Task Oriented Practice
(TOP)

SWITCHING NETWORK

4 *ESS*™ SWITCH

FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
Acceptance	NTP-002
Automatic Power Monitor Failure — Clear	TAP-129
Circuit Pack — Replace	DLP-500
Converter (245A With 245A); Bulk — In SD-4A087-01 Frame — Replace	NTP-004
Converter (245C With 245C); Bulk — In SD-4A087-01 Frame — Replace	NTP-005
Converter (245A With 245C); Bulk — In SD-4A087-01 Frame — Replace	NTP-006
Converter (245C With 245A); Bulk — In SD-4A087-01 Frame — Replace	NTP-007
Converter; Non-Bulk — Replace	DLP-511
Capacitor; Filter — Replace	DLP-524
Demand Diagnostic Phase 9 — Perform	NTP-003
Diagnostic Failure By Analyzing Raw Data and Replacing Any Suspect Packs — Clear	TAP-102
Diagnostic Failure By Replacing Packs on TLP Suspected Faulty Equipment List — Clear	TAP-101
Fuse; Blown — SD-4A012-01 — Clear	TAP-114
Fuse; Blown — SD-4A012-02 — Clear	TAP-116
Fuse; Blown — SD-4A087-01 — Clear	TAP-120
Lamps; Power Switch — Test	DLP-512
LED; Lighted — Bulk Converter and FC554 Circuit Pack, SD-4A087-01 — Clear	TAP-112
LED; Lighted — FB152 Pack, SD-4A012-01 and SD-4A012-02 — Clear	TAP-118
LED; Lighted — Nonbulk Converter — Clear	TAP-107
LEDs; Lighted — Bulk Converter, FC554 and FC512 Circuit Packs, SD-4A087-01 — Clear	TAP-127

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

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

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} SUSPECTED FAULTY EQUIPMENT
Note column does not contain NOTE 2 . . . . . TAP-101

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} SUSPECTED FAULTY EQUIPMENT
Note column contains NOTE 2
Fuse blown SD-4A012-01 . . . . . TAP-114

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} SUSPECTED FAULTY EQUIPMENT
Note column contains NOTE 2
Fuse blown SD-4A012-02 . . . . . TAP-116

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} SUSPECTED FAULTY EQUIPMENT
Note column contains NOTE 2
Fuse blown SD-4A012-01 . . . . . TAP-120

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} SUSPECTED FAULTY EQUIPMENT
Note column contains NOTE 2
No fuses blown TAP-129

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d}
TLP PROGRAM ABORTED TAP-122

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} TLP
WARNING:VERSION X DOES NOT MATCH EXPECTED VERSION Y TAP-123

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} TLP
CURRENT TLP SEARCH ABORTED
ALL PENDING TLP SEARCHES INHIBITED TAP-128

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

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
ANALY:TLPFILE TMSP a,{CONTR b|COIPUB c|C1IPUB d} TLP
TLP TAPE AQUISITION ERROR
MOUNT TAPE WITH FILE = f TAP-124

TTY Printout DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d} PH e STF
REPT:TAPE MUST BE MOUNTED FOR FUNCTION TLP TAP-125

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

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO		
1	Type in **OP:OOSUNITS:TMSP,TSI!**	–
	NOTE: Both Time Multiplexed Switching and Time Slot Interchange Frames with their respective mates must be available for diagnostic testing	
2	Determine Availability of Time Multiplexed Switching and Time Slot Interchange Frames for Test as indicated by **OP:OOSUNITS:TMSP,TSI** Response	–
3	Initiate Diagnostic Phase 9 **(DGN:TMSP** a**;CONTR** b**:PH 9,RTSI** c**,TTSI** c**,OPTION 10!) (DGN:TMSP** a**,CONTR** b **COMPLETED ATP** Output Message Required) (a = TMS Member Numbers 0-3, b = TMS Controller Numbers 0-1, c = TSI Member Numbers 0-63)	DLP-517
4	Restore to Service **(RST:TMSP** a **CONTR** b**!) (RST:TMSP** a **CONTR** b **COMPLETED** Output Message Required) (a = Member Numbers 0-3, b = Controller Numbers 0-1)	–
5	Repeat From Item 2 for All Combinations of TMS, TTSI, and RTSI	–

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	At Frame Power Control Switch in Bay Containing Converter, Rotate **ROS**/**OFF** Switch to **ROS** Position	—
2	Ensure **OS** Lamp Lighted on Power Control Switch	—
3	Replace Bulk Converter (245A With 245A)	DLP-509
4	Rotate **ROS**/**OFF** Switch to Normal Position	—
5	Ensure **OS** Lamp Goes Out After Diagnostic Completed ATP	—

REPLACE BULK CONVERTER (245A WITH 245A) IN SD-4A087-01 FRAME

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	At Frame Power Control Switch in Bay Containing Converter, Rotate **ROS**/**OFF** Switch to **ROS** Position	—
2	Ensure **OS** Lamp Lighted on Power Control Switch	—
3	Replace Bulk Converter (245C With 245C)	DLP-521
4	Rotate **ROS**/**OFF** Switch to Normal Position	—
5	Ensure **OS** Lamp Goes Out After Diagnostic Completed ATP	—

REPLACE BULK CONVERTER (245C WITH 245C) IN SD-4A087-01 FRAME

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	At Frame Power Control Switch in Bay Containing Converter, Rotate **ROS**/**OFF** Switch to **ROS** Position	—
2	Ensure **OS** Lamp Lighted on Power Control Switch	—
3	Replace Bulk Converter (245A With 245C)	DLP-522
4	Rotate **ROS**/**OFF** Switch to Normal Position	—
5	Ensure **OS** Lamp Goes Out After Diagnostic Completed ATP	—

REPLACE BULK CONVERTER (245A WITH 245C) IN SD-4A087-01 FRAME

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	At Frame Power Control Switch in Bay Containing Converter, Rotate **ROS**/**OFF** Switch to **ROS** Position	—
2	Ensure **OS** Lamp Lighted on Power Control Switch	—
3	Replace Bulk Converter (245C With 245A)	DLP-523
4	Rotate **ROS**/**OFF** Switch to Normal Position	—
5	Ensure **OS** Lamp Goes Out After Diagnostic Completed ATP	—

REPLACE BULK CONVERTER (245C WITH 245A) IN SD-4A087-01 FRAME

GENERAL

The maintenance philosophy contained in this volume is based upon the 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 this depends upon input and feedback from the user. Additions, corrections, and improvements to the data are encouraged. Manufacturer, engineering and software documentation such as I/O Manuals, SDs, PKs, PRs, etc, are referred to 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 the parameters involved in the circuits being tested, adjusted, or checked are usually prescribed. Setup and method of use is not described unless it is unusual or unique.

IXL Philosophy [IXL-001]

The IXL is structured to provide fast access to those procedures pertinent to the symptoms identified. Procedures unique to a particular modification of frame are identified by that frame's SD number. If not so identified, the procedure would apply to all modifications.

Power problems are sensed by scan points which generate an alarm. It is assumed that the user following the aisle pilot lights can locate the frame with the power fault which is automatically powered down (**PWR OFF** lamp lighted and **OFF NORM** lamp off) or by reading REPT:PA printout which would identify the frame with power fault. The precise structure of the message is given in the input/output (I/O) message manuals. Symptoms described in the IXL reflect the assumptions above, 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 fuse blown, lighted LEDs on converters, or 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 printouts listed. Outside of the first two supplementary messages (ANALY:TLPFILE:) 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 to the appropriate procedure [TAP-101] which tells you what to do with this list. If not successful, they reference to the next level of trouble clearing, raw data analysis [TAP-102] which is an alternative to the first and common trouble clearing approach.

TAP PHILOSOPHY

When documenting a procedural approach to trouble clearing, certain assumptions are made. It is assumed that one fault is being cleared at a time. When directing the user to perform an action, it is assumed that he performs that action 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,

are assumed to be good. Only consistent fault signatures are covered.

Trouble-clearing TAPs provided for diagnostic failures are provided on three levels. Level one [TAP-101] 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 with diagnostic printouts.

Second level of trouble clearing is accessed from first level TAP when TLP generated **SUSPECTED FAULTY EQUIPMENT** list has been exhausted without clearing the problem or it can be accessed directly from the IXL or any of the **ANALY:TLPFILE:** TAPs which produce a **NULL PACK TEST GENERATED** response. This level [TAP-102] is known as raw data analysis and describes what to do with the summary and supplemental data printed out either with or instead of the **SUSPECTED FAULTY EQUIPMENT** list. It is expected that this will lead to an identification of faulty circuits within SD and possibly additional suspect circuit packs not previously identified. This level of trouble clearing is more complex and requires knowledge of equipment, of TTY techniques and printouts, and of SDs, PKs, PRs, etc.

Third level of trouble clearing is signal tracing using interactive diagnostics [TAP-103]. This procedure is accessible only from the previous level [TAP-102] 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 but with additional knowledge and skill in the set-up 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 (faulty component determined) and only repair or replacement required. In many instances, access to these procedures may be obtained by locating procedural data (NTP/DLP) through the Index [IXL-001]. Most DLPs are built 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.

Another method of trouble clearing that may be utilized is F-level interrupt analysis. Trouble-clearing TAPs for F-level interrupts are provided on two levels. The first level addresses how to clear time multiplexed switching F-level interrupts using the SMCC-generated pack list and provides a step-by-step procedure for replacing suspect packs one at a time and analyzing the results. This level requires a familiarity with SMCC terminal operation, register layouts, hardware structures, and general software structures.

The second level addresses how to clear time multiplexed switching F-level interrupts using TOP Volume 234-353-003. This level is accessed from the first level TAP when the SMCC data base failed to produce a suspect pack list. It may also be accessed directly from the IXL of TOP Volume 234-353-003. It is expected this level will lead to an identification of suspect circuit packs by use of PMD description and bit positions set in registers. Replacing suspect circuit packs one at a time and analyzing the results should clear the interrupt. This level requires

a familiarity with F-level printouts, register layouts, bit position descriptions, hardware structures, and general software structures.

The TAPs provided for analyzing F-levels are for recurring interrupts. Therefore, a history of the time interval between interrupts is essential when replacing suspect circuit packs and analyzing the results. Sufficient time should be allowed between replacement of suspect packs for interrupt to recur. Should this be the wrong circuit pack, then the probability is high that the interrupt will occur again with the same symptoms. If interrupt recurs, the next most suspect circuit pack should be replaced. Prior to changing circuit packs, diagnostics should be run with ATP expected. If diagnostics produce:

ATP – The most suspect circuit pack is the first pack on list obtained by analysis of interrupt.

STF – The most suspect circuit pack is the pack that appears on both TLP SUSPECTED FAULTY EQUIPMENT list and list obtained by analysis of interrupt.

EQUIPMENT TEST LIST

This is a list of tasks recommended for preventive maintenance. Tasks are arranged by the frequency of the maintenance beginning with the shortest interval.

FREQUENCY	TASK	PROCEDURE
6 months	Tests Lamps on Power Switch	DLP-512

SUMMARY

Replace all listed packs located in failed TMS frame half beginning with first pack listed. After each pack replacement, check diagnostic results to determine if trouble was cleared. If after all listed packs for failed TMS half and any TSI helper unit have been replaced and trouble is not cleared, perform raw data analysis using TAP-102.

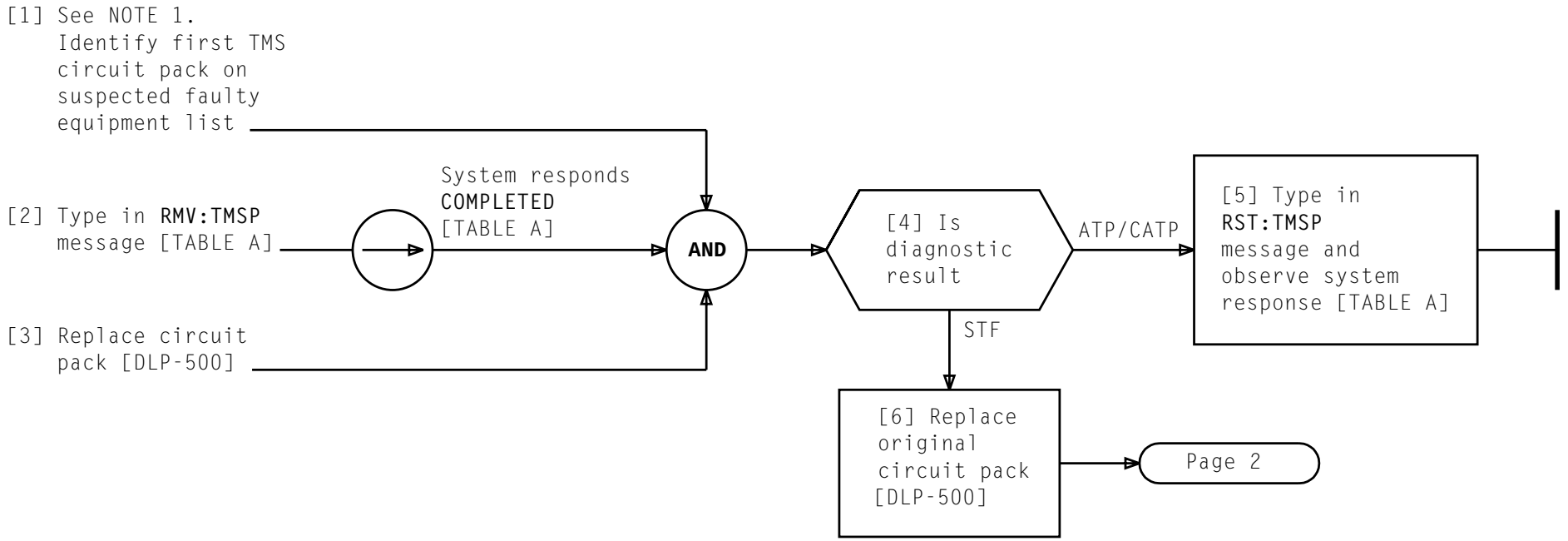

TABLE A

INPUT MESSAGE	RESPONSE
RMV:TMSP a,{CONTR b|COIPUB c|C1IPUB d}!	RMV:TMSP a,{CONTR b|COIPUB c|C1IPUB d}COMPLETED
RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d}!	RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d}COMPLETED

a, b, c and d = member and submember numbers

NOTE 1
Red designation marker at pack to be replaced indicates fuse removal required to replace pack

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

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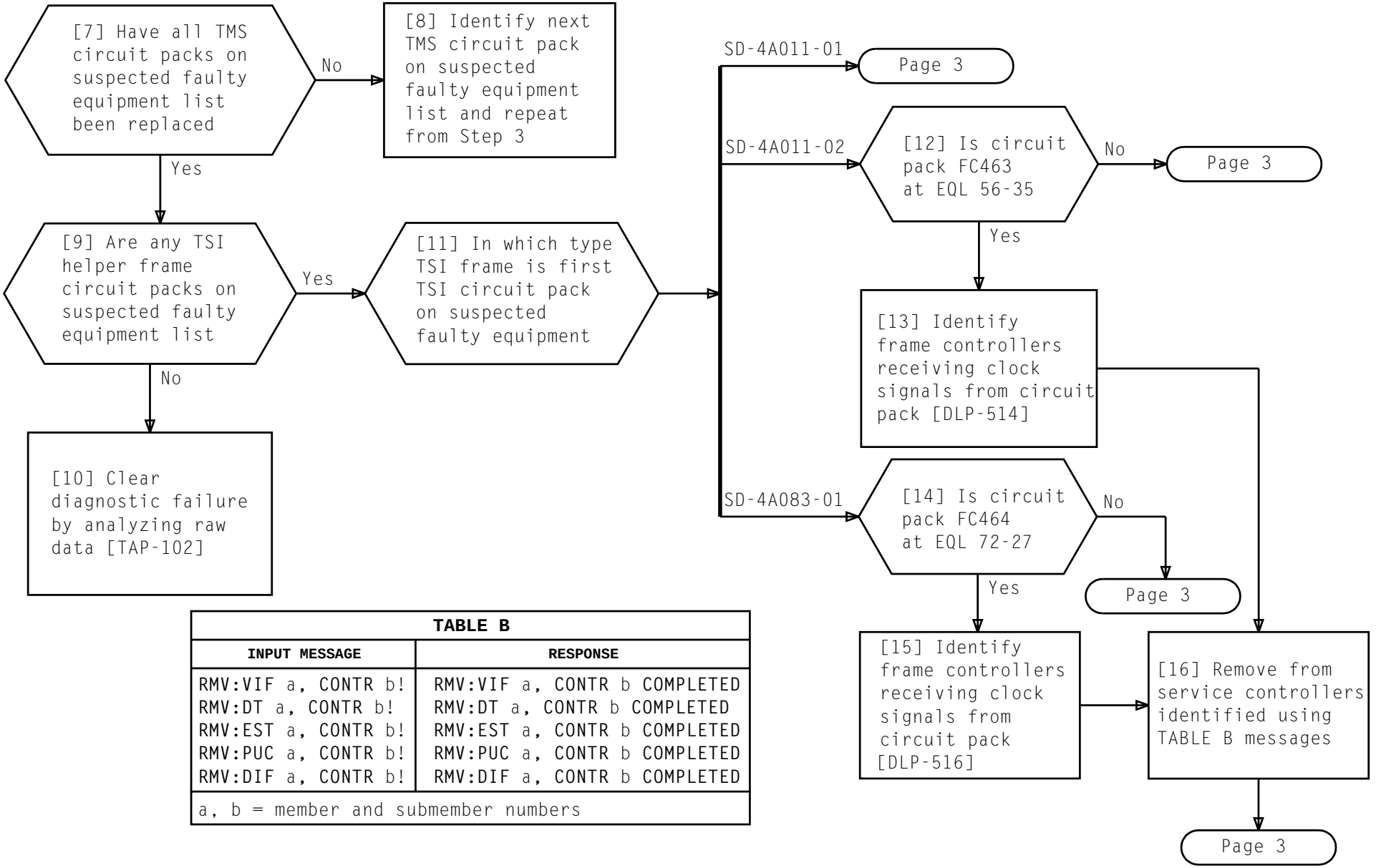


TABLE B

INPUT MESSAGE	RESPONSE
RMV:VIF a, CONTR b!	RMV:VIF a, CONTR b COMPLETED
RMV:DT a, CONTR b!	RMV:DT a, CONTR b COMPLETED
RMV:EST a, CONTR b!	RMV:EST a, CONTR b COMPLETED
RMV:PUC a, CONTR b!	RMV:PUC a, CONTR b COMPLETED
RMV:DIF a, CONTR b!	RMV:DIF a, CONTR b COMPLETED

a, b = member and submember numbers

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

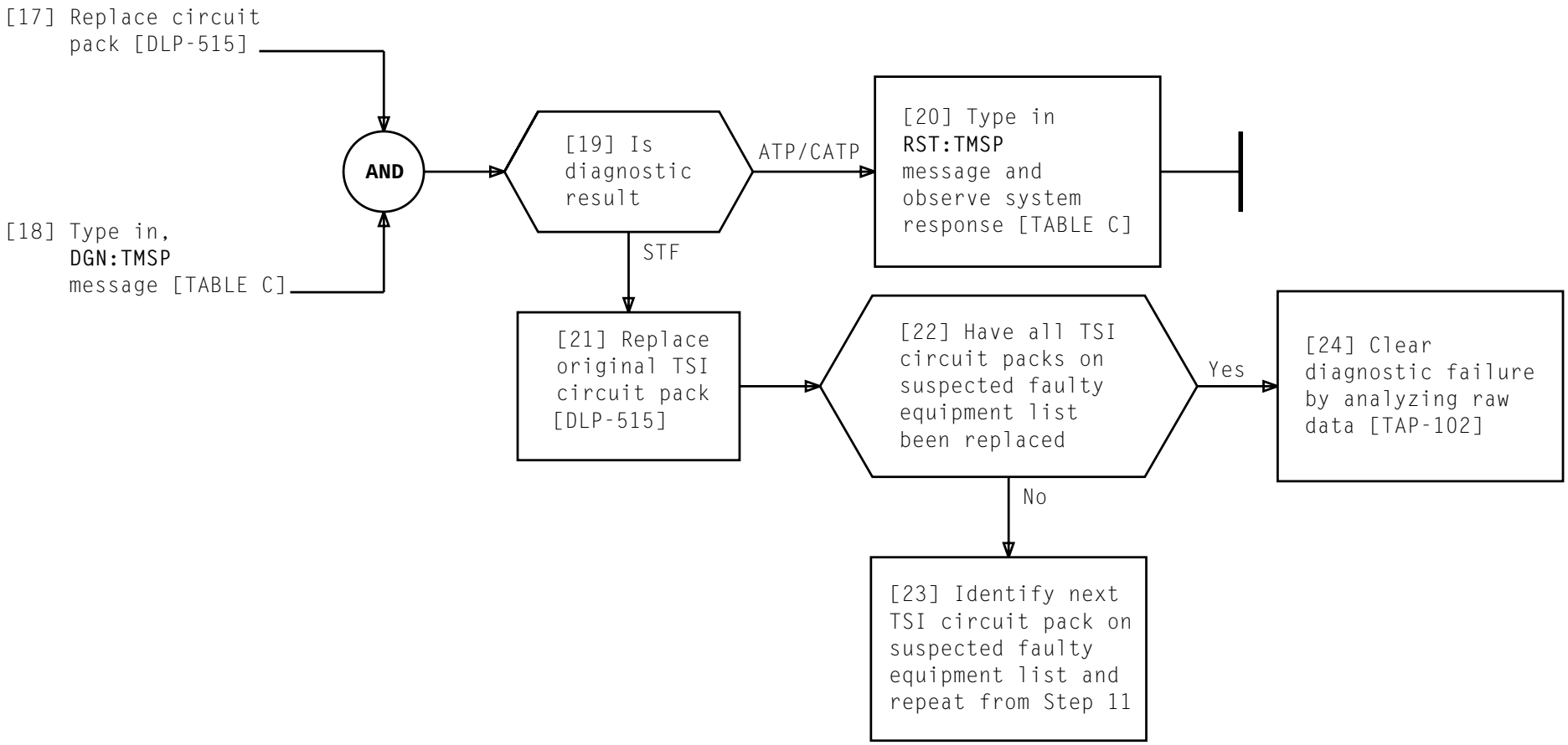


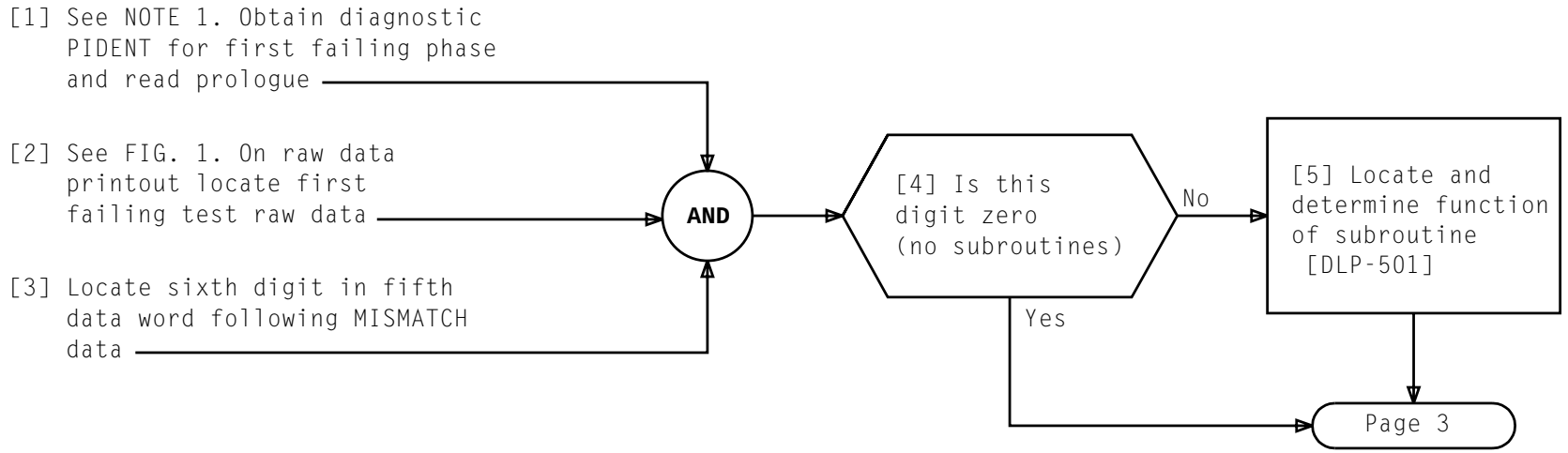
TABLE C

INPUT MESSAGE	RESPONSE
DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d},TLP,CONTR e!	
RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d}!	RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d}COMPLETED
a,b,c,d,e = member and submember numbers	

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

SUMMARY

Read first failing phase prologue. Determine if subroutines were used and identify their location and function. Locate first failing test and determine test function. Determine if doloops were used and identify their location and function. Use SDs/CDs and knowledge of first failing test function to identify and replace any suspect packs other than those previously replaced. If trouble is not cleared, refer to TAP-103 (clear diagnostic failure by looping over first failing test and signal tracing to locate fault)



NOTE 1

PR number = 4A568 + phase number except phase 9 = 4A673 and IPUB phase 99 = 4A705. PIDENT is PUDGTGXX where XX = phase number subroutines in PUDGTGGR (4A568)

