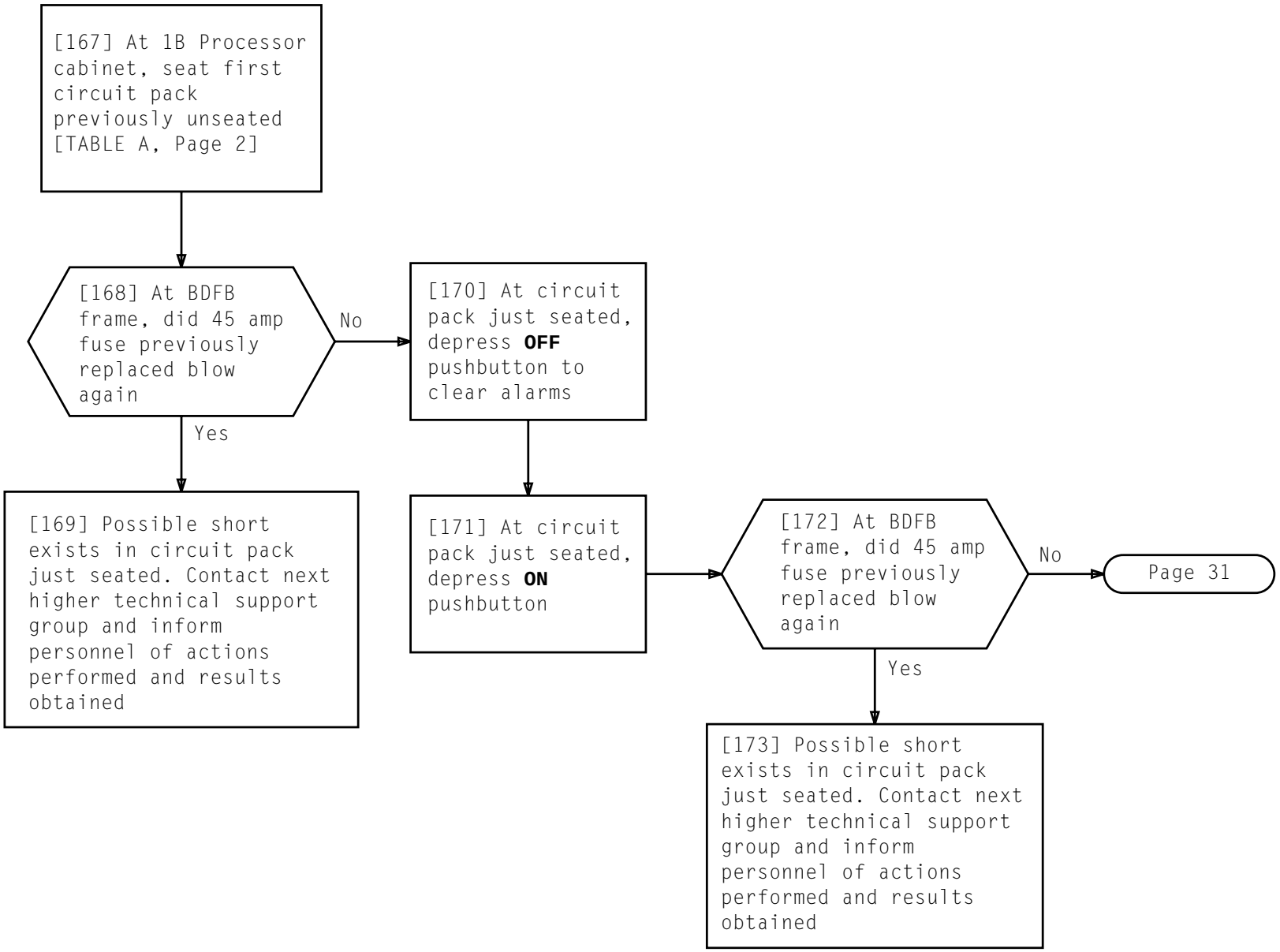
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



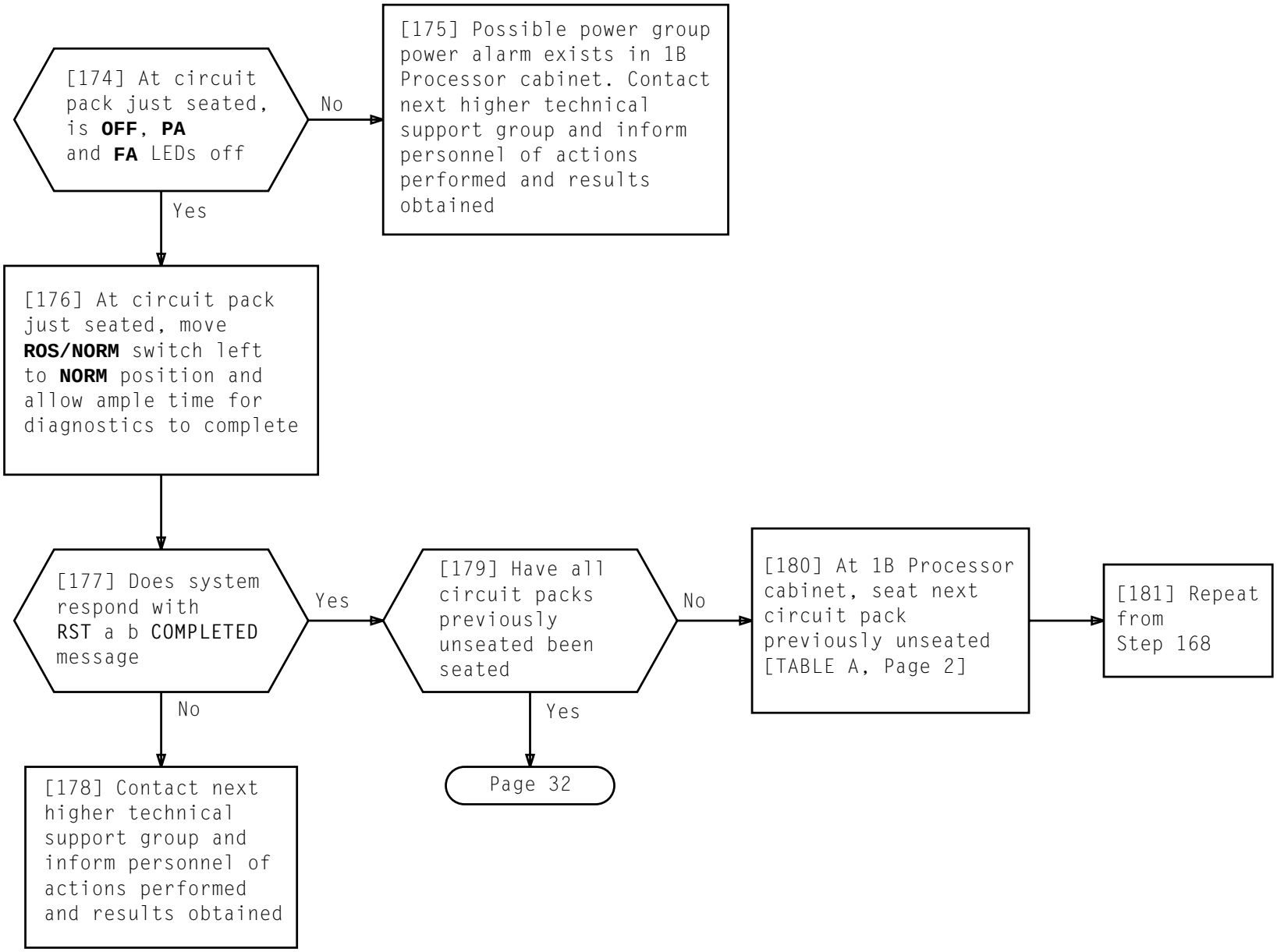
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



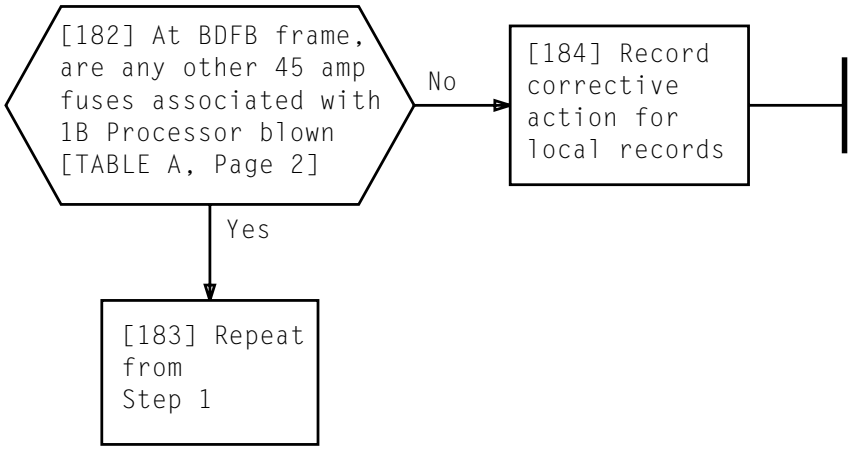
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



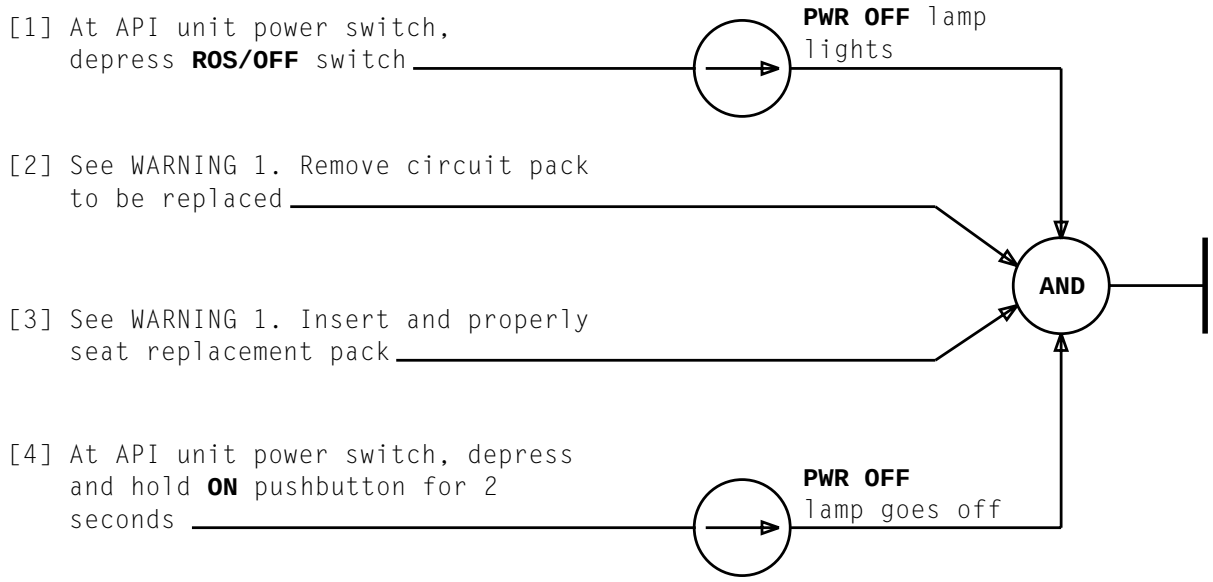
CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



CLEAR BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME BLOWN 45 AMP FUSE ASSOCIATED WITH 1B PROCESSOR CABINET



WARNING 1

A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never hand an unprotected circuit pack to an ungrounded person or touch components, leads, or connector pins.

REPLACE CIRCUIT PACK, ATTACHED PROCESSOR INTERFACE (API) UNIT

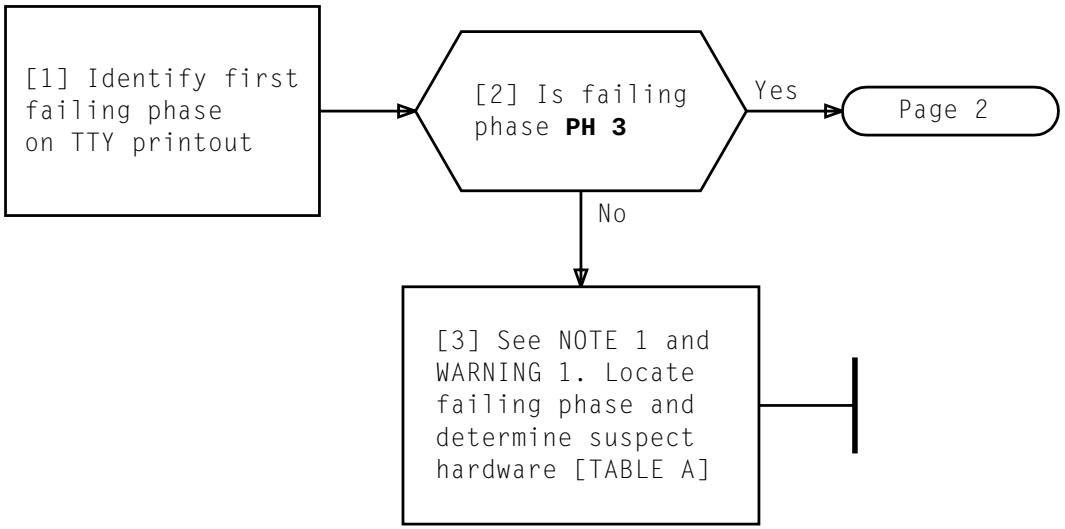


TABLE A

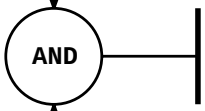
FAILING PHASE	SUSPECT HARDWARE				
	1ST	2ND	3RD	4TH	5TH
1	**133J** Power Unit	**TN17**	**UN42**	Power Switch	—
2	**UN41**	**UN42**	**TN15**	—	—
4	**UN42**	**UN41**	**TN15**	—	—
5	**UN42**	**UN41**	**TN15**	—	—
6	**UN41**	**TN15**	**UN42**	—	—
7	**UN41**	**TN15**	**UN42**	—	—
8	**UN42**	**TN15**	**UN41**	—	—
9	**TN15**	**TN61**	**UN42**	**UN41**	**TN70**

NOTE 1
PR documents for API phases are 5A435 thru 5A445

WARNING 1
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never hand an unprotected circuit pack to an ungrounded person or touch components, leads, or connector pins.

IDENTIFY SUSPECT HARDWARE USING DIAGNOSTIC INFORMATION

[4] Identify the mismatch data word on TTY printout

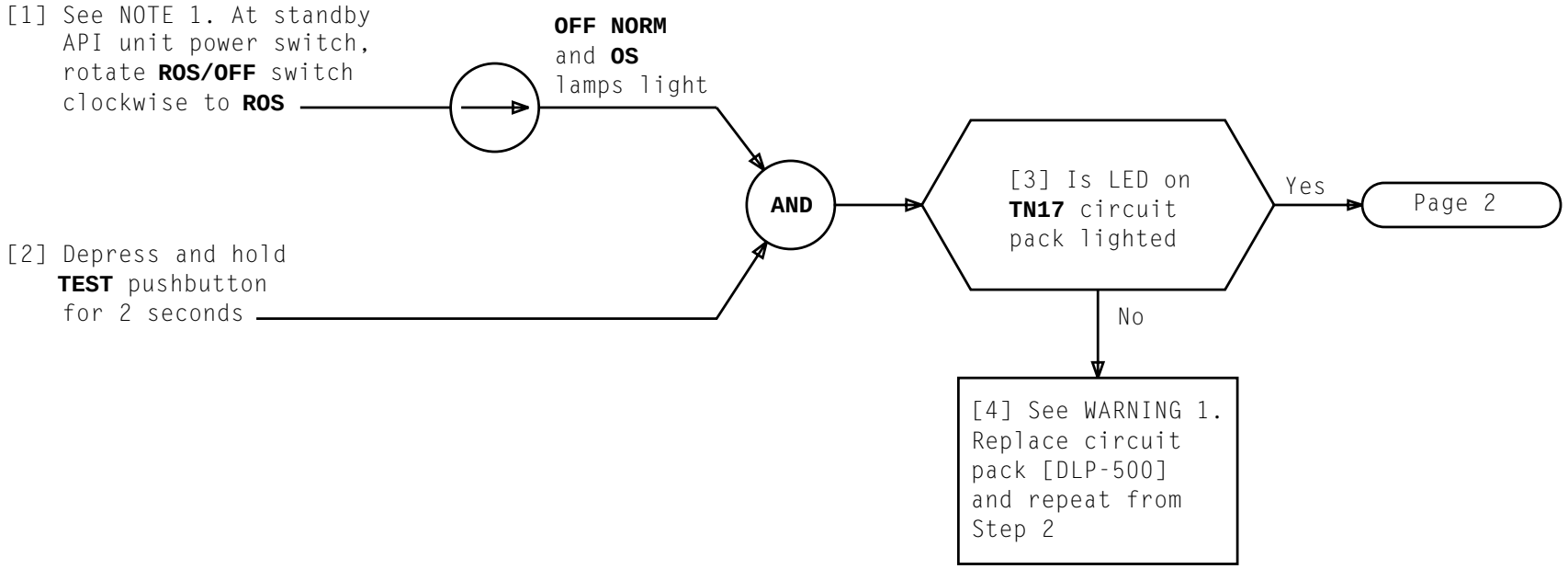


[5] Locate mismatch data word and determine suspect hardware [TABLE B]

TABLE B

MISMATCH DATA WORD	FAILING 3B PHASE	3B PR NAME	SUSPECT HARDWARE			
			1ST	2ND	3RD	4TH
00000002	1	API01	**TN69**	—	—	—
00000004	2	API02	**TN70**	**TN69**	**TN62 OR TN35**	—
00000010	3	API03	**TN61 OR TN30**	**TN70**	**TN62 OR TN35**	**TN69**
00000020	4	API04	**TN61 OR TN30**	**TN70**	**TN62 OR TN35**	**TN69**
00000040	5	API05	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00000100	6	API06	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00000200	7	API07	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00000400	8	API08	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00001000	9	API09	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00002000	10	API10	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00004000	11	API11	**TN61 OR TN30**	**TN62 OR TN35**	**TN70**	**TN69**
00010000	12	API12	**UN41**	**UN42**	**TN15**	**TN61 OR TN30**

IDENTIFY SUSPECT HARDWARE USING DIAGNOSTIC INFORMATION



NOTE 1
To determine standby API, enter:
OP:AP STATUS!

WARNING 1
Due to static charges, precautions must be taken when handling circuit packs

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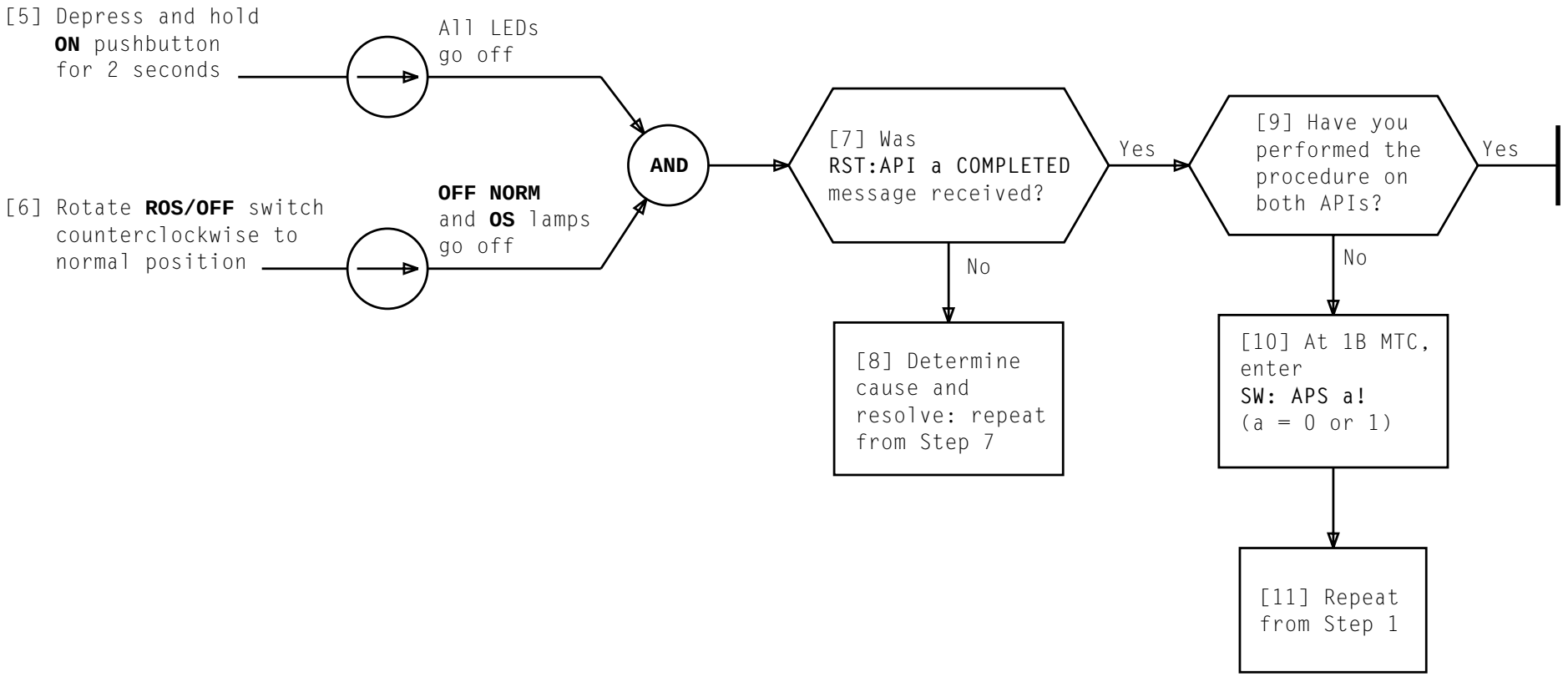
TEST POWER ALARM CIRCUITS



TEST POWER ALARM CIRCUITS

[1] At PCD frame, inhibit PCD frame power alarms [DLP-509]

[2] At PCD frame, remove input power fuses for associated API [TABLE A]

[3] At API frame, cover apparatus below switch with drop cloth

[4] Tag and remove leads on power switch

[5] Remove four mounting screws and withdraw switch from front of frame

AND

Defective switch removed

[6] At front of frame, install replacement switch using screws removed

[7] Remove tags and connect leads to switch terminals

[8] At PCD frame, replace fuses removed [TABLE A]

[9] At PCD frame, restore PCD frame power alarms [DLP-510]

AND

[10] At power switch, depress and hold **ON** pushbutton for 2 seconds

PWR OFF lamp goes off

TABLE A

API UNIT	FUSE	
	DESIGNATION	LOCATION
0	**API0AD**	179-15,11
	API0AE	179-15,12
	API0AF	179-15,3
1	**API1AD**	179-29,11
	API1AE	179-29,12
	API1AF	179-29,3

REPLACE POWER SWITCH

1. Obtain PR for first failing phase [TABLE A]

2. Locate TEST NUMBER INDEX page near end of PR [Figure 1]

3. Under column heading **TEST**, locate first failing test

4. Under column heading **LOC**, identify and record location number for first failing test

5. Under column heading **LOOPING ADR**, record looping address for first failing test

End of procedure

TABLE A

PHASE	APDG PROGRAM NUMBER	PHASE	APDG PROGRAM NUMBER
1	5A436	6	5A441
2	5A437	7	5A442
3	5A438	8	5A443
4	5A439	9	5A444
5	5A440	91	5A445

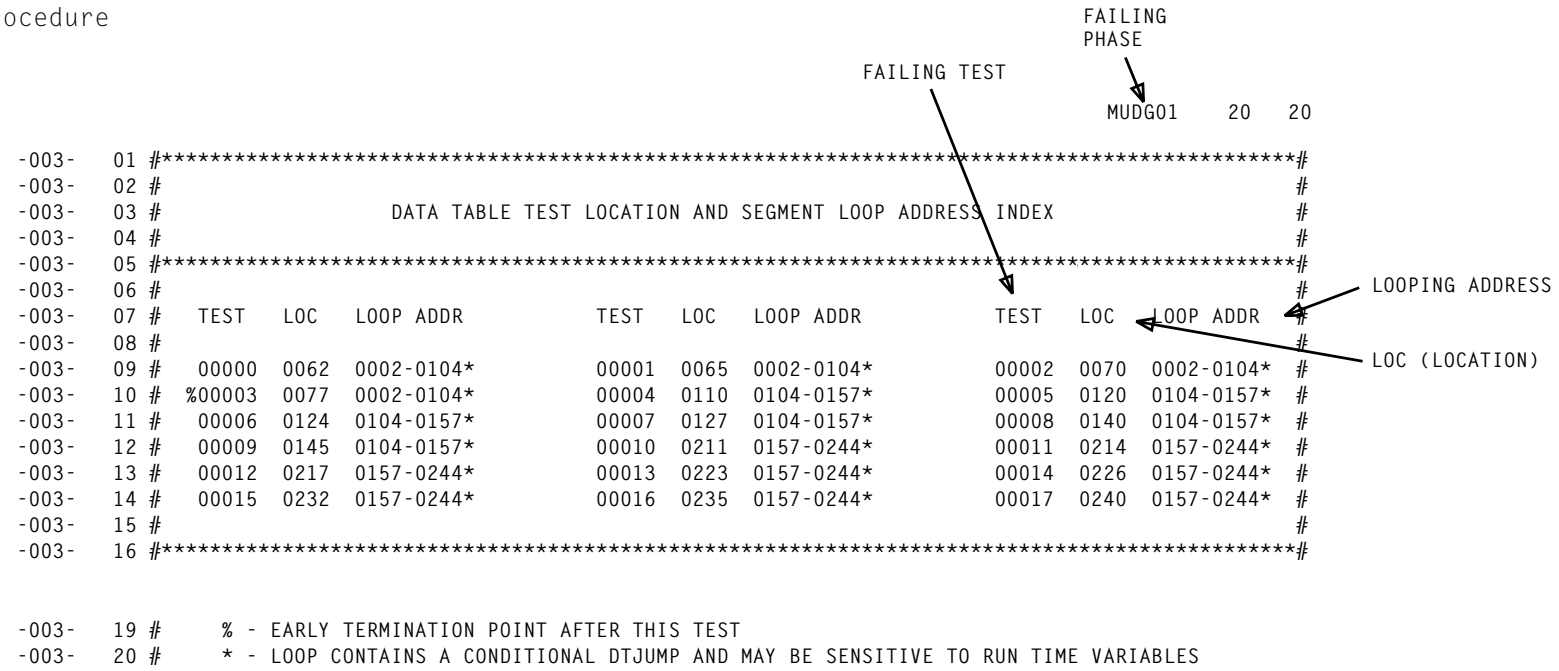
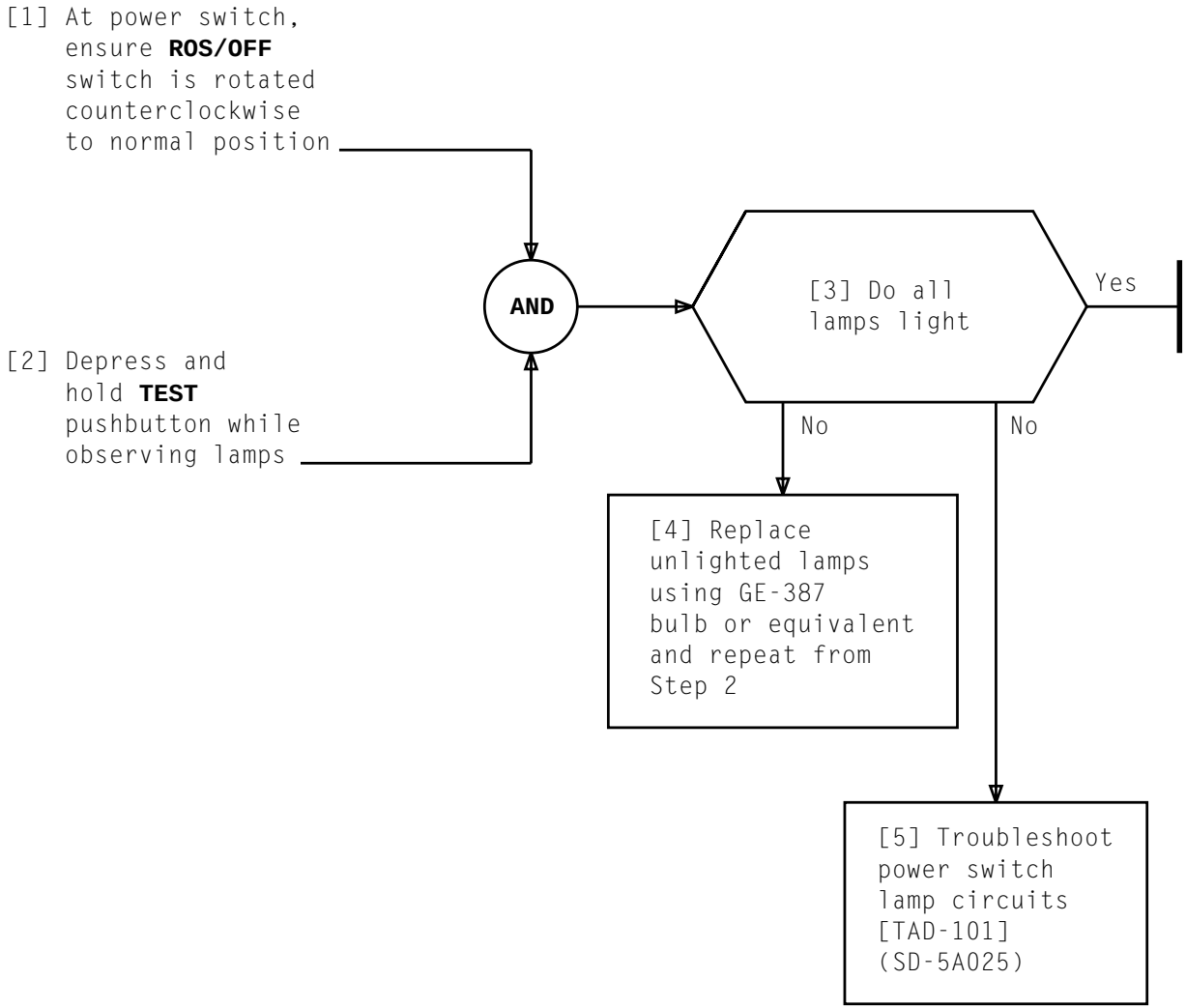
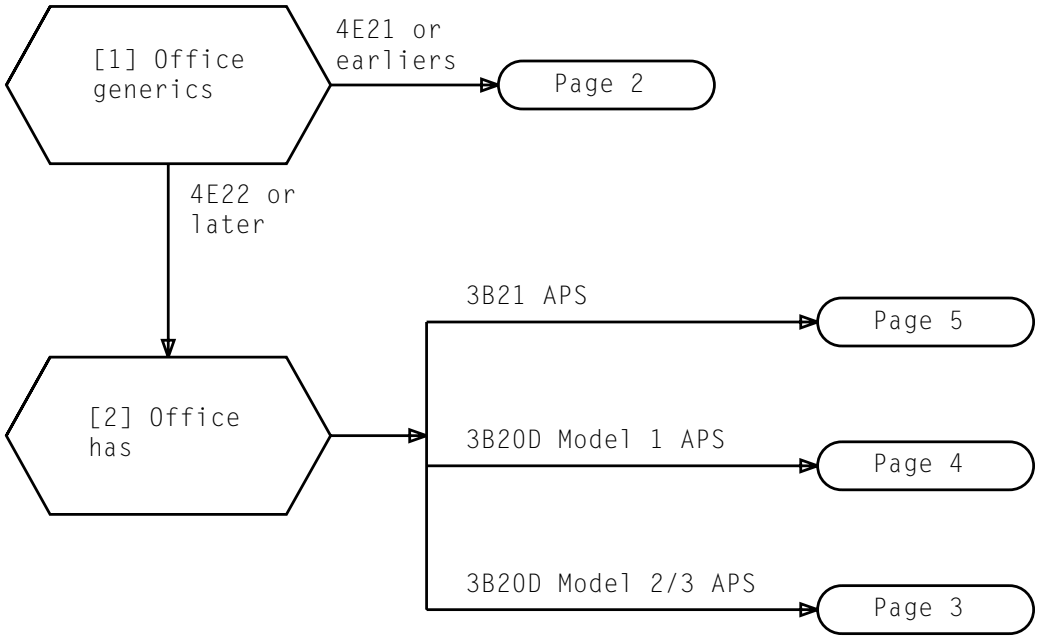


Figure 1 – Example of TEST NUMBER INDEX

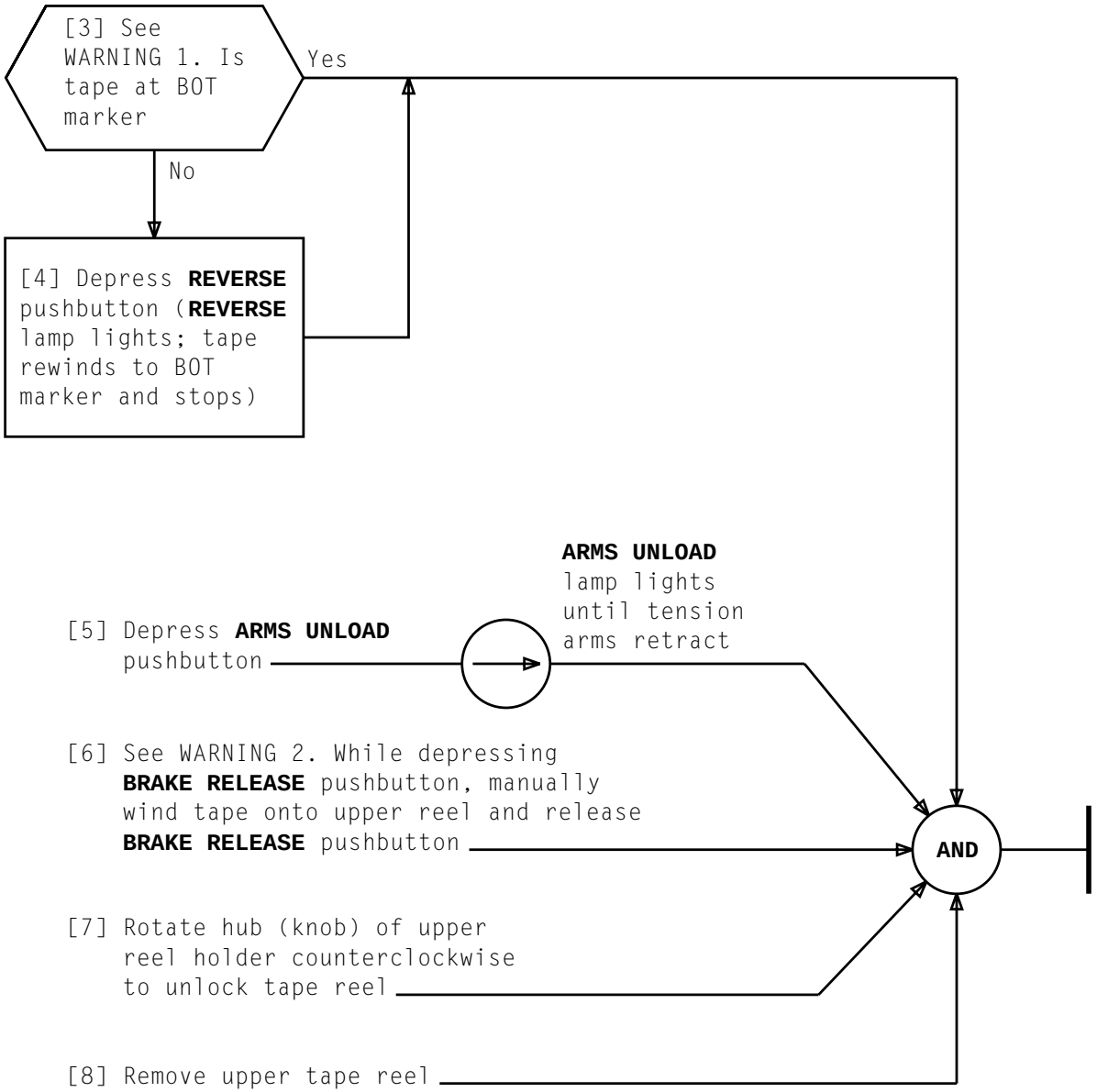
DETERMINE LOOPING PARAMETERS



TEST POWER SWITCH LAMPS



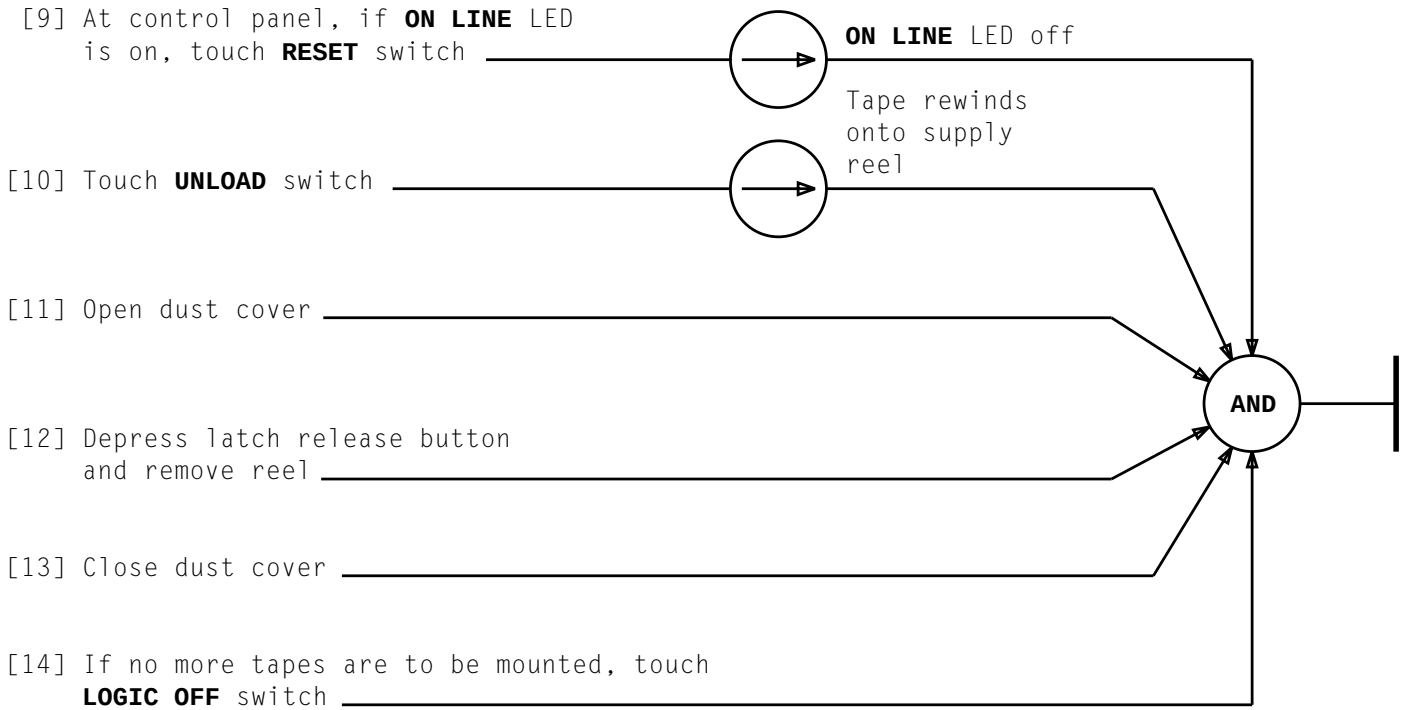
REMOVE TAPE ON 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT



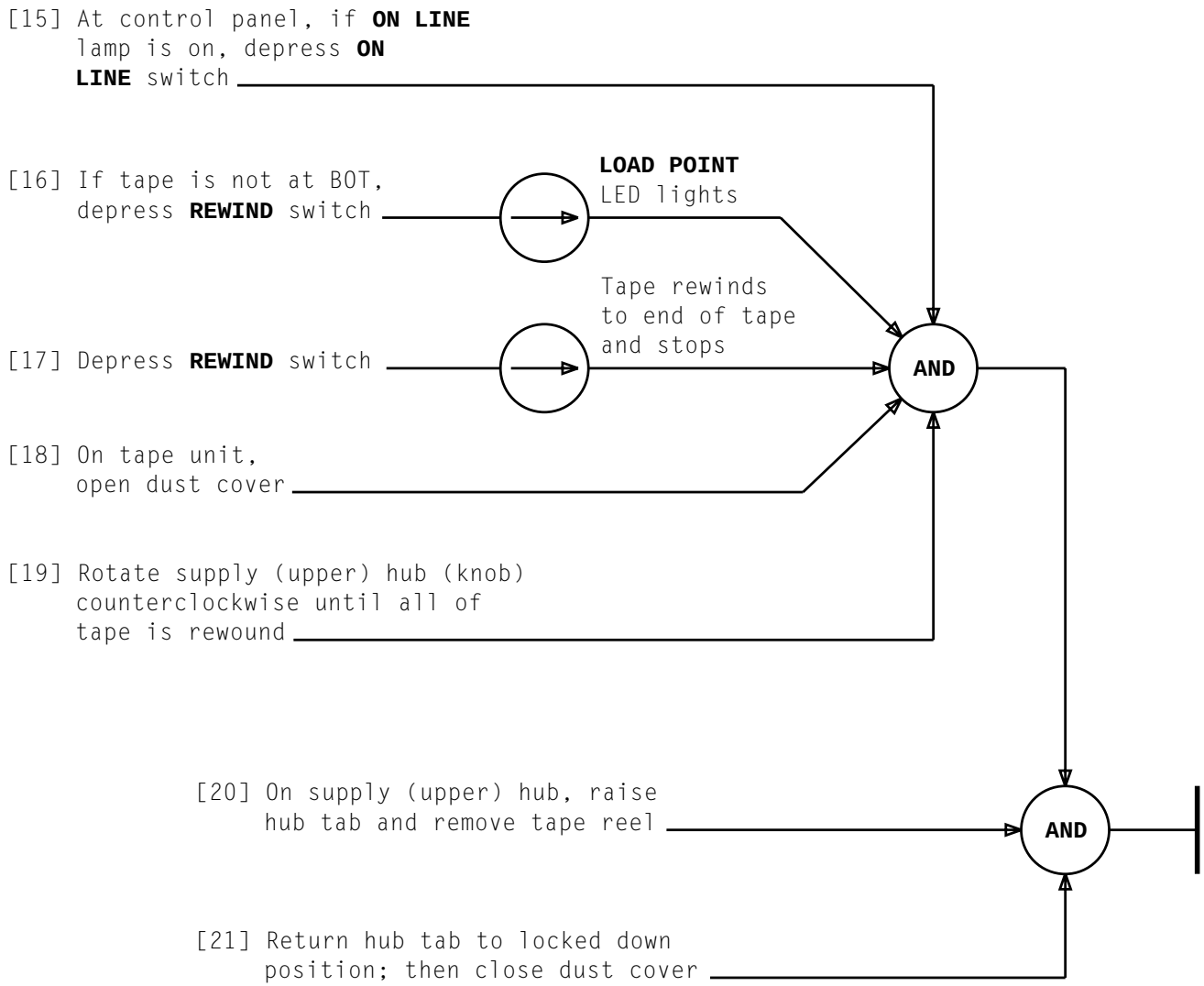
WARNINGS

1. *If tape is being demounted due to an obvious faulty tape unit, the proper tape unit maintenance documentation should be referenced*
2. *Pulling or dragging last 5 feet of tape across heads may contaminate heads*

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



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



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

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

[23] Was tape just written

No

Yes

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

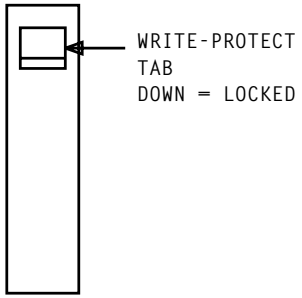


FIG. 2 — 4-mm Tape

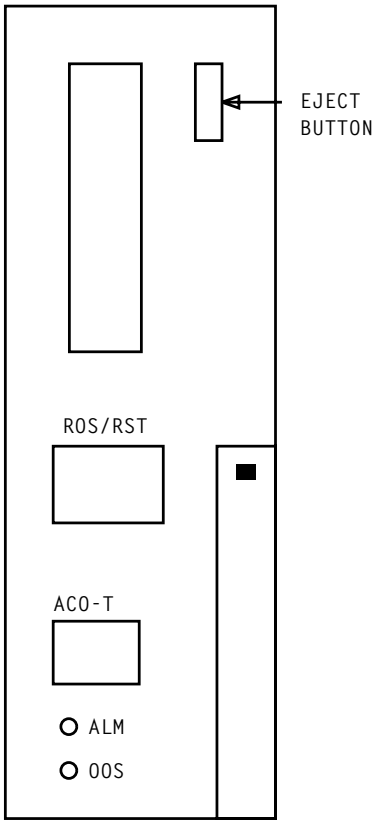
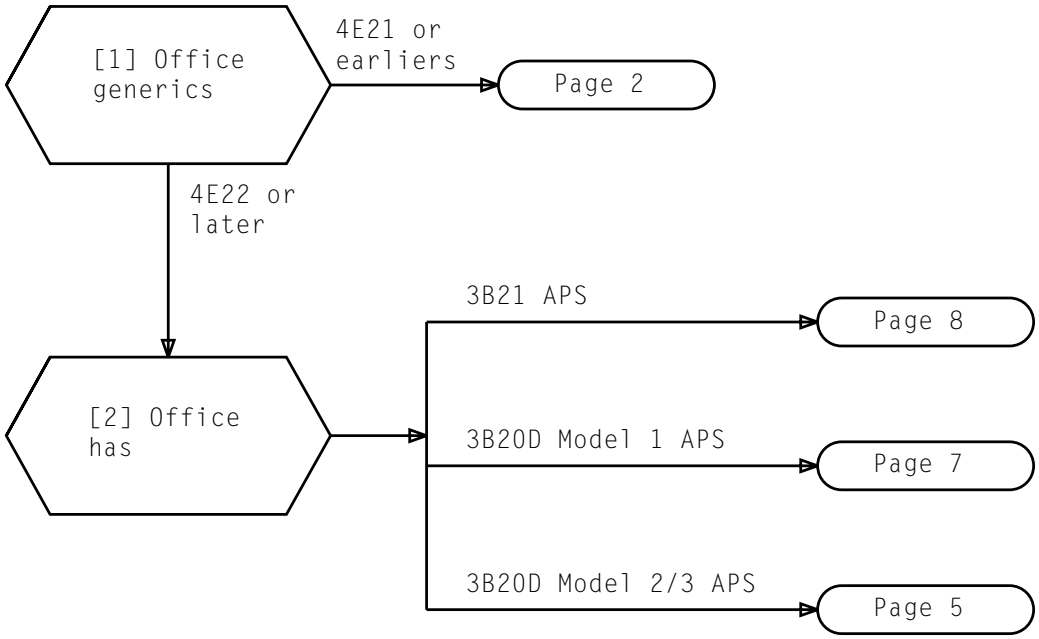
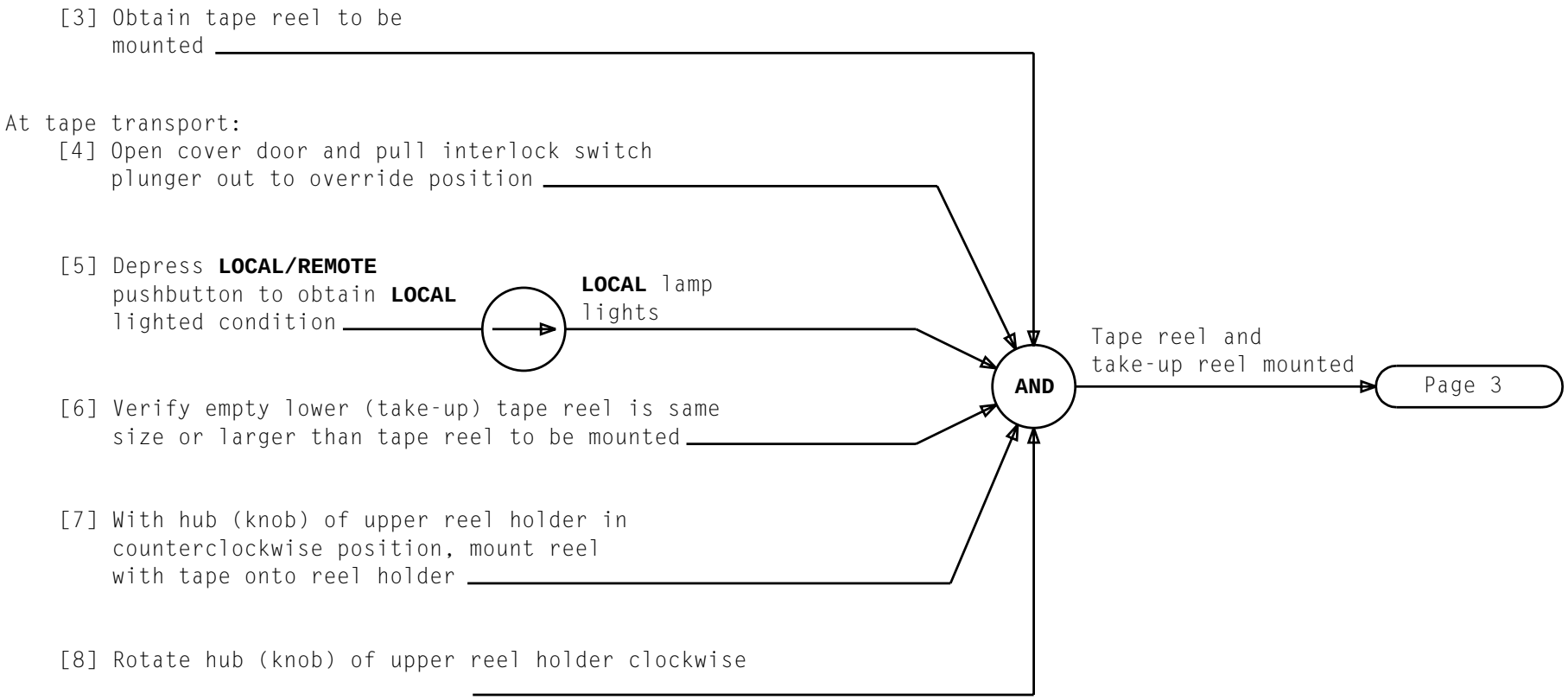


FIG. 1 — DAT Unit

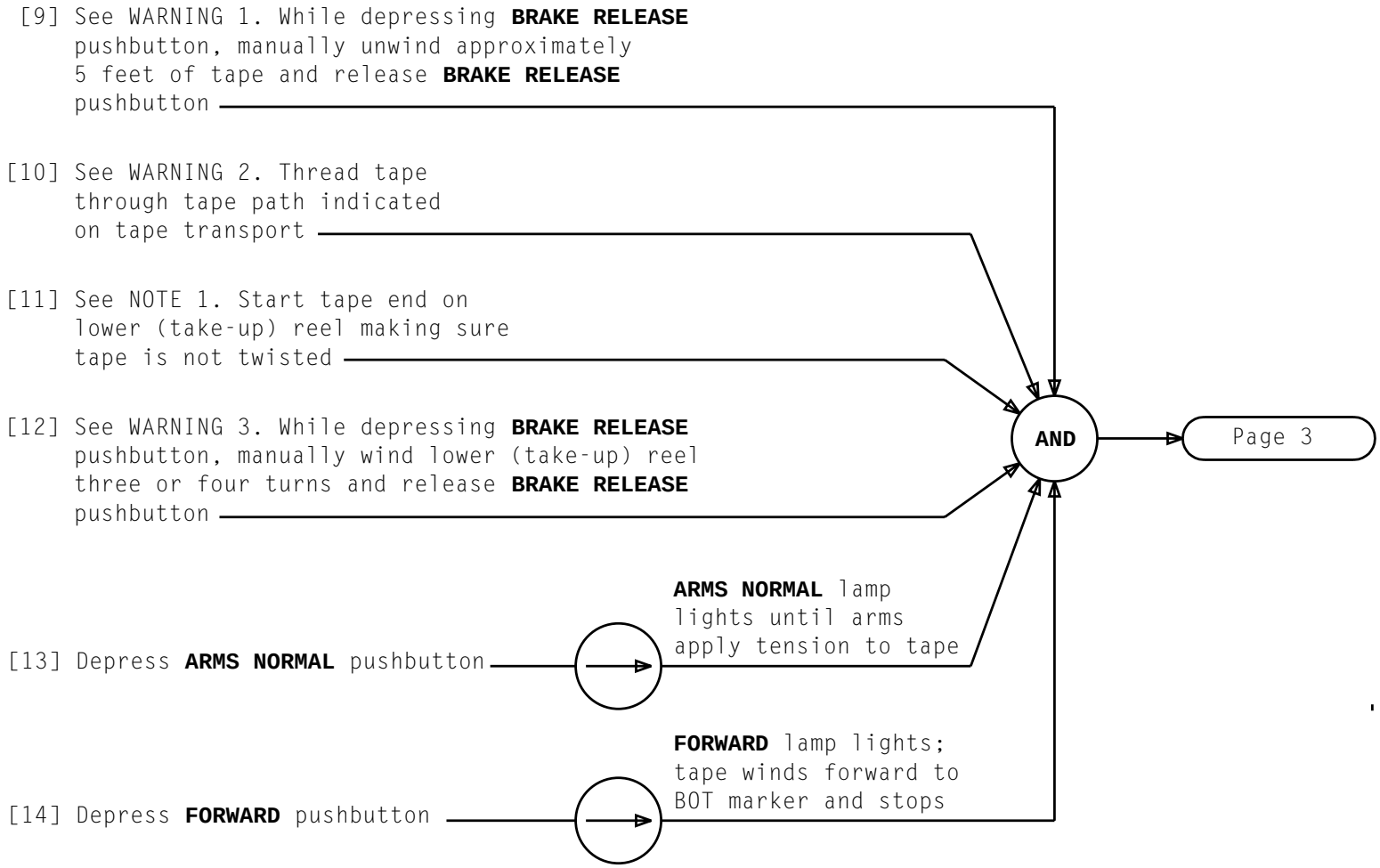
REMOVE TAPE FROM 3B TAPE UNIT OR DIGITAL AUDIO TAPE (DAT) UNIT



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



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



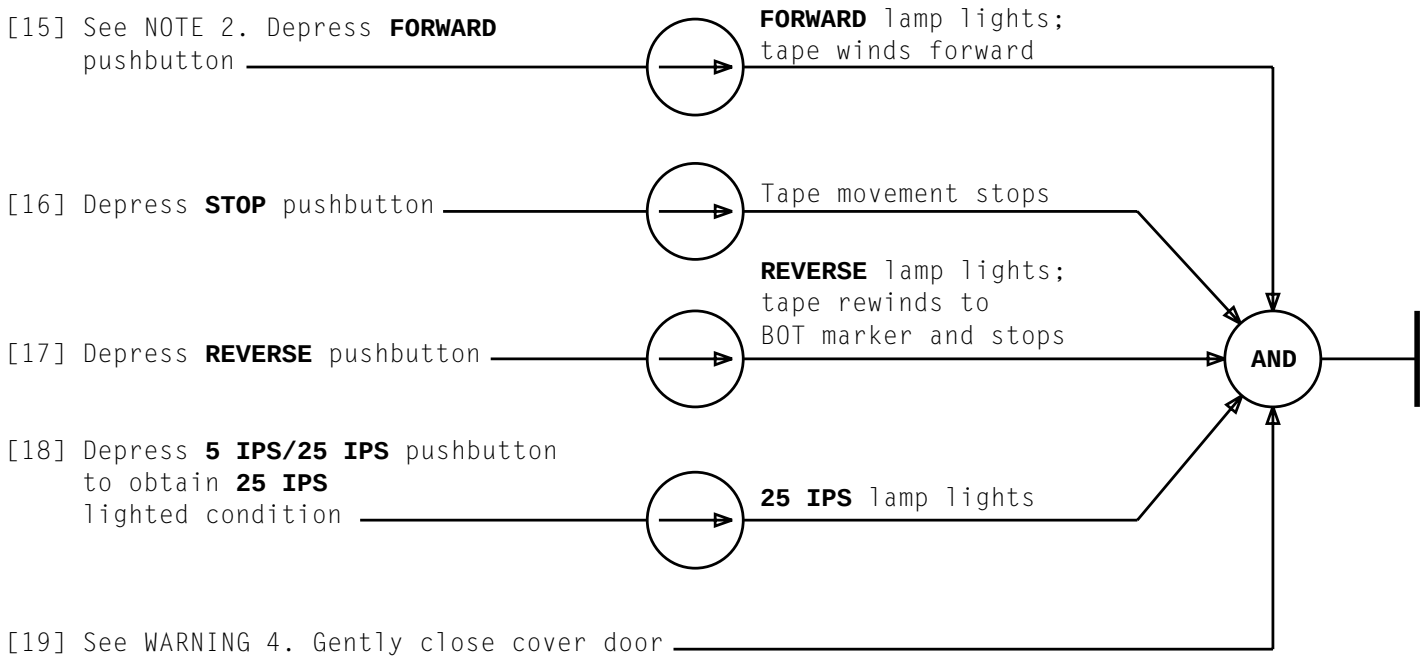
NOTE 1

To start tape on take-up reel, tape end should be moistened (moistened fingers) and stick tape to reel axle

WARNINGS

1. *Contamination of tape by contact with floor damages tape heads*
2. *Do not touch tape head surfaces; body oil contaminates tape*
3. *If tape is not properly aligned along rollers and guides or is too loose, tape may be damaged*

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



NOTE 2
Steps 13, 14, and 15 cause BOT marker to be approached from recorded area of tape

WARNING 4
Closing tape transport cover door in harsh manner may upset alignment

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

[20] Open tape unit dust cover

[21] Lift supply (upper) reel hub tab. Place tape reel onto supply (upper) reel hub. See FIG. 1

[22] While holding tape reel, secure tape reel by returning supply hub tab to normal locked-down position

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

[24] Hold end of tape against take-up reel and wrap several turns clockwise by rotating reel

AND

Page 6

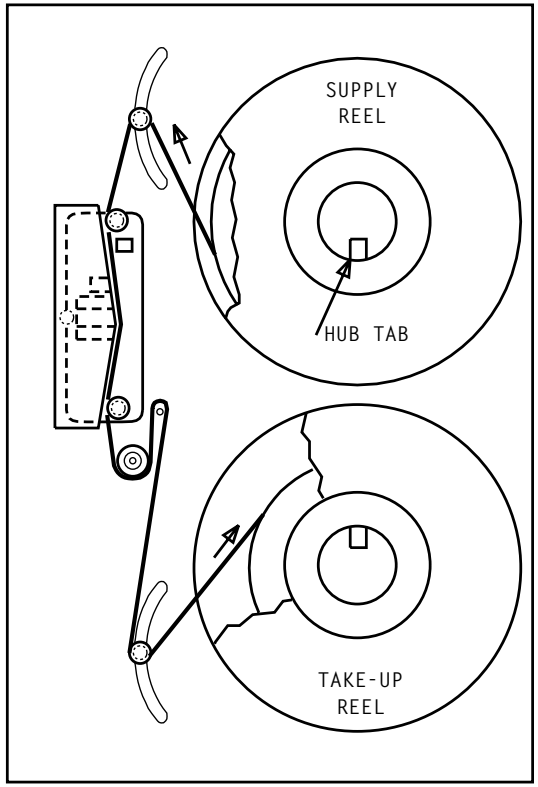
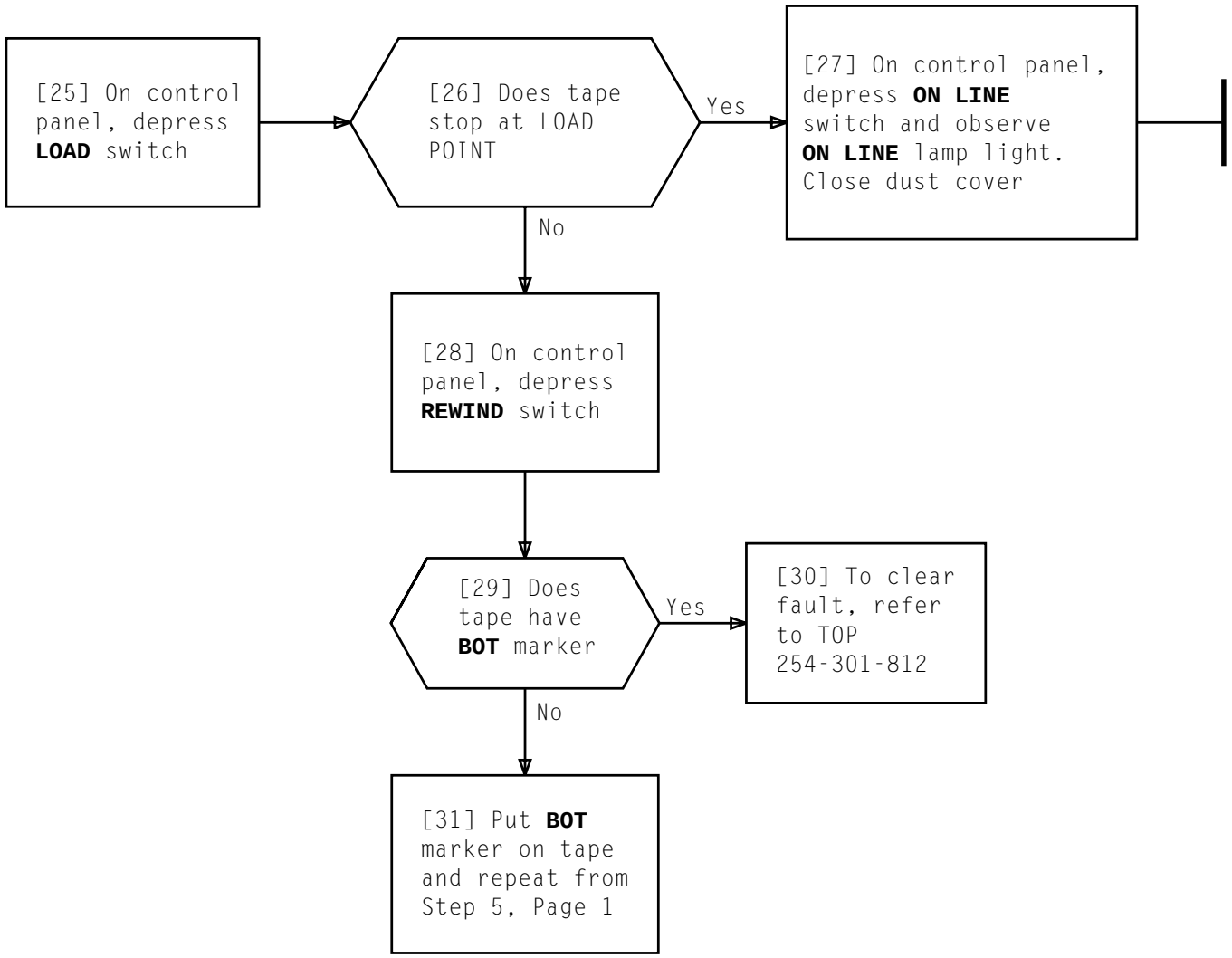