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ANY SUSPECT PACKS

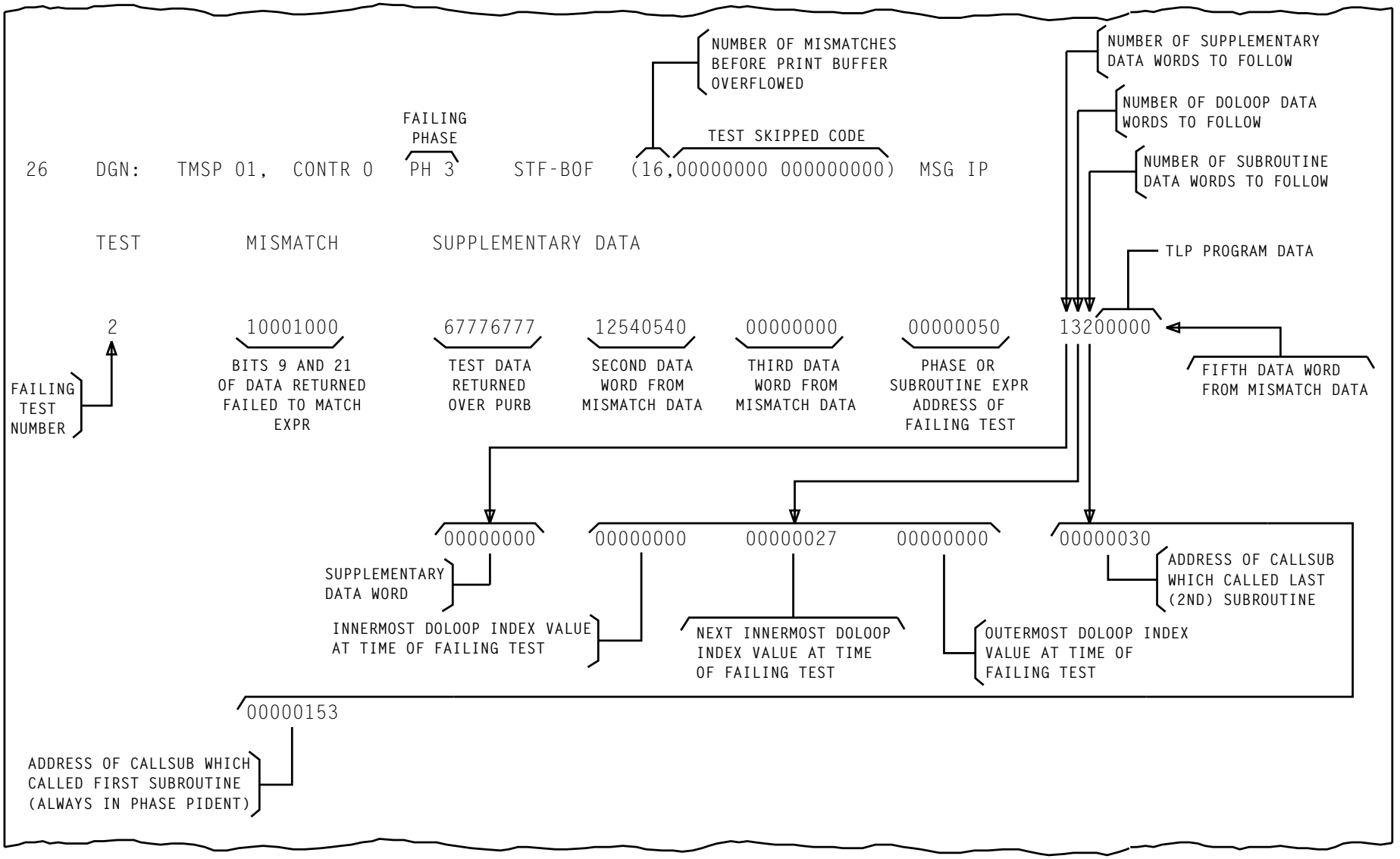


FIG. 1 — Example of TMS Raw Data Printout

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ANY SUSPECT PACKS

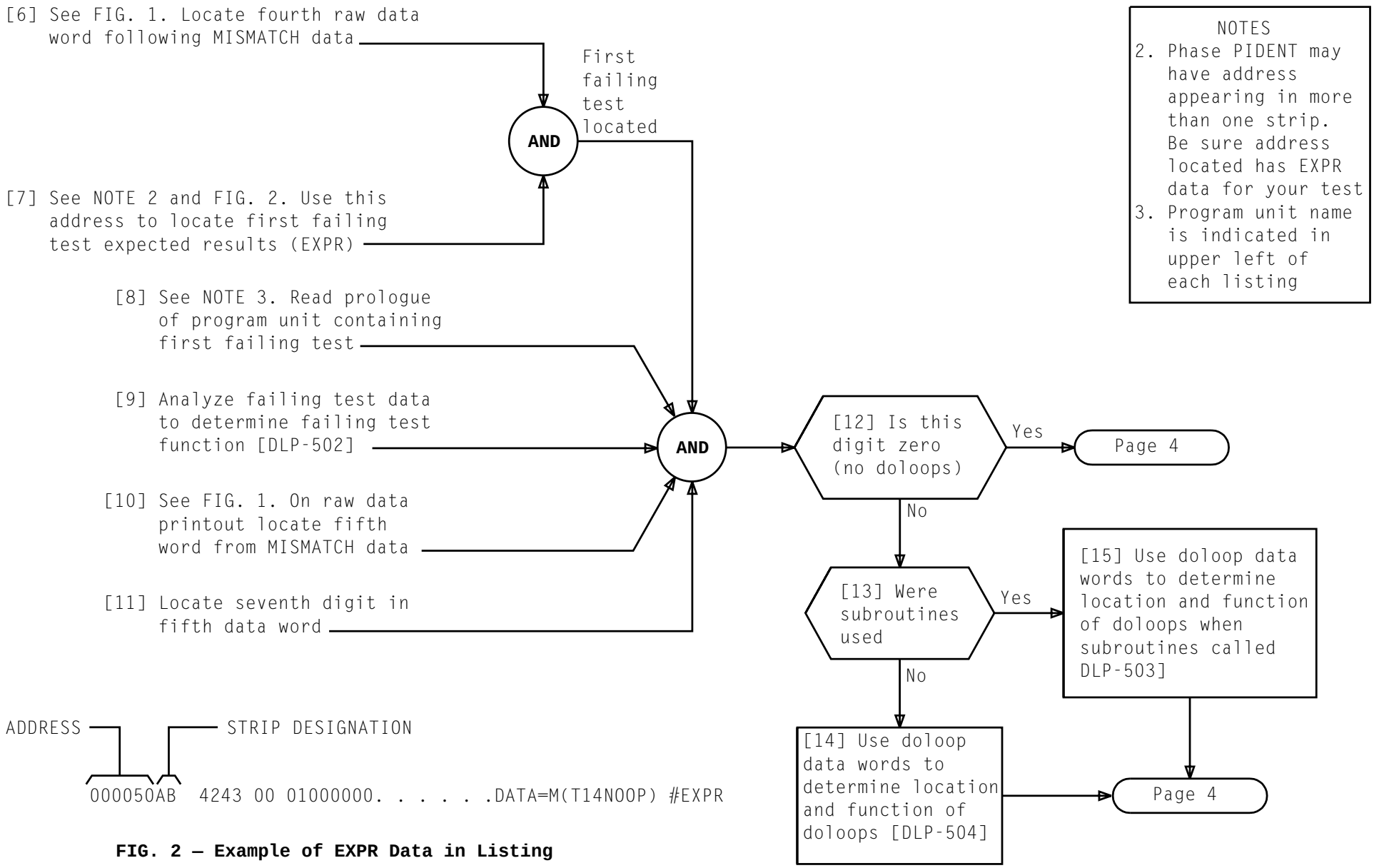
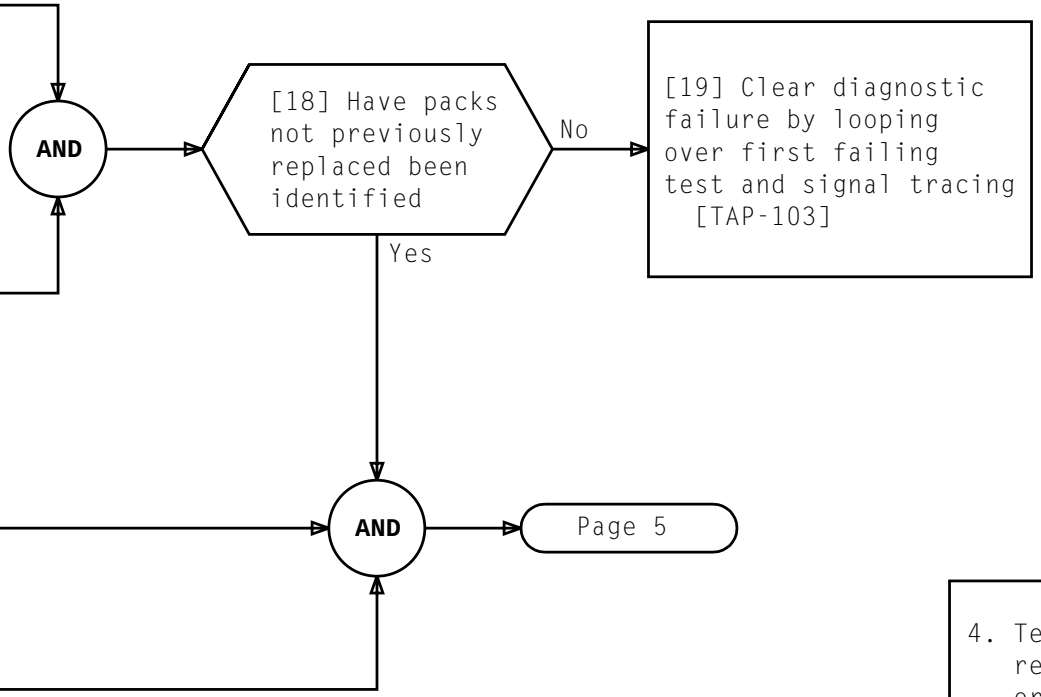


FIG. 2 — Example of EXPR Data in Listing

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ANY SUSPECT PACKS

[16] Using summary data printout and Issue 2 or later Test Access PK Document, attempt to identify an SD lead in path of failing bit
TMS = PK-4A021-01/02
TMS-B = PK-4A087-01 [DLP-518]

[17] See NOTE 4. Using PR prologue data, knowledge of failing test function, failing bits indicated by MISMATCH data, lead information, and appropriate SDs, identify suspect circuit packs



[20] Type in **RMV:TMSP** message (System responds **RMV:TMSP**) [TABLE A]

[21] See NOTE 5. Replace circuit pack [DLP-500]

NOTES

4. Test failures reads of memory or registers. Fault could be in path of read or in path of write that set up read
5. Red designation marker at pack to be replaced indicates fuse removal required to replace pack

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ANY SUSPECT PACKS

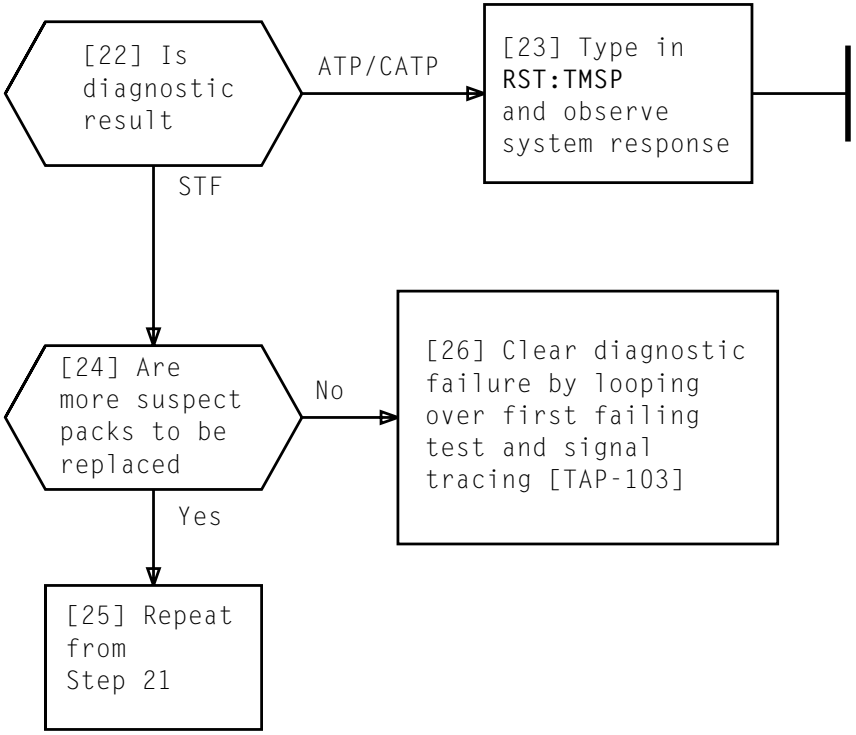


TABLE A

INPUT MESSAGE	RESPONSE
RMV:TMSP a,{CONTR b|COIPUB c|C1IPUB d}!	RMV:TMSP a,{CONTR b|COIPUB c|C1IPUB d}COMPLETED
RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d}!	RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d}COMPLETED

a, b, c, d = member and submember numbers

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ANY SUSPECT PACKS

SUMMARY

Type in TABLE A messages. Verify first failing test raw data printed twice. Resend last TABLE A message with RPT option deleted for infinite loop. Set up scope. If SYNC option is used, attach external sweep trigger to terminal indicated in TABLE B. Using raw data analysis information obtained in TAP-102, SDs/CDs, and circuit pack SDs, signal trace path of failing bits to isolate and clear fault. If F-level interrupt associated with diagnostic failure, see TOP Volume AT&T 234-353-003

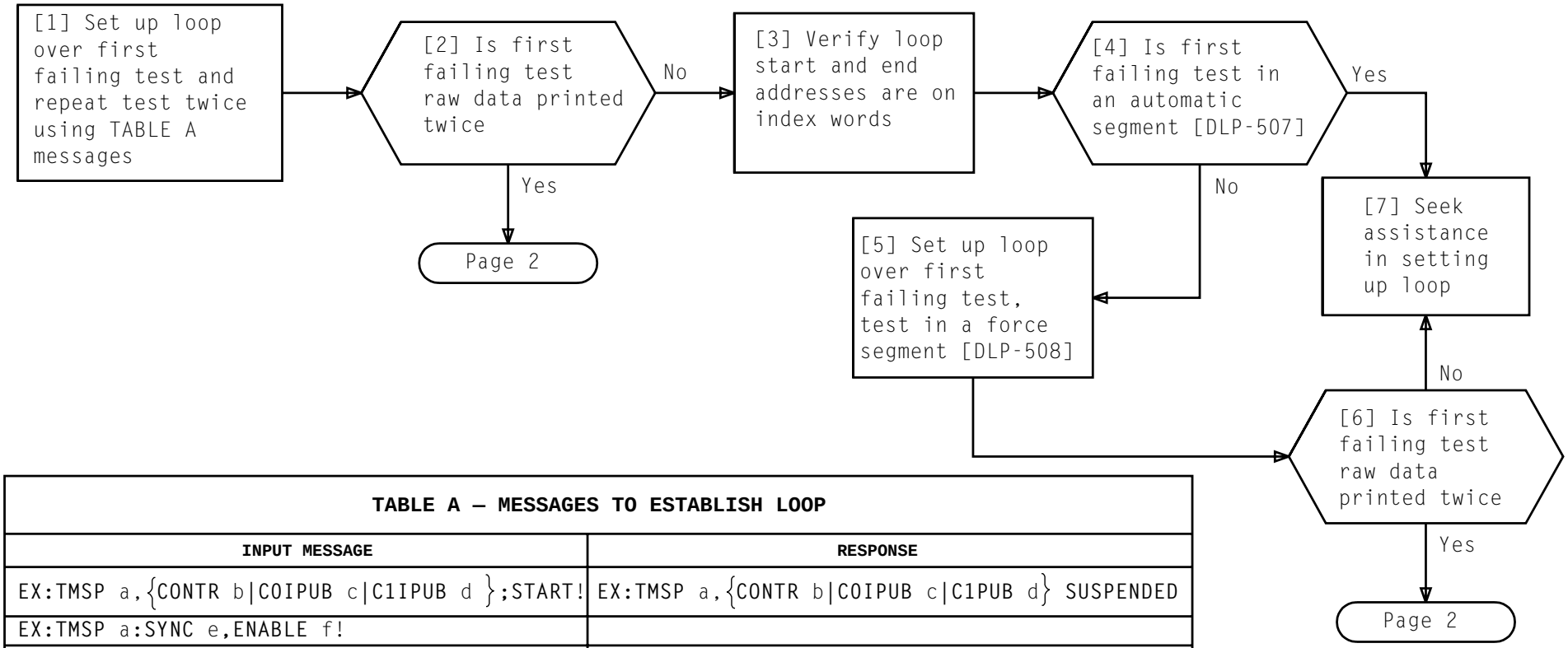


TABLE A — MESSAGES TO ESTABLISH LOOP

INPUT MESSAGE	RESPONSE
EX:TMSP a,{CONTR b|COIPUB c|C1IPUB d };START!	EX:TMSP a,{CONTR b|COIPUB c|C1PUB d} SUSPENDED
EX:TMSP a:SYNC e,ENABLE f!	
EX:TMSP a;RPT 2:PH g,ADR e-h!	EX:TMSP a,{CONTR b|COIPUB c|C1IPUB d} Raw data

a, b, c, d = member and submember numbers
e = address of first failing test statement index word
f = first failing test number
g = first failing phase number
h = address of next index word following first failing test index word

CLEAR DIAGNOSTIC FAILURE BY LOOPING OVER FIRST FAILING TEST AND SIGNAL TRACE TO LOCATE FAULT

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[8] Set up infinite loop by typing in **EX:TMSP a:PH g,ADR** e-h! See TABLE A for a, e, g, and h. Response is **"looping started"**

[9] See TABLE A. Was SYNC option used

No

[13] Set up scope

Yes

[10] Set up scope for signal tracing using external sweep trigger

[11] Connect external sweep trigger to terminals indicated in TABLE B (TMS BAY 0 or 1)

[12] See FIG. 1 and NOTE 1. Display sweep trigger and adjust for SYNC pulse display

AND

[14] See NOTE 2. Using raw data analysis information, TMS SDs/CDs, and circuit pack SDs, signal trace path of failing bits to isolate and clear fault

[15] Has fault been cleared

Yes → Page 3

No

[16] Are mate packs on TLP list

No

Yes

[17] See CAUTION 1. Are mate packs to be replaced

No

Yes

[18]Contact TAC for assistance

TABLE B	
SD-4A012-01	Connect 80-10-104 to 80-10-304 with clip lead. Connect **EXT** sweep trigger to clip lead
SD-4A012-02	Connect **EXT** sweep to 80-10-104
SD-4A087-01	Connect **EXT** sweep to 76-26-104 or 80-26-104

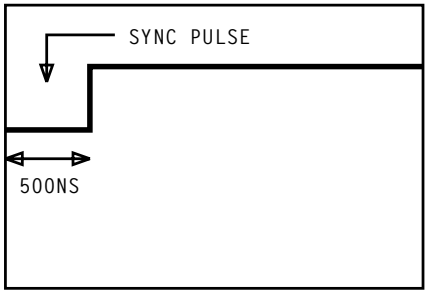


FIG. 1 — SYNC Pulse Display

NOTES
1. SYNC pulse arrives over PUWB bit 36 which is not tested by TMS diagnostic
2. Analysis of F-level interrupt associated with diagnostic failure may also be helpful [TAP-130]

CAUTION 1
Mate pack replacement may cause service degrading condition

CLEAR DIAGNOSTIC FAILURE BY LOOPING OVER FIRST FAILING TEST AND SIGNAL TRACE TO LOCATE FAULT

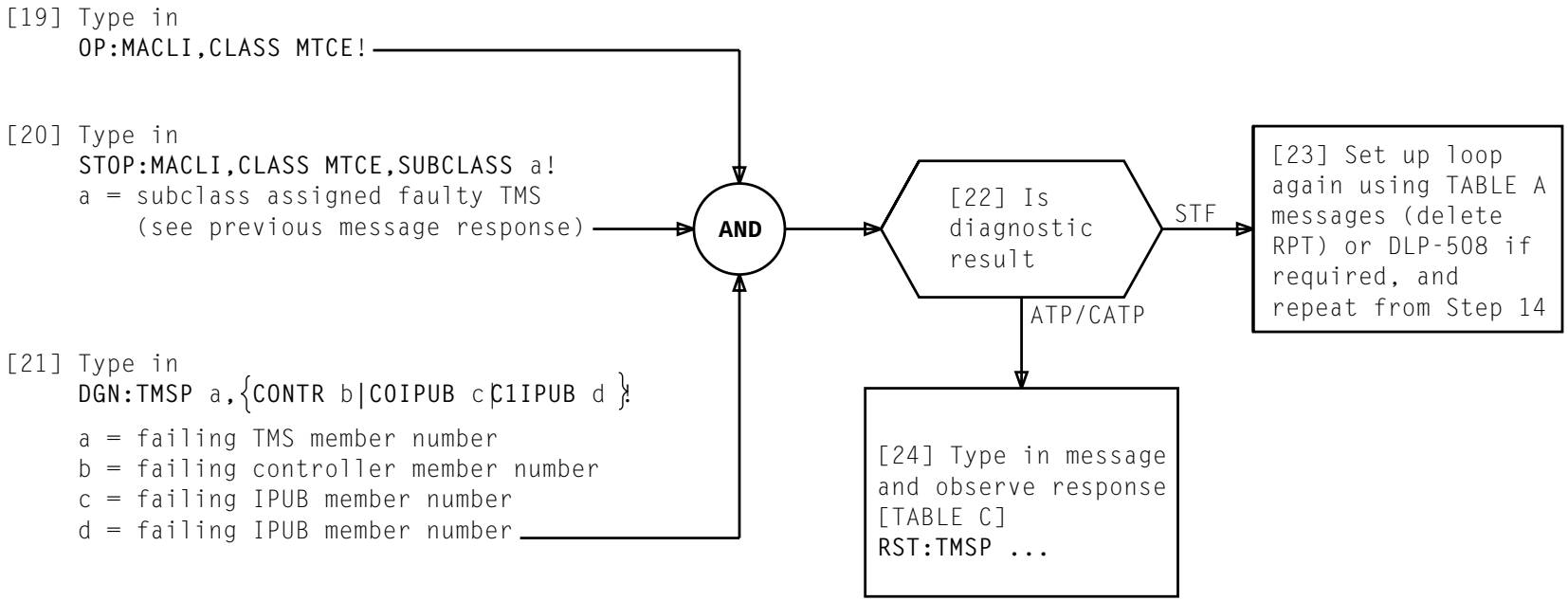
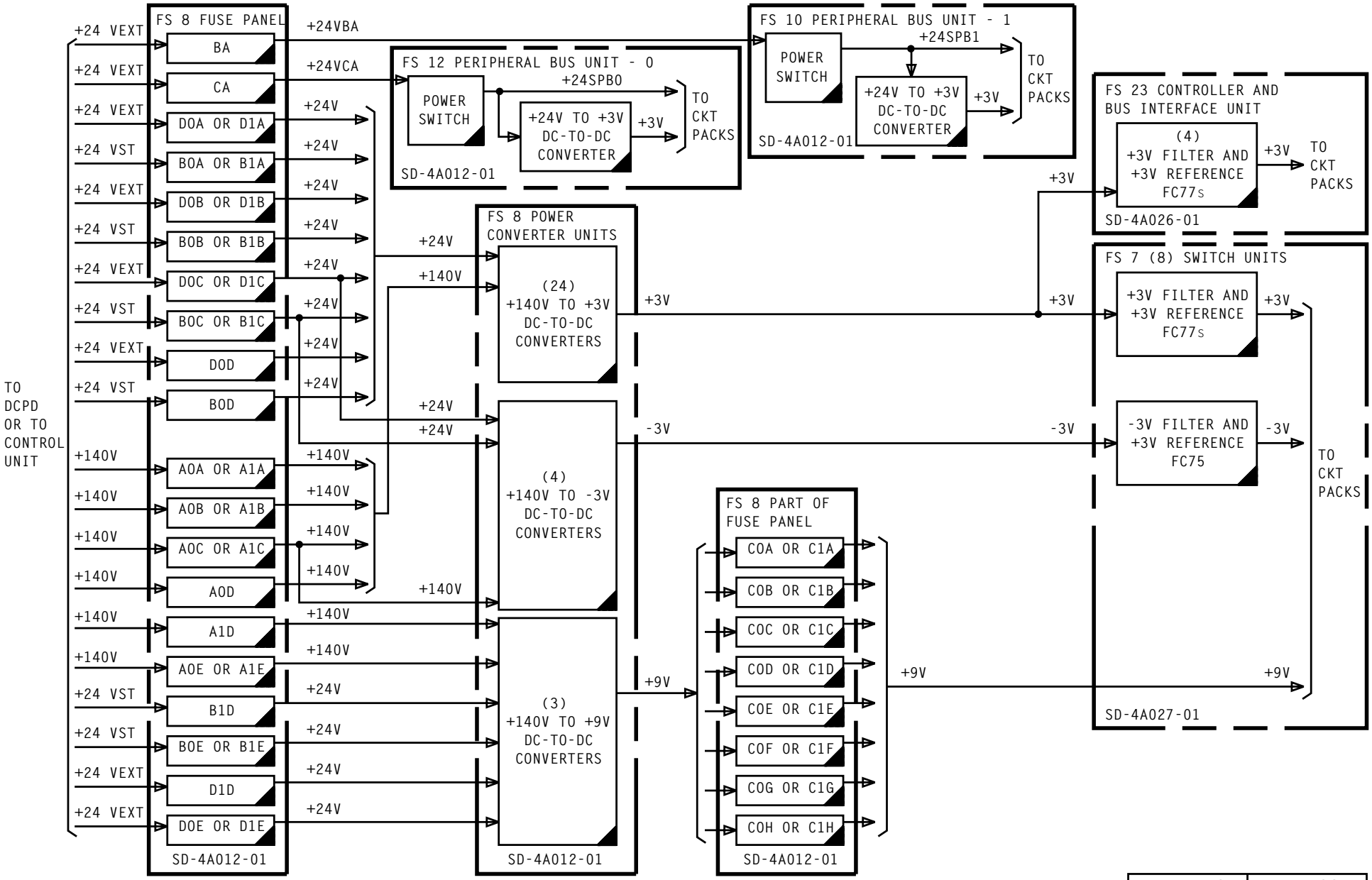