FIG. 1

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



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

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

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

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

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

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

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

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

AND

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

Yes

[40] Touch **ON LINE** switch

No

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

No

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

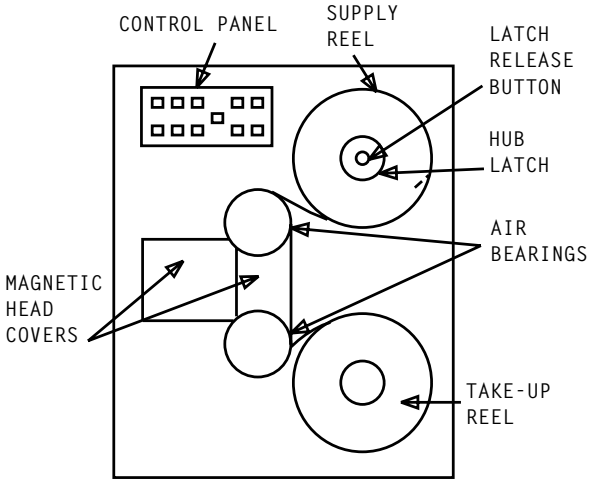


FIG. 2

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

[43] Is tape to be written

No

Yes

[44] Put write-protect tab on 4-mm tape in the up (unlocked) position [FIG. 3]

[45] See NOTE 3 and CAUTION 1. At available in-service digital audio tape (DAT) unit (EQL 11-124 or 62-124), carefully insert 4-mm tape [FIG. 4]

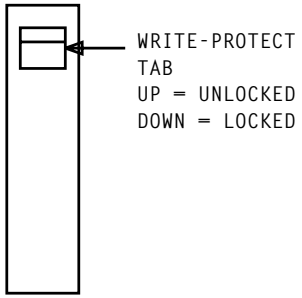


FIG. 3 — 4-mm Tape

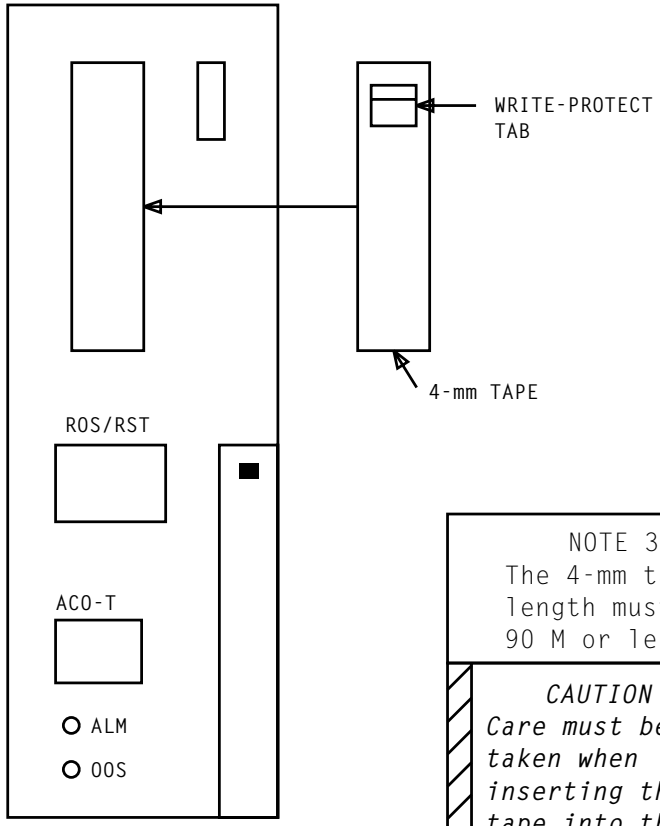
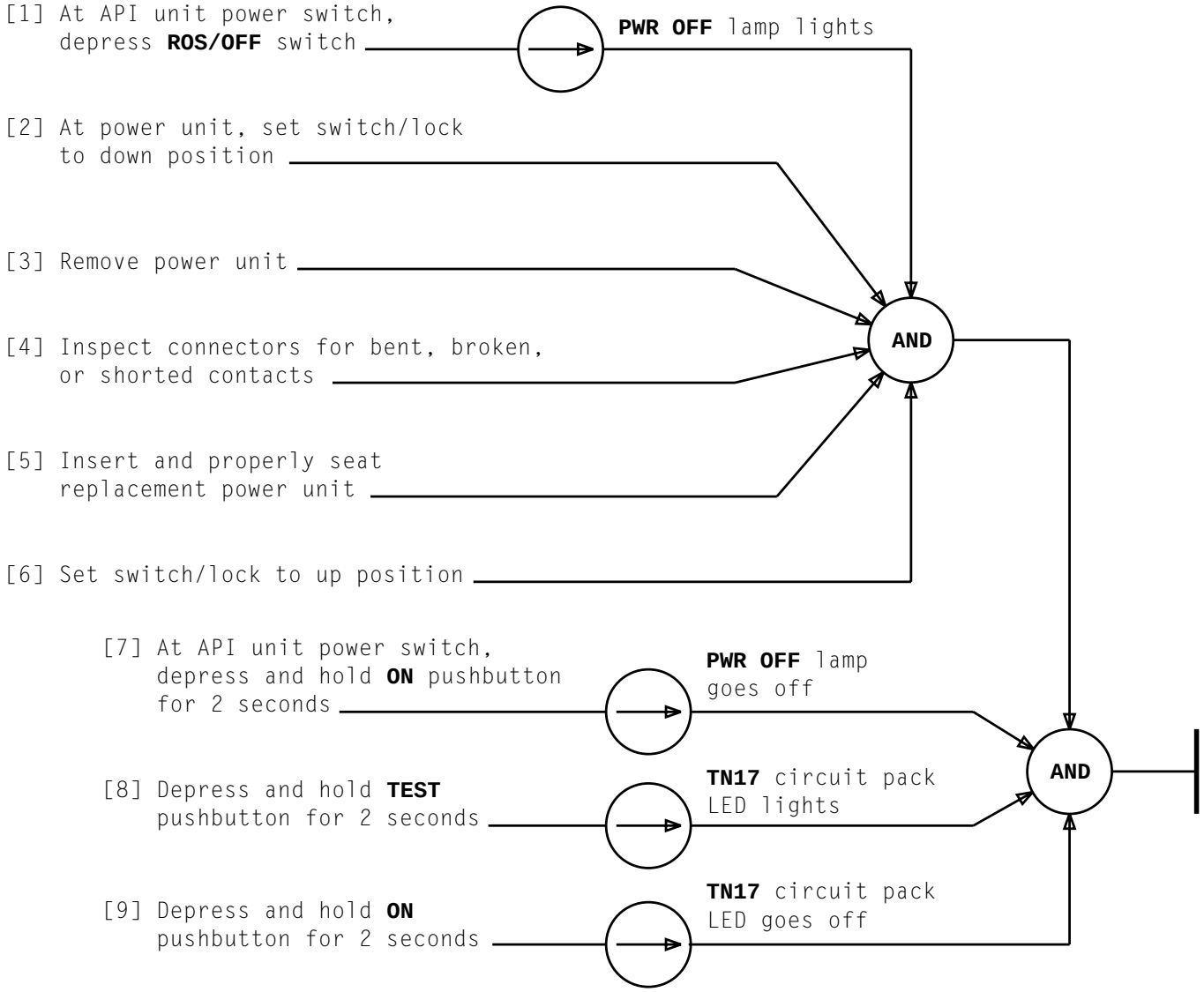


FIG. 4 — DAT Unit

NOTE 3
The 4-mm tape length must be 90 M or less

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

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

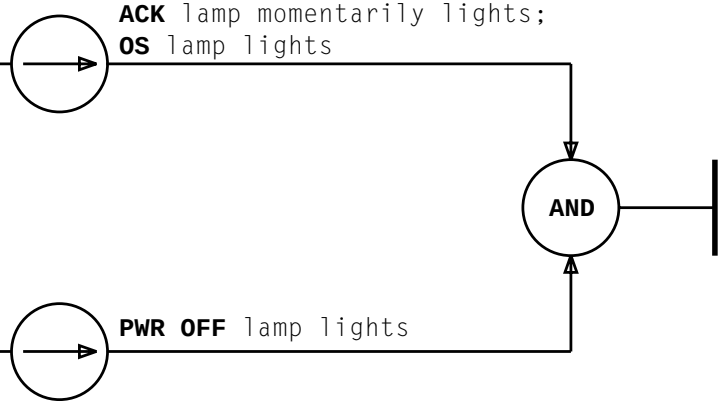


REPLACE POWER UNIT

At PDF frame bay 1 power switch:

[1] Rotate **ROS/OFF** switch clockwise to **ROS**

OFF NORM lamp lights;
ACK lamp momentarily lights;
OS lamp lights



[2] Depress **ROS/OFF** switch

PWR OFF lamp lights

INHIBIT PCD FRAME POWER ALARMS

At PCD frame bay 1 power switch location:

[1] Depress and hold **ON** pushbutton for 2 seconds

PWR OFF lamp goes off

[2] Rotate **ROS/OFF** switch counterclockwise to normal position

OFF NORM lamp goes off

AND

[3] At TTY, type:
RST:PCD a DAMON 0!
(a = 0 or 1)

System responds:
RST:PCD a DAMON 0 COMPLETED
OS lamp goes off

RESTORE PCD FRAME POWER ALARMS

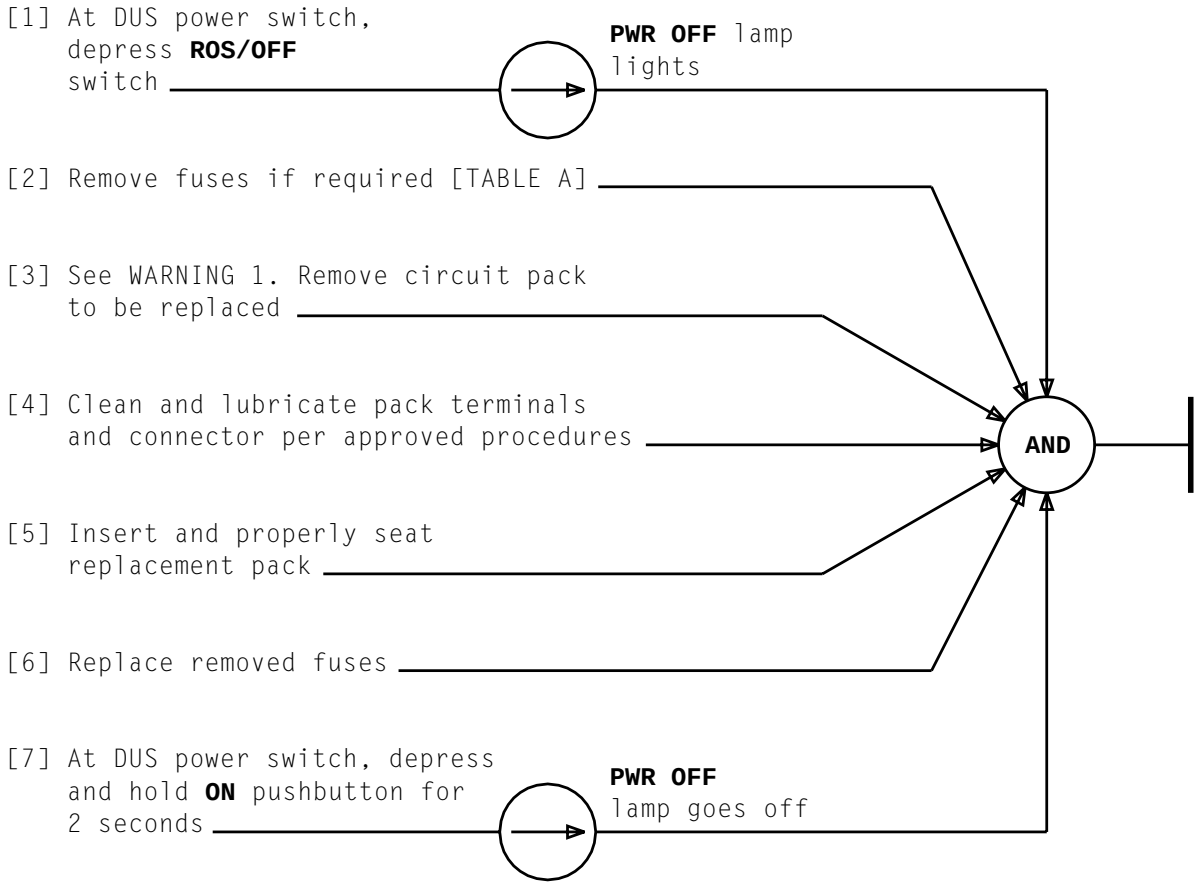


TABLE A		
PACK LOCATION	FUSE	
	NAME	LOCATION
80-37	+24-V5	77-4
	+24-V7	77-4
76-42, 43, 45, 47	+24-V6	77-4

WARNING 1

A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to CP ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling CP in any manner. Never hand an unprotected CP to an ungrounded person or touch components, leads, or connector pins

REPLACE CIRCUIT PACK, DATA UNIT SELECTOR (DUS)

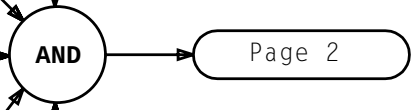
[1] Obtain TEKTRONIX* storage oscilloscope (model 2232 or equivalent) and two TEKTRONIX oscilloscope X10 probes (model P6109 or equivalent)

[2] See NOTE 1. Obtain 30-foot coax cable with male BNC connector at each end

[3] Power up storage oscilloscope

[4] At storage oscilloscope, depress **STORE** to IN position

[5] Depress **SETUP - ACQ**



*Registered trademark of TEKTRONIX, Inc.

SET UP STORAGE OSCILLOSCOPE FOR SCOPING AUXILIARY UNIT BUS (AUB)

NOTE 1
The maximum length coaxial cable that can be used with a high impedence oscilloscope to scope auxiliary unit bus (AUB) is 75 feet.

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[6] Observe storage oscilloscope screen and set **ACQ** controls by depressing switch associated with control not set correctly [TABLE A]

[7] Depress **SETUP – DISPLAY**

[8] Observe storage oscilloscope screen and set **DISPLAY** controls by depressing switch associated with control not set correctly [TABLE B]

[9] Depress **SETUP – REF**

[10] Observe storage oscilloscope screen and set **REF** controls by depressing switch associated with control not set correctly [TABLE C, Page 3]

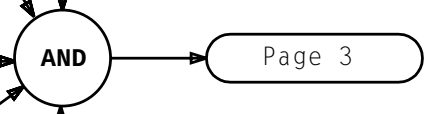


TABLE A
TEKTRONIX STORAGE OSCILLOSCOPE MODEL 2232
ACQ CONTROLS

CONTROL IDENTIFIER COLUMN	CONTROLS	SWITCH*
1	Peakdet	SAVE REF
2	Scan	1
3	Fast	2
5	Swp Lim: NO LIMIT	4K (for Swp Lim:) and adjust CURSORS to obtain NO LIMIT
5	Trig Pos: 720/4K	4K (for Trig Pos:), ACQUISITION - 1K/4K (for 4K) and adjust CURSORS to obtain 720

* Switches under display screen are associated with CONTROL IDENTIFIER column that they are under except for TRIG POS and Swp Lim

TABLE B
TEKTRONIX STORAGE OSCILLOSCOPE MODEL 2232 DISPLAY CONTROLS

CONTROL IDENTIFIER COLUMN	CONTROLS	SWITCH*
1	ΔT	SAVE REF
2	ON	1
3	ON	2

* Switches under display screen are associated with CONTROL IDENTIFIER column that they are under

SET UP STORAGE OSCILLOSCOPE FOR SCOPING AUXILIARY UNIT BUS (AUB)

[11] Depress **SETUP** – **REF** to return to screen

[12] At 1B Processor MCC terminal, enter poke command **118** to obtain 118 Page

[13] On 1B Processor MCC terminal 118 Page, identify standby central control (CC) (0 or 1)

[14] At 1B Processor MTC terminal, remove standby CC from service **(RMV:CC a!)** [DLP-526]

[15] See NOTE 2. Connect coax cable between **A TRIGGER 1MΩ 20pF** connector on 2232 storage oscilloscope and **GCP161** connector on backside of standby CC

AND

[16] At 1B Processor MTC terminal, restore standby CC to service **(RST:CC a!)** [DLP-525]

[17] At 1B Processor MTC terminal, switch CCs **(SW:CC!)** [DLP-522]

AND

[18] See NOTE 3. Set Tektronic storage oscilloscope Model 2232 controls for scoping auxiliary unit bus (AUB) [TABLE D, Page 4]

TABLE C
TEKTRONIX STORAGE OSCILLOSCOPE
MODEL 2232 REF CONTROLS

CONTROL IDENTIFIER COLUMN	CONTROLS	SWITCH*
1	Format	SAVE REF
2	Ref1	1
3	CH1	2
4	X1	3
5	Vert Gain: 0.2V	4K (for Vert Gain:) and adjust CURSORS to obtain 0.2V

* Switches under display screen are associated with CONTROL IDENTIFIER column that they are under

NOTES

2. Coax cable must be connected to oscilloscope before connecting to standby CC.
3. Adjustments for controls specified in TABLE D, Page 4 provide a general setup for scoping AUB. Final adjustments may be required to completely set up scope for viewing bit patterns

SET UP STORAGE OSCILLOSCOPE FOR SCOPING AUXILIARY UNIT BUS (AUB)

TABLE D
TEKTRONIX STORAGE OSCILLOSCOPE MODEL 2232 CONTROLS FOR SCOPING AUXILIARY UNIT BUS (AUB)

CONTROLS	POSITION*
ACQUISITION — SAVE/CONT	Depress until **SAVE** is not displayed
STORE	Depress (in)
VAR HOLDOFF	Position Not Critical
VERTICAL — POSITION (left)	Rotate to 11 o'clock position
VERTICAL — A/B SWP SEP	Position Not Critical
VERTICAL — POSITION (right)	Rotate to 12 o'clock position
VERTICAL MODE — CH 1 BOTH CH 2	BOTH
VERTICAL MODE — X-Y	Out position
VERTICAL MODE — BW LIMIT	Out position
VERTICAL MODE — ADD ALT CHOP	ADD
VERTICAL — CH 1 VOLTS/DIV	2
VERTICAL — CH 1 VOLTS/DIV — AC GND DC	DC
VERTICAL — INVERT	Depress (in)
VERTICAL — CH 2 VOLTS/DIV	2
VERTICAL — CH 2 VOLTS/DIV — AC GND DC	DC
HORIZONTAL — POSITION	Rotate to 1 o'clock position
HORIZONTAL — MODE — A BOTH B	A
HORIZONTAL — A and B SEC/DIV	.1 **µs**
CURSORS	Adjust until ΔT is 0.0 **µs** on screen
B TRIGGER — SLOPE	Position Not Critical
B TRIGGER — LEVEL	Position Not Critical
A TRIGGER — TV FIELD — NORM	Depress (in)
A TRIGGER — SLOPE	Out position
A TRIGGER — LEVEL	Rotate to 1 o'clock position
A TRIGGER — A & B SOURCE	A EXT CH 1
A TRIGGER — A COUPL	NORM
A TRIGGER — A EXT COUPL	Position Not Critical

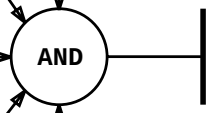
* Adjustments for controls specified provide a general setup for scoping AUB. Final adjustments may be required to completely set up scope for viewing bit patterns.

[1] Obtain program listing
ABDG99 (PR-5A737)

[2] Using program listing, identify
and record start and end addresses
for all unique loop boundaries
associated with AUB 0 and 1
write, address, reply and store
address buses

At 1B Processor MTC terminal:

[3] Depress **FORM ENTER**
key to activate function



[4] See NOTE 1. Type (form enter)
input messages
[TABLE A, Page 2]

[5] Depress **FORM ENTER**
key to deactivate function

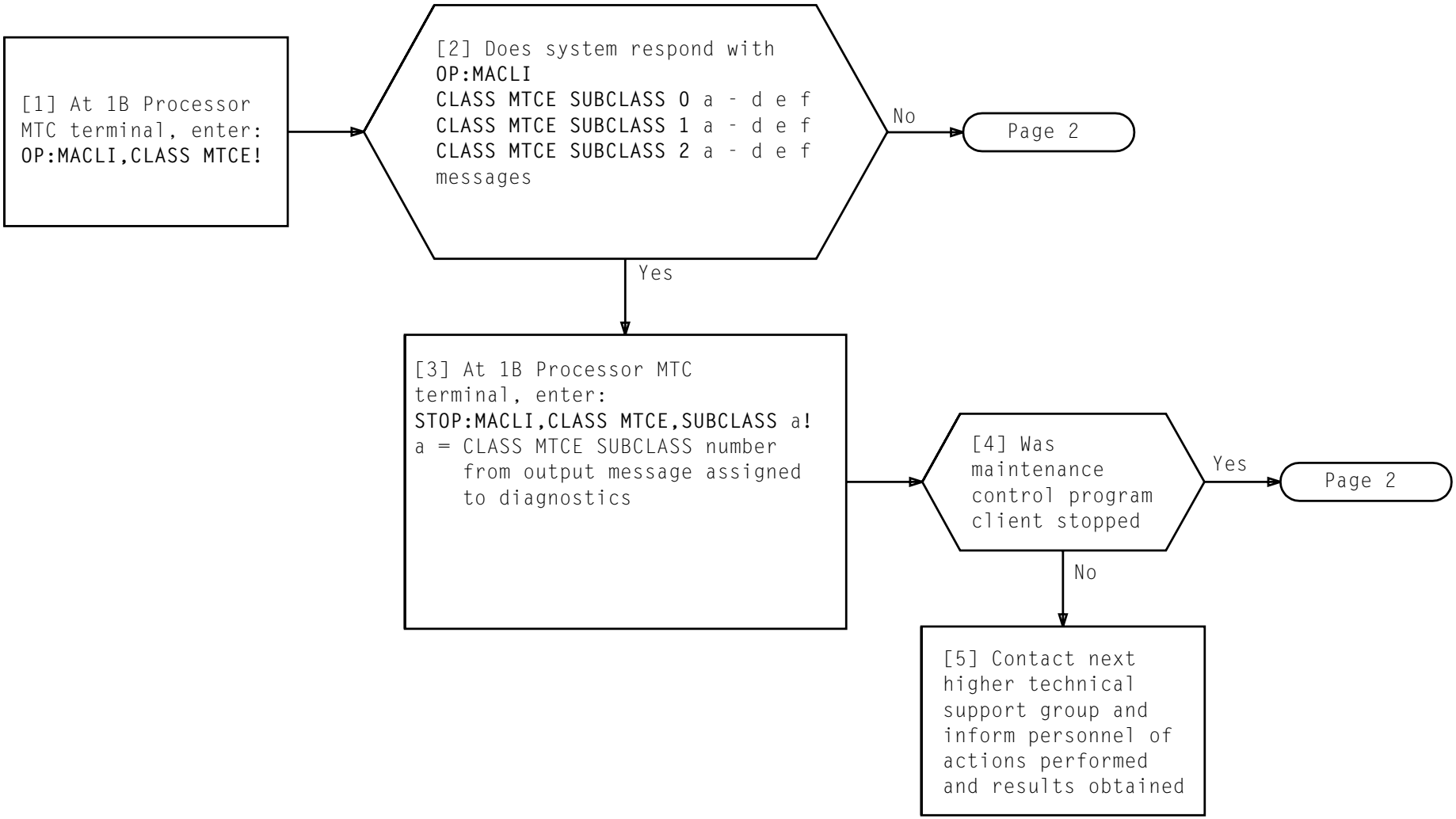
FORM ENTER INPUT MESSAGES USED TO SCOPE AUB USING PHASE 99 DIAGNOSTIC TESTS

NOTE 1
Messages must not be entered into system at this time

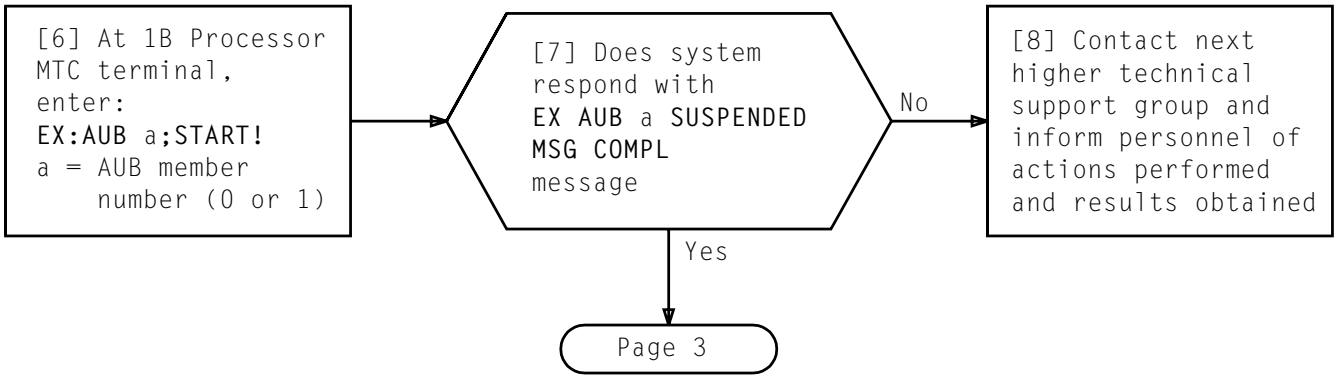
TABLE A
INPUT MESSAGES USED TO SCOPE AUB

NUMBER	INPUT MESSAGES	NUMBER	INPUT MESSAGES
1	EX:AUB a;START! a = Bus 0 or 1	3	EX:AUB a! a = Bus 0 or 1
2	NOTE: This message must be repeated for all unique loop boundaries identified in program listing. EX:AUB a:PH 99,ADR b-c,SYNC d! a = Bus 0 or 1 b = Start address of loop boundary for bus 0 or 1 c = End address of loop boundary for bus 0 or 1 d = Address that generates sync pulse	4	OP:MACLI,CLASS MTCE!
		5	STOP:MACLI,CLASS MTCE,SUBCLASS a! a = CLASS MTCE SUBCLASS number from OP:MACLI output message assigned to Phase 99 diagnostics
		6	ALW:MACLI,CLASS MTCE!
		7	INH:MACLI,CLASS MTCE;REX!

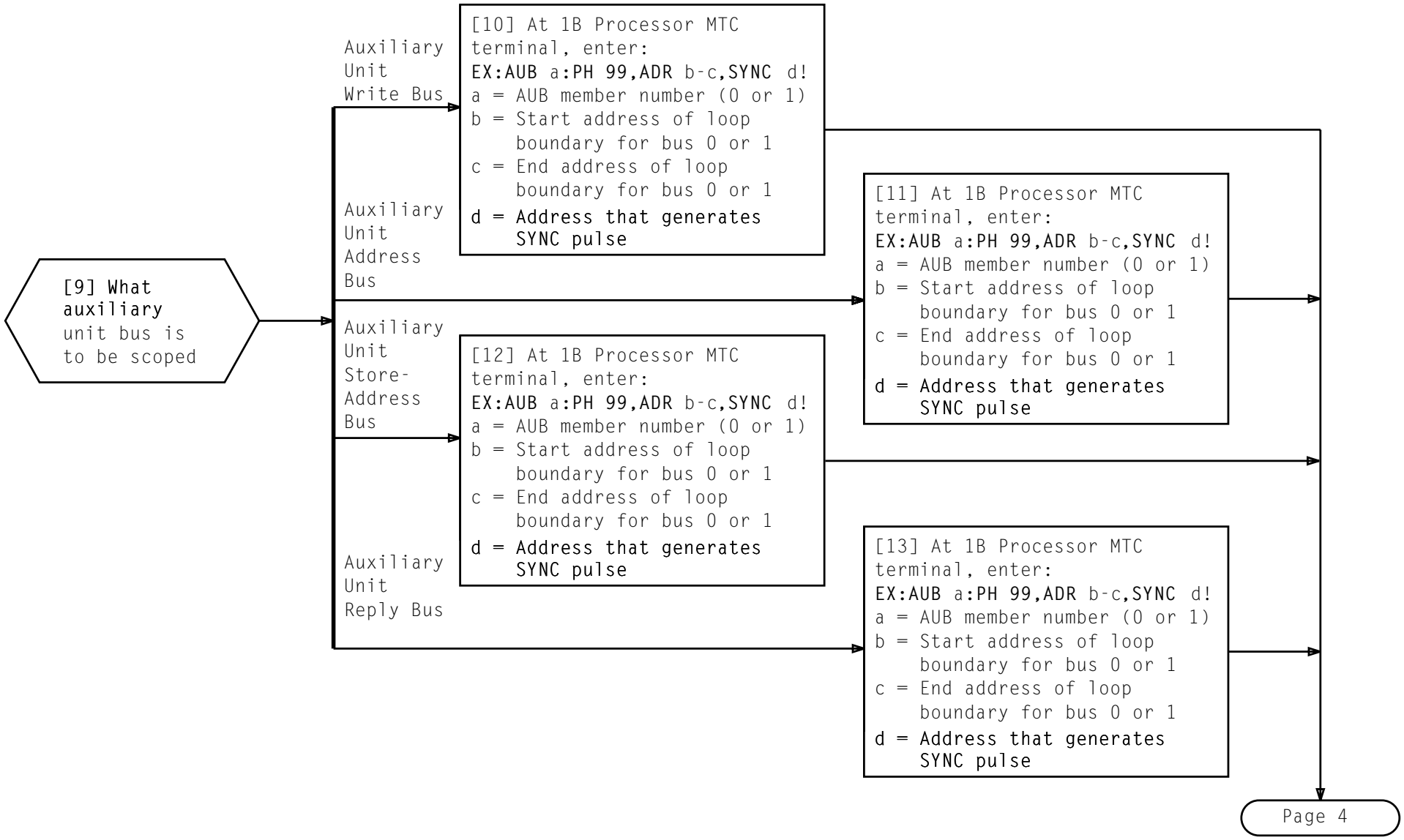
FORM ENTER INPUT MESSAGES USED TO SCOPE AUB USING PHASE 99 DIAGNOSTIC TESTS



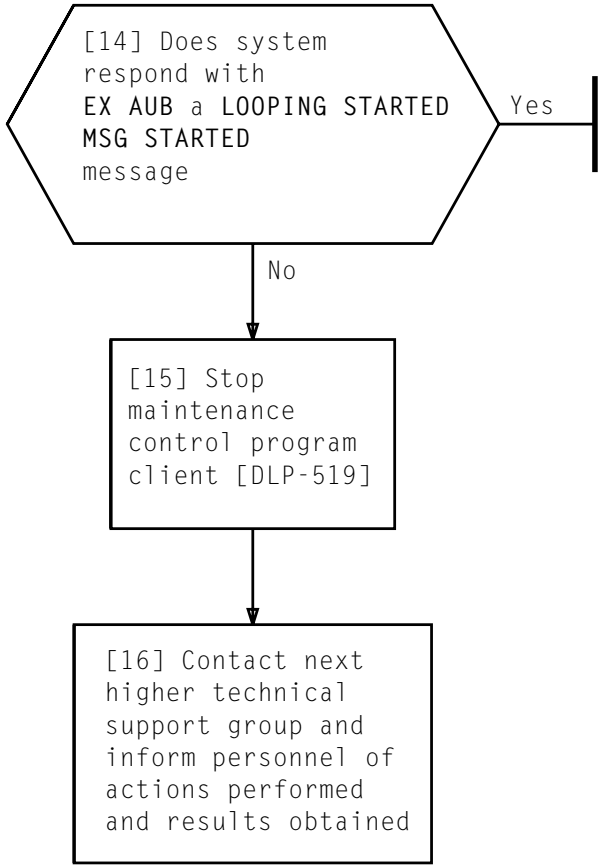
ENTER EXECUTE MESSAGES FOR LOOPING ON SPECIFIED AUXILIARY UNIT BUS (AUB)



ENTER EXECUTE MESSAGES FOR LOOPING ON SPECIFIED AUXILIARY UNIT BUS (AUB)



ENTER EXECUTE MESSAGES FOR LOOPING ON SPECIFIED AUXILIARY UNIT BUS (AUB)



ENTER EXECUTE MESSAGES FOR LOOPING ON SPECIFIED AUXILIARY UNIT BUS (AUB)

[1] At API frame where AUB write bus terminates, locate connectors containing BTRs on applicable API unit (0 or 1) at position XXX-253 [Figure 1, Page 2]

[2] Connect bus scoping tool to BTR on applicable API unit (0 or 1) [Figure 2, Page 3]

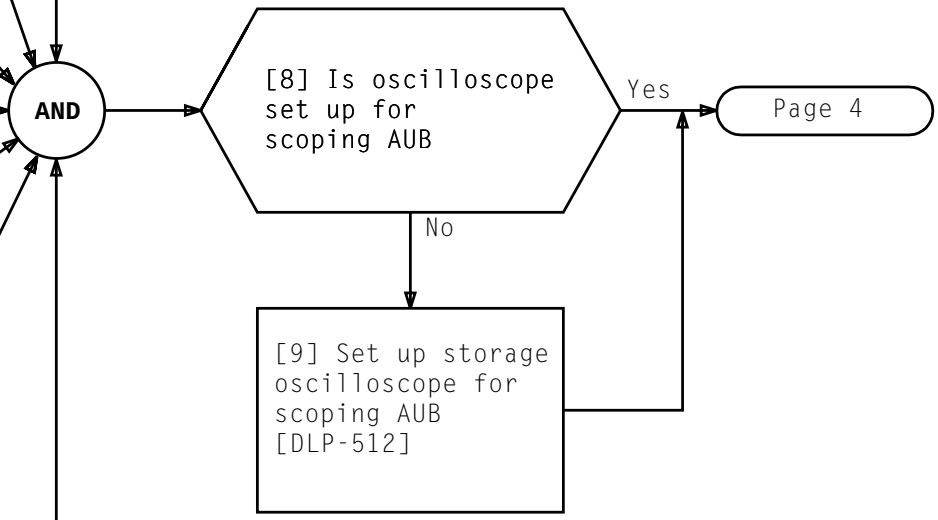
[3] Connect one X10 probe to channel 1 of oscilloscope and positive (P) pin of bus scoping tool [Figure 2, Page 3]

[4] Connect another X10 probe to channel 2 of oscilloscope; wrap channel 2 probe lead around channel 1 probe lead and connect to negative (N) pin of bus scoping tool [Figure 2, Page 3]

[5] Attach oscilloscope channel 1 and channel 2 probe ground leads together

[6] Review usage of bus scoping tool [DLP-523]

[7] Set bus scoping tool selector to position 0



SCOPE AUB 0 OR 1 WRITE BUS BITS 0 TO 23

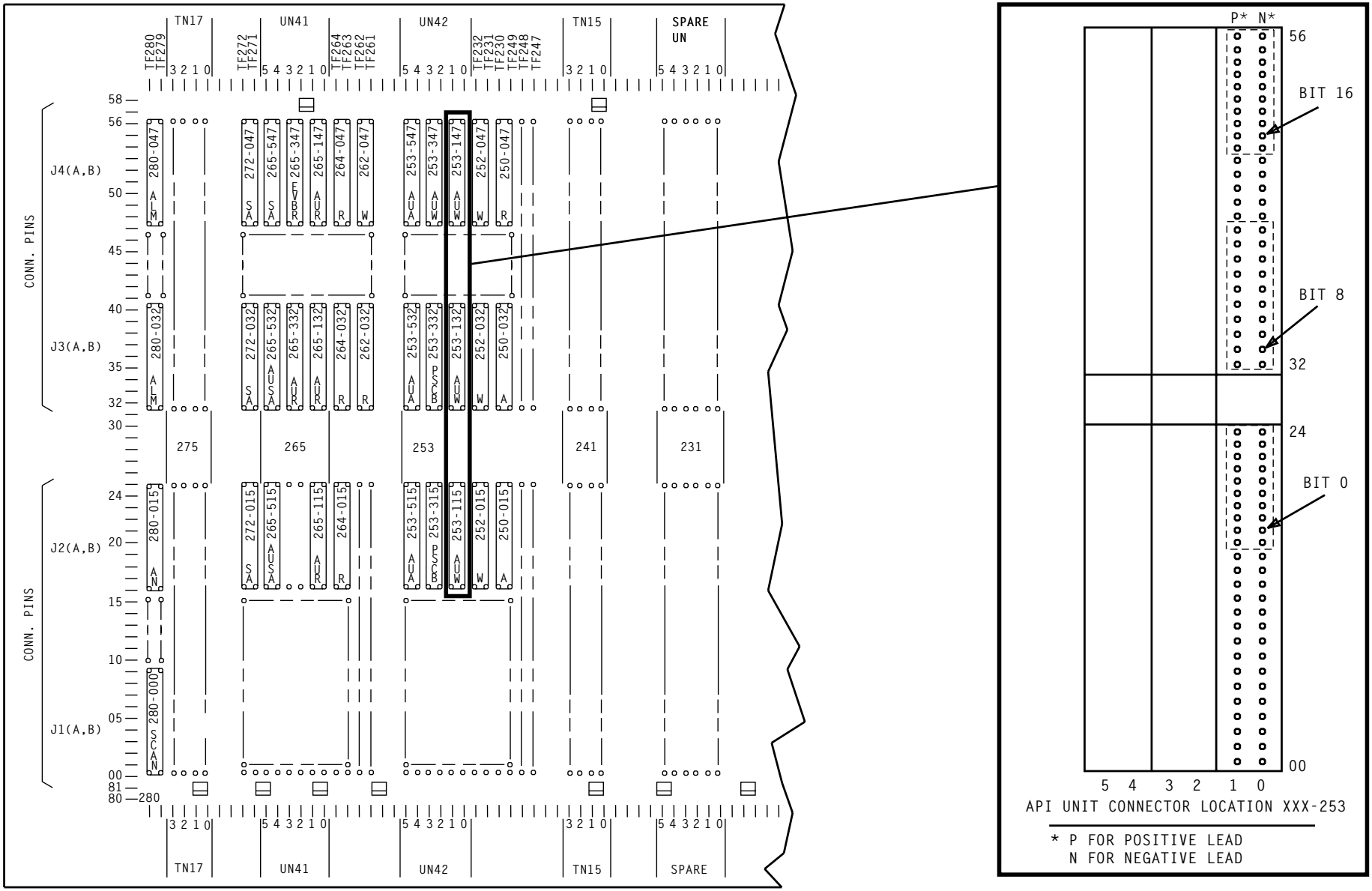


Figure 1 - Example of API Unit (0 or 1) Connector Layout Showing AUB 0 or 1 Write Bus Bits 0 to 23

SCOPE AUB 0 OR 1 WRITE BUS BITS 0 TO 23

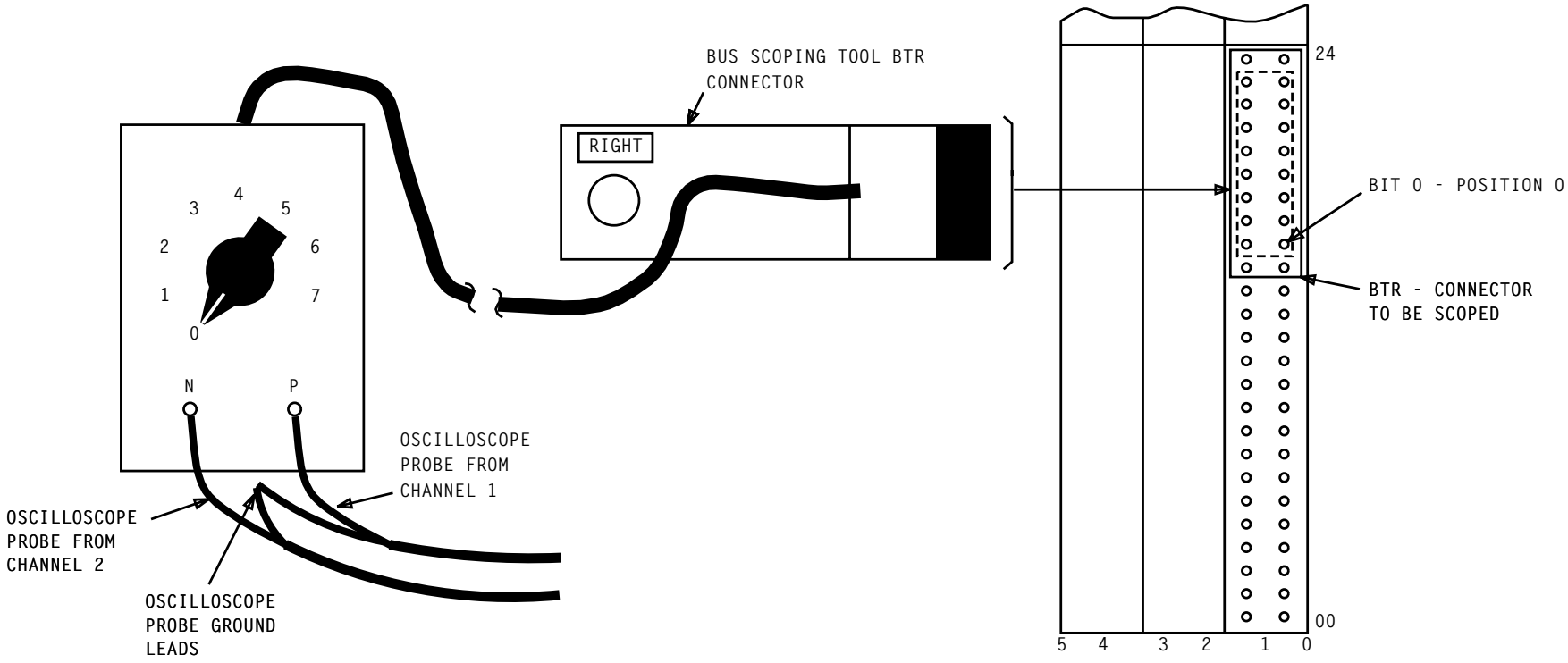


Figure 2 – Bus Scoping Tool, Oscilloscope Probes and BTR Connections for Scoping Auxiliary Unit Bus (AUB)

SCOPE AUB 0 OR 1 WRITE BUS BITS 0 TO 23

[10] See NOTE 1. Scope positive and negative pins for bit 0 at connector containing BTR on applicable API unit (0 or 1) (dashed line box) [Figure 1]

[11] Observe oscilloscope for correct bit pattern [TABLE A] and note any discrepancies [Figure 3]

AND

[12] Is bit 0 pattern correct for applicable bus [TABLE A]

No

[13] Note that trouble exists with AUB write bus bit 0

Yes

Page 5

TABLE A
AUB 0 OR 1 WRITE BUS BITS 0 TO 23
BIT PATTERNS

BIT	BIT PATTERN		BIT	BIT PATTERN	
	BUS 0	BUS 1		BUS 0	BUS 1
0	01000000	00000001	12	01001100	00011001
1	01000001	00000011	13	01001101	00011011
2	01000010	00000101	14	01001110	00011101
3	01000011	00000111	15	01001111	00011111
4	01000100	00001001	16	01010000	00100001
5	01000101	00001011	17	01010001	00100011
6	01000110	00001101	18	01010010	00100101
7	01000111	00001111	19	01010011	00100111
8	01001000	00010001	20	01010100	00101001
9	01001001	00010011	21	01010101	00101011
10	01001010	00010101	22	01010110	00101101
11	01001011	00010111	23	01010111	00101111

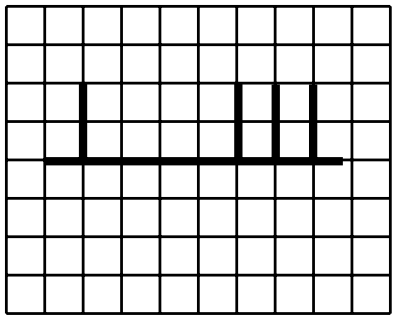
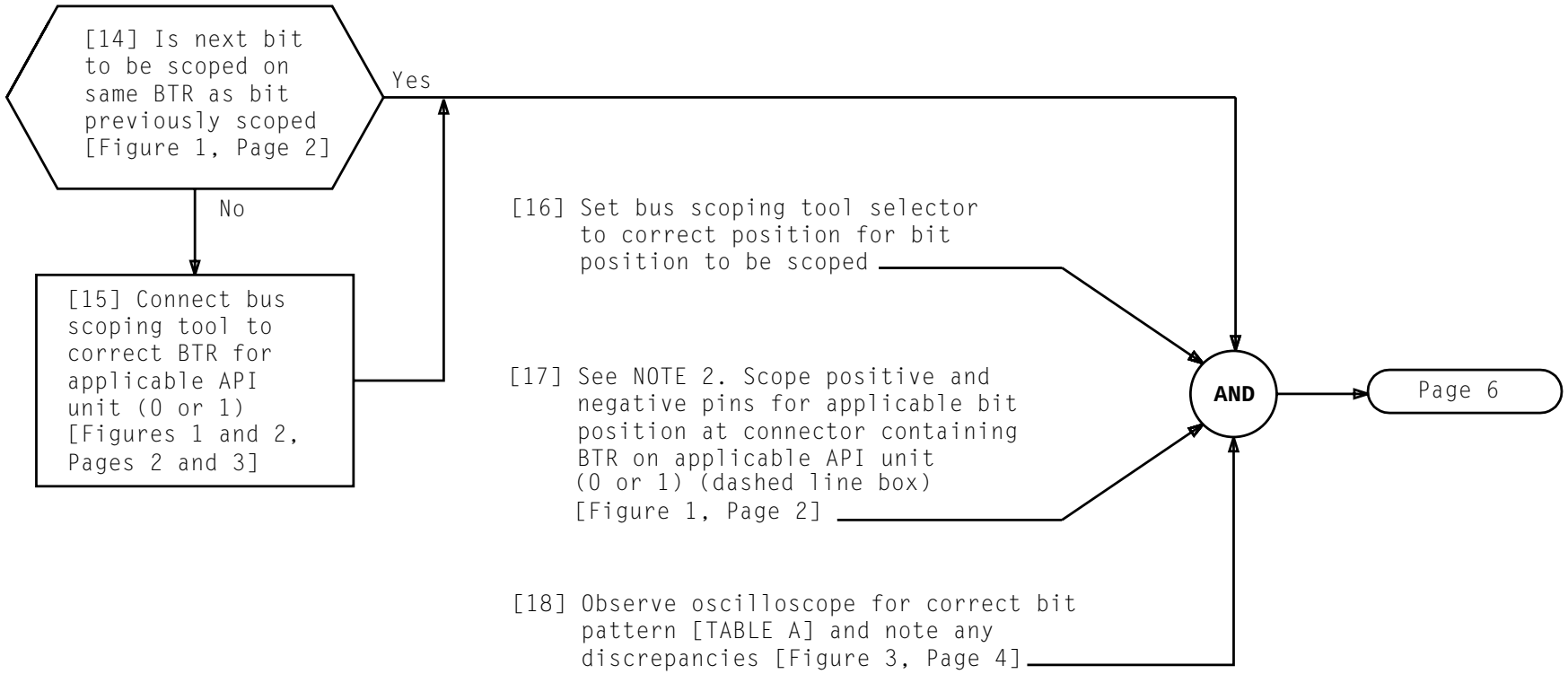


Figure 3 – Example of Typical AUB Bit Pattern

NOTE 1
Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

SCOPE AUB 0 OR 1 WRITE BUS BITS 0 TO 23



NOTE 2
Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

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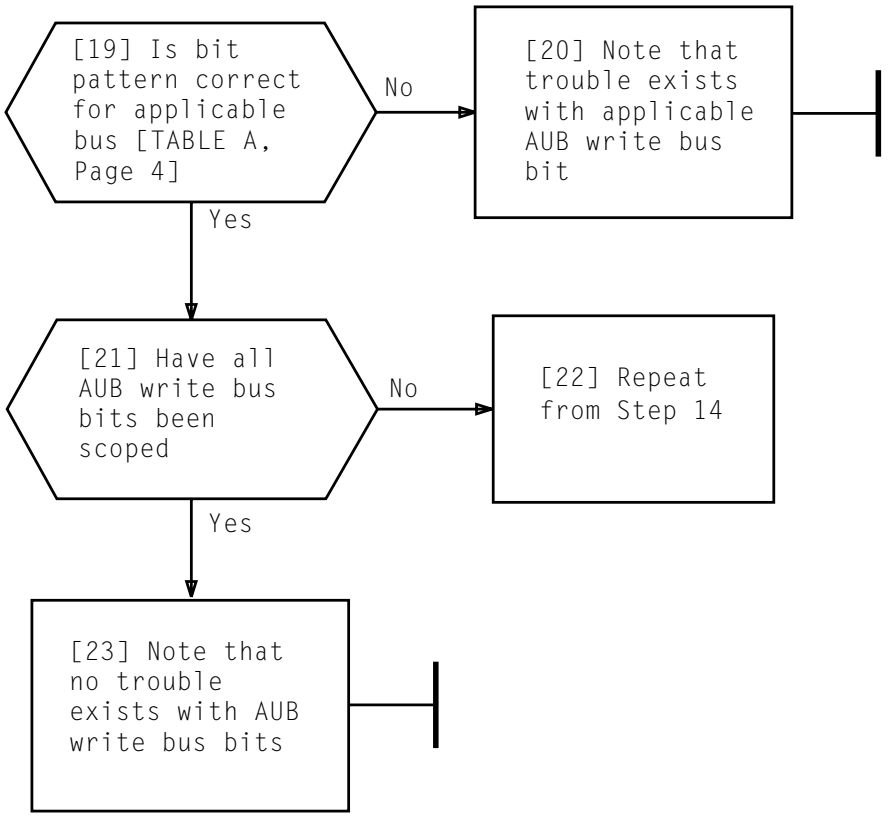
SCOPE AUB 0 OR 1 WRITE BUS BITS 0 TO 23



SCOPE AUB 0 OR 1 WRITE BUS BITS 0 TO 23

[1] At API frame where AUB address bus terminates, locate connectors containing BTRs on applicable API unit (0 or 1) at position XXX-253 [Figure 1, Page 2]

[2] Connect bus scoping tool to BTR on applicable API unit (0 or 1) [Figure 2, Page 3]

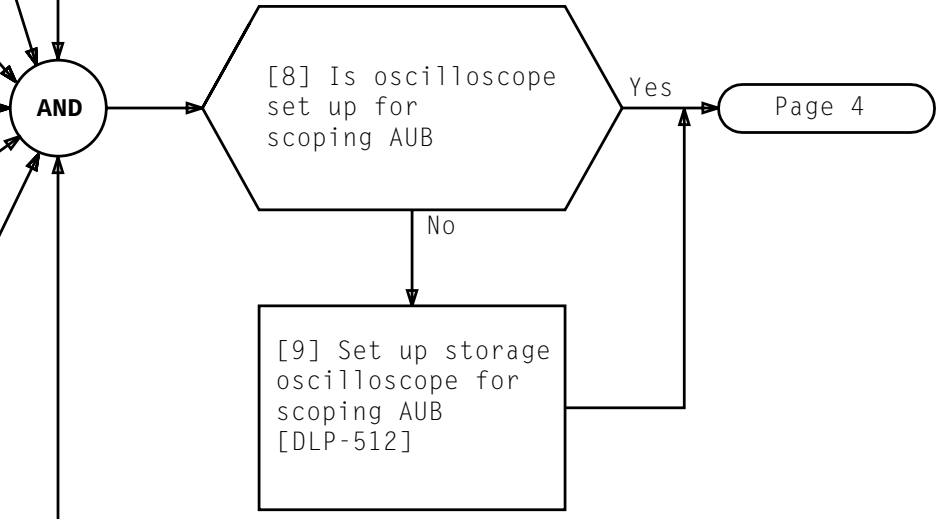
[3] Connect one X10 probe to channel 1 of oscilloscope and positive (P) pin of bus scoping tool [Figure 2, Page 3]

[4] Connect another X10 probe to channel 2 of oscilloscope; wrap channel 2 probe lead around channel 1 probe lead and connect to negative (N) pin of bus scoping tool [Figure 2, Page 3]

[5] Attach oscilloscope channel 1 and channel 2 probe ground leads together

[6] Review usage of bus scoping tool [DLP-523]

[7] Set bus scoping tool selector to position 0



SCOPE AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15

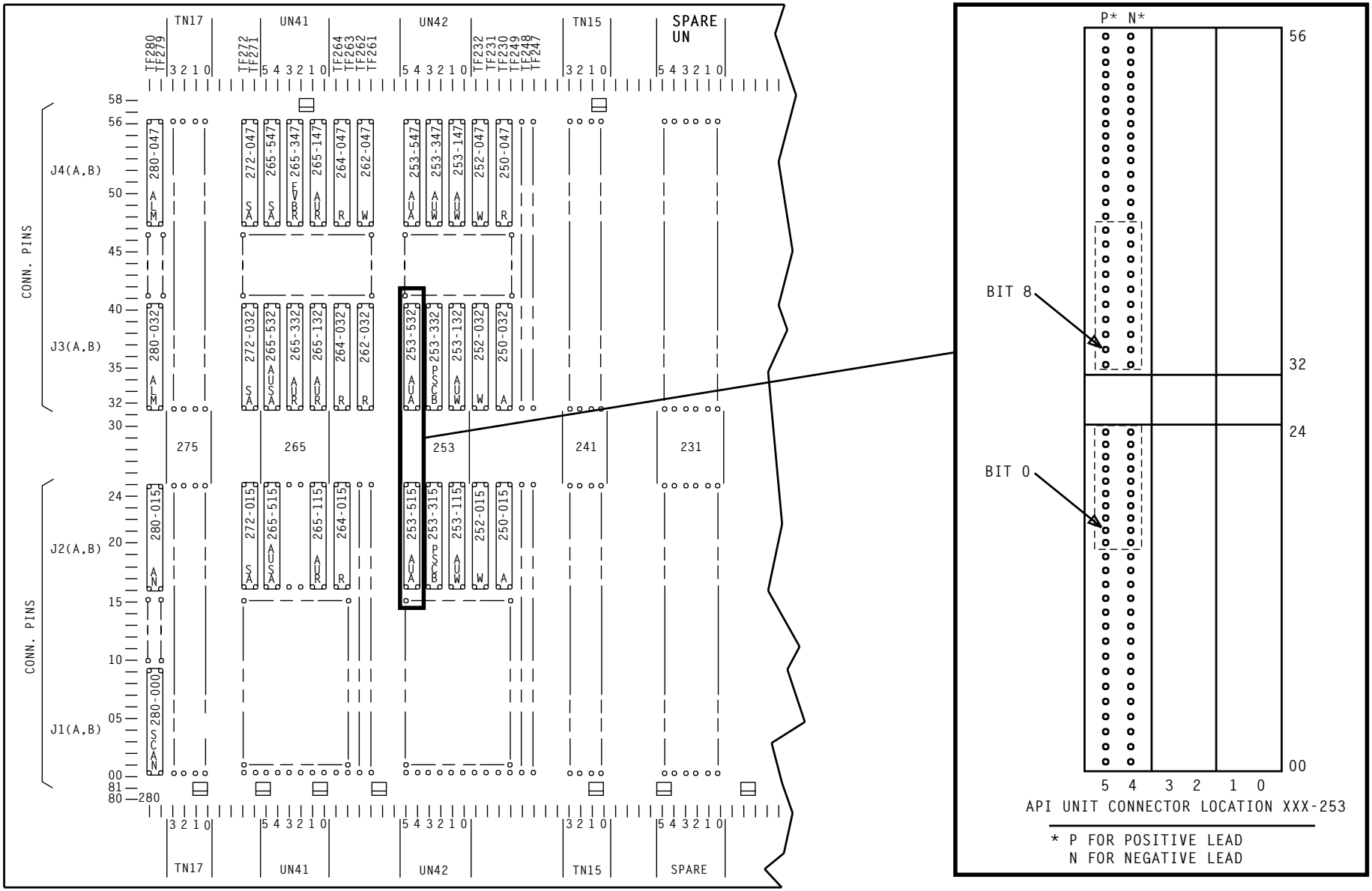


Figure 1 - Example of API Unit (0 or 1) Connector Layout Showing AUB 0 or 1 Address Bus Bits 0 to 15

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SCOPE AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15

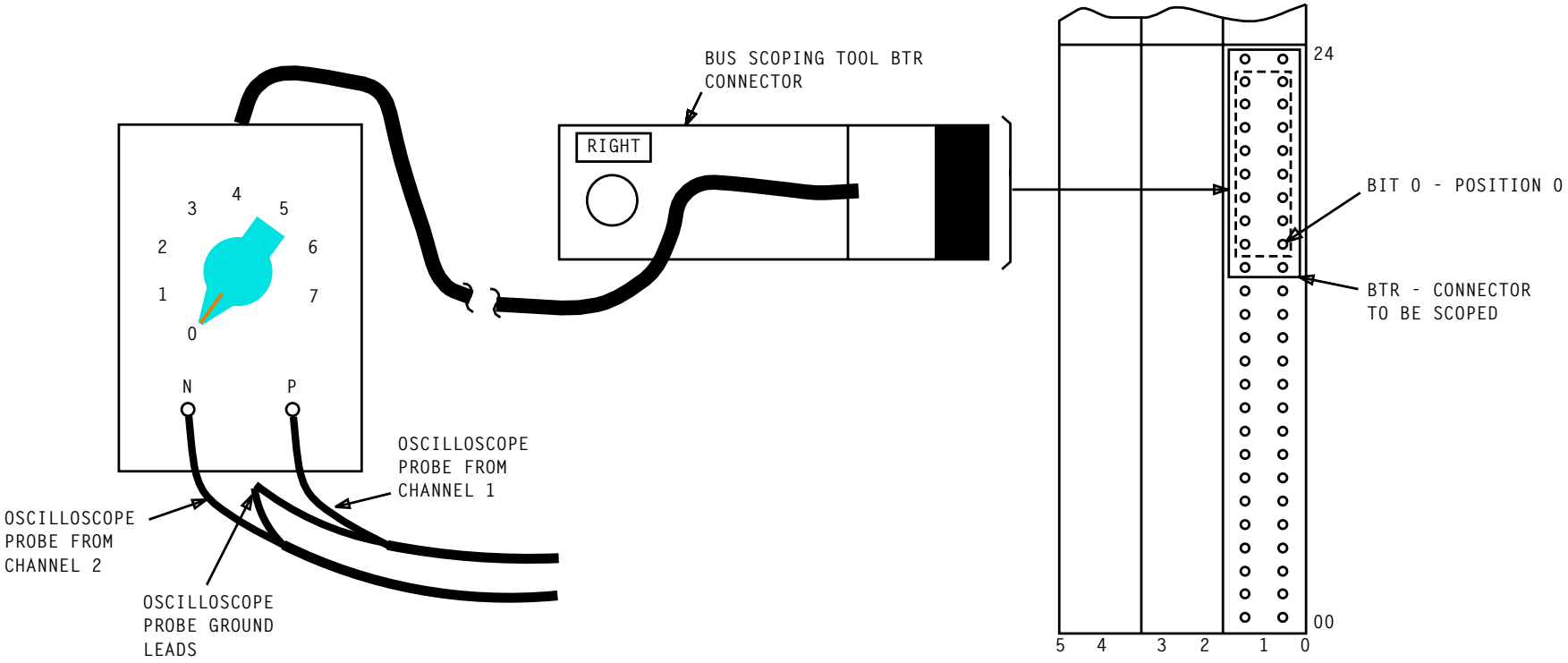


Figure 2 – Bus Scoping Tool, Oscilloscope Probes and BTR Connections for Scoping Auxiliary Unit Bus (AUB)