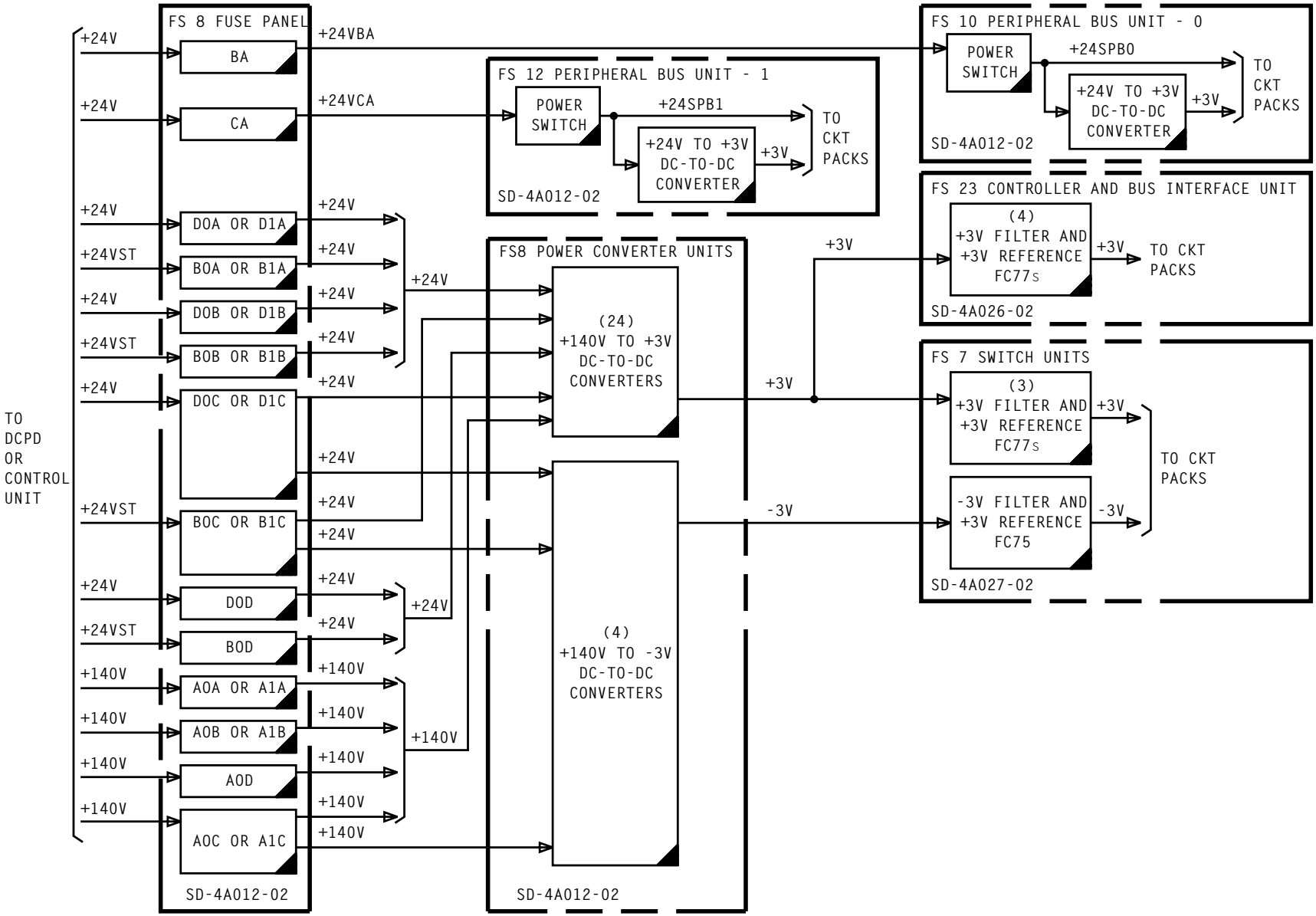
TABLE C

INPUT MESSAGE	RESPONSE
RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d !}	RST:TMSP a,{CONTR b|COIPUB c|C1IPUB d }COMPLETED
a, b, c, d = member and submember numbers	

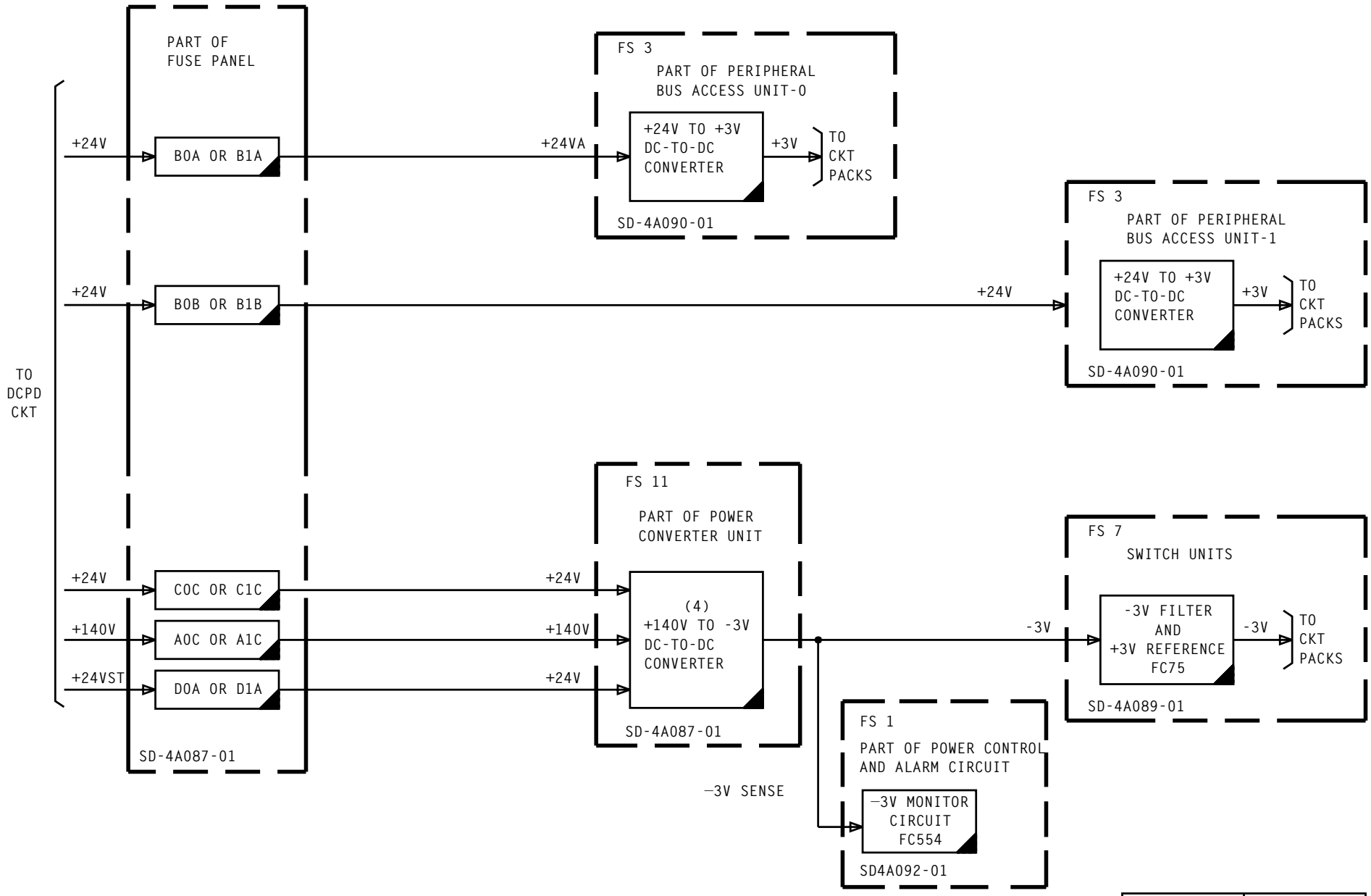
CLEAR DIAGNOSTIC FAILURE BY LOOPING OVER FIRST FAILING TEST AND SIGNAL TRACE TO LOCATE FAULT



POWER AND FUSING FOR NONBULK CONVERTERS, SD-4A012-01 FRAME



POWER AND FUSING FOR NONBULK CONVERTERS, SD-4A012-02 FRAME



POWER AND FUSING FOR NONBULK CONVERTERS, SD-4A087-01 FRAME

SD-4A012-01 ISD-104
SD-4A012-02 ISD-105
SD-4A087-01 ISD-106

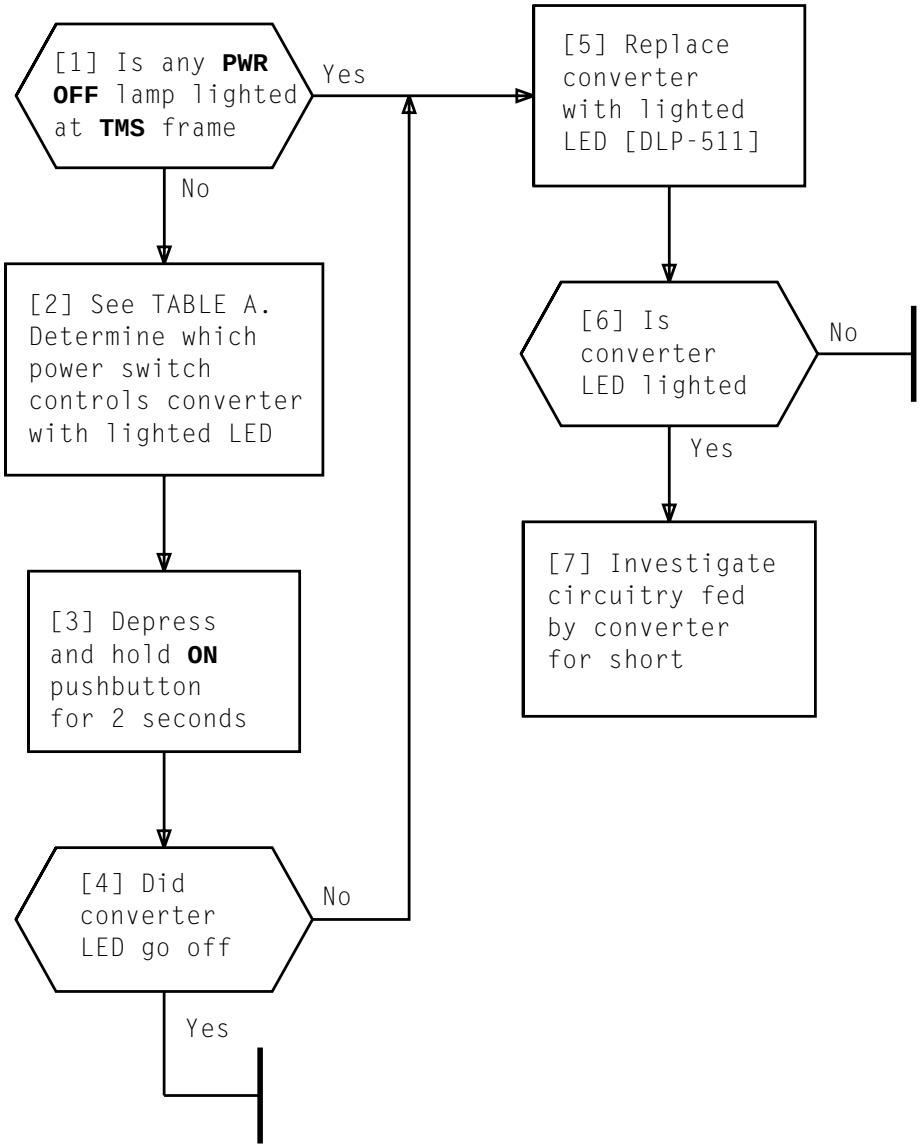
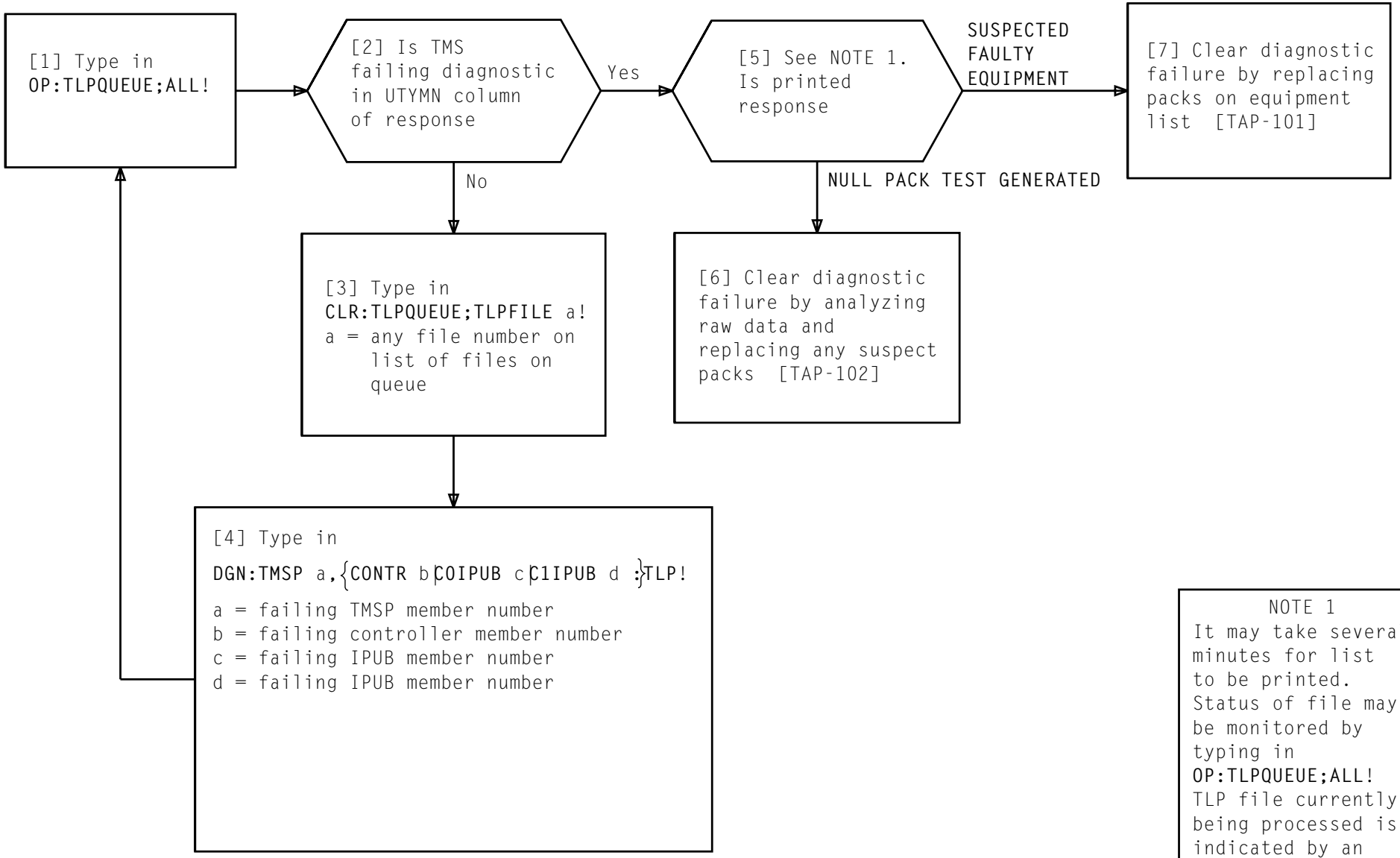


TABLE A

SD	CONVERTER LOCATION	POWER SWITCH		
		LOCATION	NAME	
			BAY0	BAY1
4A087-01	*-80-26	*-80-29	**IPUB0**	**IPUB1**
	All others	1-68-09		**CONTR**
4A012-01,02	*-80-36	*-80-42	**COIPUB1**	**C1IPUB1**
	*-76-36	*-76-42	**COIPUB0**	**C1IPUB0**
	All others	*-44-38	**CONTR0**	**CONTR1**

* Converters located in Bay 0 or Bay 1 are controlled, respectively, by switches located in Bay 0 and Bay 1

CLEAR NONBULK CONVERTER LED LIGHTED CONDITION



NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in OP:TLPQUEUE;ALL! TLP file currently being processed is indicated by an asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP DISK QUEUE FULL

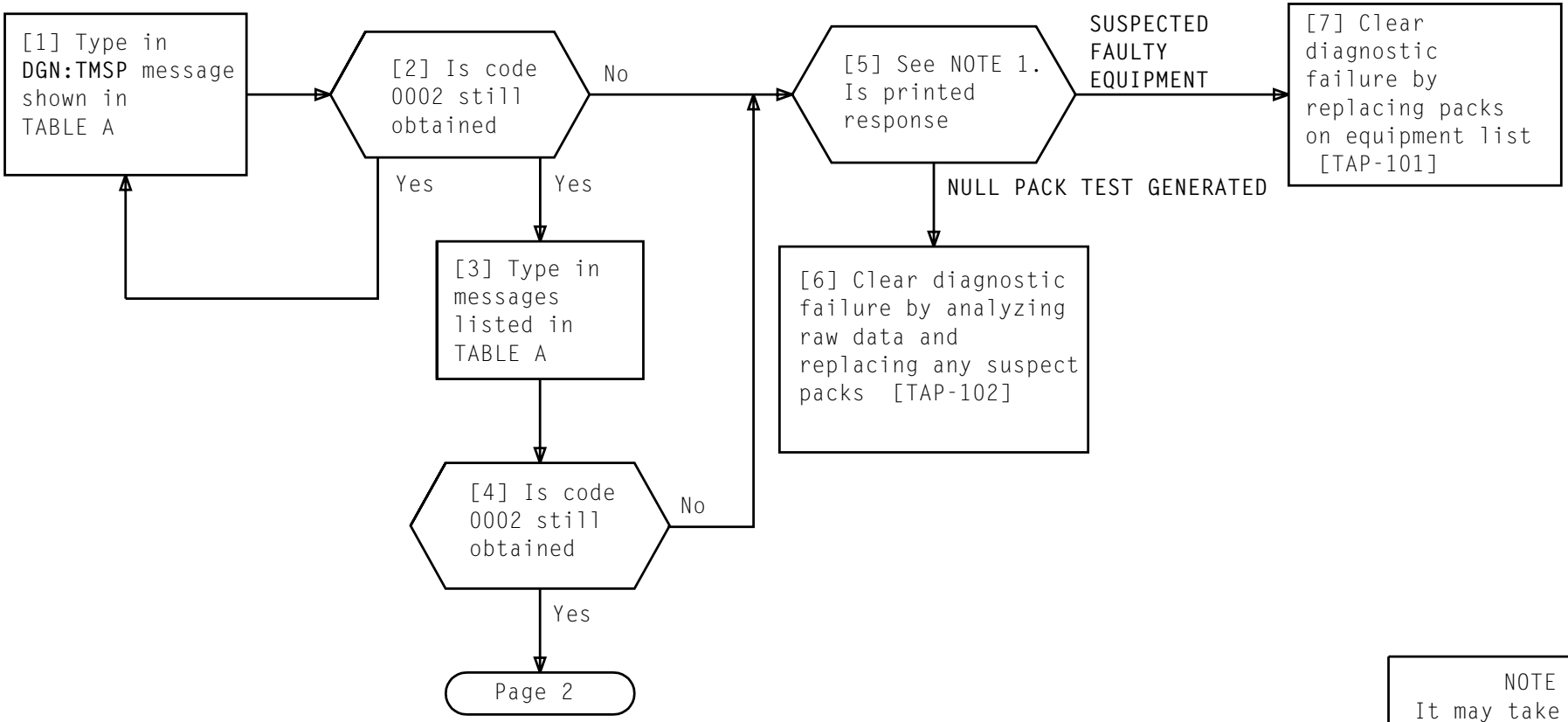
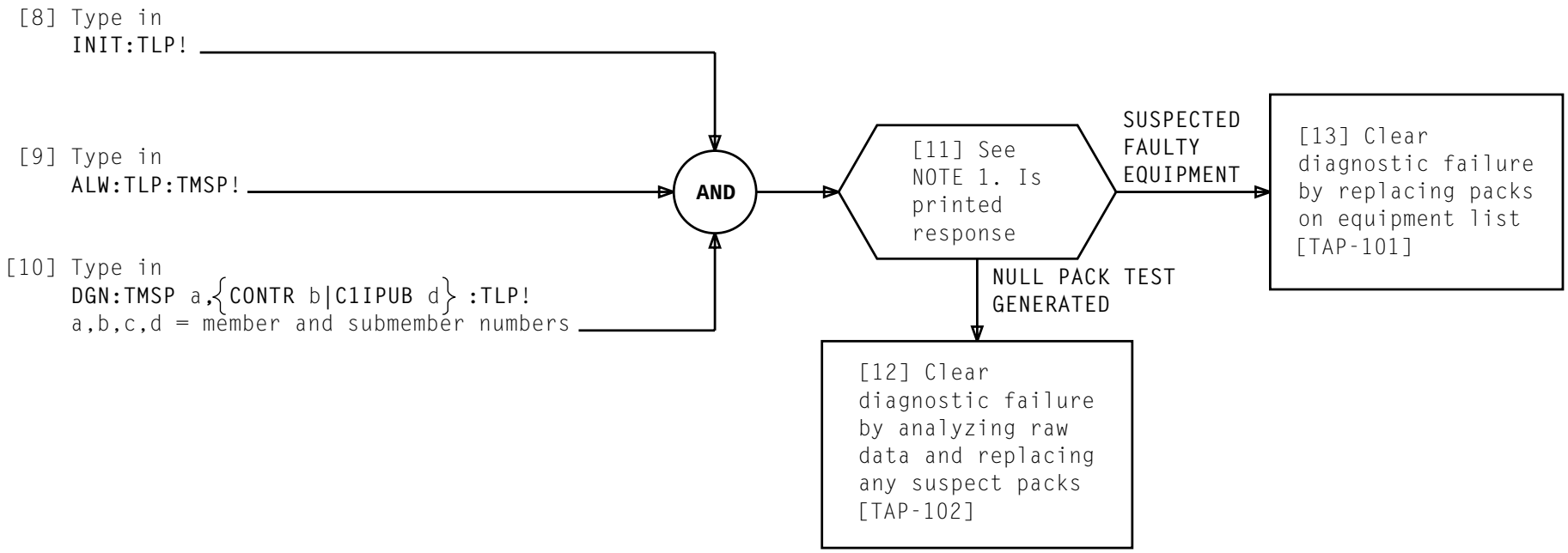


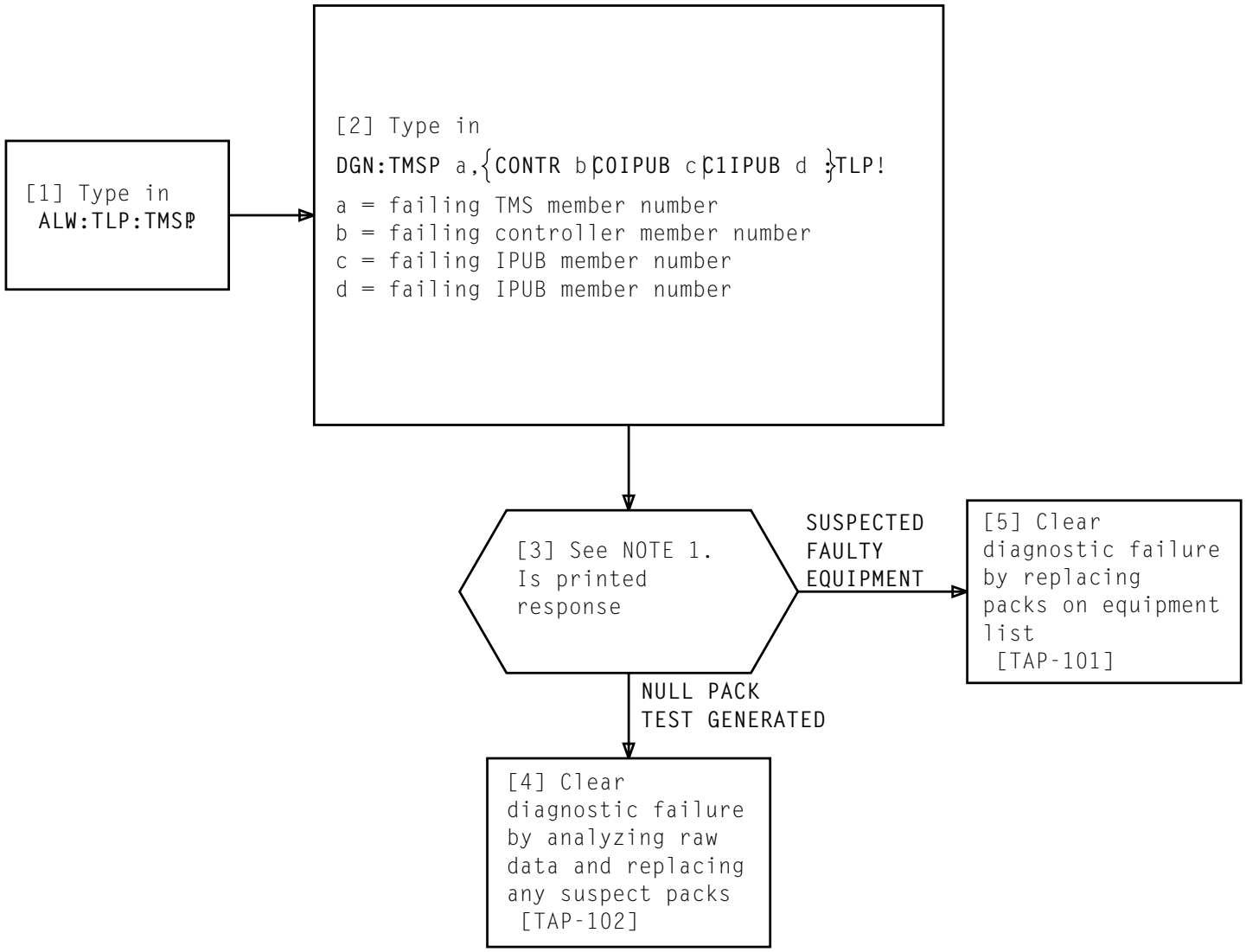
TABLE A
ALW:TLP:SRCH,TMSP!
ALW:TLP:SRCH,TMSP!
DGN:TMSP a,{CONTR b|COIPUB c|C1IPUB d }:TLP!
a = failing TMS member number b = failing controller member number c = failing IPUB member number d = failing IPUB member number

NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in OP:TLPQUEUE;ALL! TLP file currently being processed is indicated by an asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP QUEUE BLOCKAGE