SCOPE AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15

[10] See NOTE 1. Scope positive and negative pins for bit 0 at connector containing BTR on applicable API unit (0 or 1) (dashed line box) [Figure 1, Page 2]

[11] Observe oscilloscope for correct bit pattern [TABLE A] and note any discrepancies [Figure 3]

AND

[12] Is bit 0 pattern correct for applicable bus [TABLE A]

No

[13] Note that trouble exists with AUB address bus bit 0

Yes

Page 5

TABLE A
AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15 BIT PATTERNS

BIT	BIT PATTERN	
	BUS 0	BUS 1
0	01000000	00000001
1	01000001	00000011
2	01000010	00000101
3	01000011	00000111
4	01000100	00001001
5	01000101	00001011
6	01000110	00001101
7	01000111	00001111
8	01001000	00010001
9	01001001	00010011
10	01001010	00010101
11	01001011	00010111
12	01001100	00011001
13	01001101	00011011
14	01001110	00011101
15	01001111	00011111

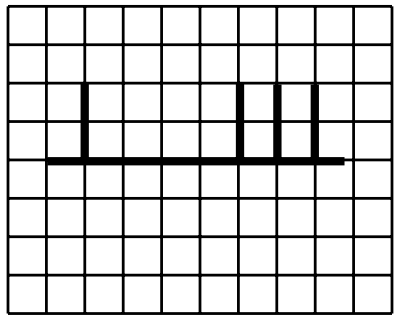
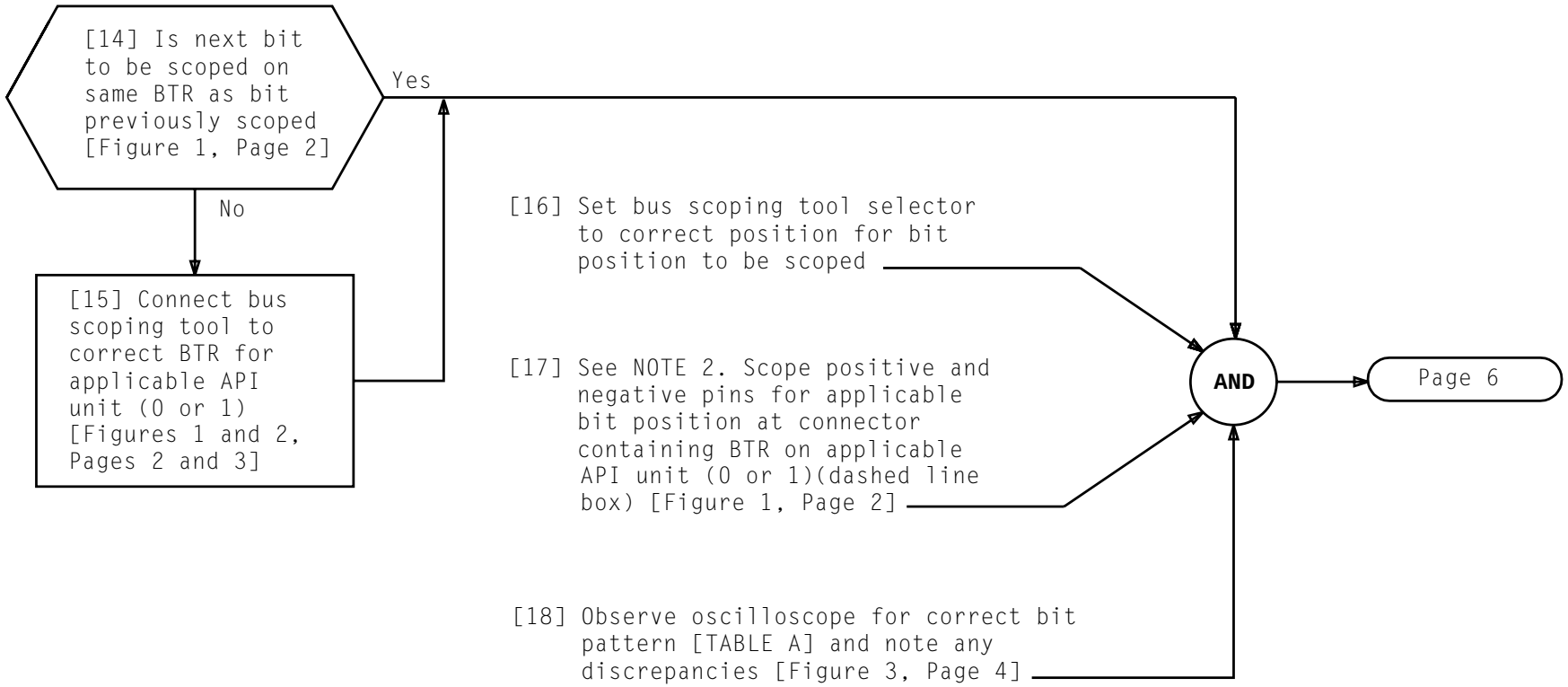


Figure 3 – Example of Typical AUB Bit Pattern

NOTE 1
Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

SCOPE AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15



NOTE 2

Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

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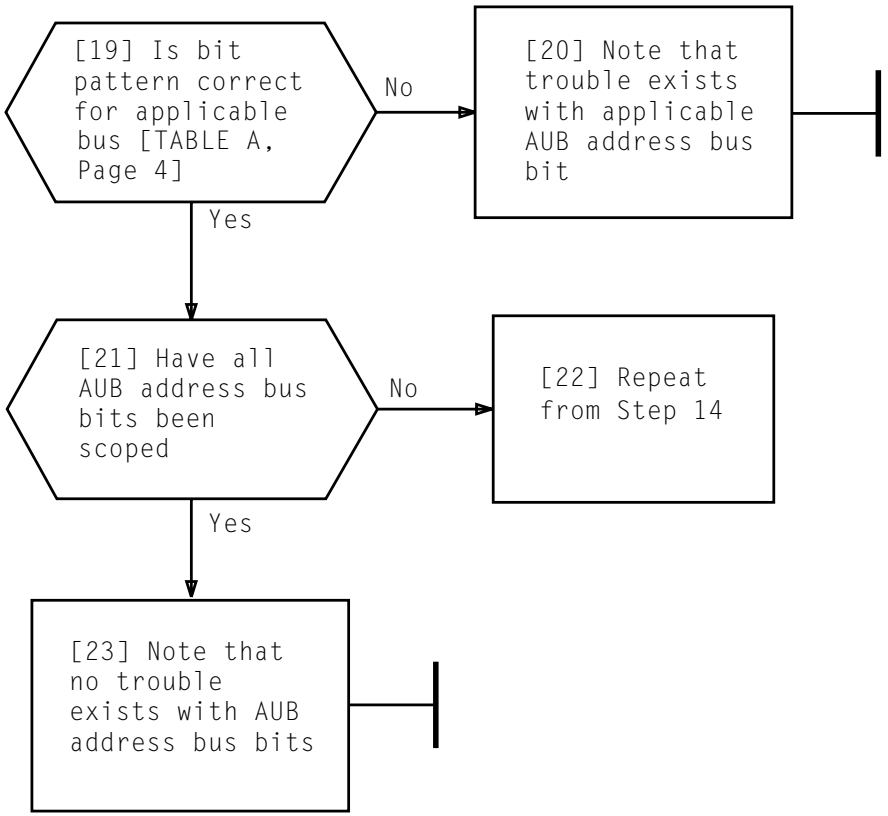
SCOPE AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15



SCOPE AUB 0 OR 1 ADDRESS BUS BITS 0 TO 15

[1] At API frame where AUB store address bus terminates, locate connectors containing BTRs on applicable API unit (0 or 1) at position XXX-265 [Figure 1, Page 2]

[2] Connect bus scoping tool to BTR on applicable API unit (0 or 1) [Figure 2, Page 3]

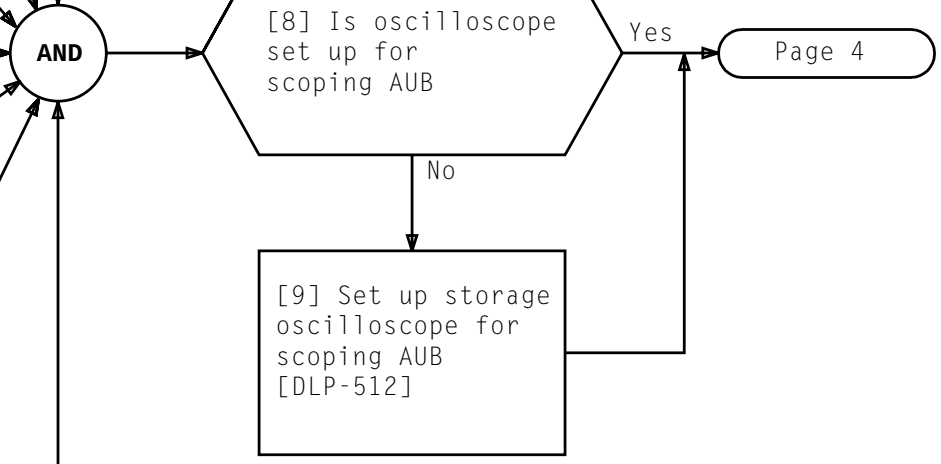
[3] Connect one X10 probe to channel 1 of oscilloscope and positive (P) pin of bus scoping tool [Figure 2, Page 3]

[4] Connect another X10 probe to channel 2 of oscilloscope; wrap channel 2 probe lead around channel 1 probe lead and connect to negative (N) pin of bus scoping tool [Figure 2, Page 3]

[5] Attach oscilloscope channel 1 and channel 2 probe ground leads together

[6] Review usage of bus scoping tool [DLP-523]

[7] Set bus scoping tool selector to position 0



SCOPE AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21

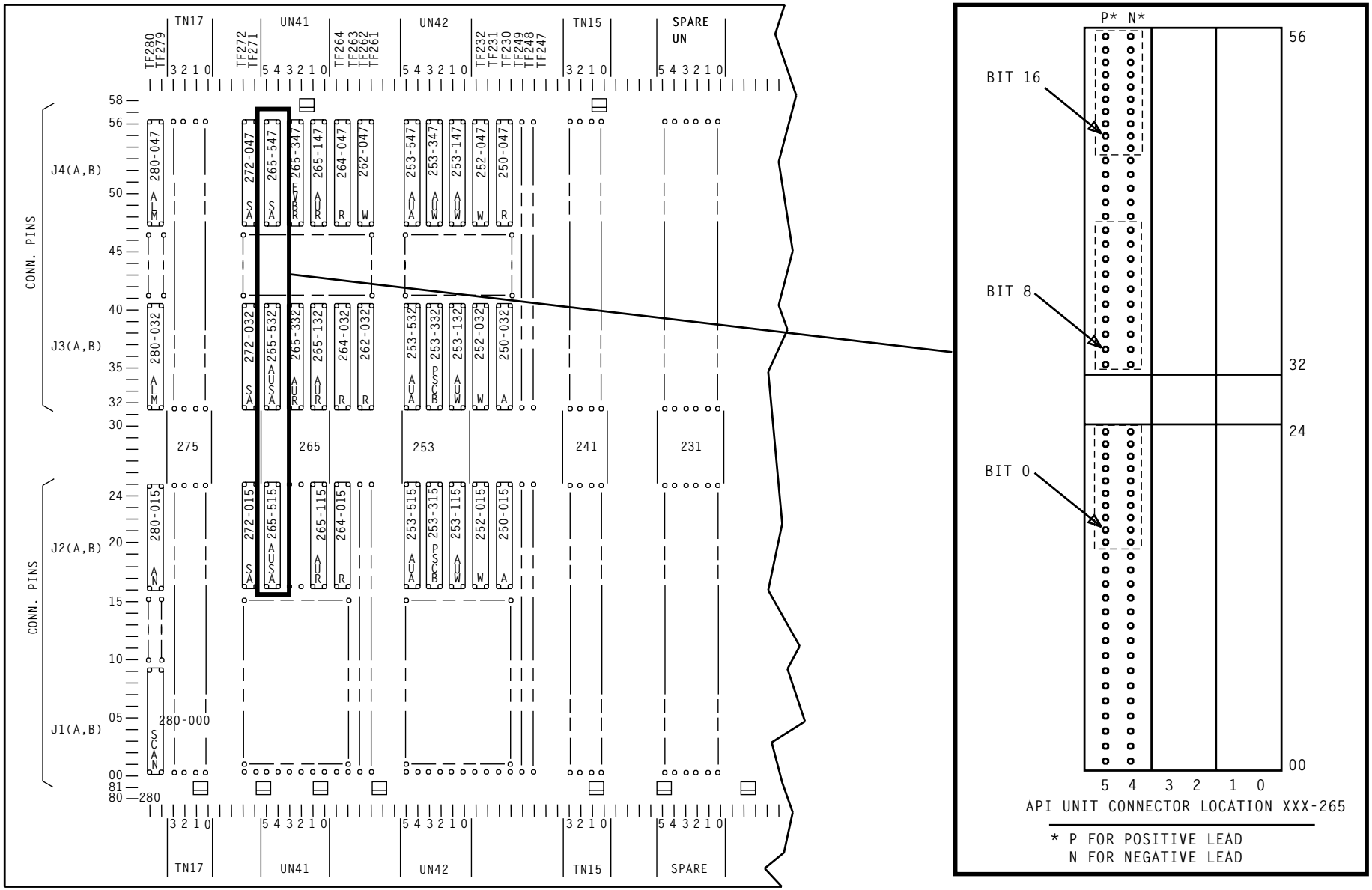


Figure 1 - Example of API Unit (0 or 1) Connector Layout Showing AUB 0 or 1 Store Address Bus Bits 0 to 21

SCOPE AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21

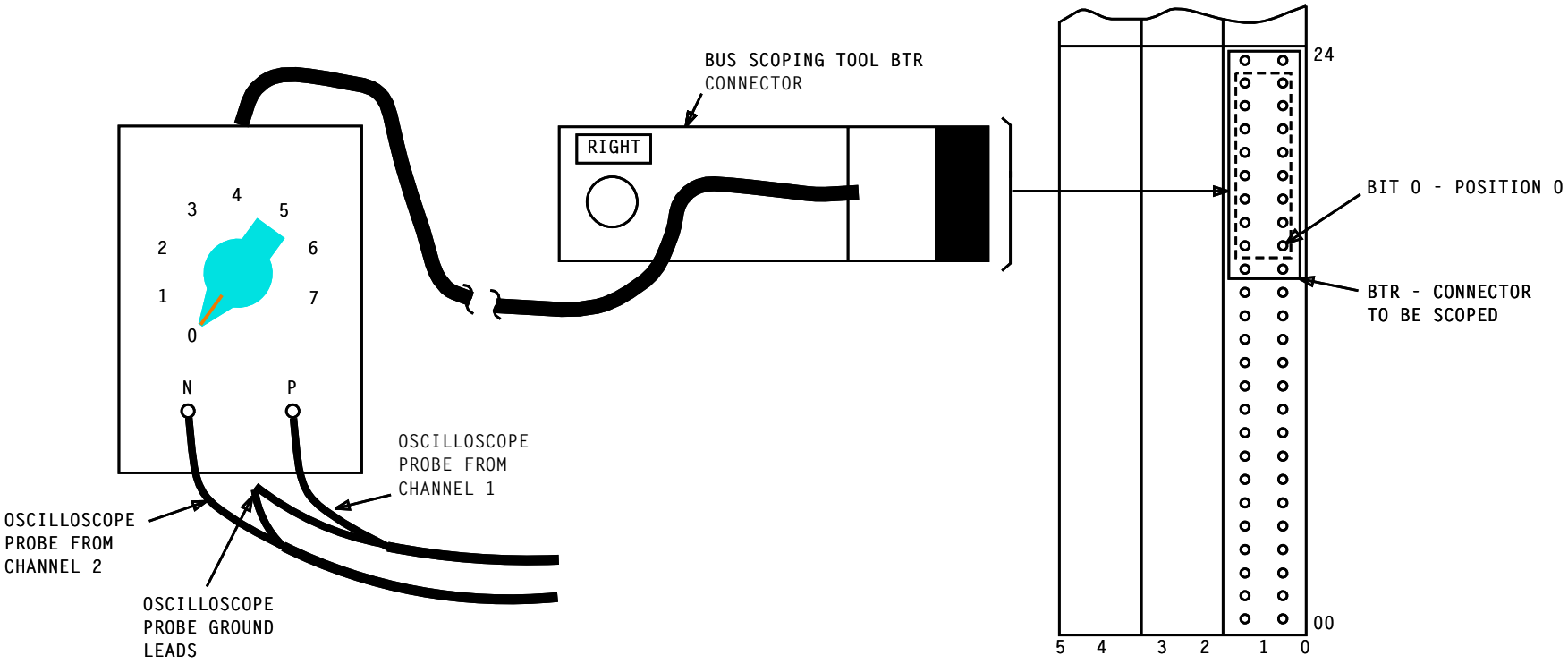


Figure 2 – Bus Scoping Tool, Oscilloscope Probes and BTR Connections for Scoping Auxiliary Unit Bus (AUB)

SCOPE AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21

[10] At oscilloscope, set **HORIZONTAL - A AND B SEC/DIV** to **50µs**

[11] See NOTE 1. Scope positive and negative pins for bit 0 at connector containing BTR on applicable API unit (0 or 1) (dashed line box) [Figure 1, Page 2]

[12] Observe oscilloscope for correct bit pattern [TABLE A] and note any discrepancies [Figure 3]

AND

[13] Is bit 0 pattern correct for applicable bus [TABLE A]

No

[14] Note that trouble exists with AUB store address bus bit 0

Yes

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TABLE A
AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21
BIT PATTERNS

BIT	BIT PATTERN		BIT	BIT PATTERN	
	BUS 0	BUS 1		BUS 0	BUS 1
0	01000000	00000001	12	01001100	00011001
1	01000001	00000011	13	01001101	00011011
2	01000010	00000101	14	01001110	00011101
3	01000011	00000111	15	01001111	00011111
4	01000100	00001001	16	01010000	00100001
5	01000101	00001011	17	01010001	00100011
6	01000110	00001101	18	01010010	00100101
7	01000111	00001111	19	01010011	00100111
8	01001000	00010001	20	01010100	00101001
9	01001001	00010011	21	01010101	00101011
10	01001010	00010101			
11	01001011	00010111			

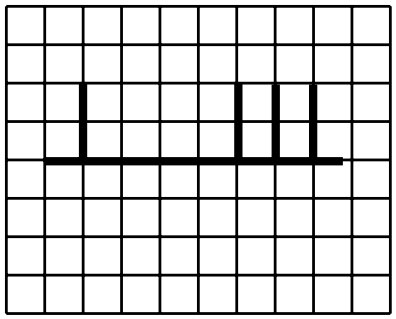
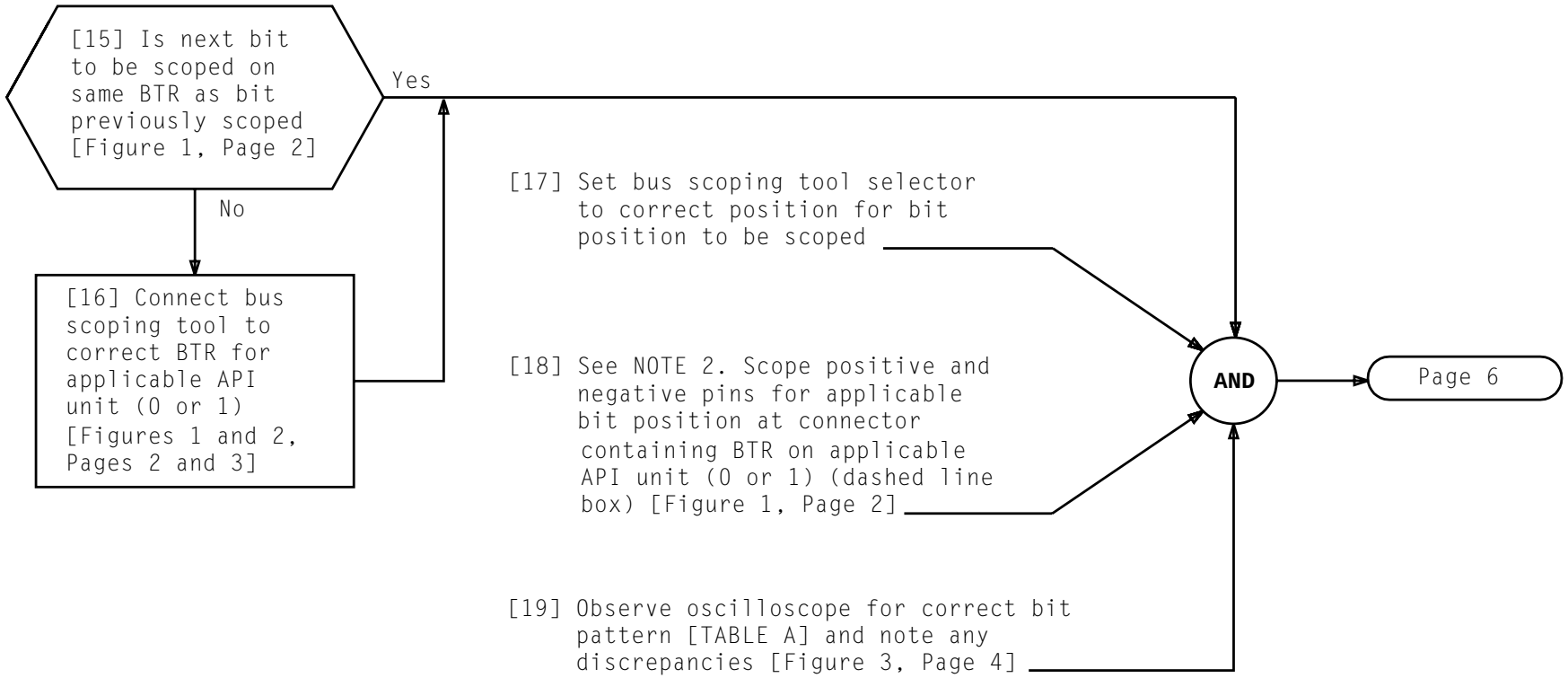


Figure 3 – Example of Typical AUB Bit Pattern

NOTE 1
Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

SCOPE AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21



NOTE 1
Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

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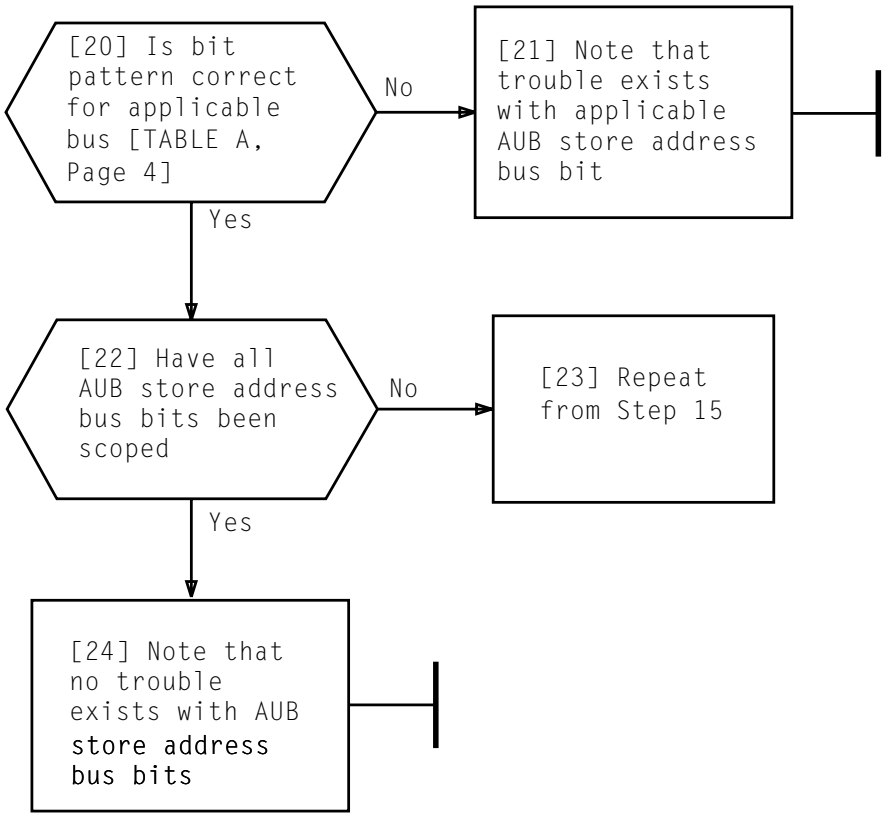
SCOPE AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21



SCOPE AUB 0 OR 1 STORE ADDRESS BUS BITS 0 TO 21

[1] At API frame where AUB reply bus terminates, locate connectors containing BTRs on applicable API unit (0 or 1) at position XXX-265 [Figure 1, Page 2]

[2] Connect bus scoping tool to BTR on applicable API unit (0 or 1) [Figure 2, Page 3]

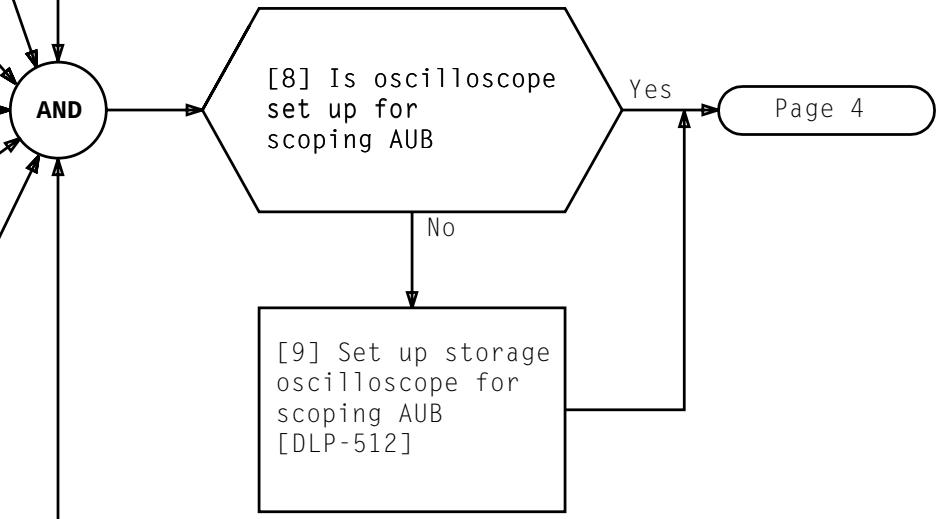
[3] Connect one X10 probe to channel 1 of oscilloscope and positive (P) pin of bus scoping tool [Figure 2, Page 3]

[4] Connect another X10 probe to channel 2 of oscilloscope; wrap channel 2 probe lead around channel 1 probe lead and connect to negative (N) pin of bus scoping tool [Figure 2, Page 3]

[5] Attach oscilloscope channel 1 and channel 2 probe ground leads together

[6] Review usage of bus scoping tool [DLP-523]

[7] Set bus scoping tool selector to position 0



SCOPE AUB 0 OR 1 REPLY BUS BITS 0 TO 23

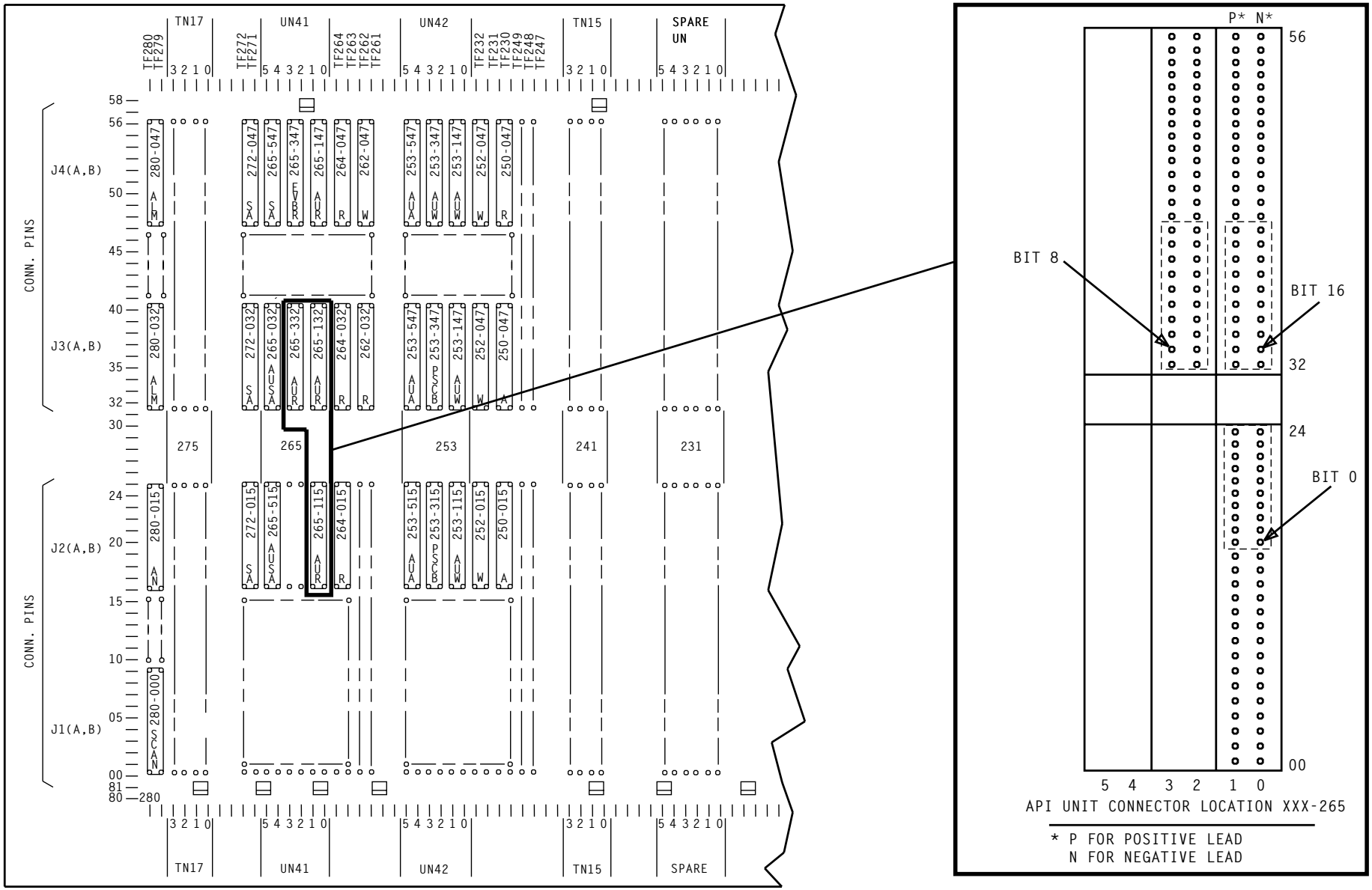


Figure 1 - Example of API Unit (0 or 1) Connector Layout Showing AUB 0 or 1 Reply Bus Bits 0 to 23