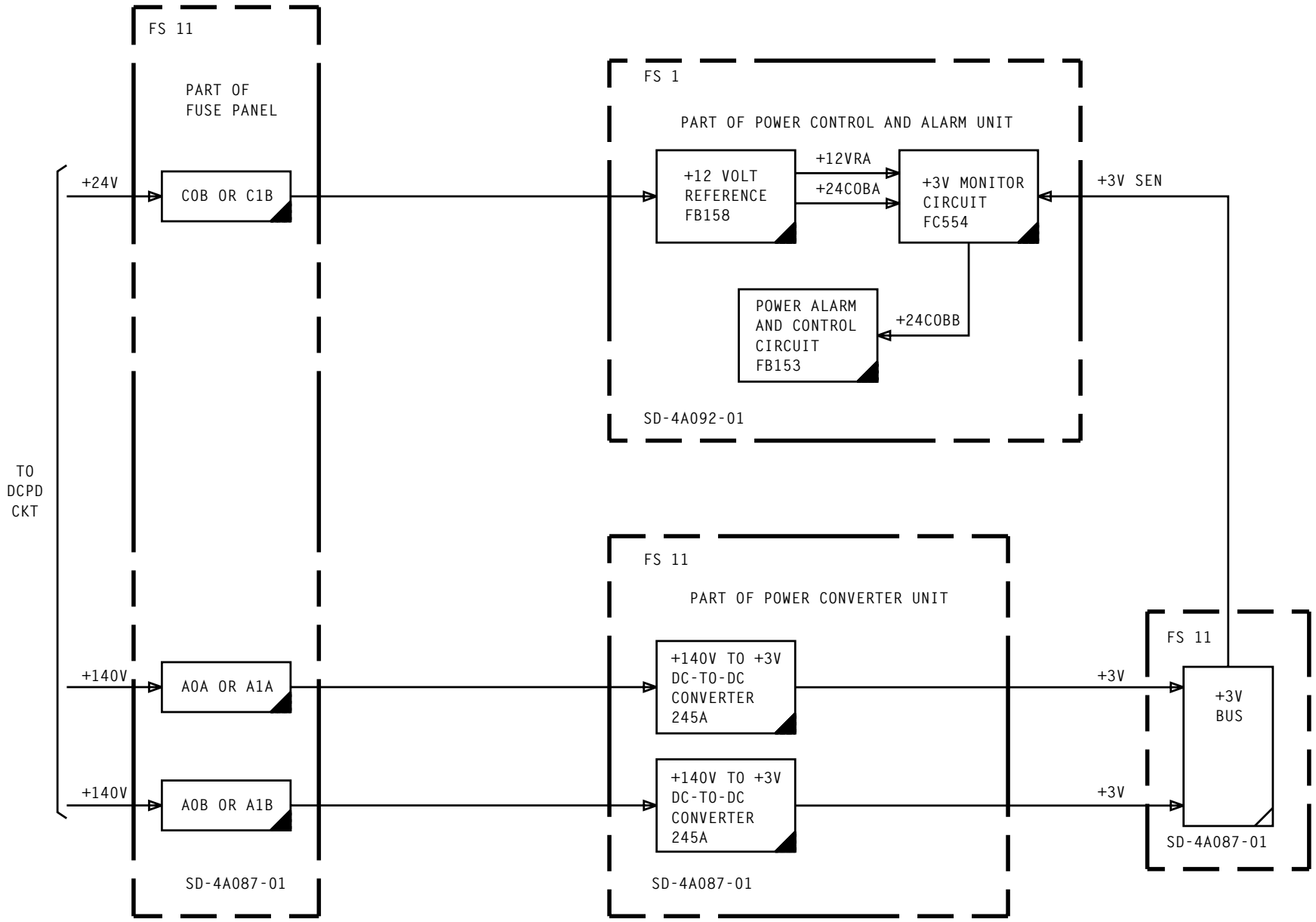


CLEAR DIAGNOSTIC FAILURE, TLP QUEUE BLOCKAGE

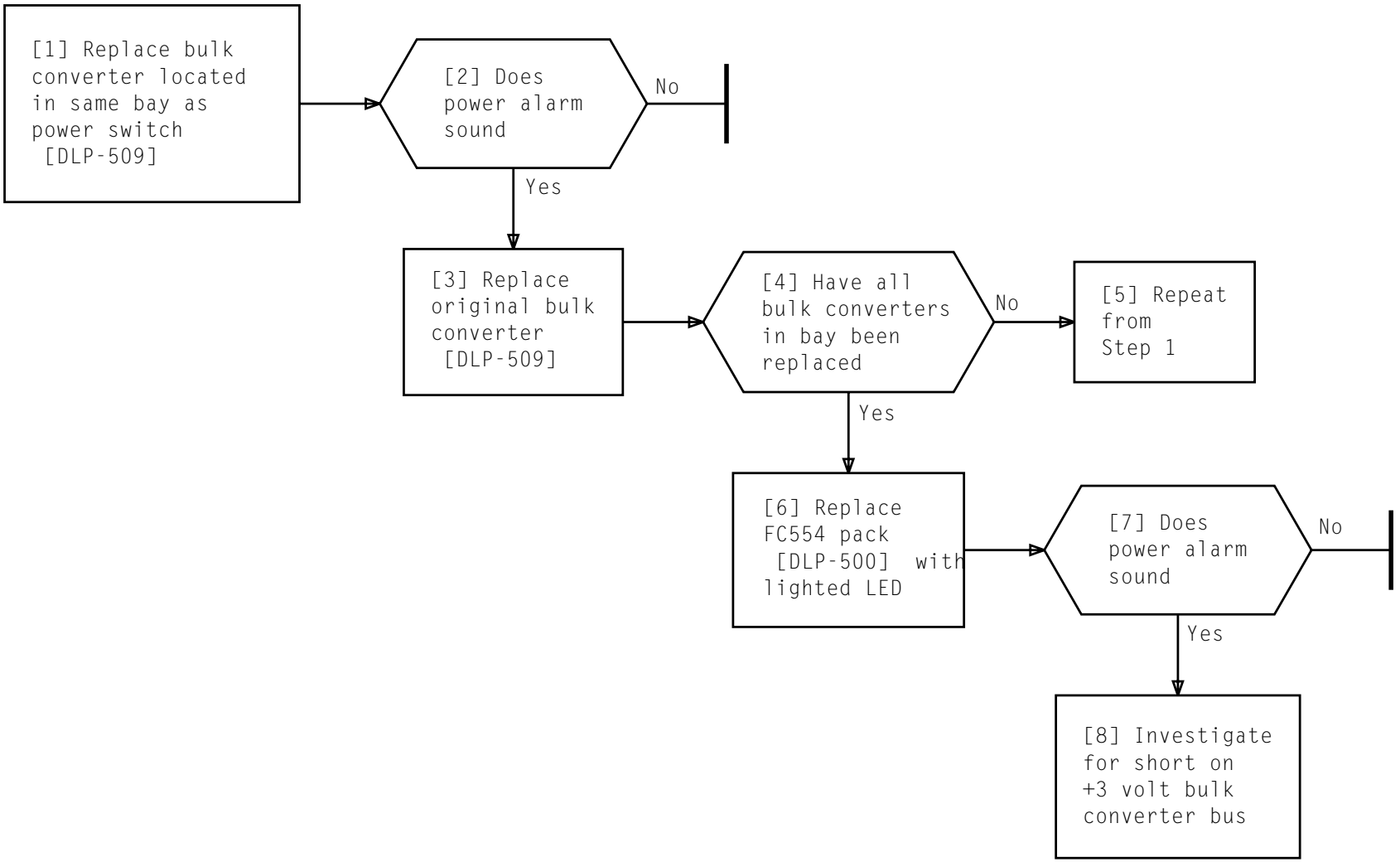


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in
OP:TLPQUEUE;ALL!
TLP file currently being processed is indicated by an asterisk in priority column

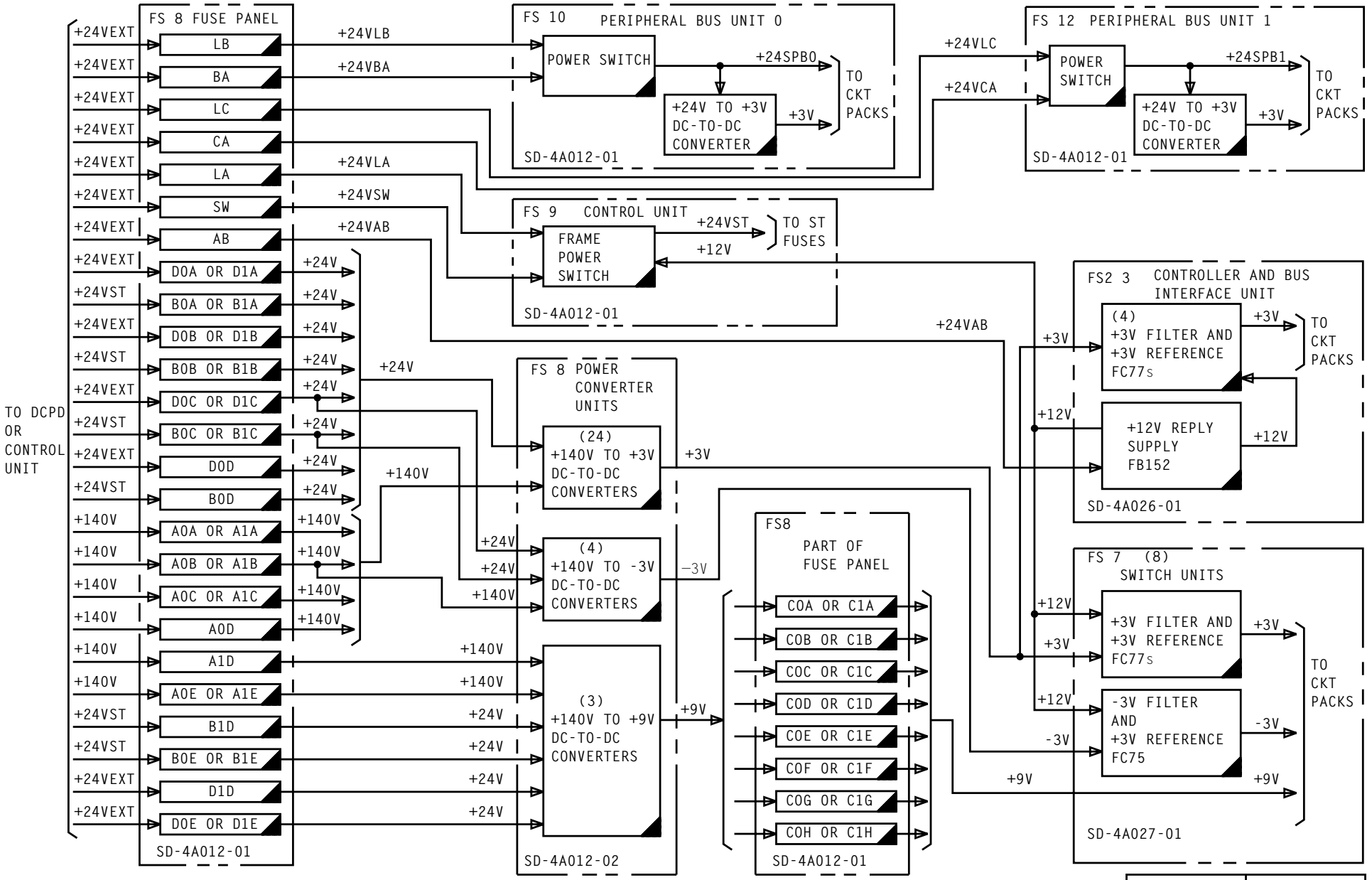
CLEAR DIAGNOSTIC FAILURE, TLP INHIBIT



POWER AND FUSING FOR BULK CONVERTERS AND FC554 PACK, SD-4A087-01 FRAME



CLEAR BULK CONVERTER AND FC554 CIRCUIT PACK LED LIGHTED CONDITION, SD-4A087-01 FRAME



FUSING AND POWER FOR SD-4A012-01 FRAME

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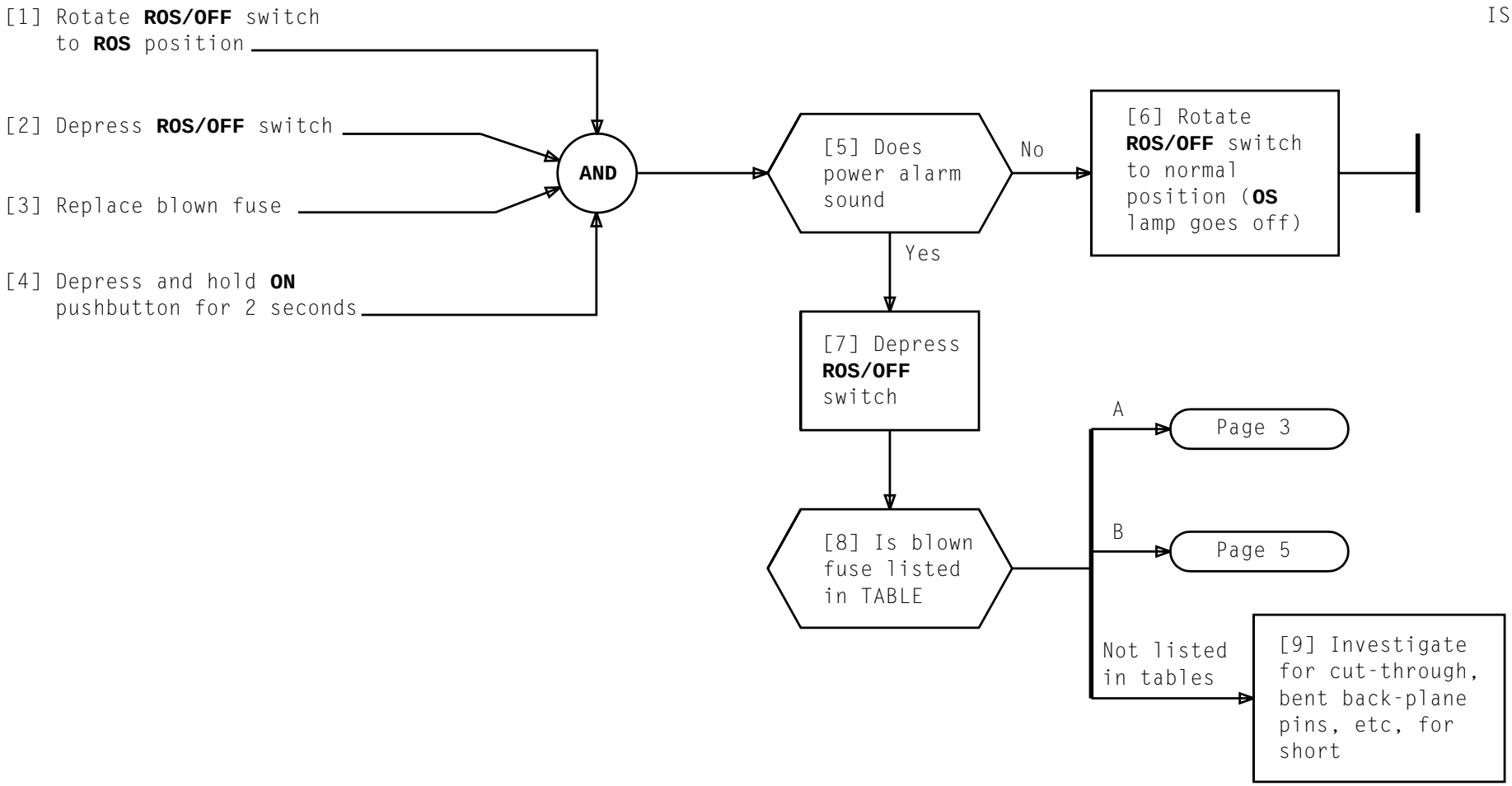
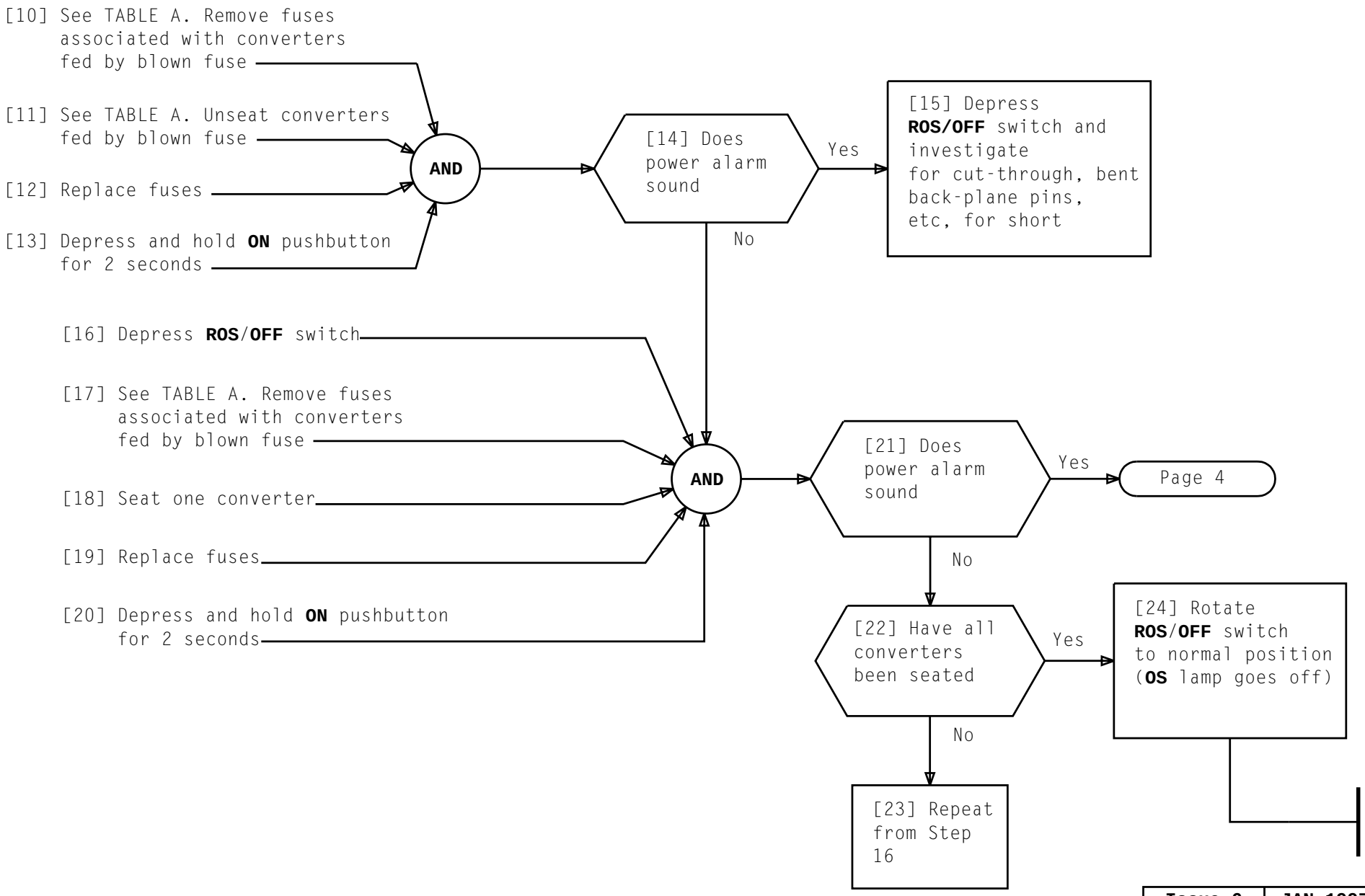


CLEAR BLOWN FUSE, SD-4A012-01 FRAME

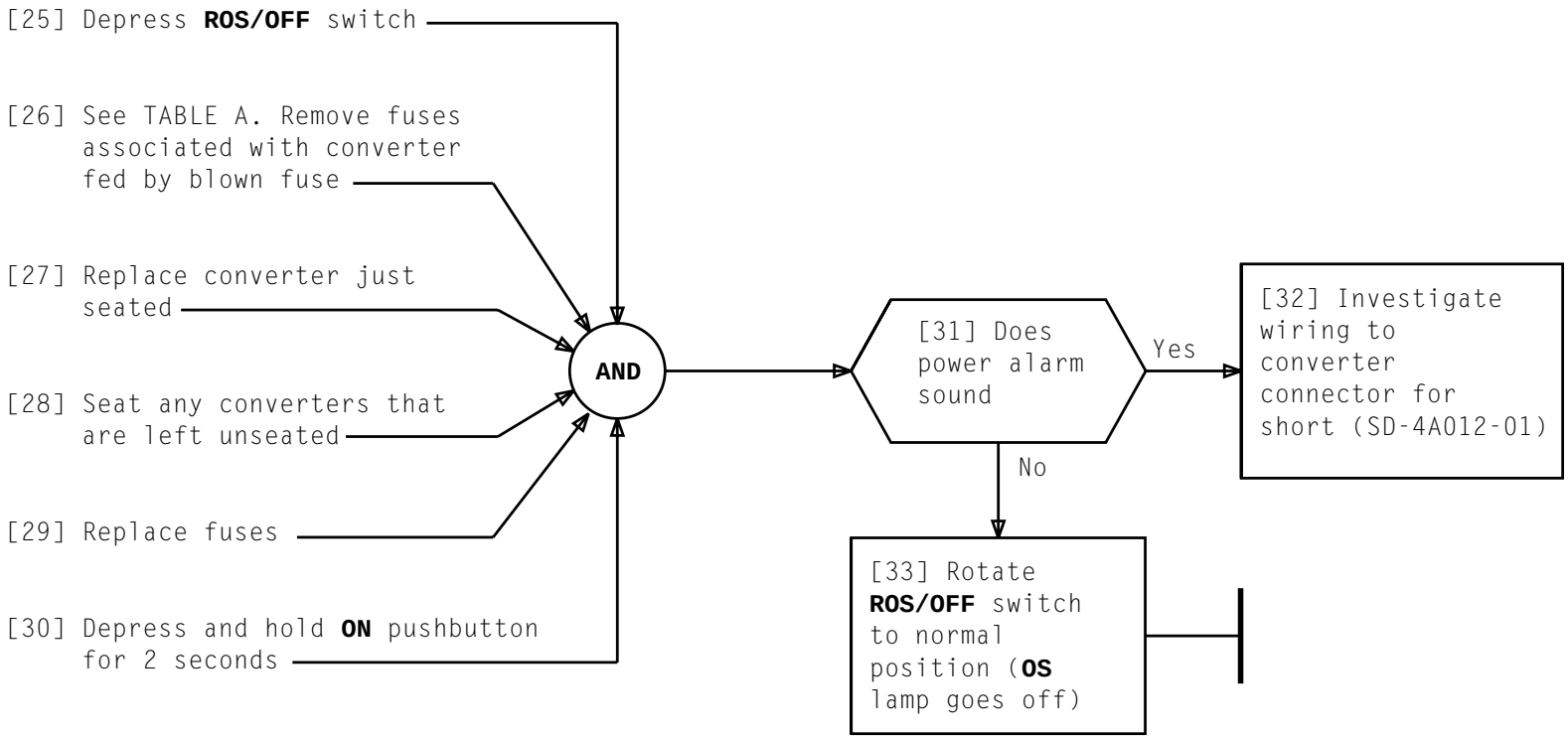
TABLE A			
FUSE BAY 0	CONVERTERS FED AT LOCATION	FUSE BAY 1	CONVERTERS FED AT LOCATION
A0A **B0A** **D0A**	0-12-00 0-12-06 0-12-12 0-12-18	**A1A** **B1A** **D1A**	1-12-00 1-12-06 1-12-12 1-12-18
A0B **B0B** **D0B**	0-12-24 0-12-30 0-12-36 0-12-42	**A1B** **B1B** **D1B**	1-12-24 1-12-30 1-12-36 1-12-42
A0C **B0C** **D0C**	0-17-24 0-17-30 0-17-36 0-17-39 0-17-42 0-17-45	**A1C** **B1C** **D1C**	1-17-24 1-17-30 1-17-36 1-17-39 1-17-42 1-17-45
A0D **B0D** **D0D**	0-17-00 0-17-06 0-17-12 0-17-18	**A1D** **B1D** **D1D**	1-21-04
A0E **B0E** **D0E**	0-21-40	**A1E** **B1E** **D1E**	1-21-40
BA	0-80-26	**CA**	1-80-26

TABLE B			
FUSE BAY 0	CIRCUIT PACKS FED AT LOCATION	FUSE BAY 1	CIRCUIT PACKS FED AT LOCATION
C0A	036-05 to 036-08 036-18 to 036-21	**C1A**	136-05 to 136-08 136-18 to 136-21
C0B	036-24 to 036-27 036-37 to 036-40	**C1B**	136-24 to 136-27 136-37 to 136-40
C0C	044-05 to 044-08 044-18 to 044-21	**C1C**	144-05 to 144-08 144-18 to 144-21
C0D	044-24 to 044-27 044-37 to 044-40	**C1D**	144-24 to 144-27 144-37 to 144-40
C0E	052-05 to 052-08 052-18 to 052-21	**C1E**	152-05 to 152-08 152-18 to 152-21
C0F	052-24 to 052-27 052-37 to 052-40	**C1F**	152-24 to 152-27 152-37 to 152-40
C0G	060-05 to 060-08 060-18 to 060-21	**C1G**	160-05 to 160-08 160-18 to 160-21
C0H	060-24 to 060-27 060-37 to 060-40	**C1H**	160-24 to 160-27 160-37 to 160-40
AB	068-40		

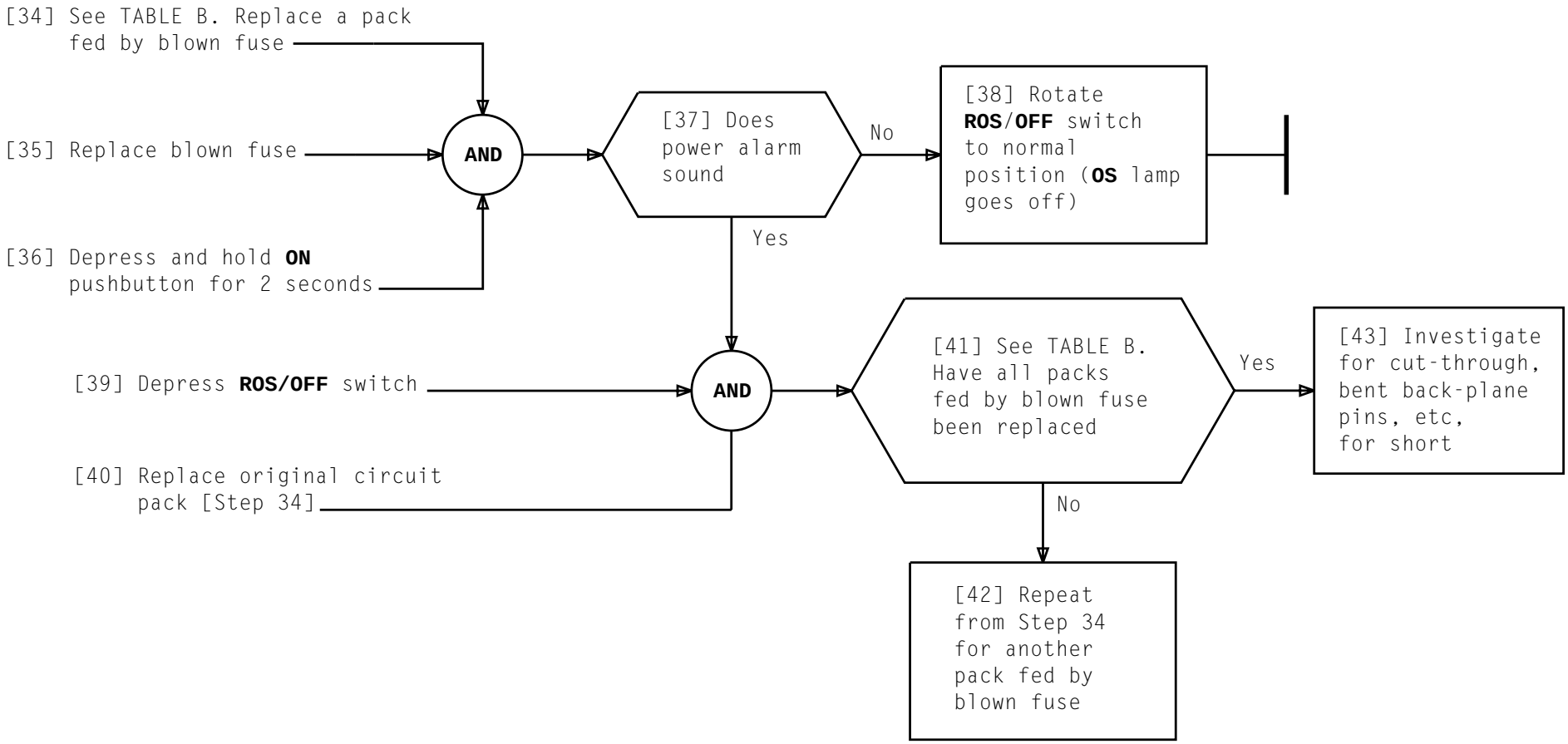
CLEAR BLOWN FUSE, SD-4A012-01 FRAME



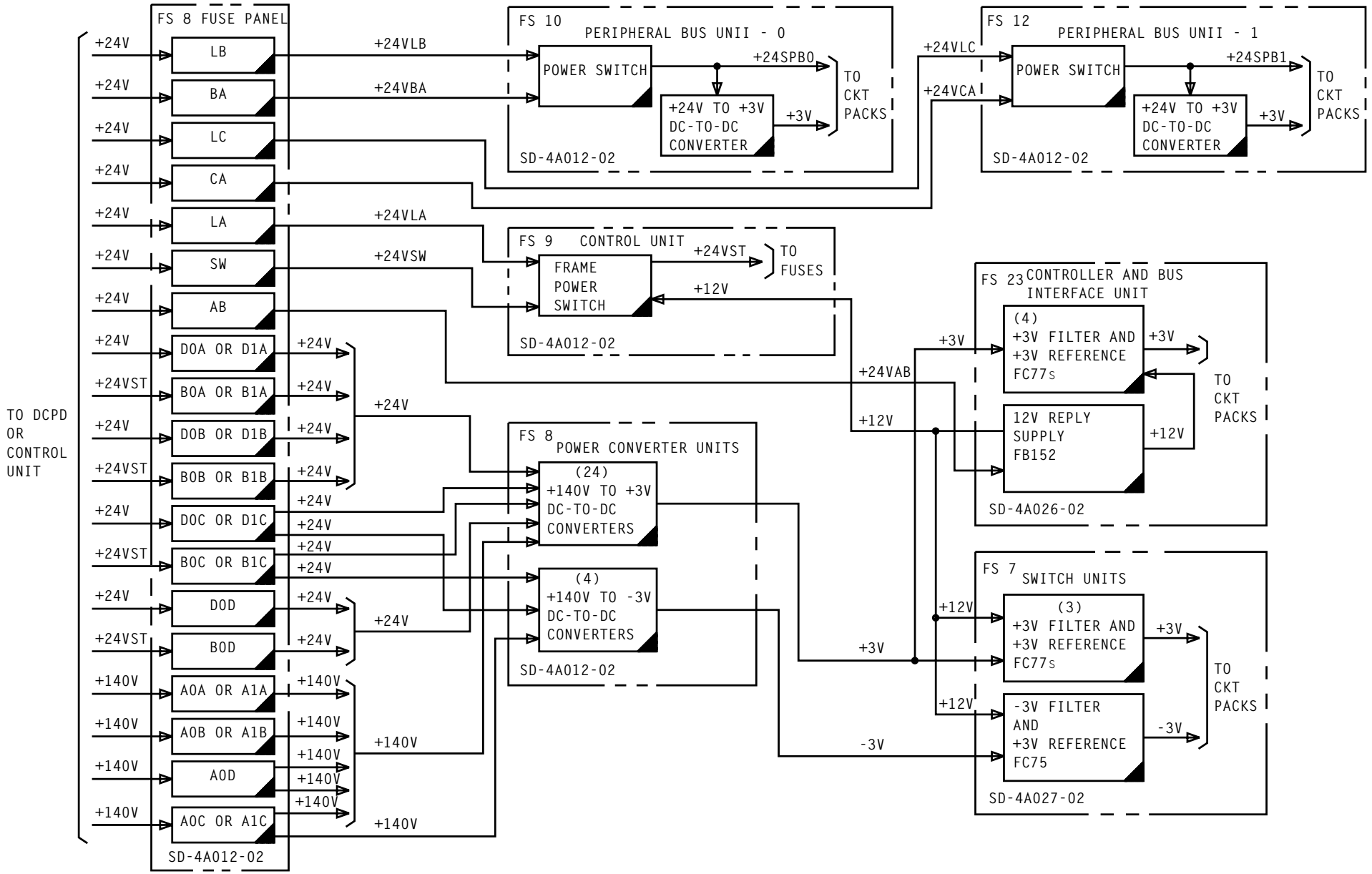
CLEAR BLOWN FUSE, SD-4A012-01 FRAME



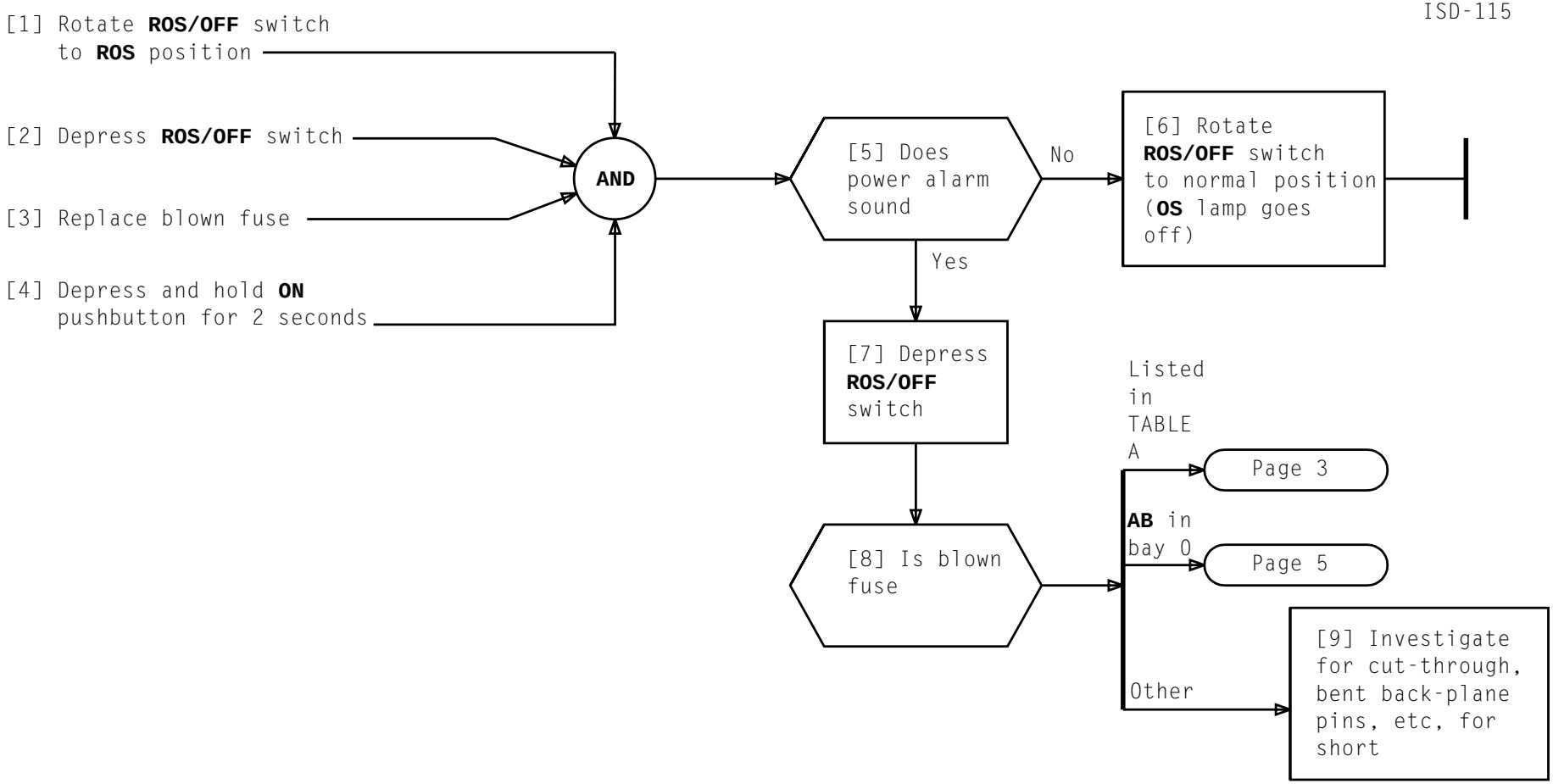
CLEAR BLOWN FUSE, SD-4A012-01 FRAME



CLEAR BLOWN FUSE, SD-4A012-01 FRAME

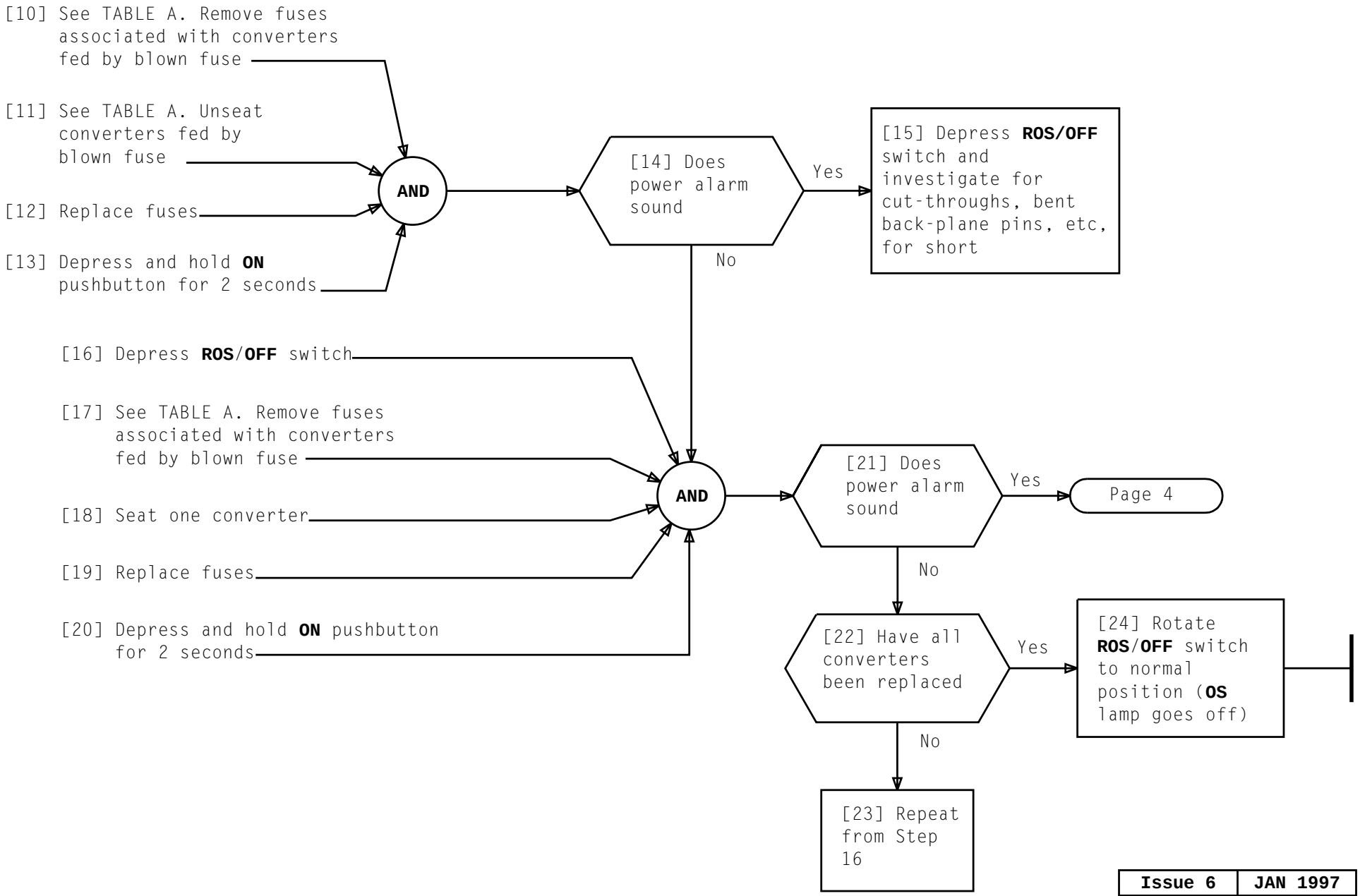


FUSING AND POWER FOR SD-4A012-02 FRAME

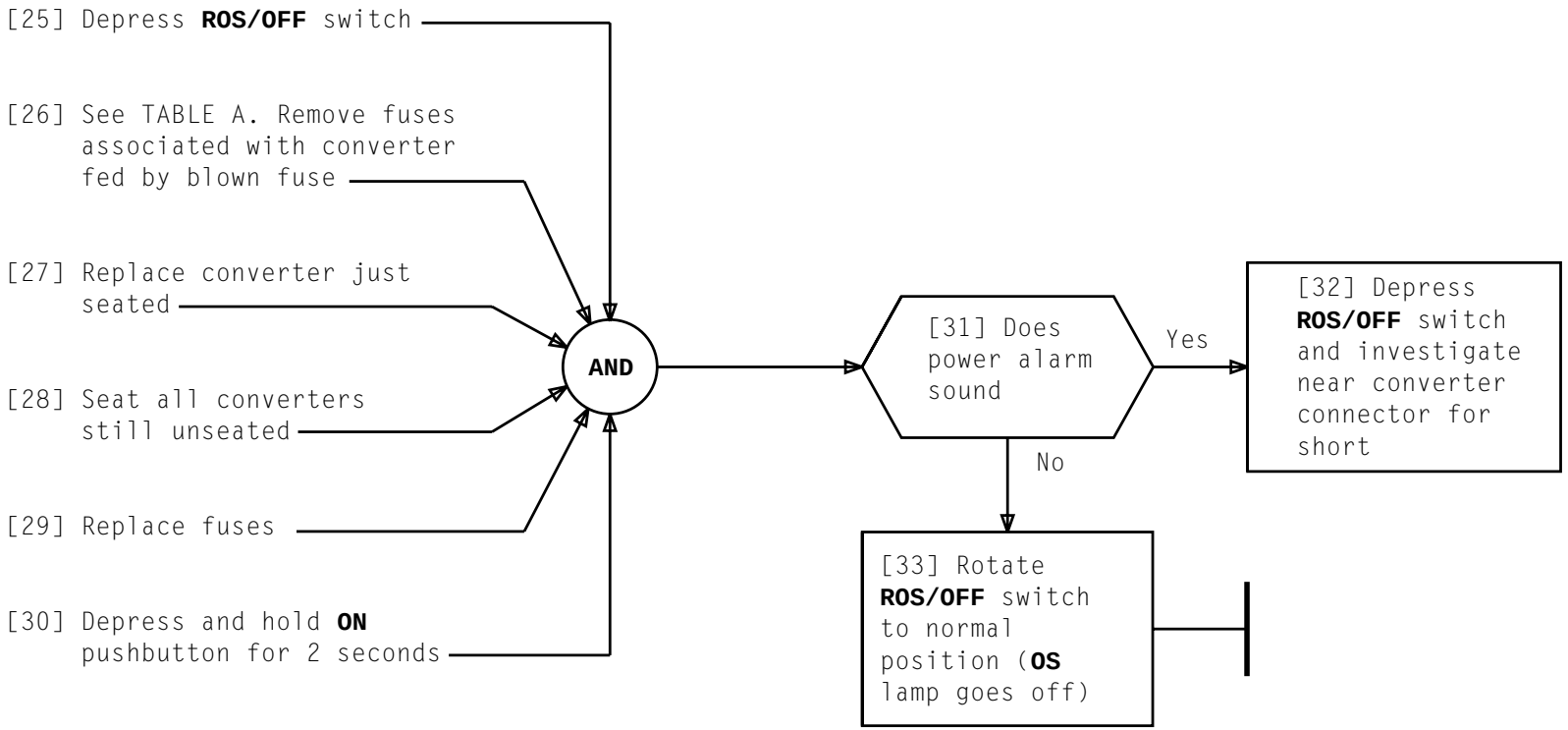


CLEAR BLOWN FUSE, SD-4A012-02 FRAME

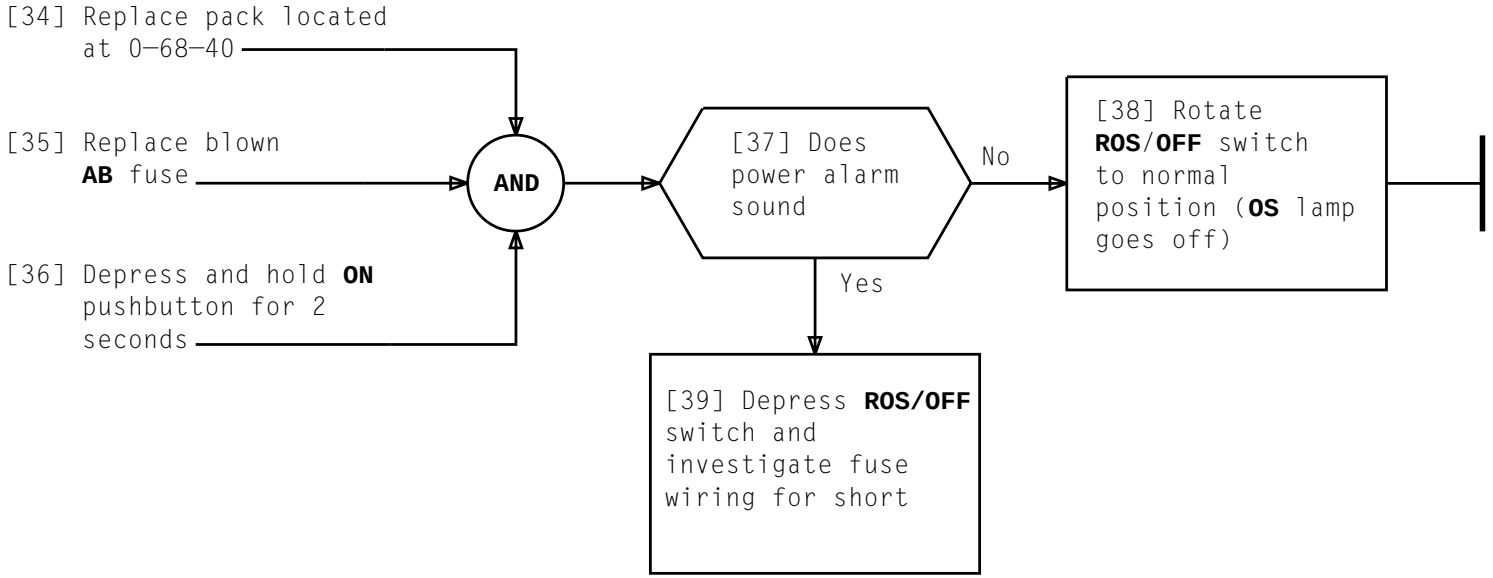
TABLE A			
FUSE BAY 0	CONVERTERS FED AT LOCATION	FUSE BAY 1	CONVERTERS FED AT LOCATION
A0A **B0A** **D0A**	0-12-00 0-12-06 0-12-12 0-12-18	**A1A** **B1A** **D1A**	1-12-00 1-12-06 1-12-12 1-12-18
A0B **B0B** **D0B**	0-12-24 0-12-30 0-12-36 0-12-42	**A1B** **B1B** **C1B**	1-12-24 1-12-30 1-12-36 1-12-42
A0C **B0C** **D0C**	0-17-24 0-17-30 0-17-36 0-17-42	**A1C** **B1C** **D1C**	1-17-24 1-17-30 1-17-36 1-17-42
A0D **B0D** **D0D**	0-17-00 0-17-06 0-17-12 0-17-18	**CA**	1-80-26
BA	1-80-26		