SCOPE AUB 0 OR 1 REPLY BUS BITS 0 TO 23

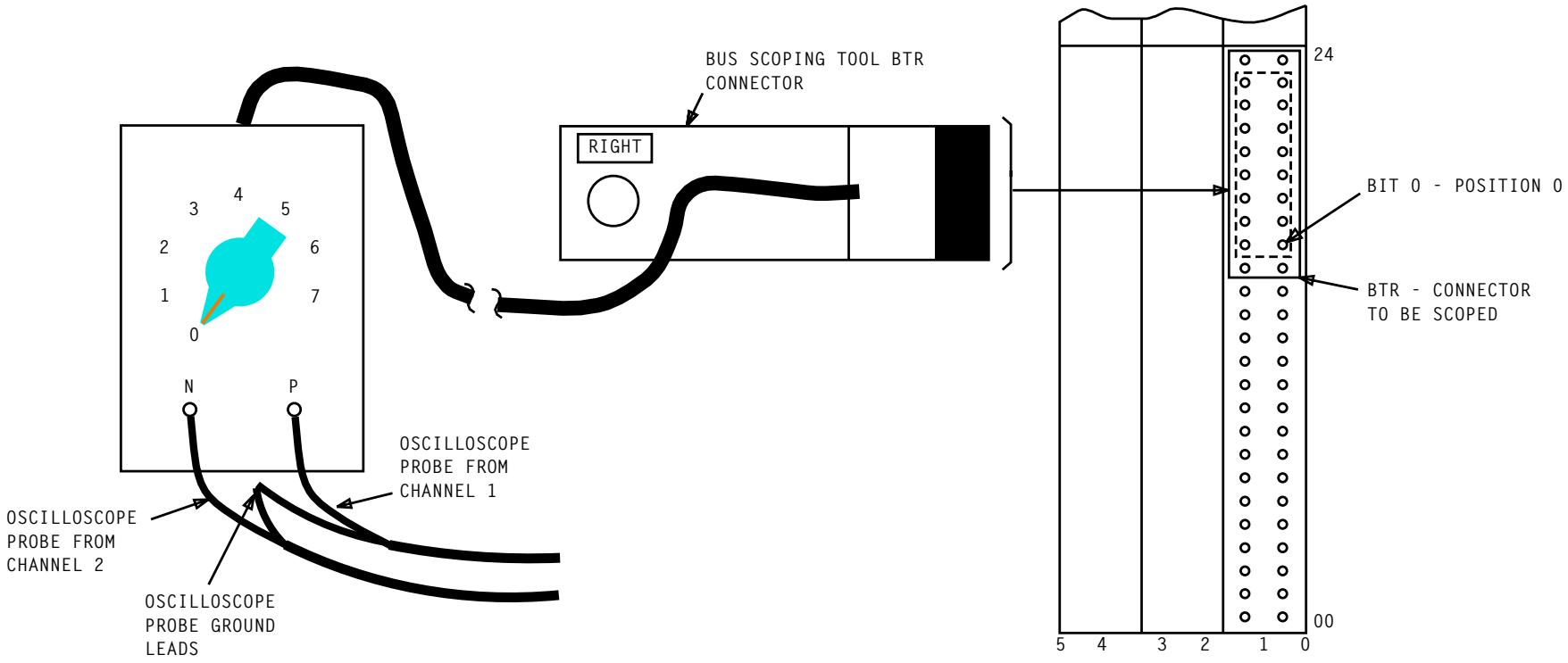


Figure 2 – Bus Scoping Tool, Oscilloscope Probes and BTR Connections for Scoping Auxiliary Unit Bus (AUB)

SCOPE AUB 0 OR 1 REPLY BUS BITS 0 TO 23

[10] See NOTE 1. Scope positive and negative pins for bit 0 at connector containing BTR on applicable API unit (0 or 1) (dashed line box) [Figure 1, Page 2]

[11] Observe oscilloscope for correct bit pattern [TABLE A] and note any discrepancies [Figure 3]

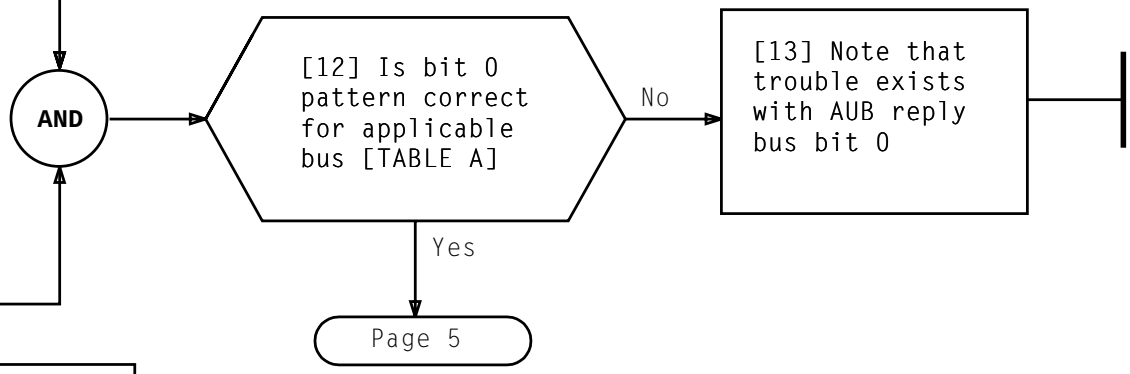


TABLE A
AUB 0 OR 1 REPLY BUS BITS 0 TO 23
BIT PATTERNS

BIT	BIT PATTERN		BIT	BIT PATTERN	
	BUS 0	BUS 1		BUS 0	BUS 1
0	01000000	00000001	12	01001100	00011001
1	01000001	00000011	13	01001101	00011011
2	01000010	00000101	14	01001110	00011101
3	01000011	00000111	15	01001111	00011111
4	01000100	00001001	16	01010000	00100001
5	01000101	00001011	17	01010001	00100011
6	01000110	00001101	18	01010010	00100101
7	01000111	00001111	19	01010011	00100111
8	01001000	00010001	20	01010100	00101001
9	01001001	00010011	21	01010101	00101011
10	01001010	00010101	22	01010110	00101101
11	01001011	00010111	23	01010111	00101111

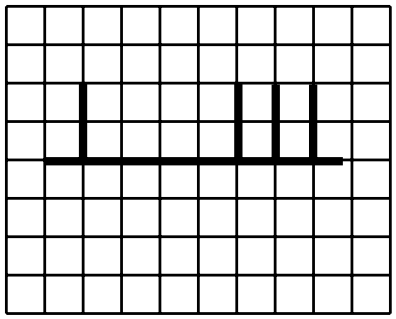
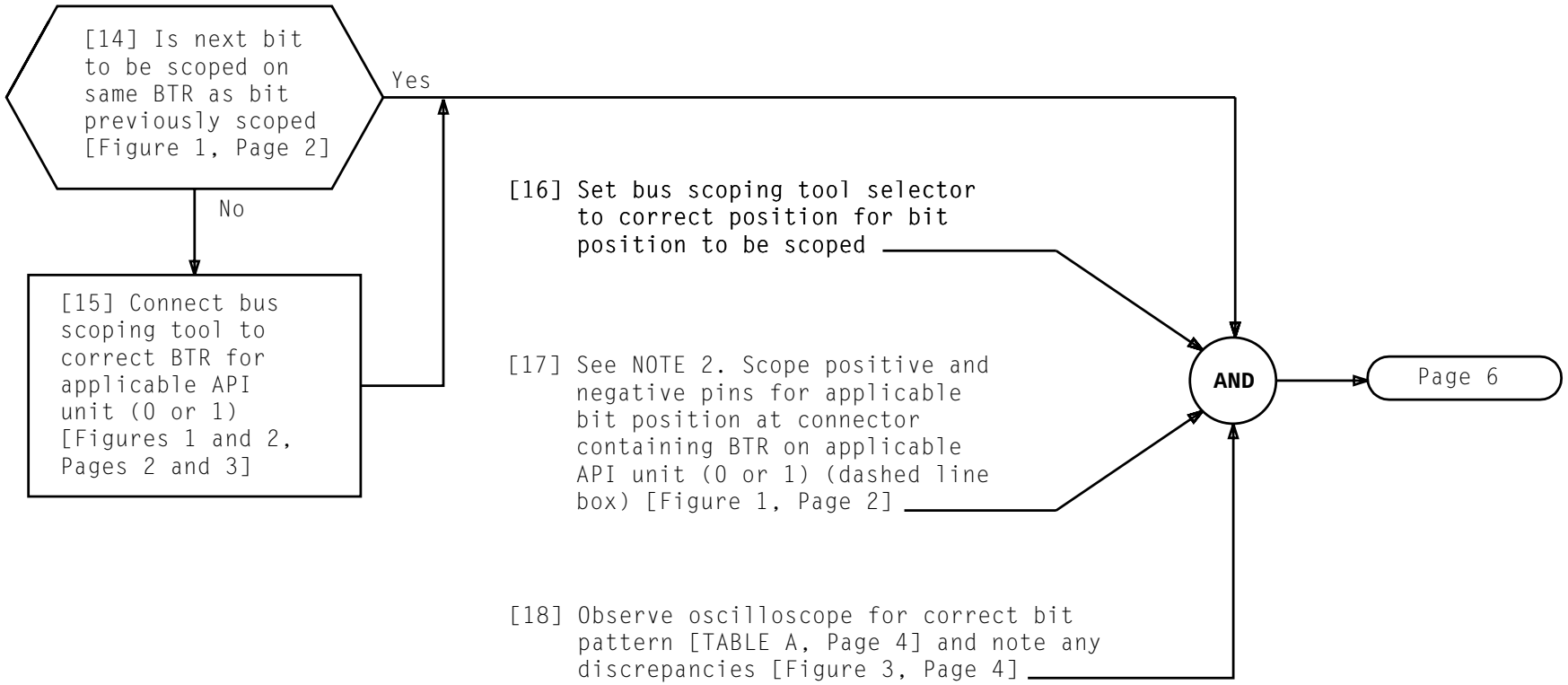


Figure 3 – Example of Typical AUB Bit Pattern

NOTE 1
Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

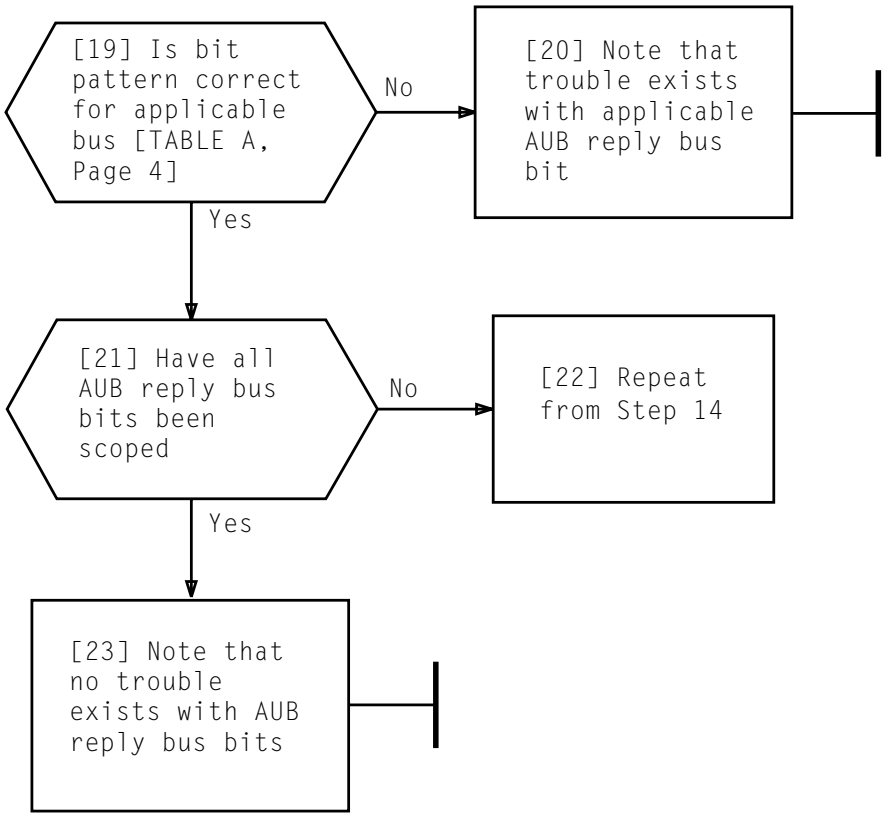
SCOPE AUB 0 OR 1 REPLY BUS BITS 0 TO 23



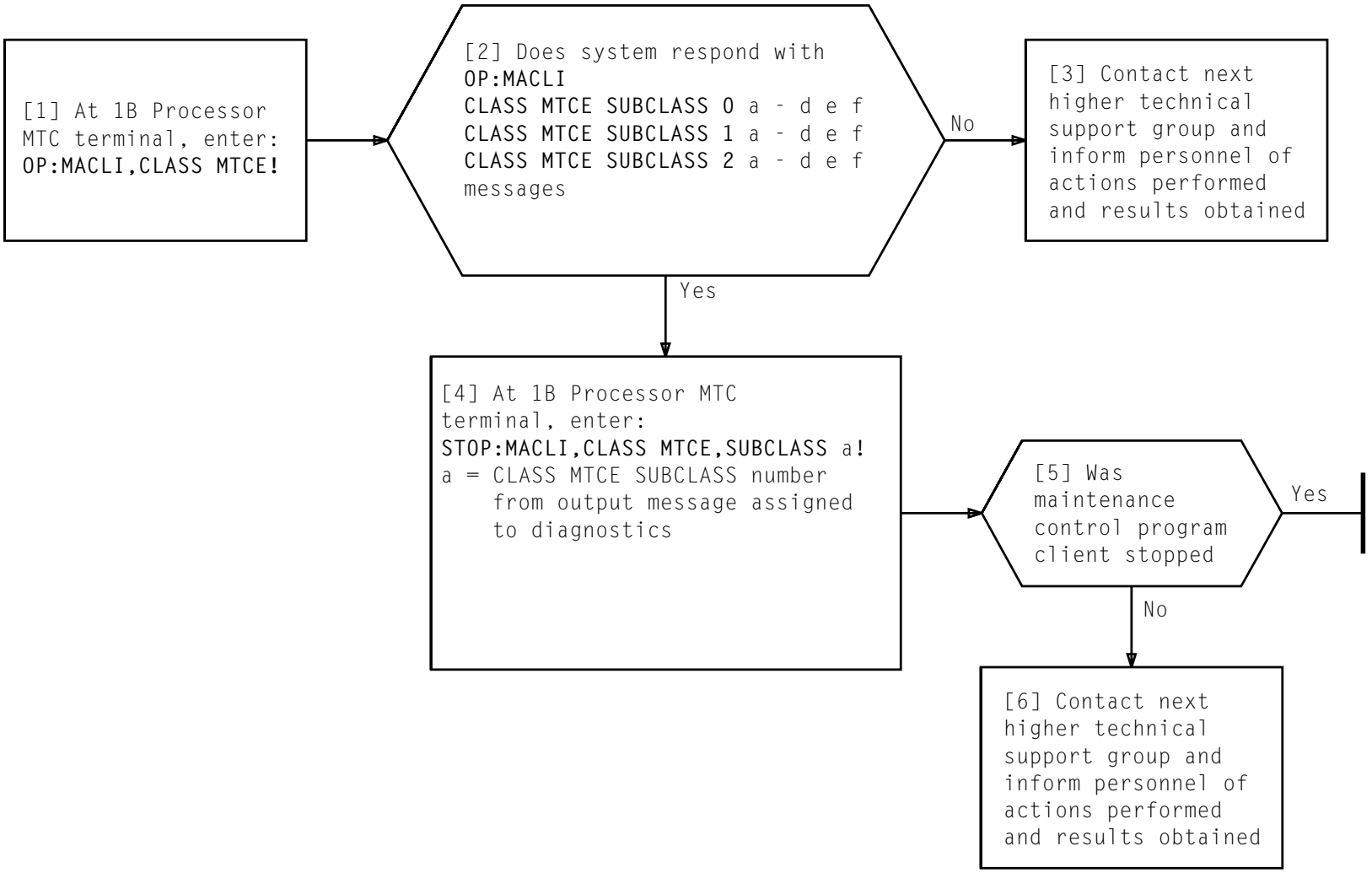
NOTE 2

Oscilloscope **CURSORS** may need to be adjusted to observe bit pattern

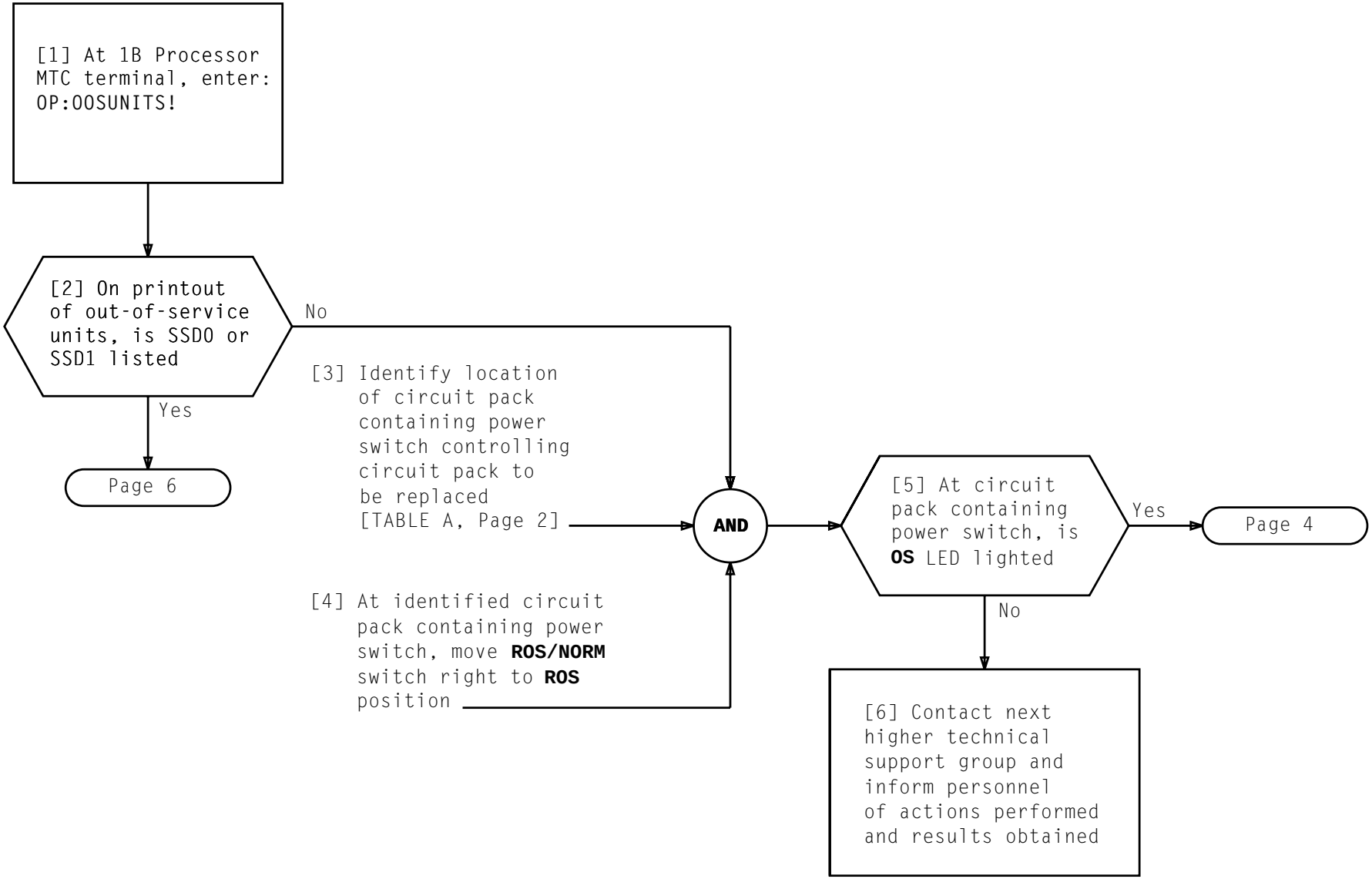
SCOPE AUB 0 OR 1 REPLY BUS BITS 0 TO 23



SCOPE AUB 0 OR 1 REPLY BUS BITS 0 TO 23



STOP MAINTENANCE CONTROL PROGRAM CLIENT



REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET

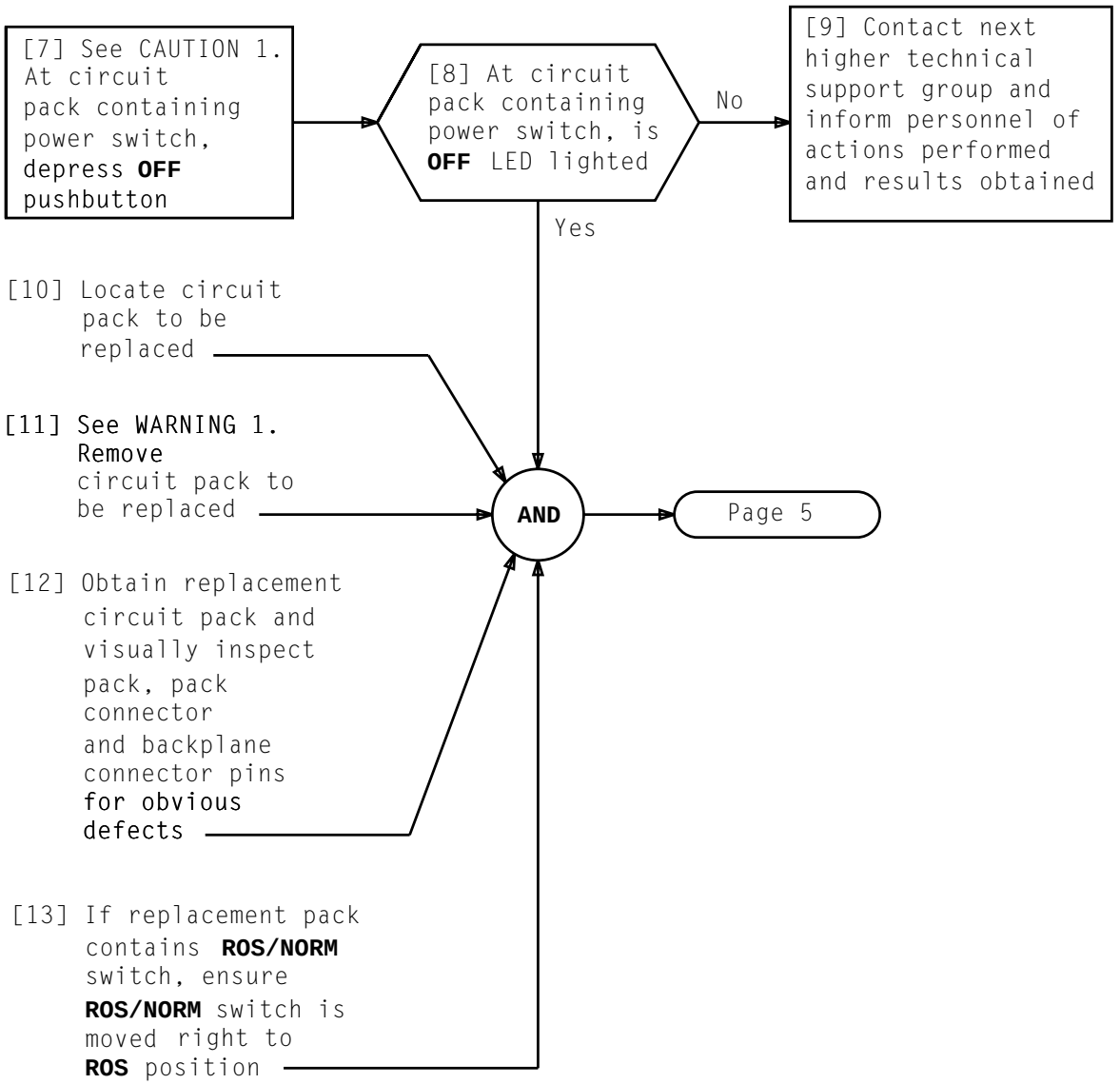
TABLE A
1B PROCESSOR UNIT POWER SWITCH IDENTIFIERS AND LOCATIONS

UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH		UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
CC	**KLW03**	41-104	**KLW11**	41-014	AUI (Contd)	**UN338**	70-144	**KLW18**	58-120
	KLW04	41-112					70-160		
	KLW05	41-096					70-176		
	KLW06	41-054			MUP	**KLW16**	58-078	**KLW25**	58-086
	KLW07	41-078				**KLW25**	58-086		
	KLW08	41-046			CS	**KLW01**	24-006	Self-Powered	Same Location
	KLW09	41-038					24-014		
	KLW10	41-030					24-022		
	KLW11	41-014					24-030		
	KLW12	58-014					24-038		
	KLW13	58-070					24-046		
	KLW14	58-038					24-054		
	KLW17	41-086					24-062		
	KLW19	41-070					24-070		
	KLW20	58-062					24-078		
	KLW21	58-046					24-104		
	KLW22	41-120					24-112		
	KLW24	41-062					24-120		
	KLW28	41-022					24-128		
	UN339	70-014					24-136		
		70-030					24-144		
		70-070					24-152		
		70-086					24-160		
	UN340	70-038					24-168		
		70-062					24-176		
AUI	**KLW18**	58-120	**KLW18**	58-120	PS	**KLW02**	41-128	Self-Powered	Same Location
	UN338	70-096					41-136		
		70-112					41-144		
		70-128					41-152		

REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET

TABLE A (Contd)
1B PROCESSOR UNIT POWER SWITCH IDENTIFIERS AND LOCATIONS

UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH		UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
PS	**KLW02**	41-160 41-168 41-176	Self-Powered	Same Location					
SSD	**KLW15**	58-168	Self-Powered	Same Location					
XPWR	**KLW23**	24-030	Self-Powered	Same Location					
CALL STORE BUS 0 BUFFER	**KLW26**	24-086	Self-Powered	Same Location					
CALL STORE BUS 1 BUFFER	**KLW27**	24-096	Self-Powered	Same Location					
FAN SYSTEM	**FC**	77-000	NA	NA					



WARNING 1

*A grounded antistatic wrist strap (**R-4987** or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*

CAUTION 1

Powering down an out-of-service unit should not cause system recovery actions (interrupts, phases, etc.) to be initiated. If system recovery actions are initiated when powering down an OOS unit, another unit may be at fault. Immediately comfirm that the switch is processing calls. If there are indications of a continuing outage, power up the unit previously powered down. If there are no indications of a continuing outage, determine the unit that caused the system recovery actions to be initiated and correct the fault in that unit before continuing to work on the OOS unit originally powered down

REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET

[14] See WARNING 2 and NOTE 1. Insert and properly seat replacement pack

[15] At circuit pack containing power switch, depress **OFF** pushbutton to clear alarms

[16] See CAUTION 2. At circuit pack containing power switch, depress **ON** pushbutton

AND

[17] At circuit pack containing power switch, did **OFF** LED go off

No

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

Yes

[19] At circuit pack containing power switch, move **ROS/NORM** switch left to **NORM** position

NOTE 1

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack (using pack seating mechanism) does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