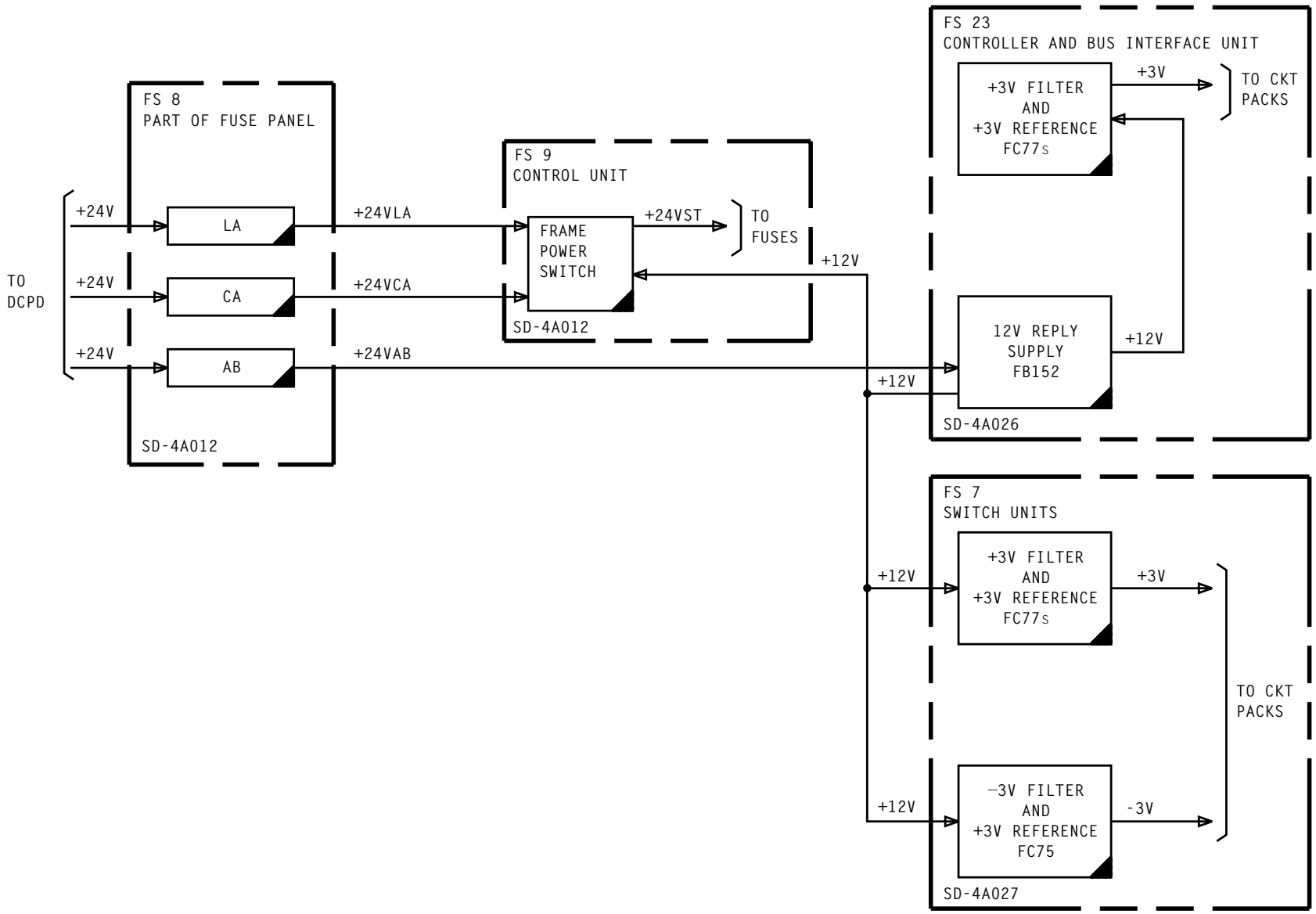
CLEAR BLOWN FUSE, SD-4A012-02 FRAME



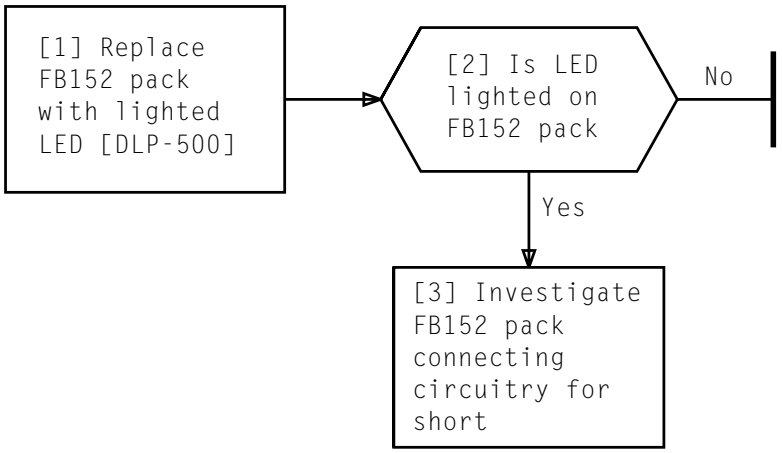
CLEAR BLOWN FUSE, SD-4A012-02 FRAME



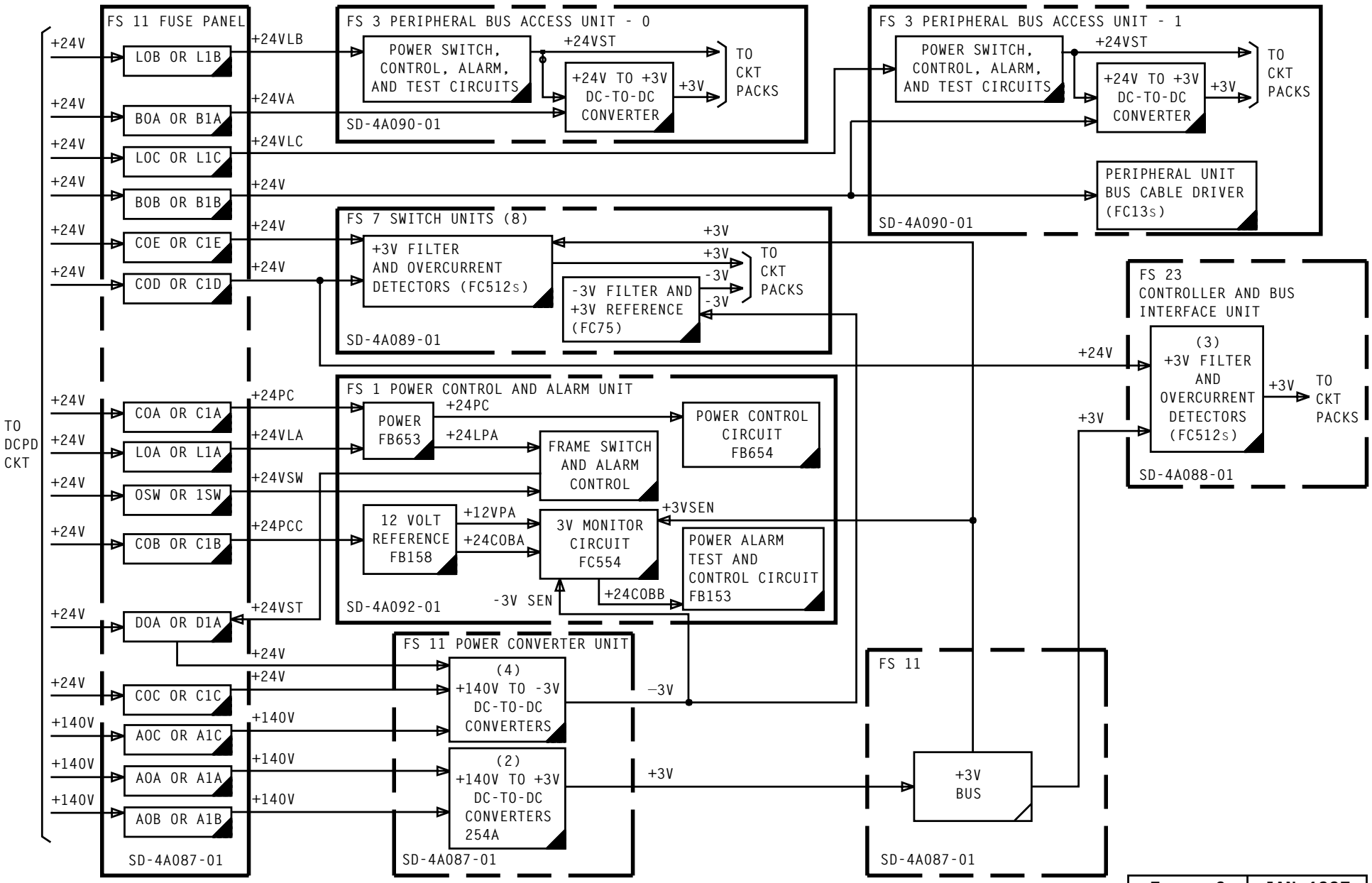
CLEAR BLOWN FUSE, SD-4A012-02 FRAME



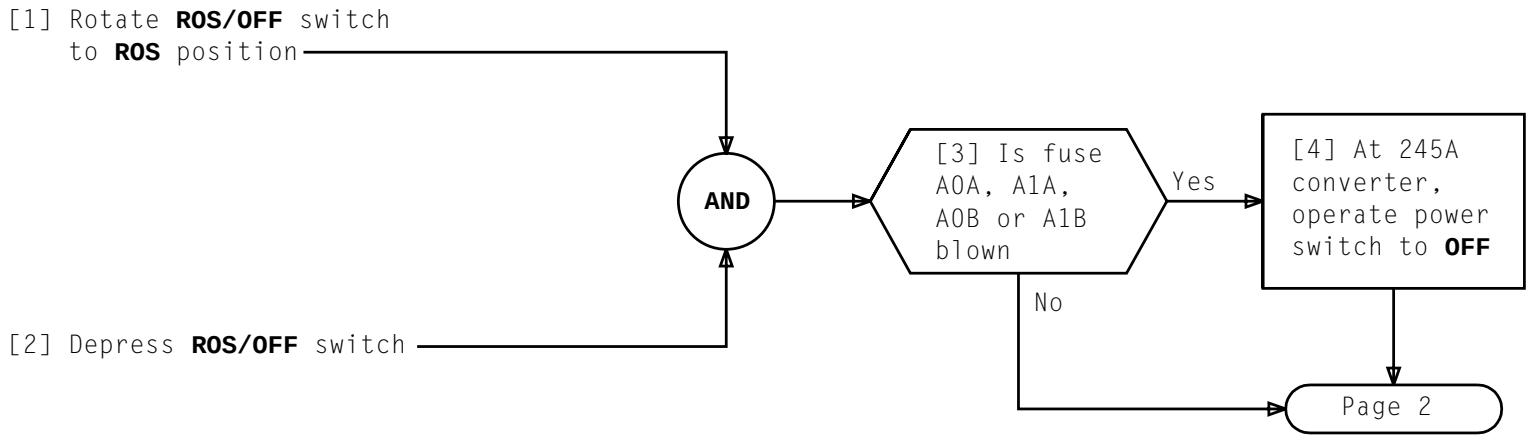
FUSING AND POWER FOR FB152 PACK SD-4A012-01 AND SD-4A012-02 FRAMES



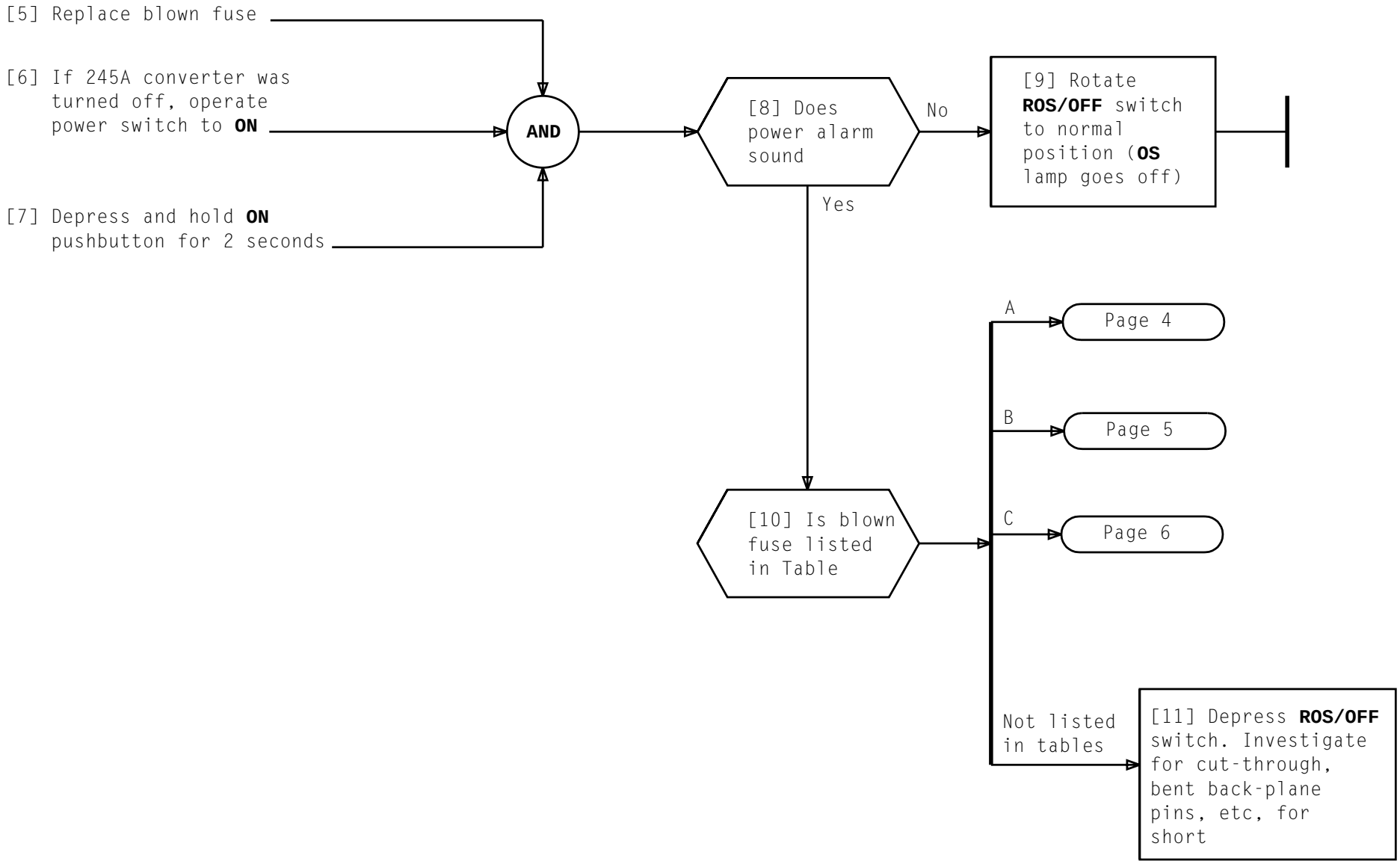
CLEAR FB152 PACK LED LIGHTED CONDITION
SD-4A012-01 AND SD-4A012-02 FRAME



FUSING AND POWER FOR SD-4A087-01 FRAME



CLEAR BLOWN FUSE, SD-4A087-01 FRAME

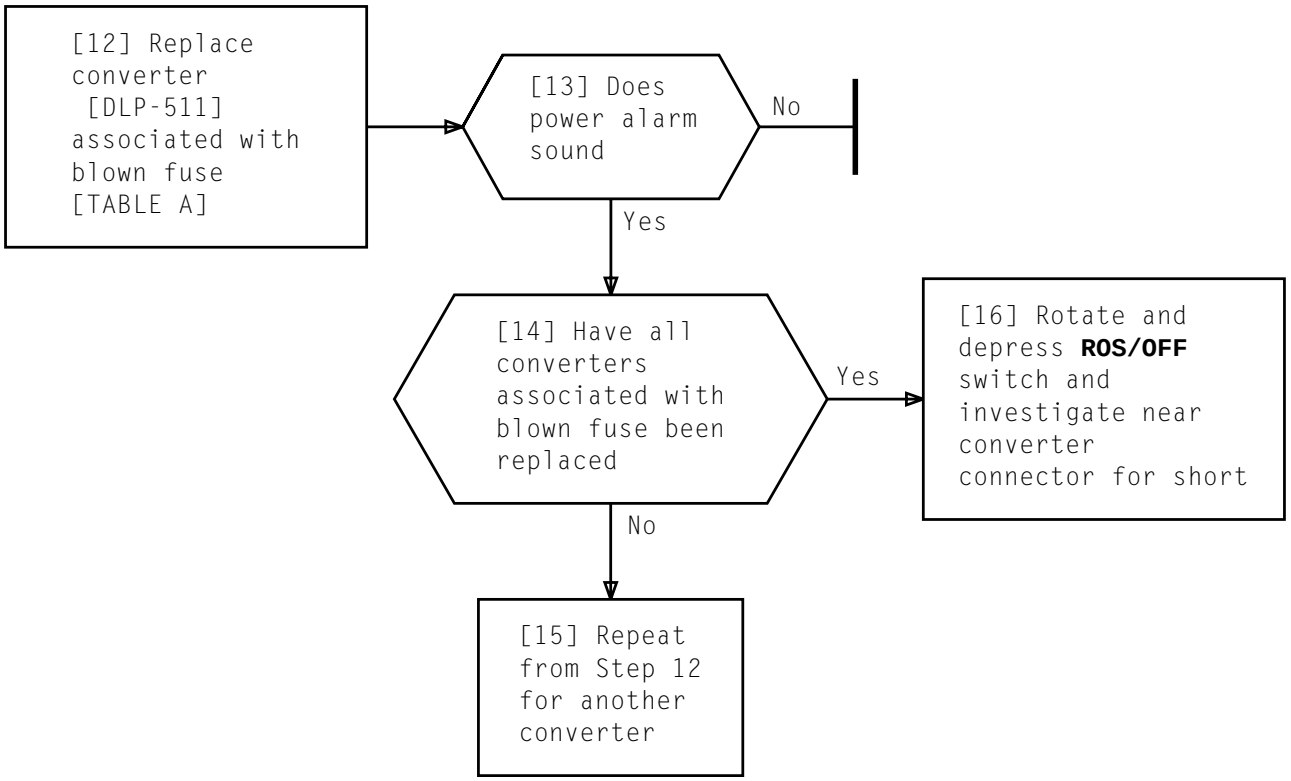


CLEAR BLOWN FUSE, SD-4A087-01 FRAME

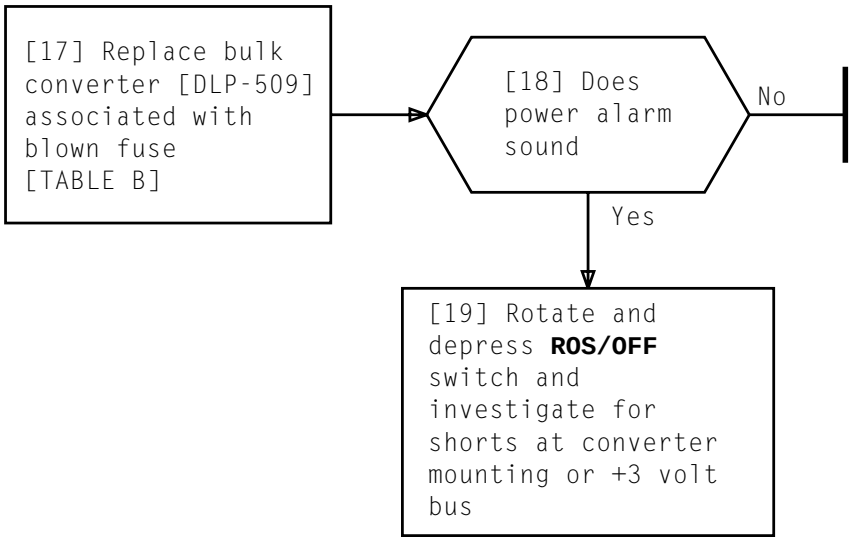
TABLE A			
FUSE BAY 0	NONBULK CONVERTERS FED AT LOCATION	FUSE BAY 1	NONBULK CONVERTER FED AT LOCATION
LOC	0-80-36	**L1C**	1-80-36
LOB	0-76-36	**L1B**	1-76-36
A0C	0-14-24	**A1C**	1-14-24
	0-14-30		1-14-30
COC	0-14-36	**C1C**	1-14-36
	0-14-42		1-14-42
***BOA**	0-76-36	***B1A**	1-76-36
***BOB**	0-80-36	***B1B**	1-80-36
* Also Feeds FC13 Circuit Packs in TABLE C			

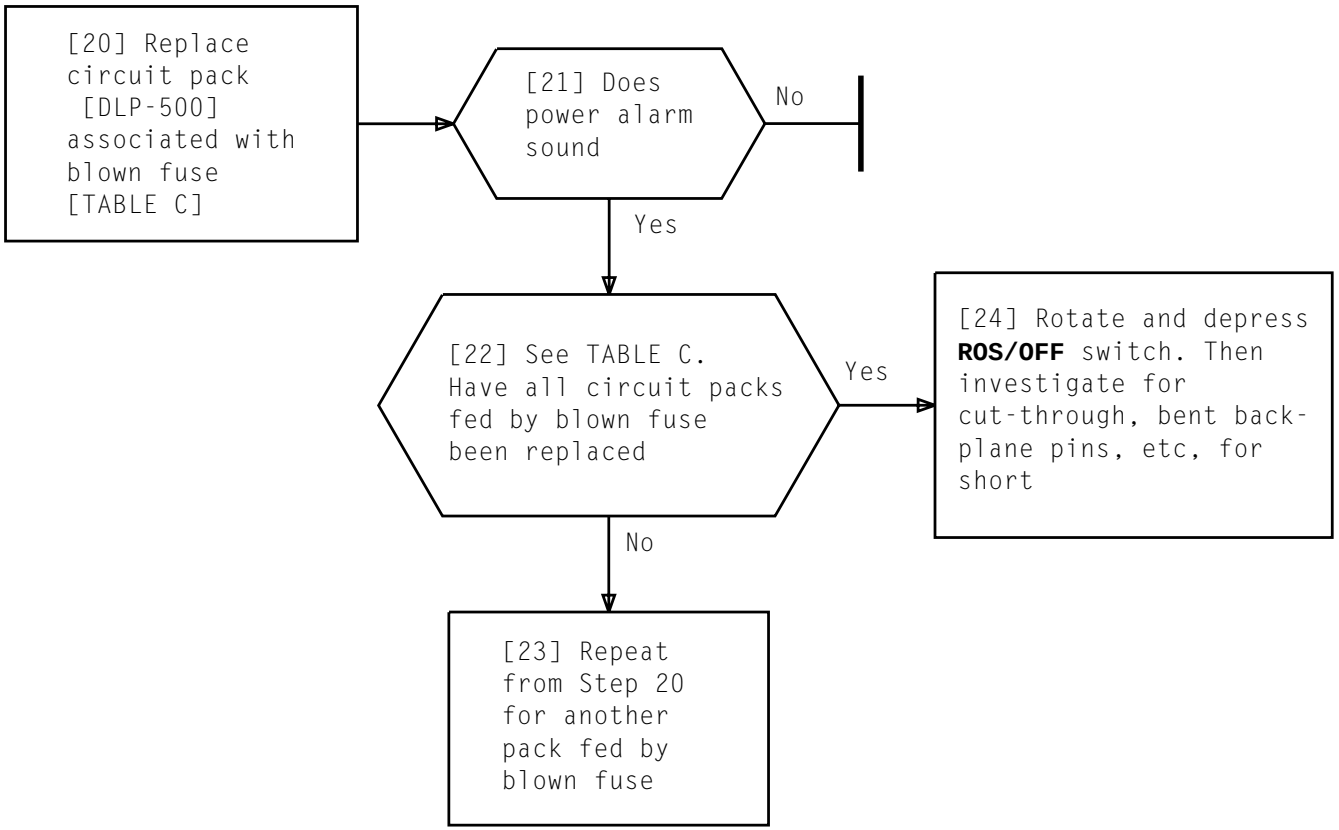
TABLE B			
FUSE BAY 0	BULK CONVERTERS FED AT LOCATION	FUSE BAY 1	BULK CONVERTER FED AT LOCATION
A0A	0-14-12	**A1A**	1-14-12
A0B	0-14-60	**A1B**	1-14-60

TABLE C			
FUSE BAY 0	CIRCUIT PACKS FED AT LOCATION	FUSE BAY 1	CIRCUIT PACK FED AT LOCATION
COA	044-26, 044-29	**C1A**	144-26, 144-29
LOA	044-26	**L1A**	144-26
COD	024-20, 028-20, 034-20, 040-20, 046-20, 052-20, 058-20, 064-20, 068-15, 068-56, 072-56	**C1D**	124-20, 128-20, 134-20, 140-20, 146-20, 152-20, 158-20, 164-20, 168-15, 168-56, 172-56
COE	024-52, 028-52, 034-52, 040-52, 046-52, 052-52, 058-52, 064-52	**C1E**	124-52, 128-52, 134-52, 140-52, 146-52, 152-52, 158-52, 164-52
COB	044-28 to 044-34	**C1B**	144-24 to 144-34
***BOA**	076-14, 16, 18, 20	***B1A**	176-14, 16, 18, 20
***BOB**	080-14, 16, 18, 20	***B1B**	180-14, 16, 18, 20
* Also feeds nonbulk converters in TABLE A			

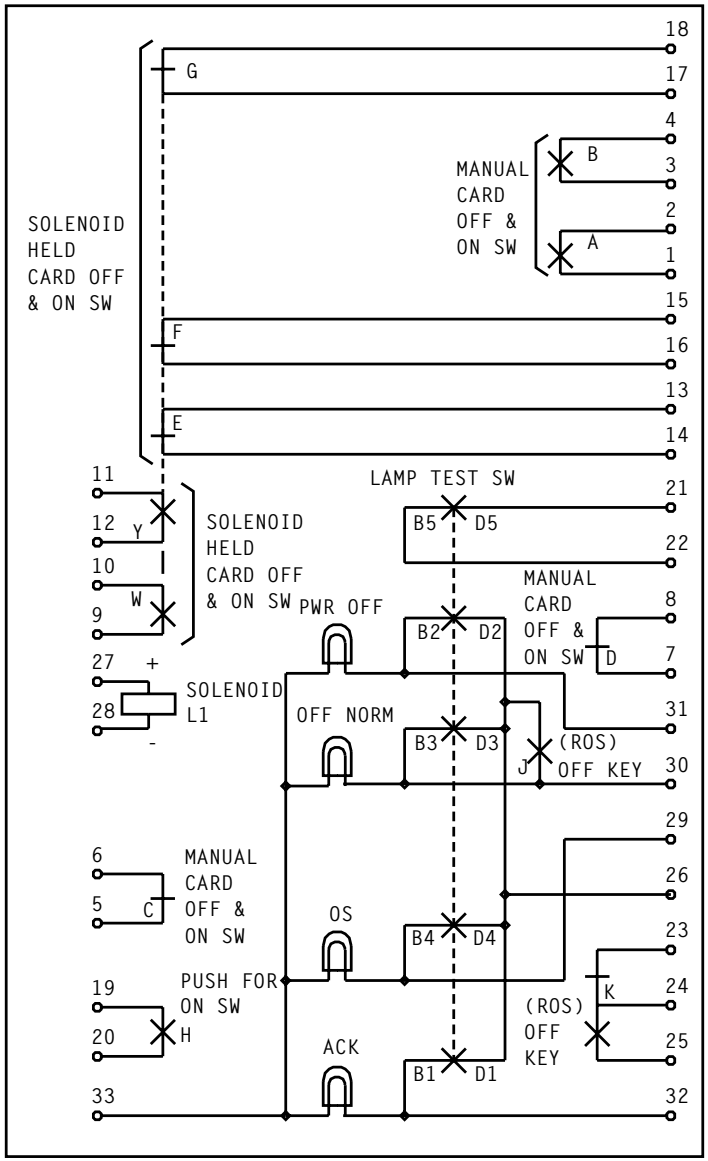


CLEAR BLOWN FUSE, SD-4A087-01 FRAME





CLEAR BLOWN FUSE, SD-4A087-01 FRAME



POWER SWITCH

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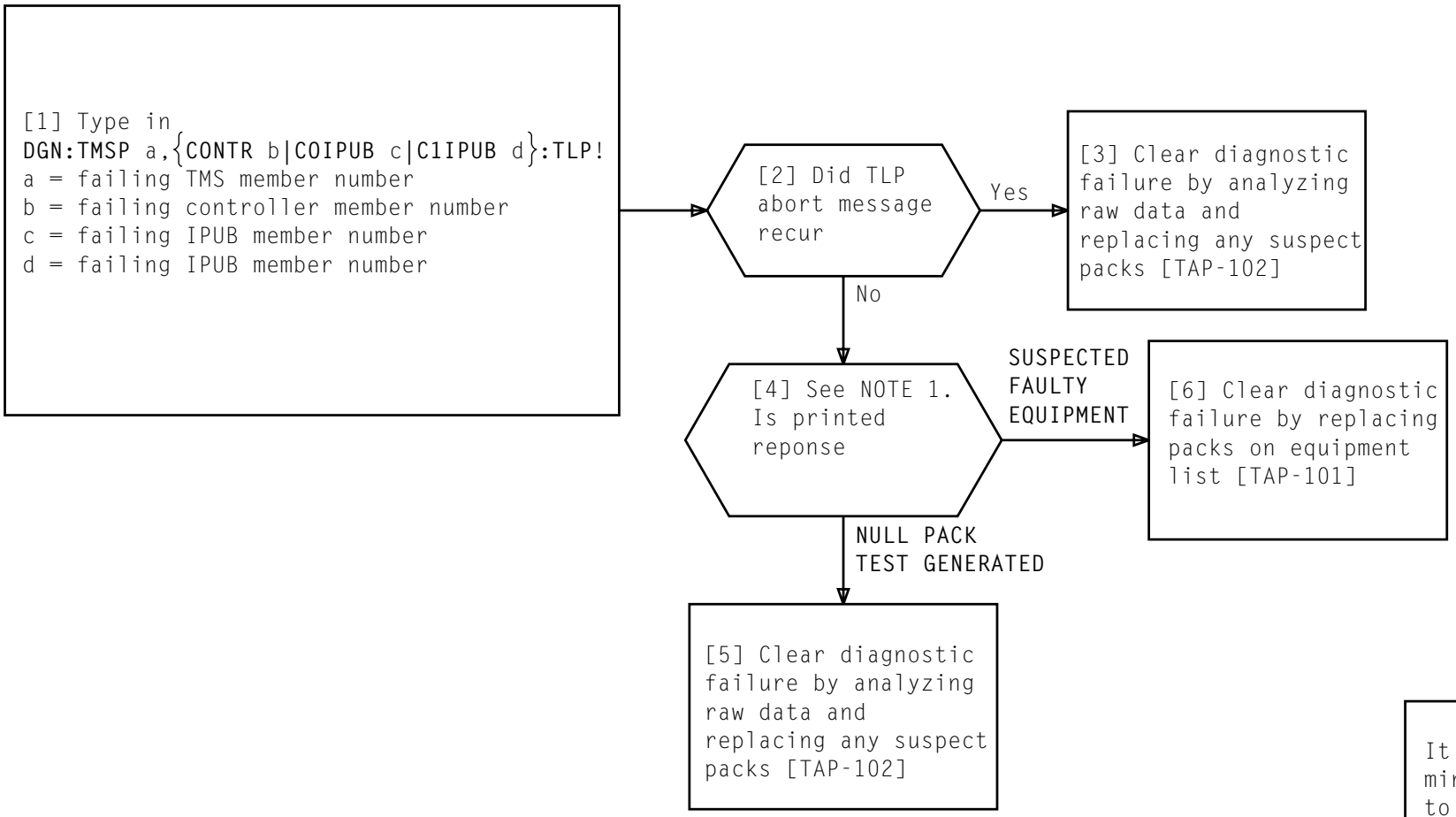


NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in
OP:TLPQUEUE;ALL!
TLP file currently being processed is indicated by an asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP ABORT

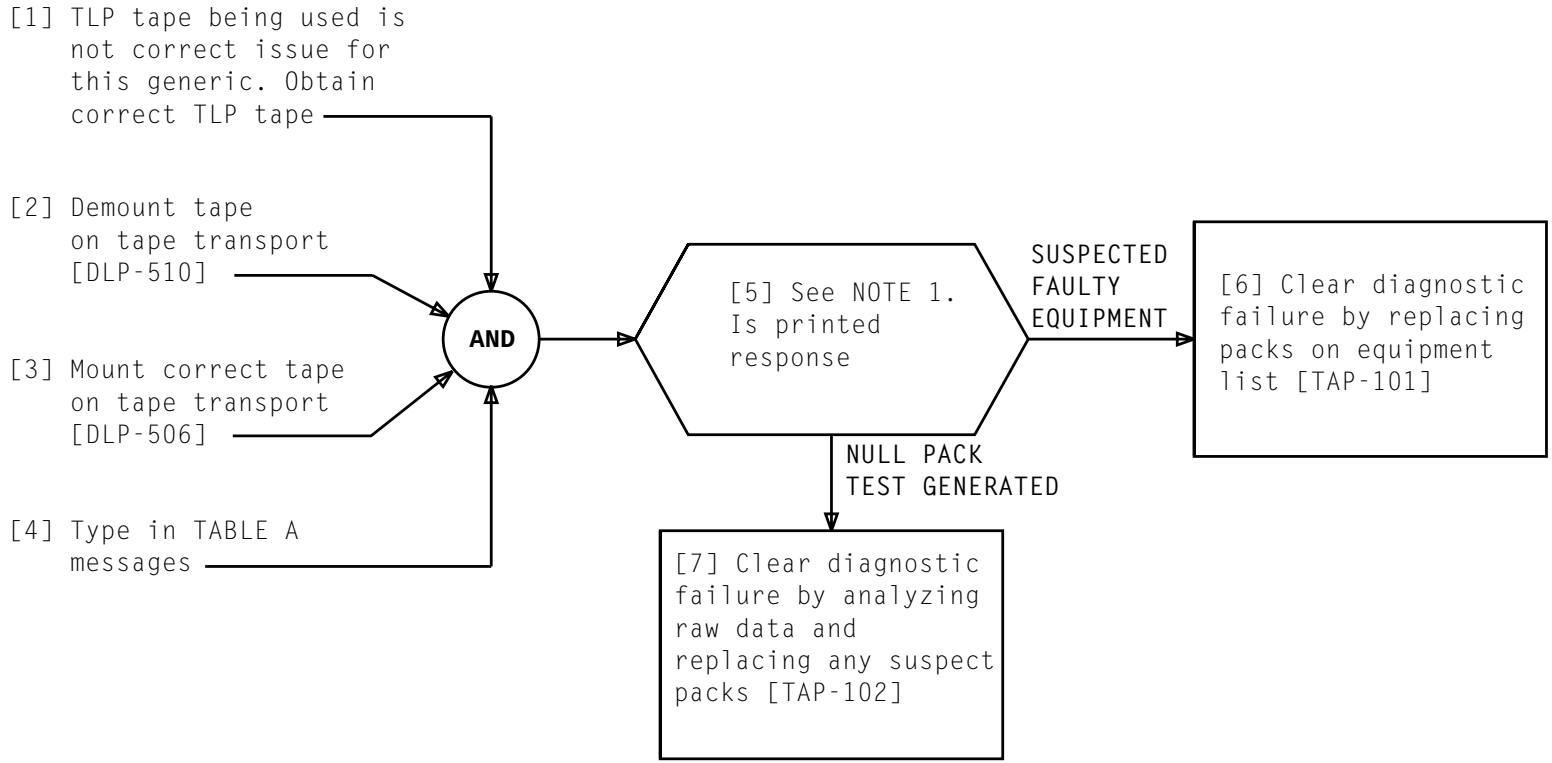


TABLE A
SET:TUC a;FUNCTION TLP!
ALW:TUC a:RO!
ALW:TLP:SRCH,TMSP!
DGN:TMSP b,{CONTR c|COIPUB d|C1IPUB e}:TLP!
a = member number of TUC with TLP tape mounted b = failing TMSP member number c = failing controller member number d = failing IPUB member number e = failing IPUB member number

NOTE 1
It may take several minutes for list to be printed. Status of your file may be monitored by typing in OP:TLPQUEUE;ALL! TLP file currently being processed is indicated by an asterisk in priority column

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

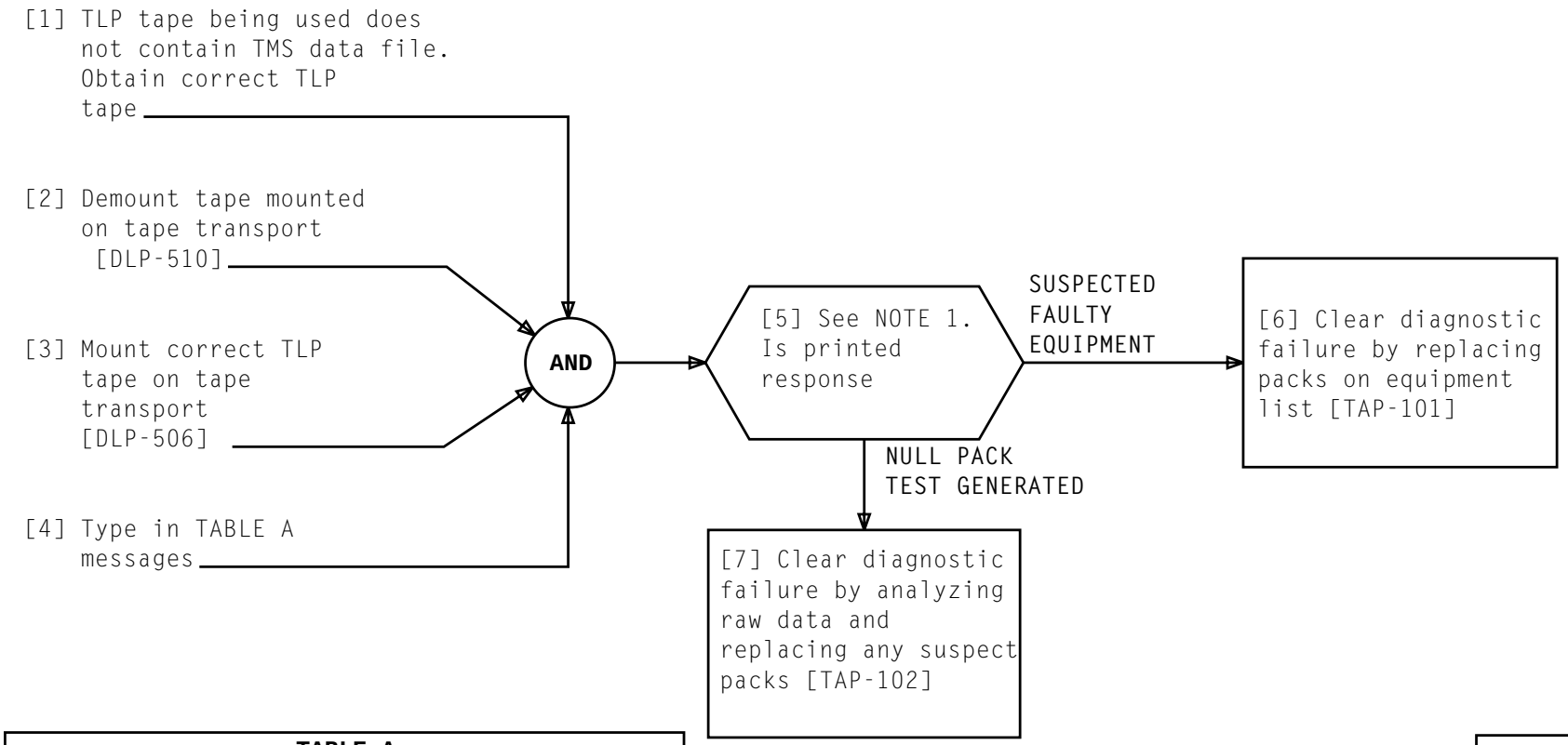


TABLE A
SET:TUC a;FUNCTION TLP!
ALW:TUC a:RO!
ALW:TLP:SRCH,TMSP!
DGN:TMSPb,{CONTR c|COIPUB d|C1IPUB e}:TLP!
a = member number of TUC with TLP tape mounted b = failing TMSP member number c = failing controller member number d = failing IPUB member number e = failing IPUB member number

NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in OP:TLPQUEUE;ALL! TLP file currently being processed is indicated by an asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP TAPE ACQUISITION ERROR

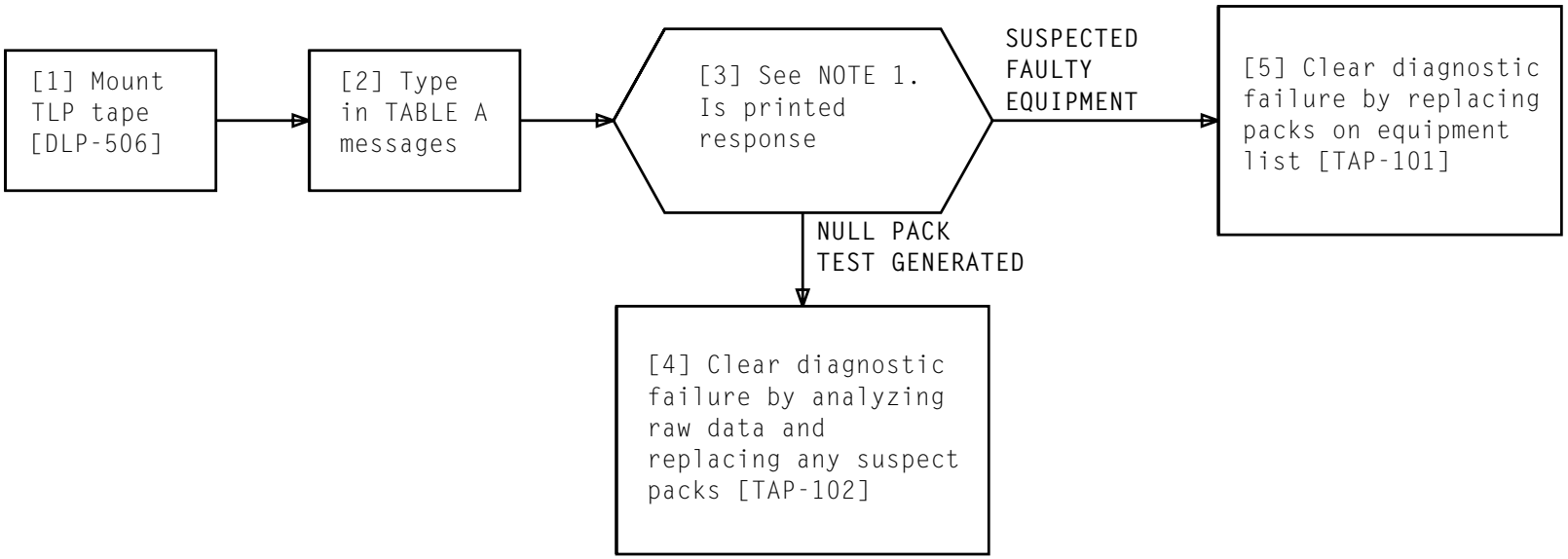
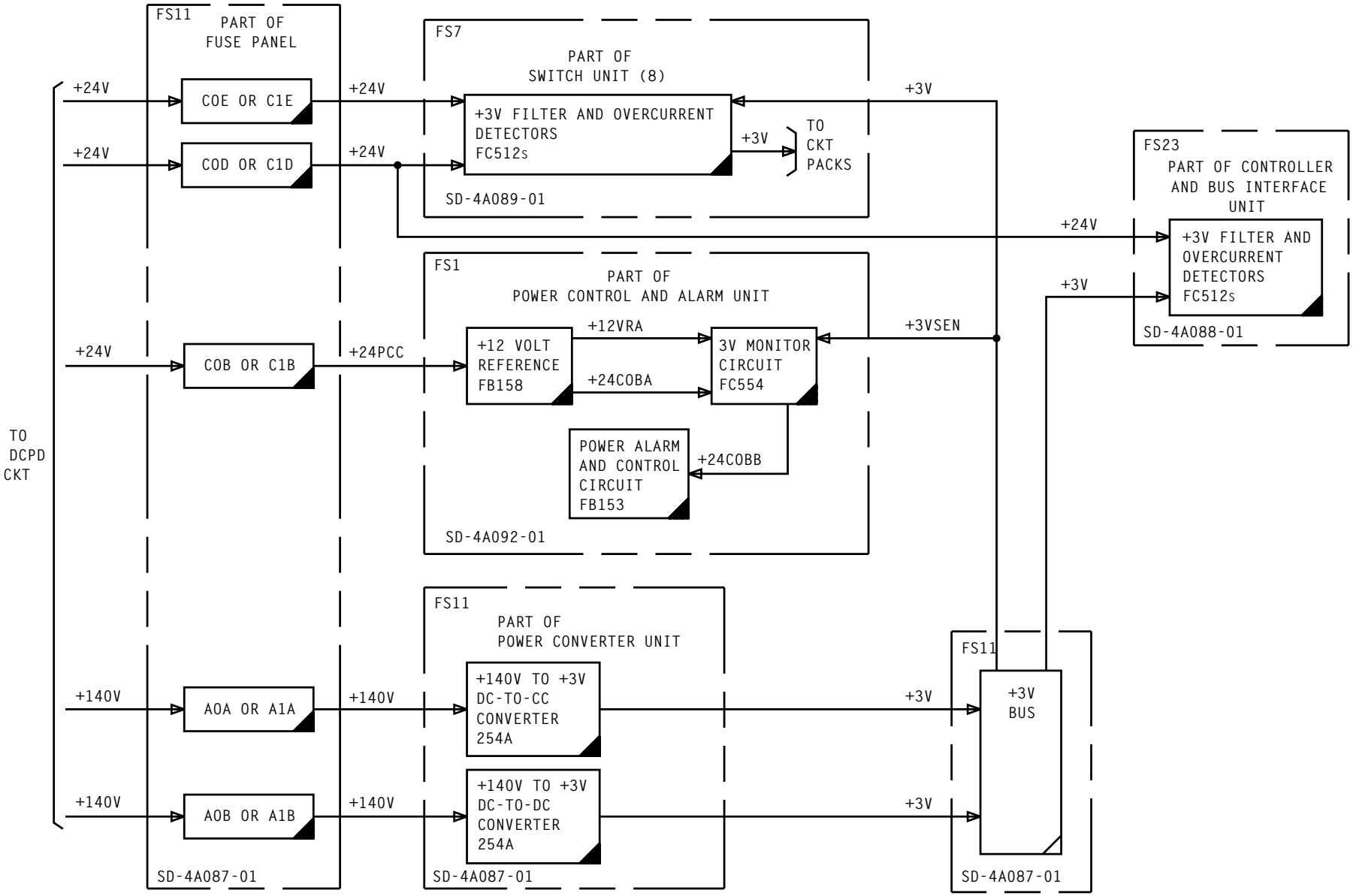


TABLE A
SET:TUC a;FUNCTION TLP!
ALW:TUC a:RO!
ALW:TLP:SRCH,TMSP!
DGN:TMSP b,{CONTR c|COIPUB d|C1IPUB e}:TLP!
a = member number of TUC with TLP tape mounted b = failing TMS member number c = failing controller member number d = failing IPUB member number e = failing IPUB member number

NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in OP:TLPQUEUE;ALL! TLP file currently being processed is indicated by an asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP TAPE NOT MOUNTED



POWER AND FUSING FOR BULK CONVERTER, FC554 PACK, AND FC512 PACK, SD-4A087-01 FRAME

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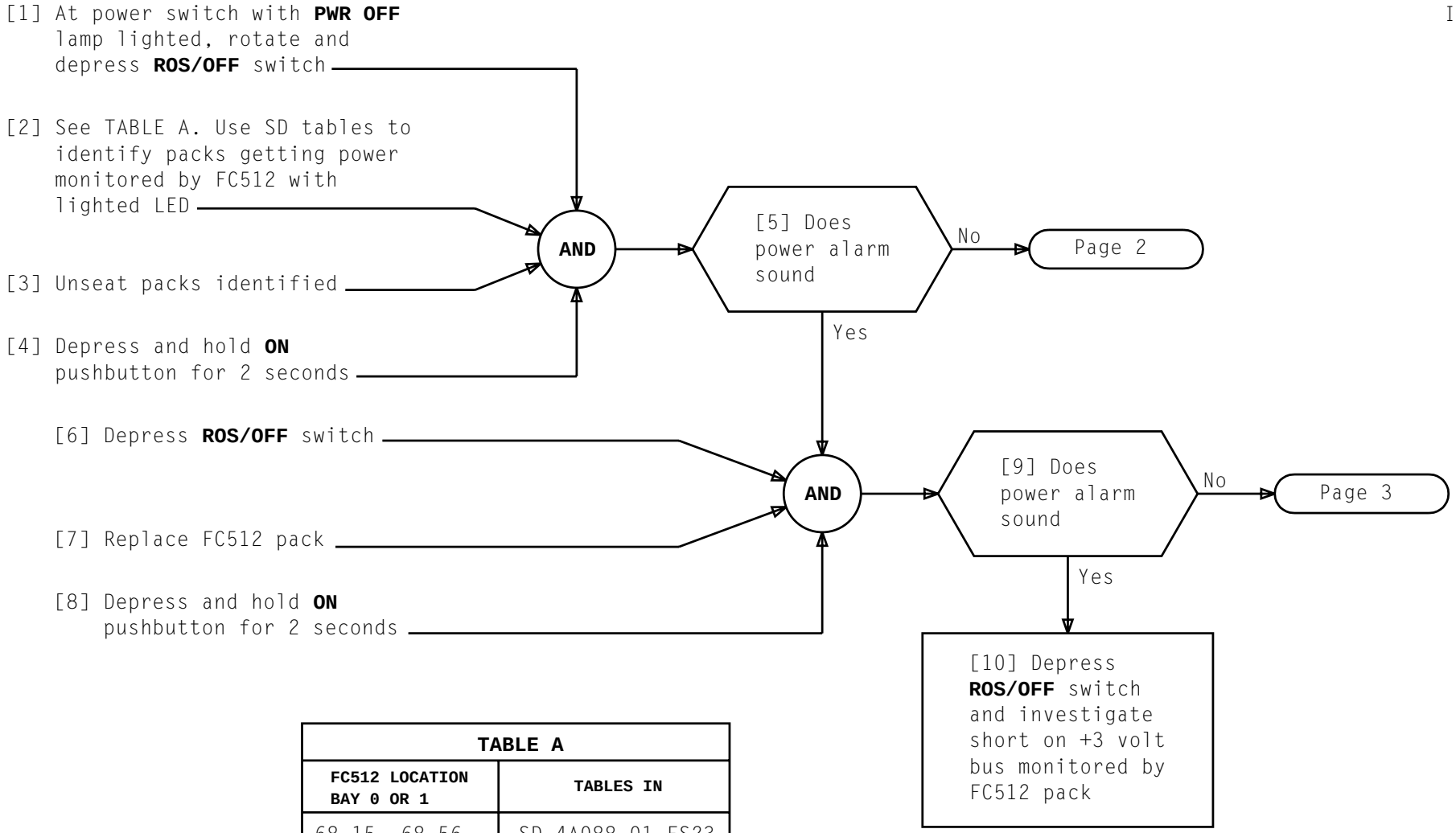
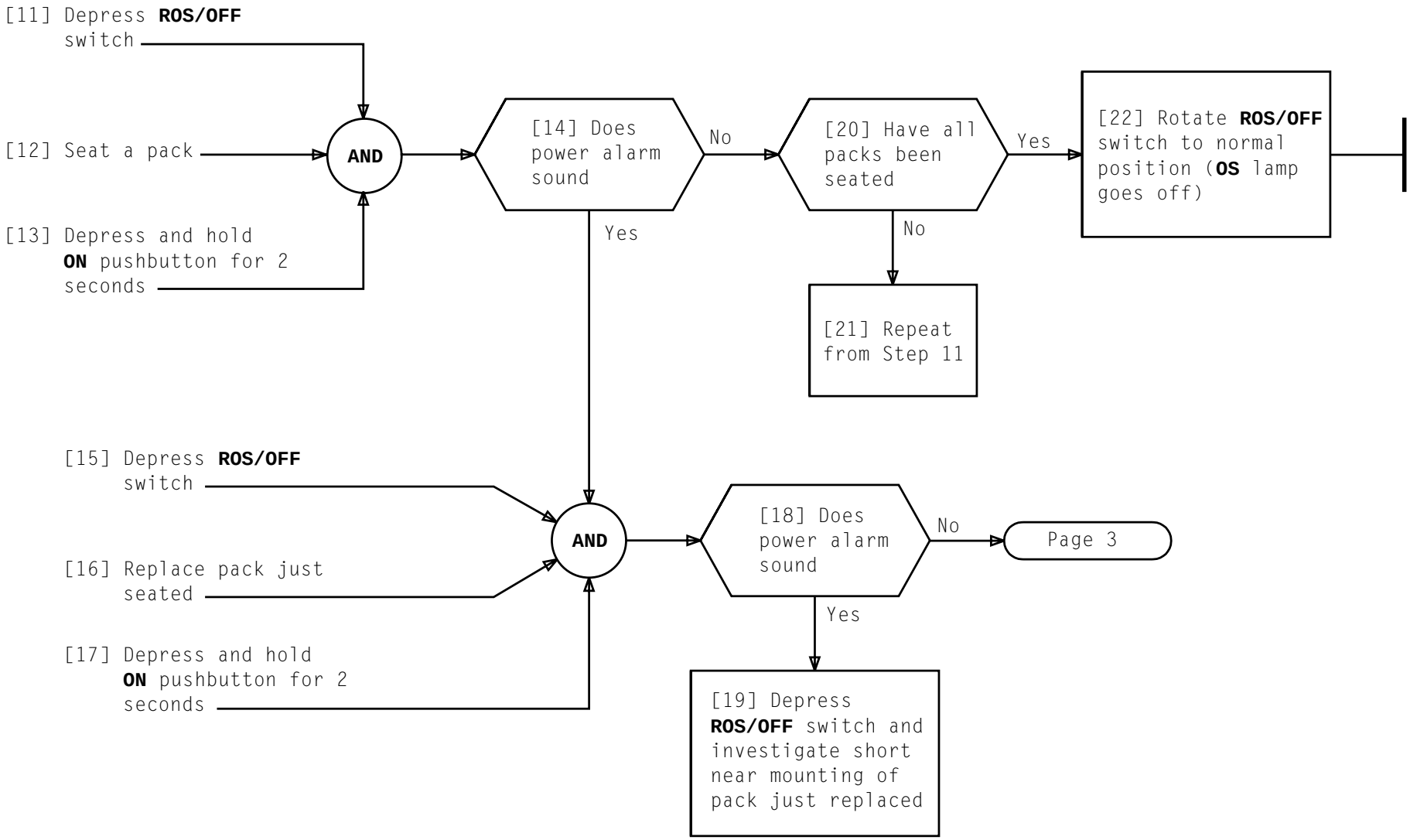


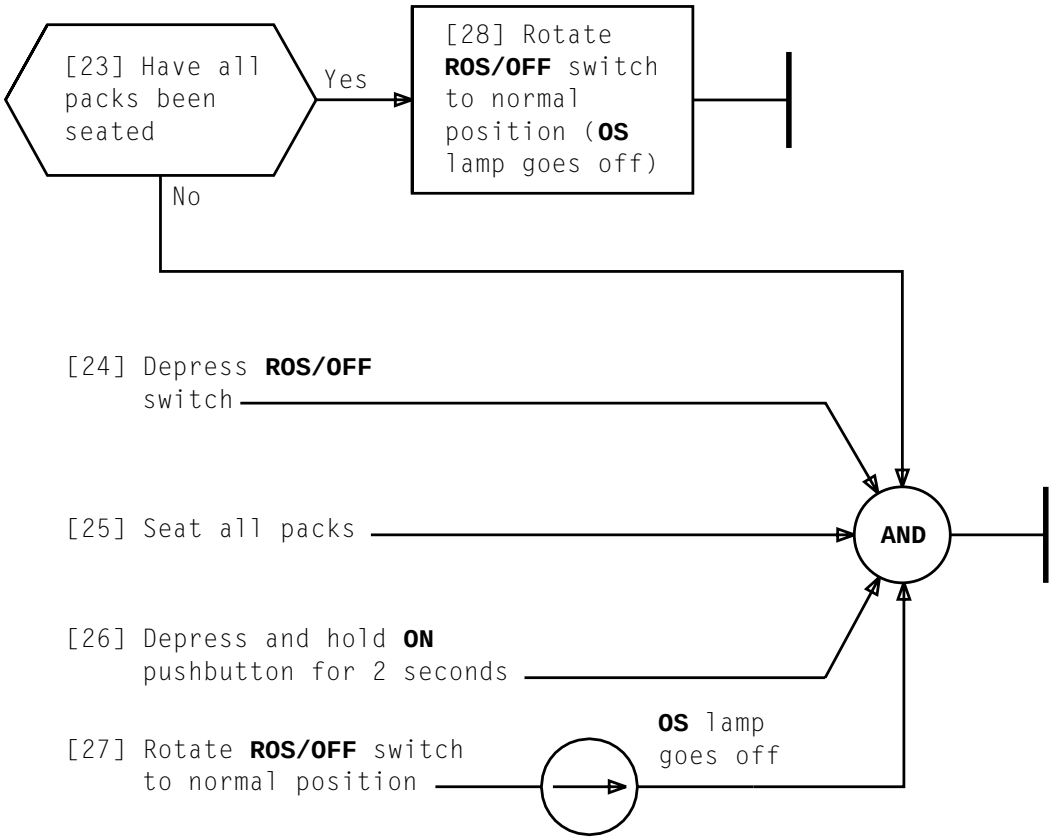
TABLE A

FC512 LOCATION BAY 0 OR 1	TABLES IN
68-15, 68-56, 72-52	SD-4A088-01 FS23
All other FC512 location	SD-4A089-01 FS7