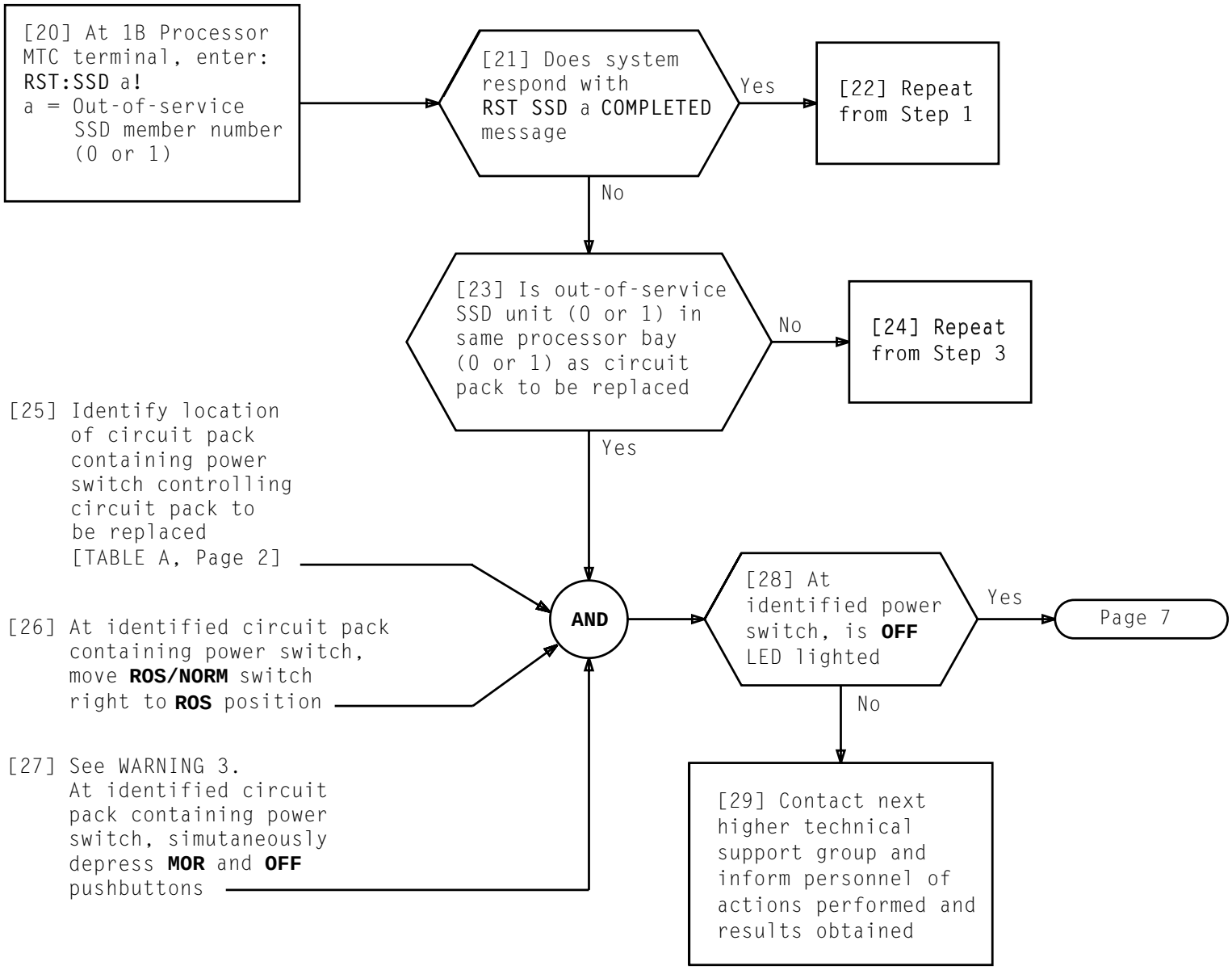
WARNING 2

*A grounded antistatic wrist strap (**R-4987** or equivalent) must be worn when handling circuit packs. The **wrist** strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads, or connector pins*

CAUTION 2

If system recovery actions (interrupts, phases, etc.) are initiated when powering up any unit (CC, CS, etc.), the suspected cause should be the unit just powered up. Therefore, the first action to take in this situation should be to power down the unit just powered up in an attempt to clear the reason that system recovery actions were initiated

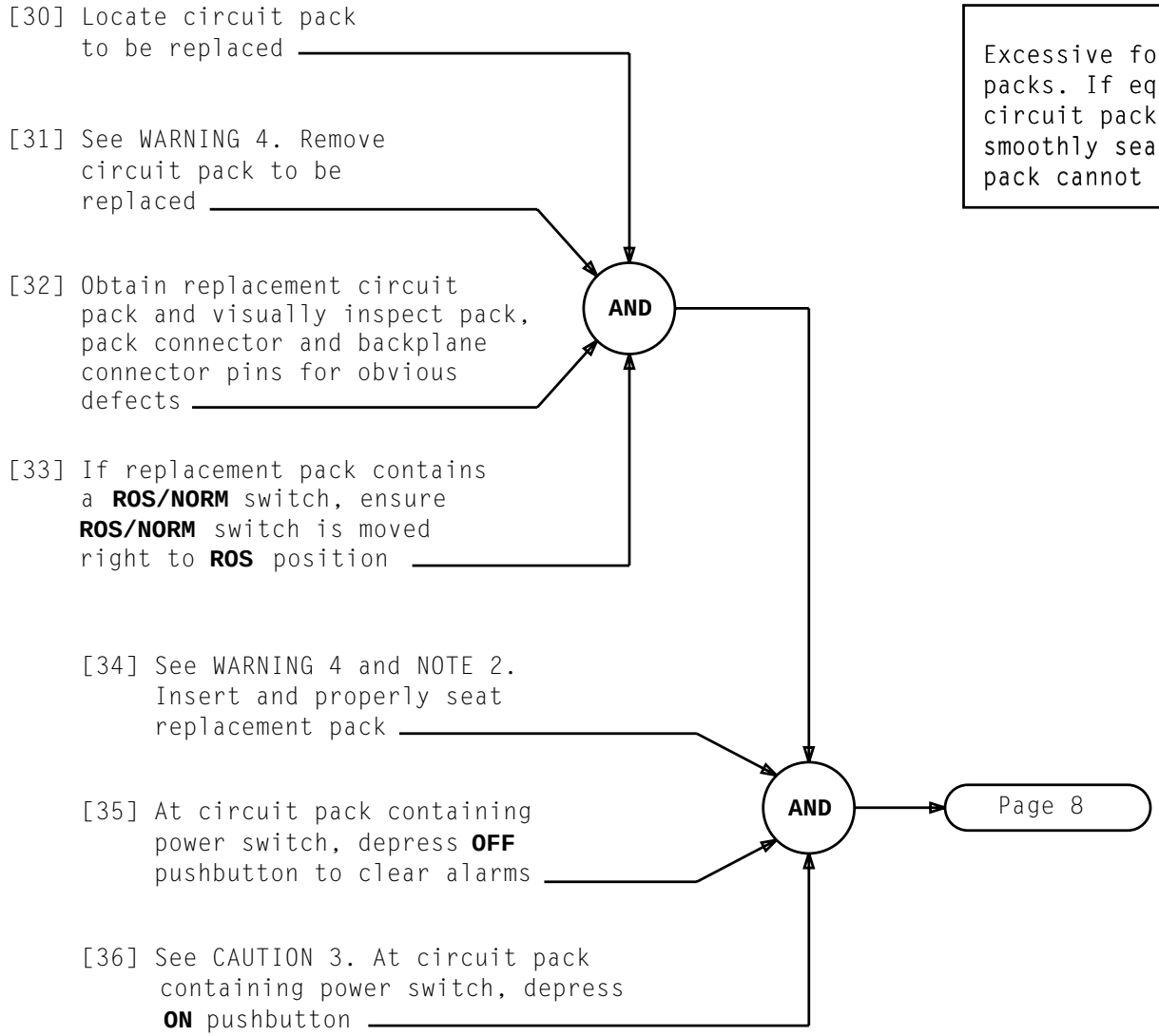
REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET



WARNING 3

Extreme caution must be taken to ensure circuit pack replacement is being performed in the correct unit. Consulting next higher technical support group before manually overriding power switch may be required per local practice

REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET



NOTE 2

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack (using pack-seating mechanism) does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

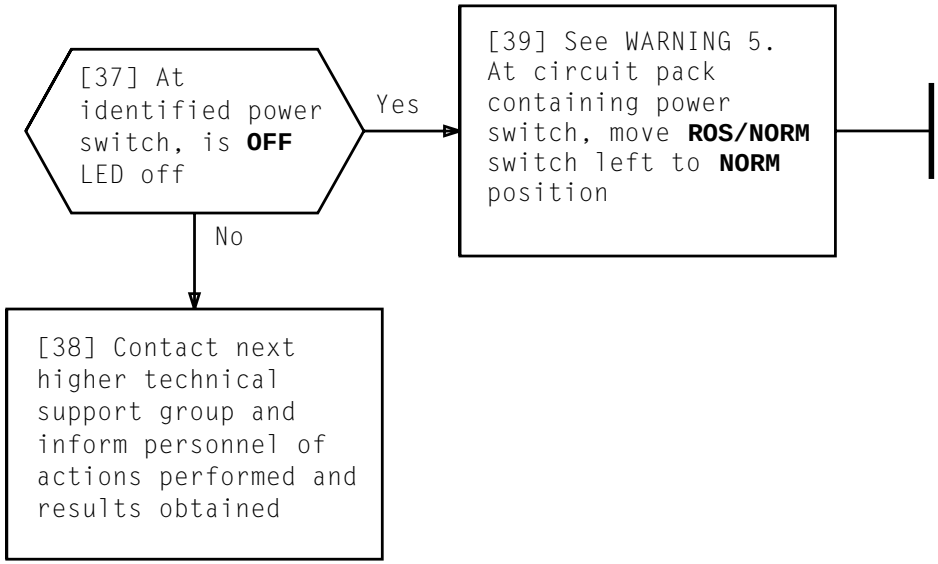
WARNING 4

*A grounded antistatic wrist strap (**R-4987** or equivalent) must be worn when handling circuit packs. The **wrist** strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads, or connector pins*

CAUTION 3

If system recovery actions (interrupts, phases, etc.) are initiated when powering up any unit (CC, CS, etc.), the suspected cause should be the unit just powered up. Therefore, the first action to take in this situation should be to power down the unit just powered up in an attempt to clear the reason that system recovery actions were initiated

REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET



WARNING 5

Extreme caution must still be taken from this point forward due to the SSD unit controlling this processor's scan and signal distributor points is out-of-service. Thus, any **OS** *and* **ACK** *LED responses controlled via these scan and signal distributor points must be ignored until the out-of-service SSD unit is diagnosed, repaired and restored to service. Consulting next higher technical support group before proceeding may be required per local practice*

REPLACE CIRCUIT PACK — 1B PROCESSOR CABINET

Using printout of diagnostics with
CATP results [Figure 1, Page 2]:

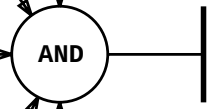
[1] Identify unit being diagnosed

[2] Identify CATP octal data identifying conditions causing diagnostics to complete with CATP results

[3] Convert CATP octal data to binary and identify failing bits (bits set to one) [Figure 2, Page 2]

[4] Using failing bits and output message manual or maintenance reference handbook, identify conditions causing diagnostics to complete with CATP results

[5] Determine if CATP results are explainable and acceptable



IDENTIFY CONDITIONS CAUSING DIAGNOSTICS TO COMPLETE WITH CATP RESULTS

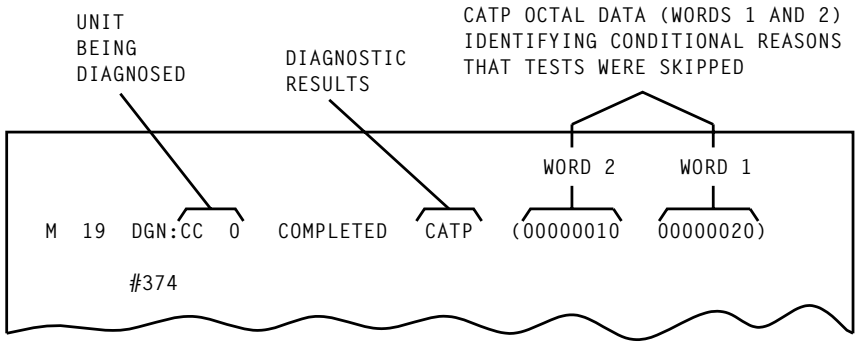


Figure 1 – Sample Printout of Diagnostics With CATP Results

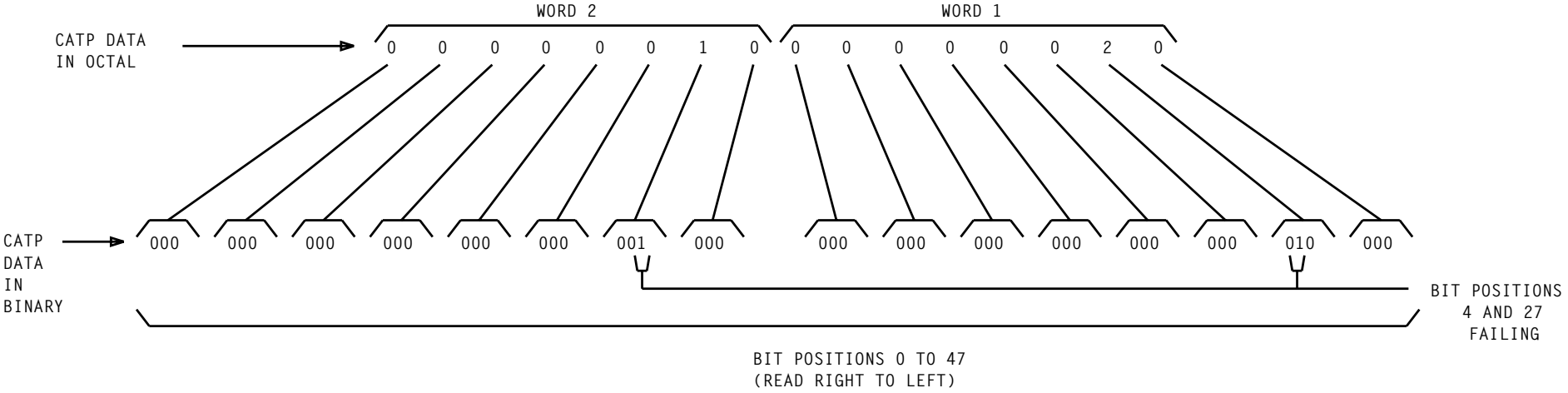
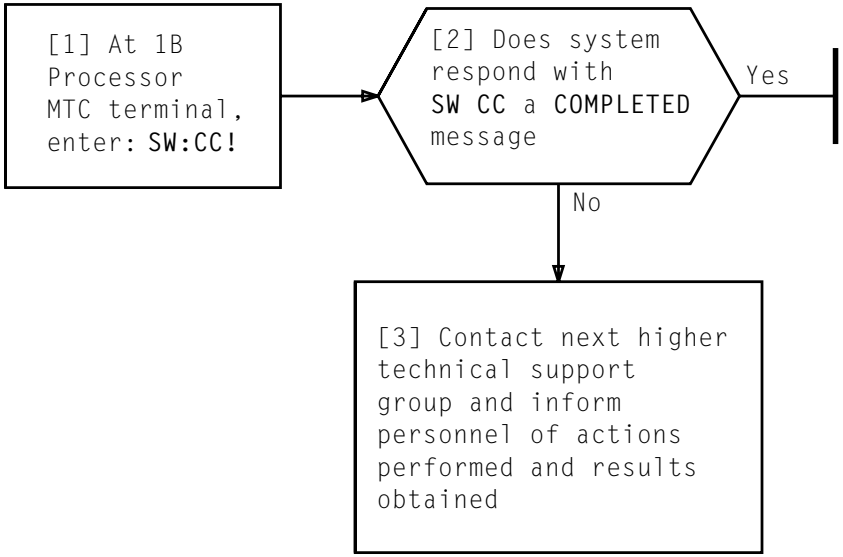


Figure 2 – Example of CATP Data Octal To Binary Conversion

IDENTIFY CONDITIONS CAUSING DIAGNOSTICS TO COMPLETE WITH CATP RESULTS


[1] At 1B Processor MTC terminal, enter: SW:CC!
[2] Does system respond with SW CC a COMPLETED message
Yes
No
[3] Contact next higher technical support group and inform personnel of actions performed and results obtained

[1] See WARNING 1. Ensure bus scoping tool BTR connector is connected to applicable BTR [Figure 1, Page 2]

[2] Ensure oscilloscope channel 1 probe is connected to positive (P) pin of bus scoping tool bit selector box [Figure 1, Page 2]

[3] Ensure oscilloscope channel 2 probe is connected to negative (N) pin of bus scoping tool bit selector box [Figure 1, Page 2]

[4] Ensure oscilloscope channel 1 and channel 2 probe ground leads are connected together [Figure 1, Page 2]

[5] Using scoping tool bit selector box, rotate selector to applicable position for bit to be scoped [TABLE A]

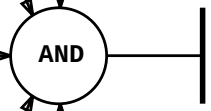


TABLE A
BUS SCOPING TOOL BIT SELECTOR BOX BIT SELECTOR POSITIONS

BIT	ASSOCIATED BUS SCOPING TOOL SELECTOR POSITION	BIT	ASSOCIATED BUS SCOPING TOOL SELECTOR POSITION
0	0	12	4
1	1	13	5
2	2	14	6
3	3	15	7
4	4	16	0
5	5	17	1
6	6	18	2
7	7	19	3
8	0	20	4
9	1	21	5
10	2	22	6
11	3	23	7

WARNING 1

Bus scoping tool is designed to be used as an aid when scoping the auxiliary unit bus (AUB) in the 1B Processor community. Use of this tool to scope any other circuitry within the 1B Processor community could possibly cause service interruptions and/or equipment damage

REVIEW USAGE OF BUS SCOPING TOOL

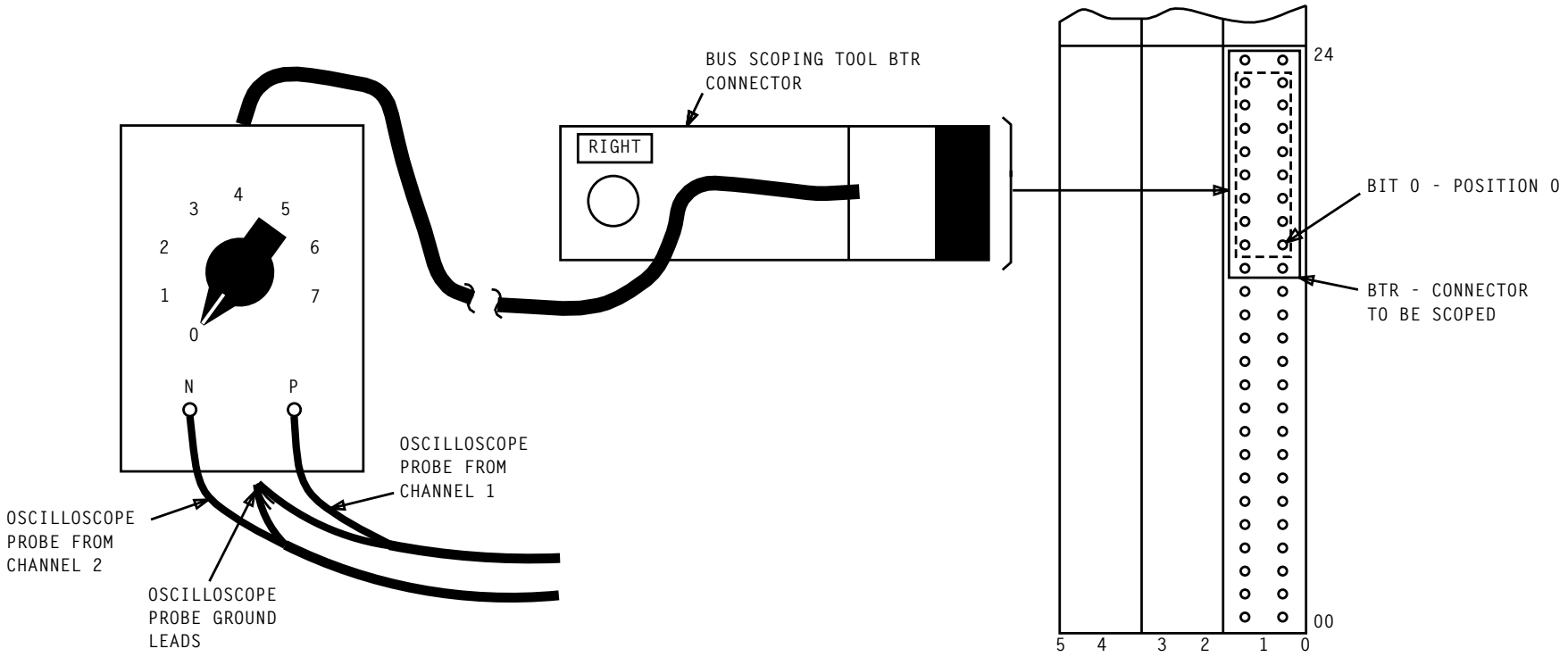
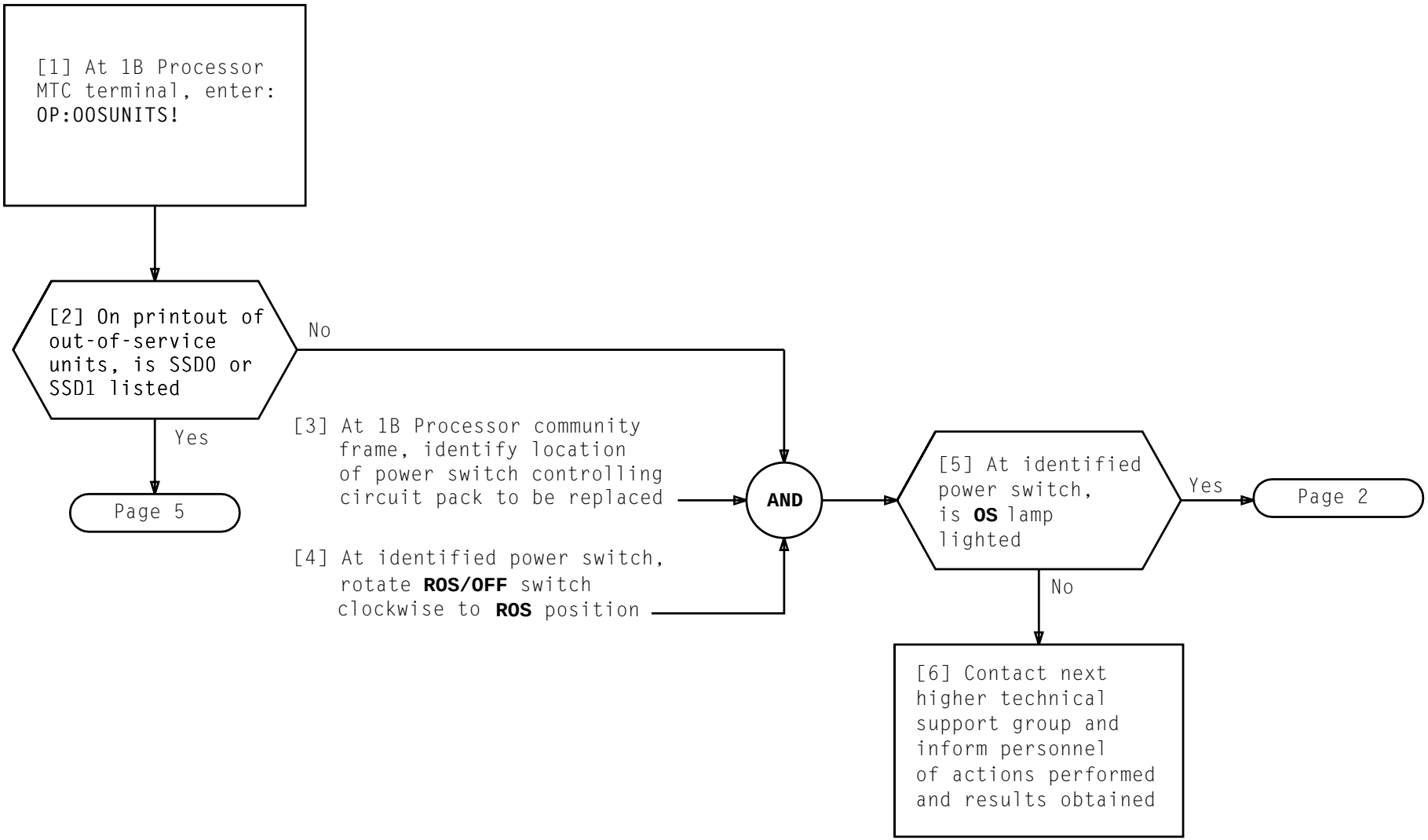


Figure 1 – Bus Scoping Tool, Oscilloscope Probes and BTR Connections for Scoping Auxiliary Unit Bus (AUB)

REVIEW USAGE OF BUS SCOPING TOOL



REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET

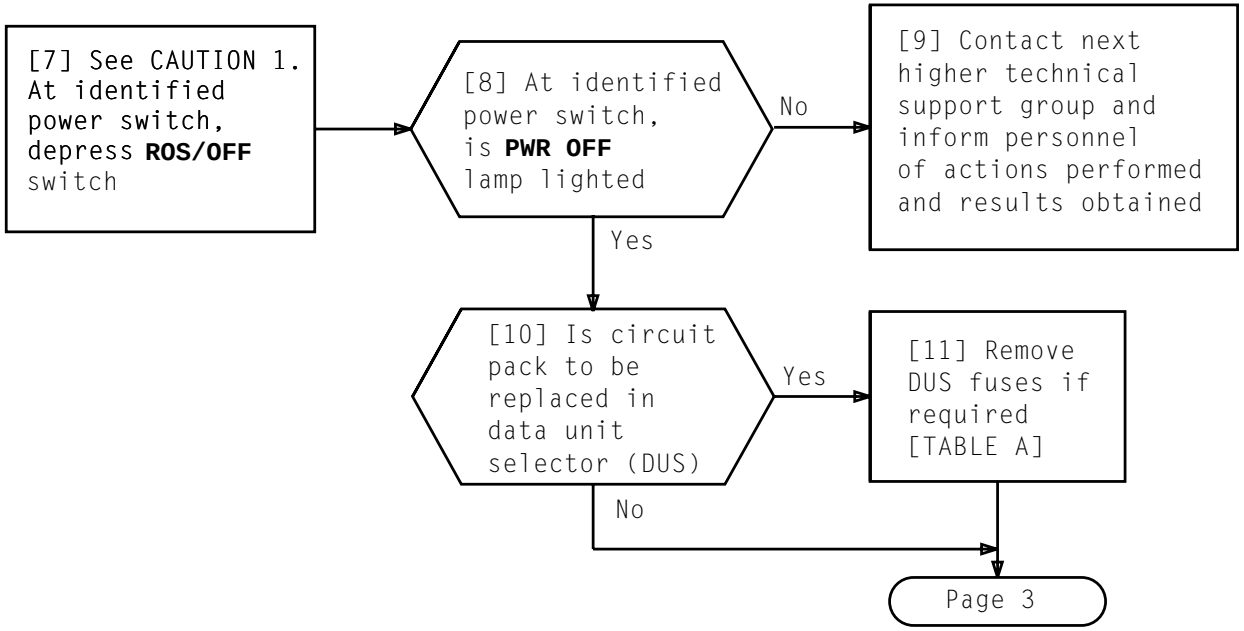


TABLE A
DUS CIRCUIT PACKS REQUIRING FUSE REMOVAL

CIRCUIT PACK LOCATION	FUSE	
	NAME	LOCATION
80-37	**+24-V5** **+24-V7**	77-04 77-04
76-42, 76-43, 76-45, 76-47	**+24-V6**	77-04

CAUTION 1
Powering down an out-of-service unit should not cause system recovery actions (interrupts, phases, etc.) to be initiated. If system recovery actions are initiated when powering down an OOS unit, another unit may be at fault. Immediately confirm that the switch is processing calls. If there are indications of a continuing outage, power up the unit previously powered down. If there are no indications of a continuing outage, determine the unit that caused the system recovery actions to be initiated and correct the fault in that unit before continuing to work on the OOS unit originally powered down

REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET

[12] Locate circuit pack to be replaced

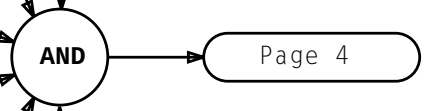
[13] See WARNING 1. Remove circuit pack to be replaced

[14] Obtain replacement circuit pack and visually inspect pack, pack connector and backplane connector pins for obvious defects

[15] See WARNING 1 and NOTE 1. Insert and properly seat replacement pack

[16] Replace any fuses previously removed

[17] See CAUTION 2. At identified power switch, depress and hold **ON** pushbutton for 2 seconds



NOTE 1

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack (using pack seating mechanism) does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

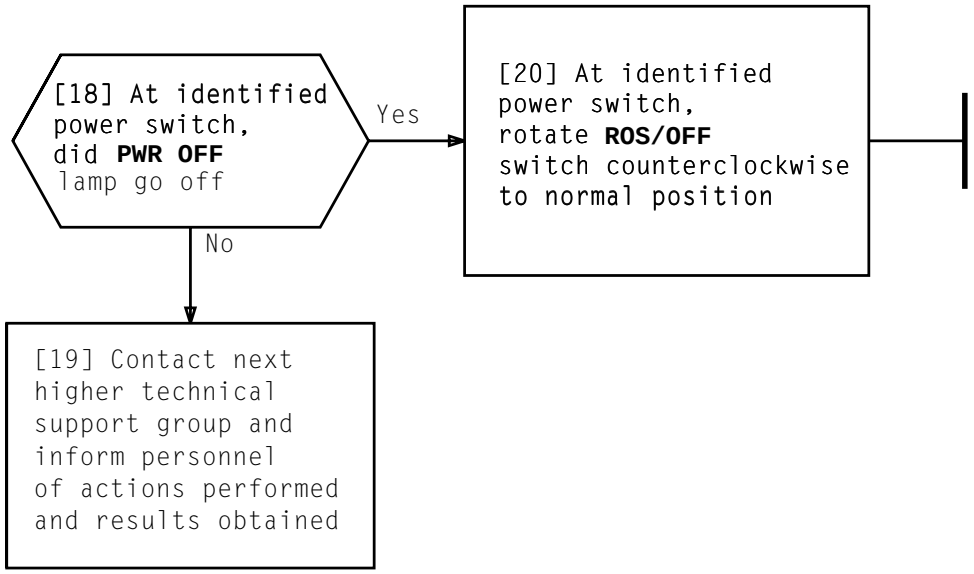
WARNING 1

*A grounded antistatic wrist strap (**R-4987** or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*

CAUTION 2

If system recovery actions (interrupts, phases, etc.) are initiated when powering up any unit (CC, CS, etc.), the suspected cause should be the unit just powered up. Therefore, the first action to take in this situation should be to power down the unit just powered up in an attempt to clear the reason that system recovery actions were initiated

REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET



REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET

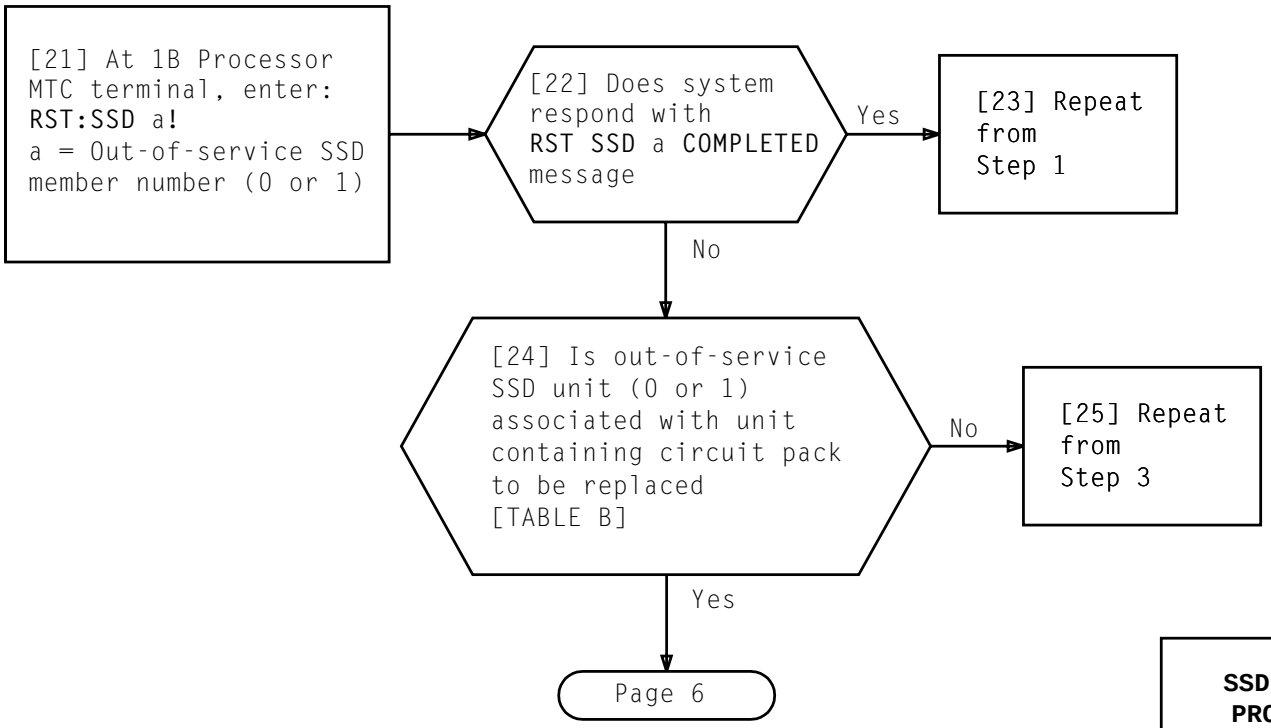


TABLE B
SSD UNIT AND ASSOCIATED 1B PROCESSOR UNITS IN FRAMES OTHER THAN 1B PROCESSOR CABINET

UNIT CONTAINING CIRCUIT PACK TO BE REPLACED	ASSOCIATED SSD UNIT
DUS0 TUC0 API0	SSD0
DUS1 TUC1 API1	SSD1

REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET

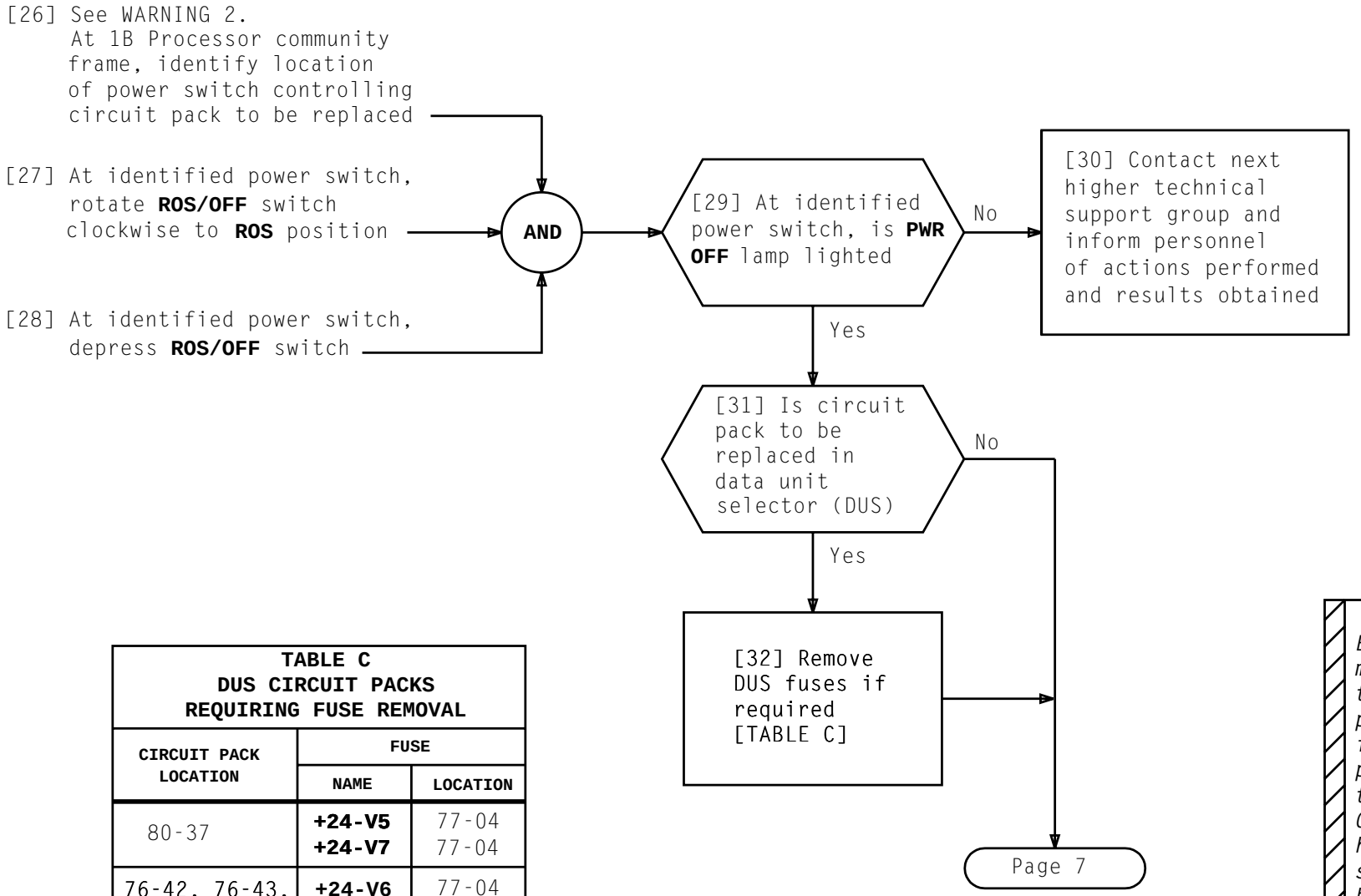
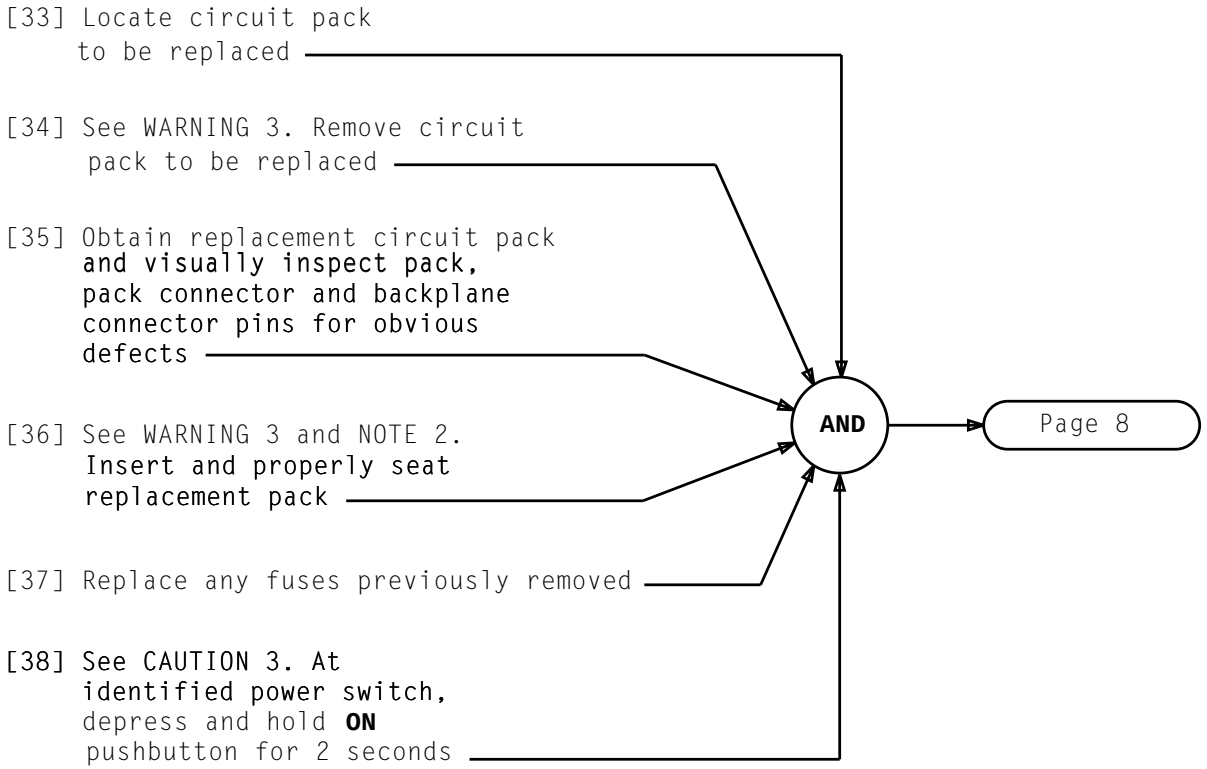


TABLE C
DUS CIRCUIT PACKS REQUIRING FUSE REMOVAL

CIRCUIT PACK LOCATION	FUSE	
	NAME	LOCATION
80-37	**+24-V5** **+24-V7**	77-04 77-04
76-42, 76-43, 76-45, 76-47	**+24-V6**	77-04

WARNING 2
Extreme caution must be taken to ensure circuit pack replacement is being performed in the correct unit. Consulting next higher technical support group before manually overriding power switch may be required per local practice

REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET



NOTE 2

Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack (using pack seating mechanism) does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

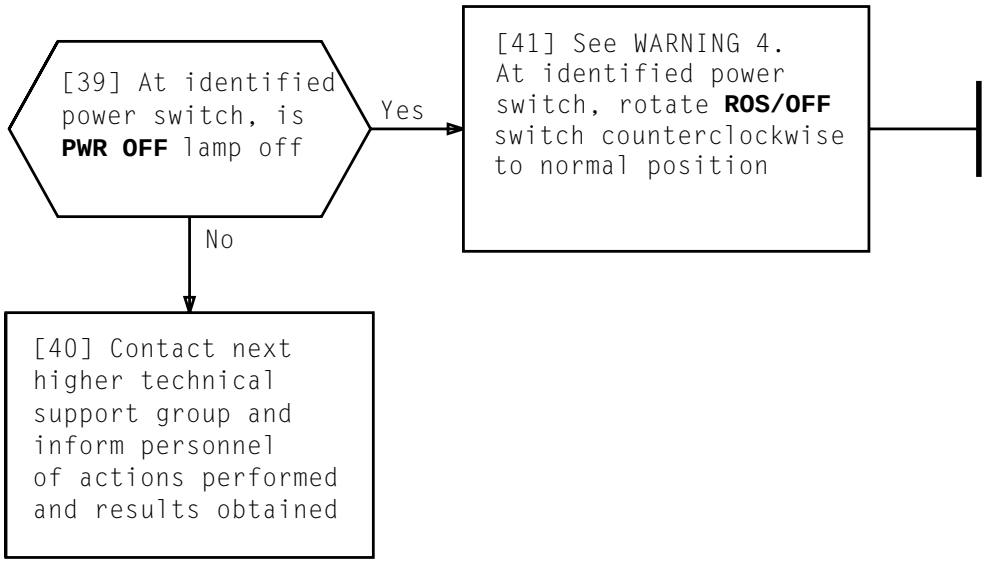
WARNING 3

*A grounded antistatic wrist strap (**R-4987** or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*

CAUTION 3

If system recovery actions (interrupts, phases, etc.) are initiated when powering up any unit (CC, CS, etc.), the suspected cause should be the unit just powered up. Therefore, the first action to take in this situation should be to power down the unit just powered up in an attempt to clear the reason that system recovery actions were initiated

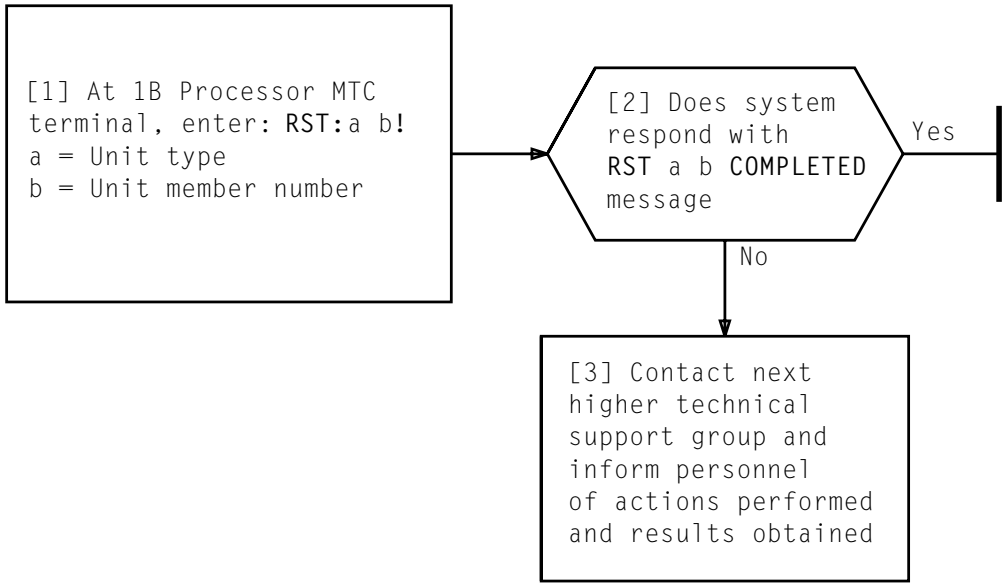
REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET



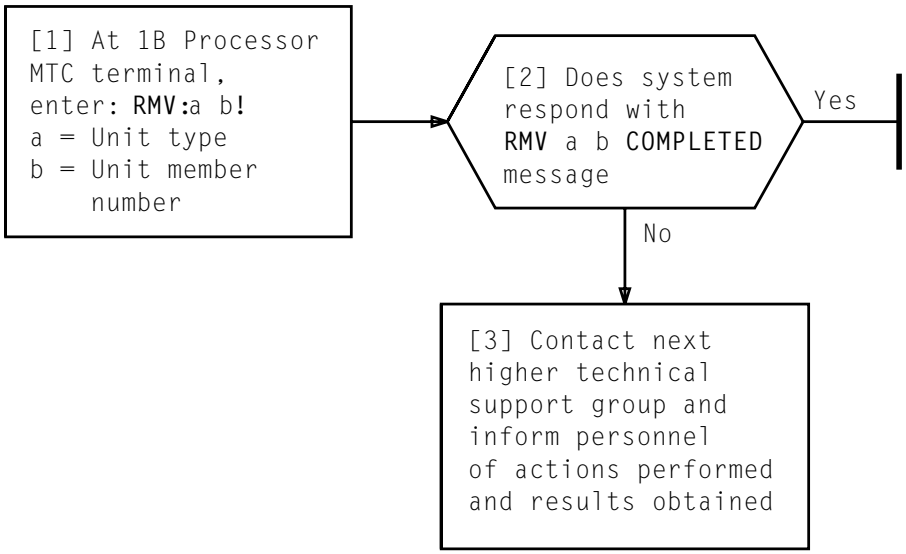
WARNING 4

Extreme caution must still be taken from this point forward due to the SSD unit controlling the power switch scan and signal distributor points being out-of-service. Thus, any **OS** *and* **ACK** *lamp responses controlled via these scan and signal distributor points must be ignored until the out-of-service SSD unit is diagnosed, repaired and restored to service. Consulting next higher technical support group before proceeding may be required per local practice*

REPLACE CIRCUIT PACK — 1B PROCESSOR COMMUNITY FRAME OTHER THAN 1B PROCESSOR CABINET



RESTORE 1B PROCESSOR COMMUNITY UNIT TO SERVICE



REMOVE 1B PROCESSOR COMMUNITY UNIT FROM SERVICE

[1] At 1B Processor MTC terminal, enter:
OP:APSTATUS!

AND

[2] Using APS status printout [Figure 1], determine standby (SBY) API member number and record for later use

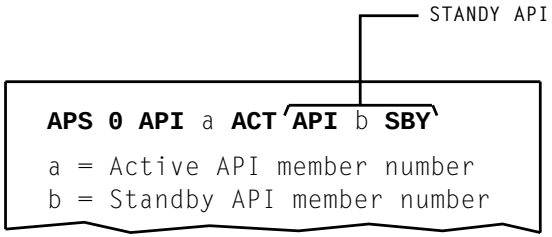
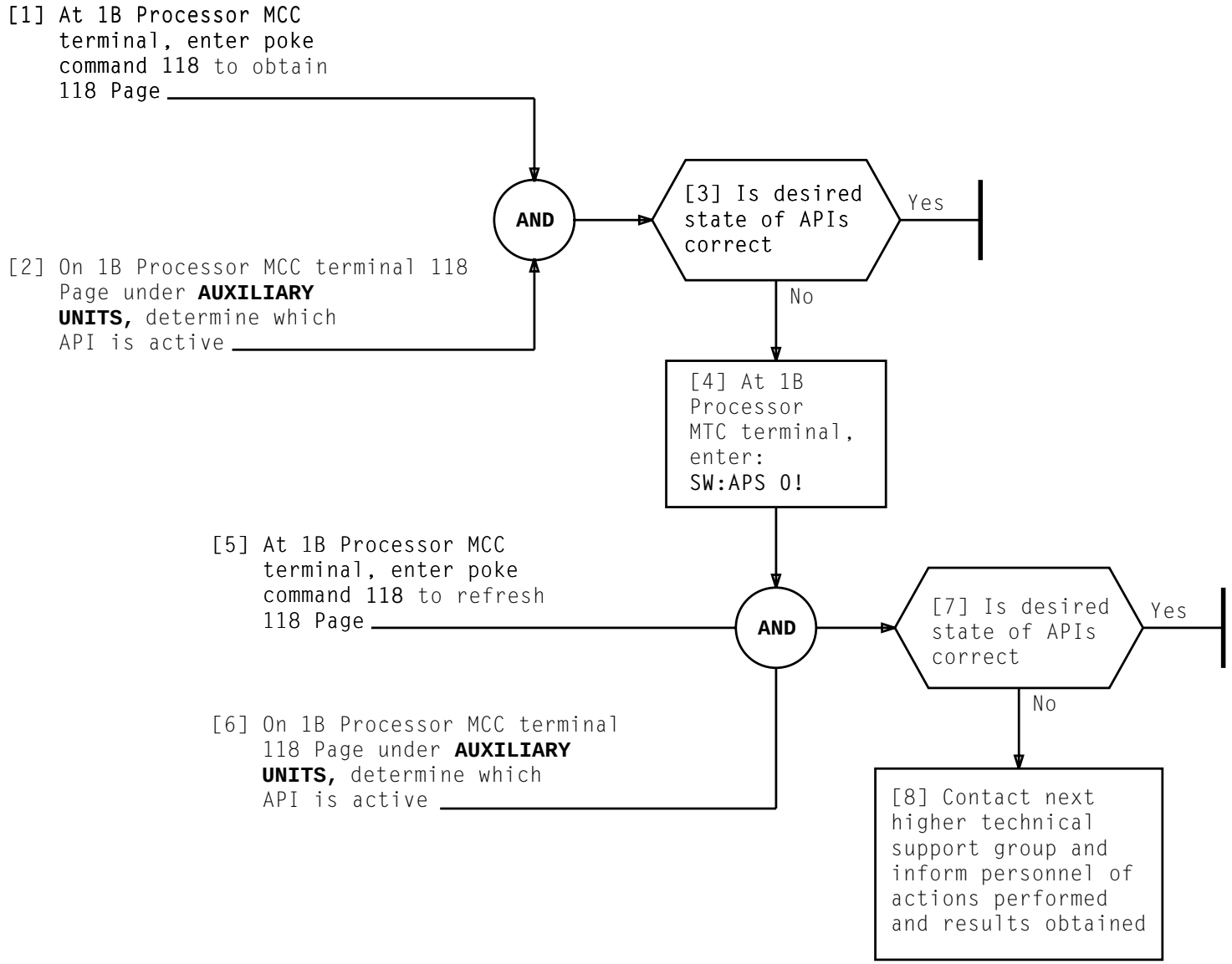
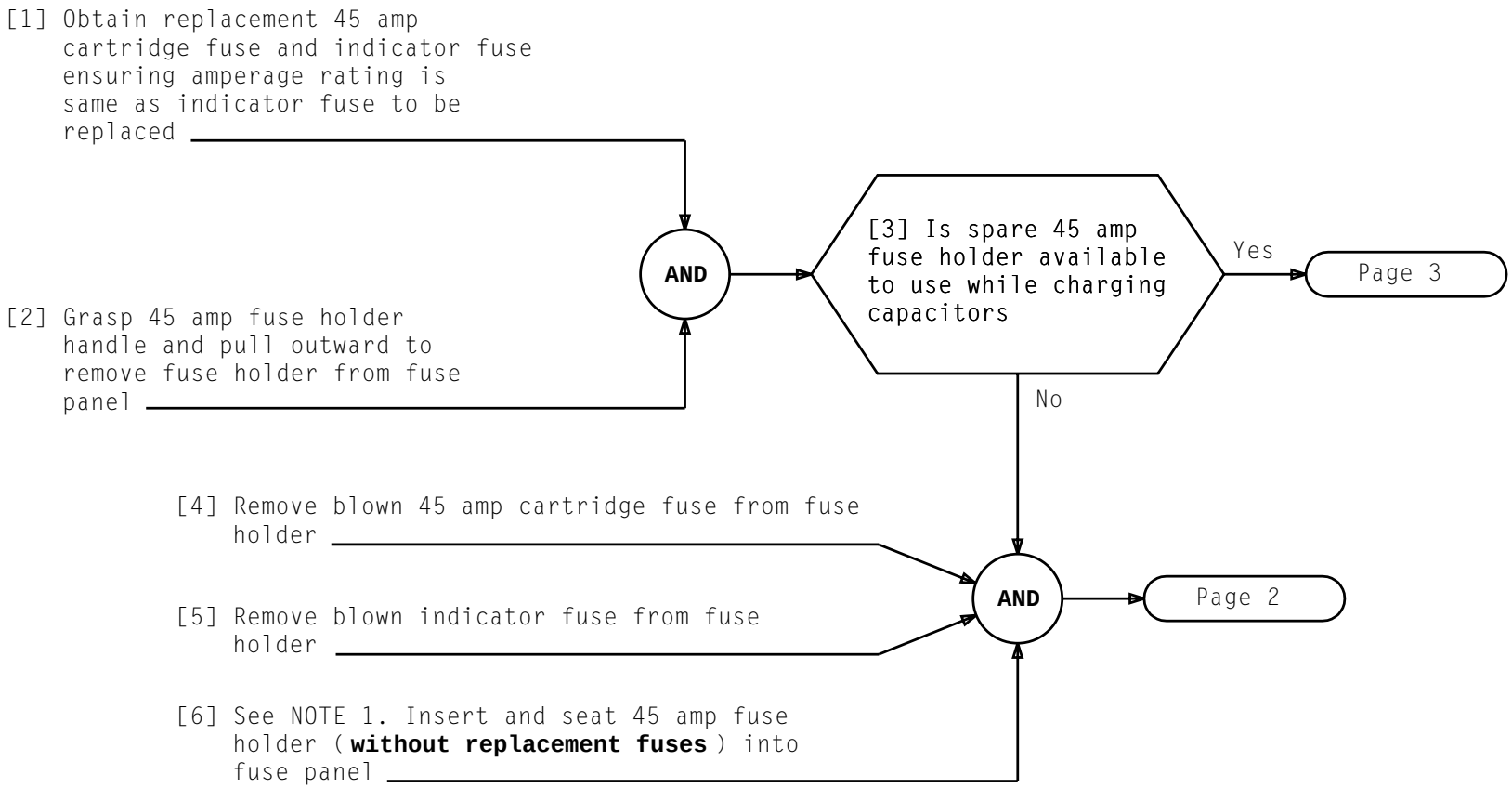


Figure 1 – Sample OP:APSTATUS Printout

DETERMINE STANDBY API


[1] At 1B Processor MCC terminal, enter poke command 118 to obtain 118 Page
AND
[3] Is desired state of APIs correct
Yes
[2] On 1B Processor MCC terminal 118 Page under AUXILIARY UNITS, determine which API is active
No
[4] At 1B Processor MTC terminal, enter: SW:APS 0!
[5] At 1B Processor MCC terminal, enter poke command 118 to refresh 118 Page
AND
[7] Is desired state of APIs correct
Yes
No
[6] On 1B Processor MCC terminal 118 Page under AUXILIARY UNITS, determine which API is active
[8] Contact next higher technical support group and inform personnel of actions performed and results obtained

SWITCH APIs



NOTE 1
Replacement 45 amp cartridge fuse and indicator fuse **must not** be inserted and seated into fuse holder until after capacitors have been charged

CHARGE CAPACITORS AND REPLACE BLOWN 45 AMP FUSE — BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME

[7] Grasp **CHARGE PROBE** and pull from frame

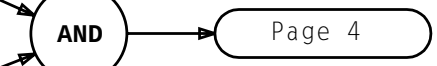
[8] Remove cap from end of **CHARGE PROBE**, insert **CHARGE PROBE** into indicator fuse holder and rotate clockwise to lock into position

[9] See NOTE 2. Depress and hold **CAP CHG TEST** pushbutton until **CAP CHG** LED lights and goes off

[10] Grasp **CHARGE PROBE**, rotate counterclockwise to release and remove probe

[11] Grasp 45 amp fuse holder handle, pull outward to remove, install replacement 45 amp cartridge fuse and insert/seat fuse holder into fuse panel

[12] Install replacement indicator fuse into fuse holder



NOTE 2

45 amp fuse holder must be removed from fuse panel, 45 amp replacement fuse installed and fuse holder inserted/seated into fuse panel within 12 seconds after **CAP CHG** LED goes off. Otherwise replacement fuse blows again

CHARGE CAPACITORS AND REPLACE BLOWN 45 AMP FUSE – BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME

[13] Obtain spare 45 amp fuse holder and ensure no cartridge fuse or indicator fuse is installed in holder

[14] Obtain 45 amp fuse holder containing blown fuses and remove blown 45 amp cartridge fuse and indicator fuse

[15] Insert and seat replacement 45 amp cartridge fuse and indicator fuse into fuse holder previously removed

[16] Insert and seat **spare** 45 amp fuse holder (**without replacement fuses**) into fuse panel

AND

[17] Grasp **CHARGE PROBE** and pull from frame

[18] Remove cap from end of **CHARGE PROBE**, insert ***CHARGE*** **PROBE** into indicator fuse holder and rotate clockwise to lock into position

[19] See NOTE 3. Depress and hold **CAP CHG TEST** pushbutton until **CAP CHG** LED lights and goes off

[20] Grasp **CHARGE PROBE**, rotate counterclockwise to release and remove probe

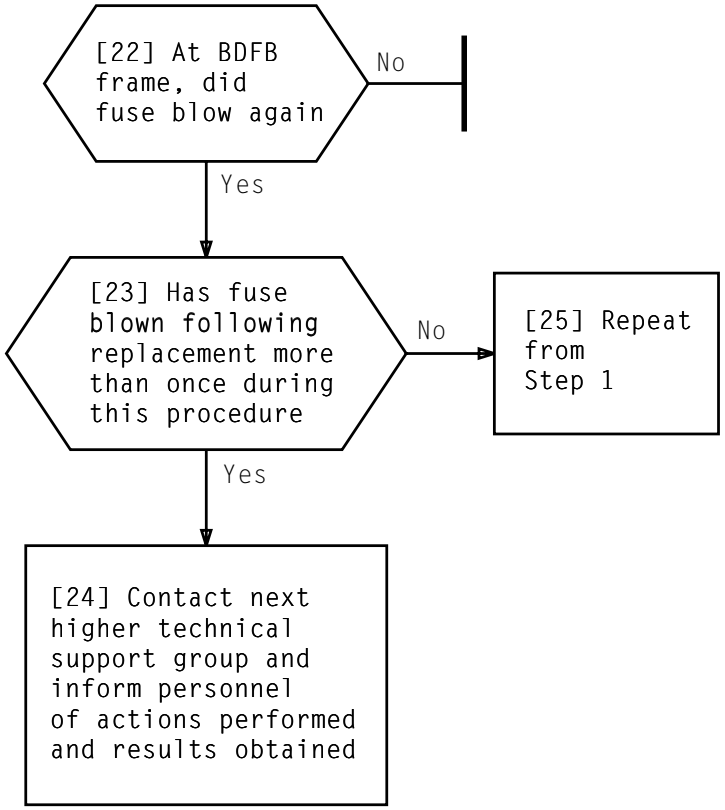
[21] Grasp **spare** 45 amp fuse holder handle in fuse panel, pull outward to remove and insert replacement 45 amp fuse holder (**loaded with replacement fuses**) into fuse panel

AND

Page 4

NOTE 3
Spare fuse holder (**without replacement fuses**) must be removed and replacement fuse holder (loaded with replacement fuses) must be inserted/seated into fuse unit within 12 seconds after **CAP CHG** LED goes off. Otherwise, replacement fuses blow again

CHARGE CAPACITORS AND REPLACE BLOWN 45 AMP FUSE – BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME



CHARGE CAPACITORS AND REPLACE BLOWN 45 AMP FUSE – BATTERY DISTRIBUTION FUSE BOARD (BDFB) FRAME

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
• IXL-001		• DLP-507									
NTP-002		DLP-508									
NTP-003		DLP-509									
NTP-004		DLP-510									
NTP-005		DLP-511									
TAD-100		DLP-512									
TAD-101		DLP-513									
• TAP-102		DLP-514									
TAP-103		DLP-515									
TAP-104		DLP-516									
• TAP-105		DLP-517									
• TAP-106		DLP-518									
TAP-107		DLP-519									
• TAP-108		• DLP-520									
• TAP-109		DLP-521									
• TAP-110		DLP-522									
• TAP-111		DLP-523									
• TAP-112		DLP-524									
ISD-113		DLP-525									
TAP-114		DLP-526									
ISD-115		DLP-527									
ISD-116		DLP-528									
TAP-117		DLP-529									
• TAP-118		CKL-891									
TAP-119		TNG-893									
TAP-120											
TAP-121											
TAP-122											
DLP-500											
DLP-501											
• DLP-502											
DLP-503											
DLP-504											
DLP-505											
• DLP-506											

• REVISED OR ADDED ITEM ☐ CANCELED ITEM

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234-351-016 | CKL

CHECKLIST