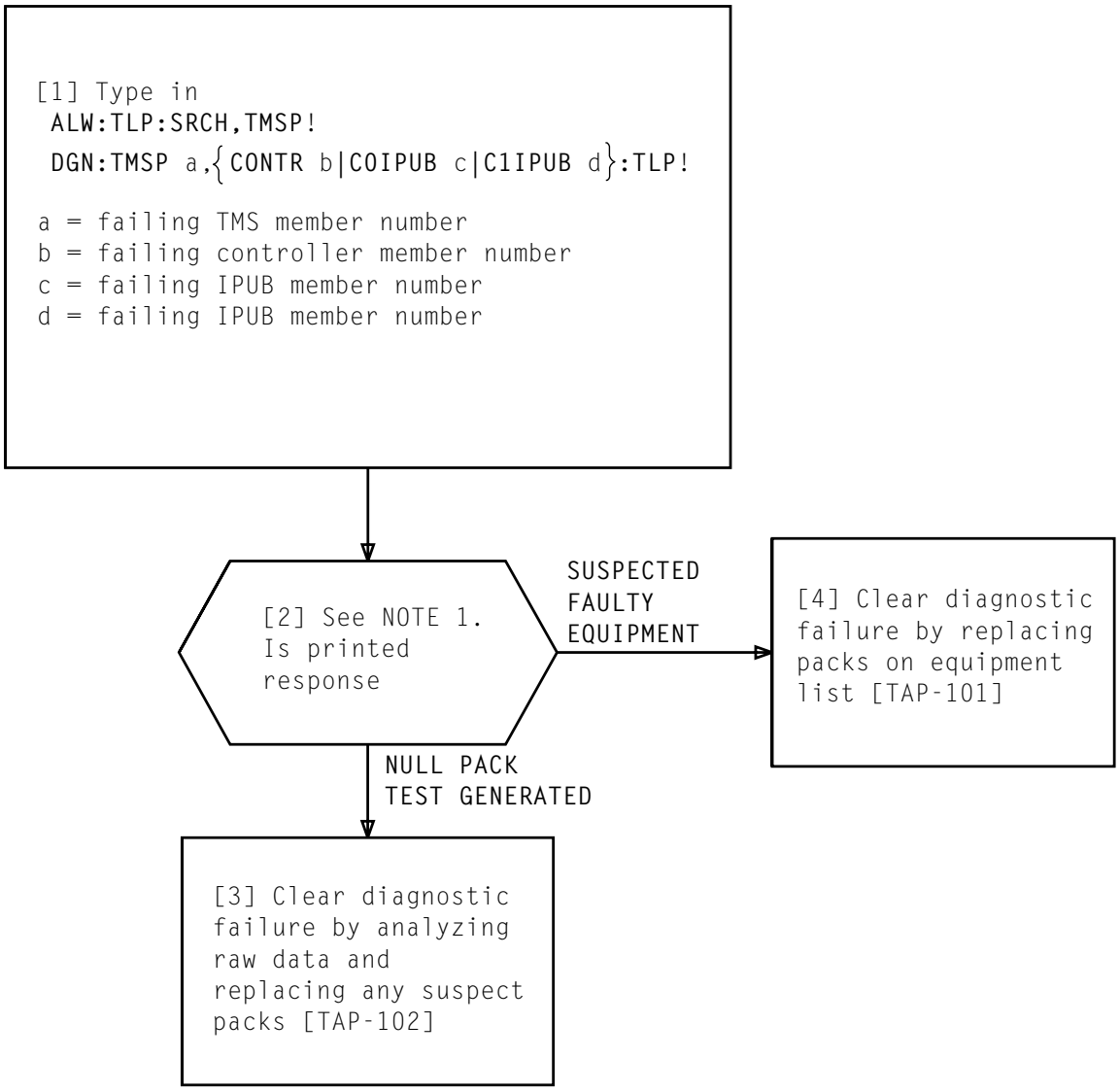
CLEAR BULK CONVERTER, FC554 AND FC512 CIRCUIT PACKS LED LIGHTED CONDITION, SD-4A087-01 FRAME



CLEAR BULK CONVERTER, FC554 AND FC512 CIRCUIT PACKS LED LIGHTED CONDITION, SD-4A087-01 FRAME

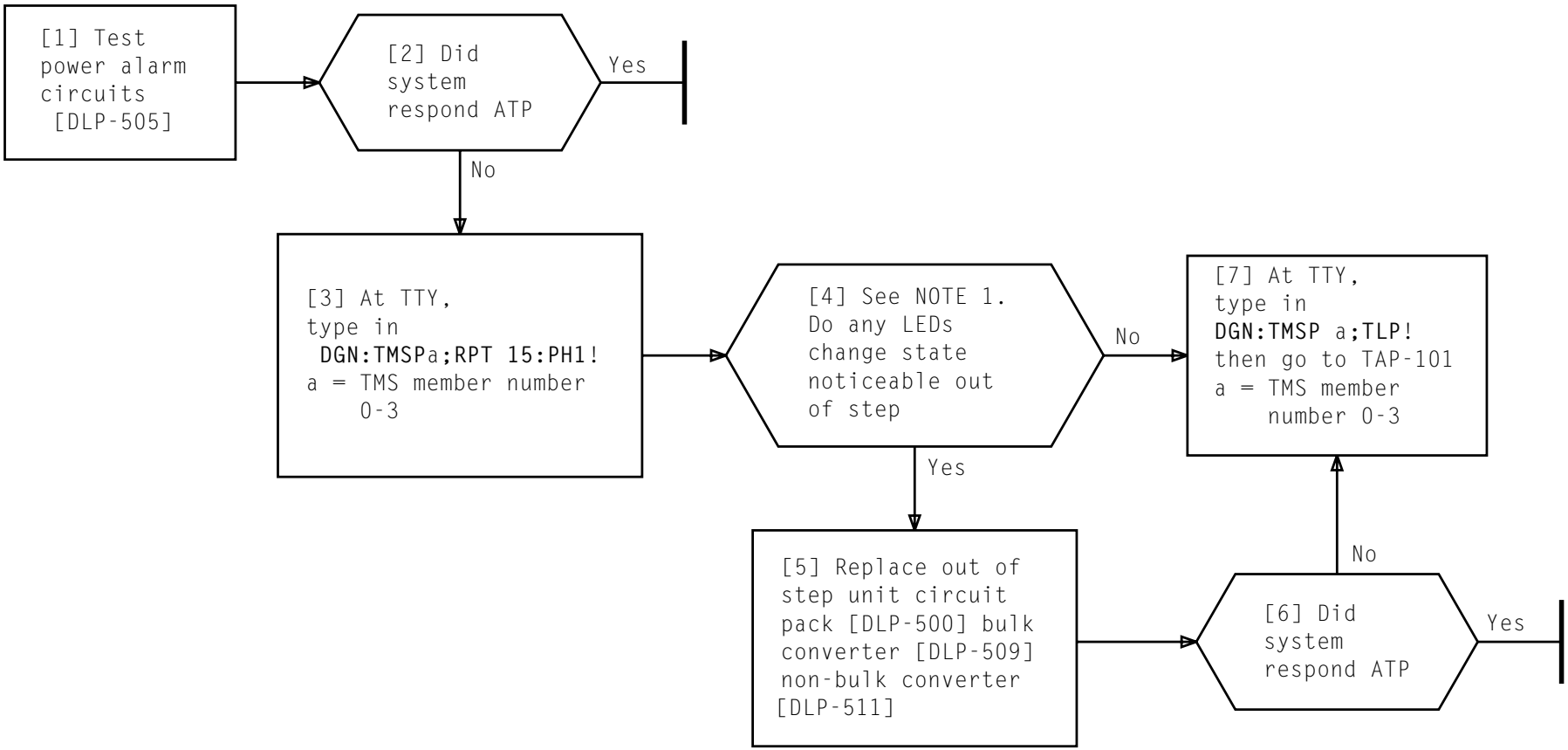


CLEAR BULK CONVERTER, FC554 AND FC512 CIRCUIT PACKS LED LIGHTED CONDITION, SD-4A087-01 FRAME



NOTE 1
It may take several minutes for list to be printed. Status of file may be monitored by typing in OP:TLPQUEUE;ALL! TLP file currently being processed is indicated by an asterisk in priority column

CLEAR DIAGNOSTIC FAILURE, TLP SEARCHES INHIBITED



NOTE 1
Normally, LEDs will not all change state simultaneously

CLEAR AUTOMATIC POWER MONITOR TEST FAILURE

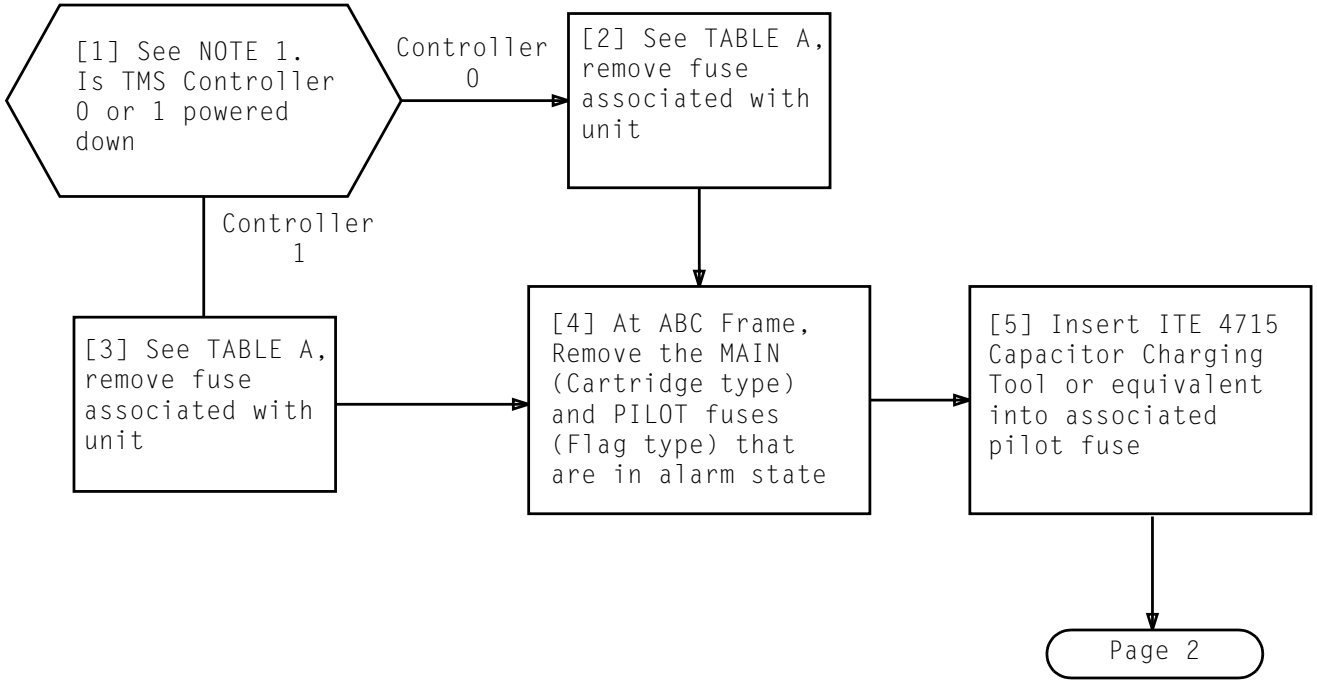


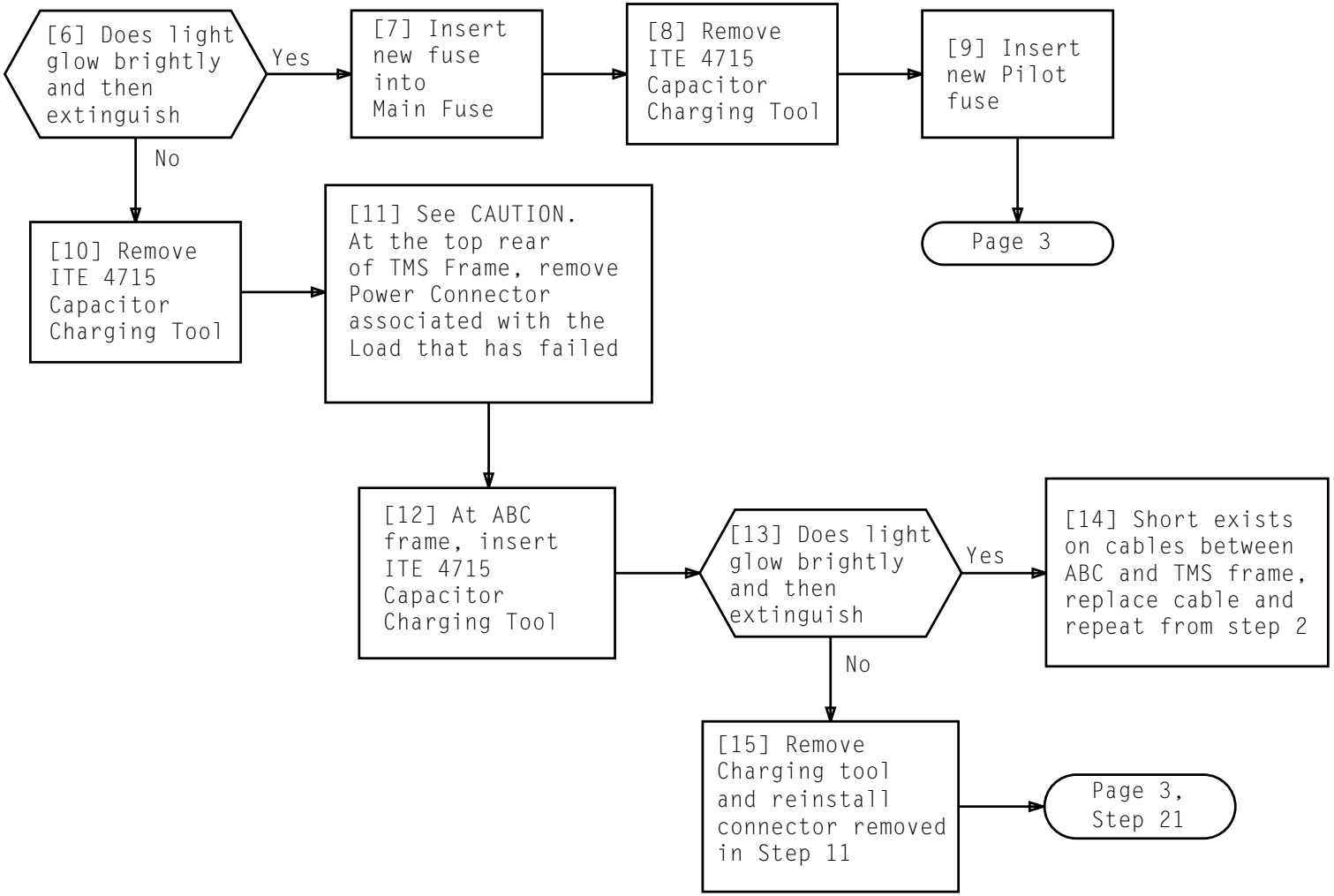
TABLE A

	CONVERTER	LOCATION	FUSE	LOCATION
CONT 0	0C0A 0C0B	0-14-12 0-14-60	0A0A 0A0B	007-13
CONT 1	1C0A 1C0B	1-14-12 1-14-60	1A0A 1A0B	107-13

NOTE 1
It is assumed that an attempt has been made at the +140V Distribution Frame to restore power to TMS frame and charging lamp does not extinguish indicating short circuit exists, or charging lamp extinguishes but the LED on a given 245 type converter does not light indicating an open diode

Added

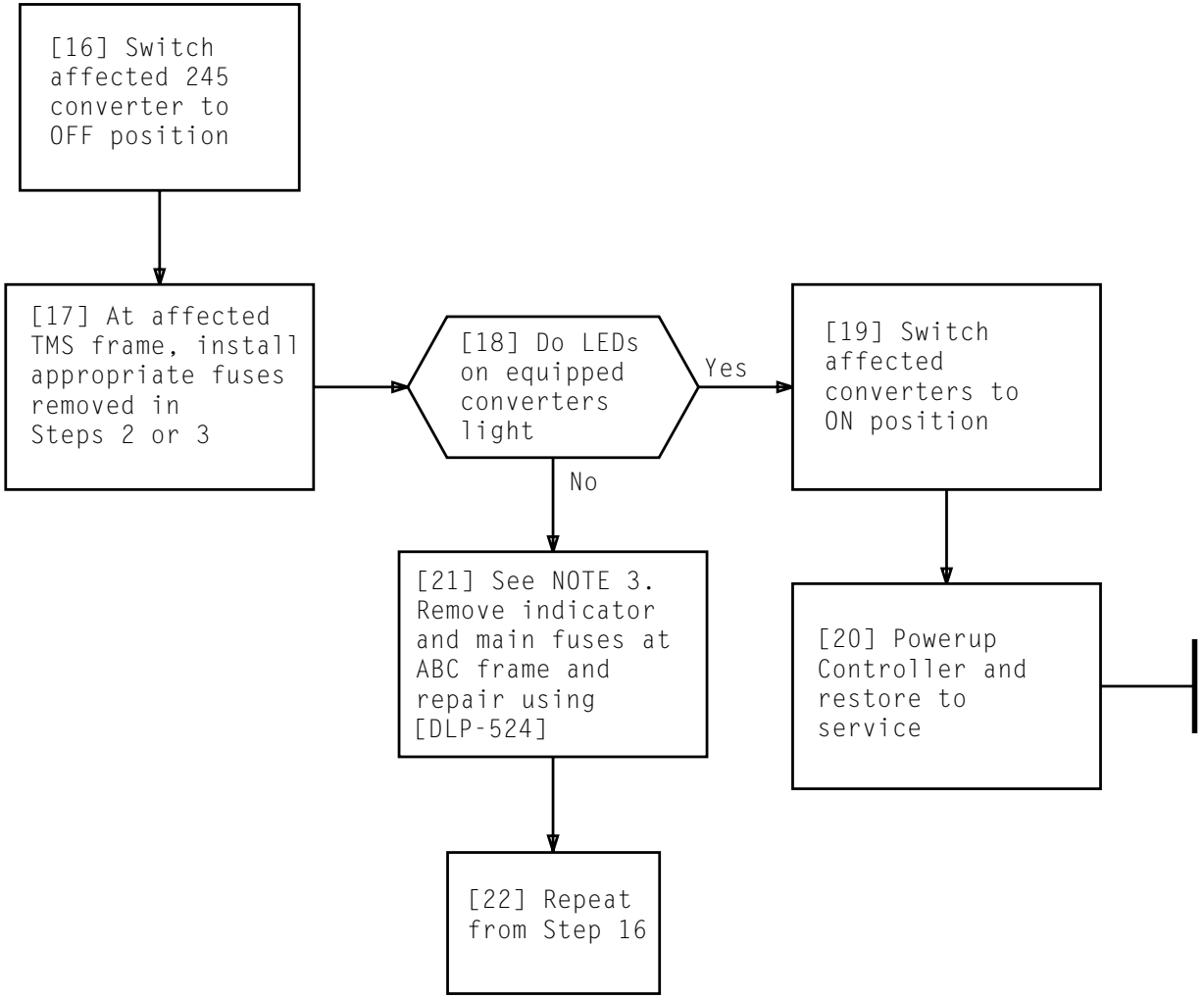
ISOLATE DEFECTIVE FILTER CIRCUIT TIME MULTIPLEX SWITCHING (TMS)



CAUTION
Removing wrong connector will duplex fail TMS-B

Added

ISOLATE DEFECTIVE FILTER CIRCUIT TIME MULTIPLEX SWITCHING (TMS)

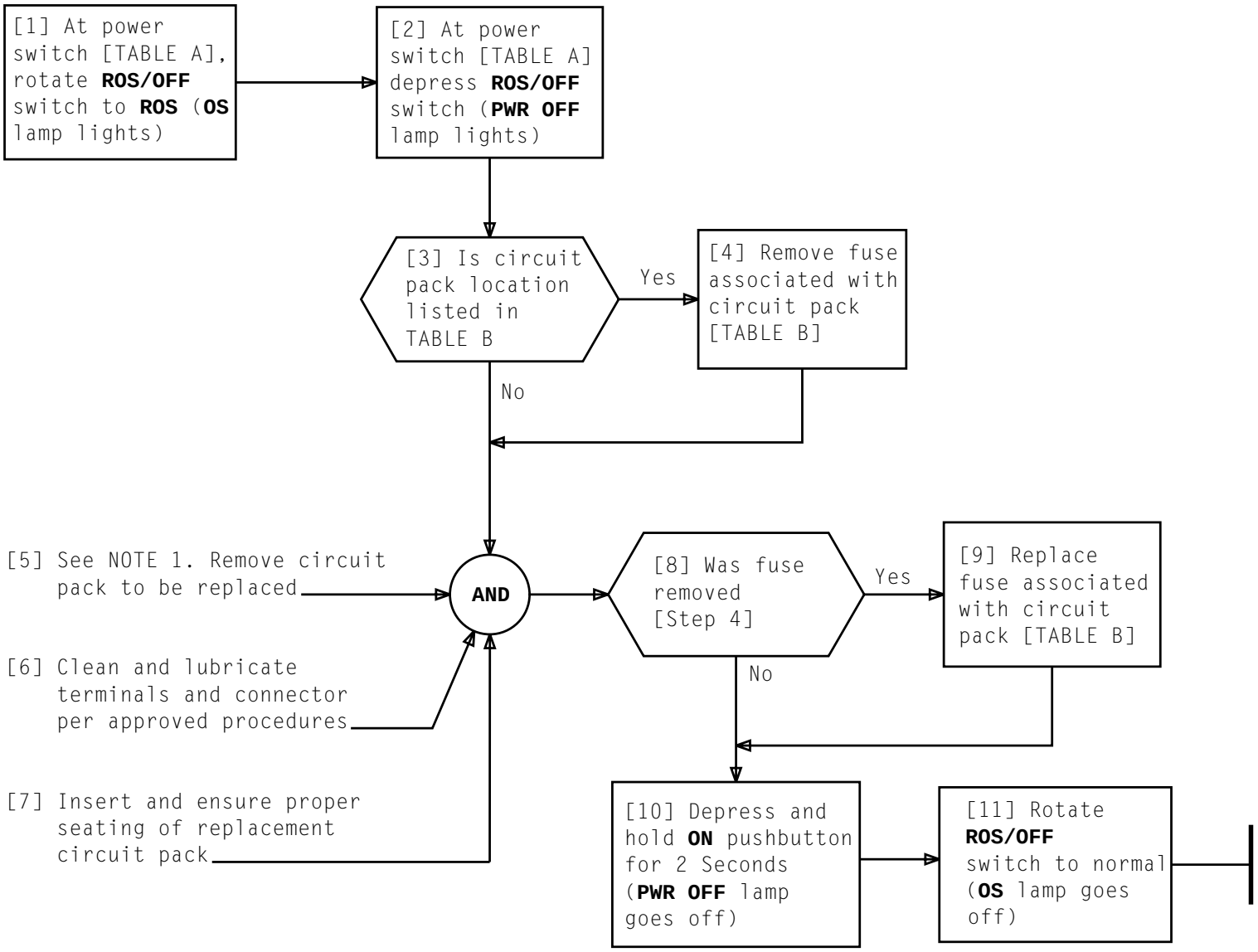


NOTES

2. If you have reached this point without replacing any frame components in the TMS bay, there are damaged filter circuit parts in the TMS bay. It is likely that a power failure will occur in the +140V circuitry again. It is recommended that the Filter Circuit components be replaced at the earliest convience
3. If you have arrived here through Step 15, the initial indication is a shorted capacitor in the filter circuit. If you came from Step 18, the symptom is an open diode

Added

ISOLATE DEFECTIVE FILTER CIRCUIT TIME MULTIPLEX SWITCHING (TMS)



NOTE 1

Packs designated FA632, FA633, and FA634 can be replaced with FA632B, FA633B, and FA634B packs, respectively. Packs designated FA632B, FA633B, and FA634B cannot be replaced with FA632, FA633, and FA634 packs

REPLACE PACK

TABLE A

SD-4A012-01, 02

CIRCUIT PACK LOCATIONS	POWER SWITCH	
	LOCATION	NAME
0-80-01 to 0-80-14	0-80-29	**IPUB0**
1-80-01 to 1-80-14	1-80-29	**IPUB1**
All others	1-68-08	**CONTR**

SD-4A087-01

CIRCUIT PACK LOCATIONS	POWER SWITCH		
	LOCATION	NAME	
		BAY 0	BAY 1
*-80-14 to *-80-32	*-80-42	**C0IPUB1**	**C1IPUB1**
*-76-14 to *-76-32	*-76-42	**C0IPUB0**	**C1IPUB0**
All others	*-44-38	**CONTR0**	**CONTR1**

* Circuit Packs located in Bay 0 or Bay 1 are controlled, respectively, by switches located in Bay 0 and Bay 1

TABLE B

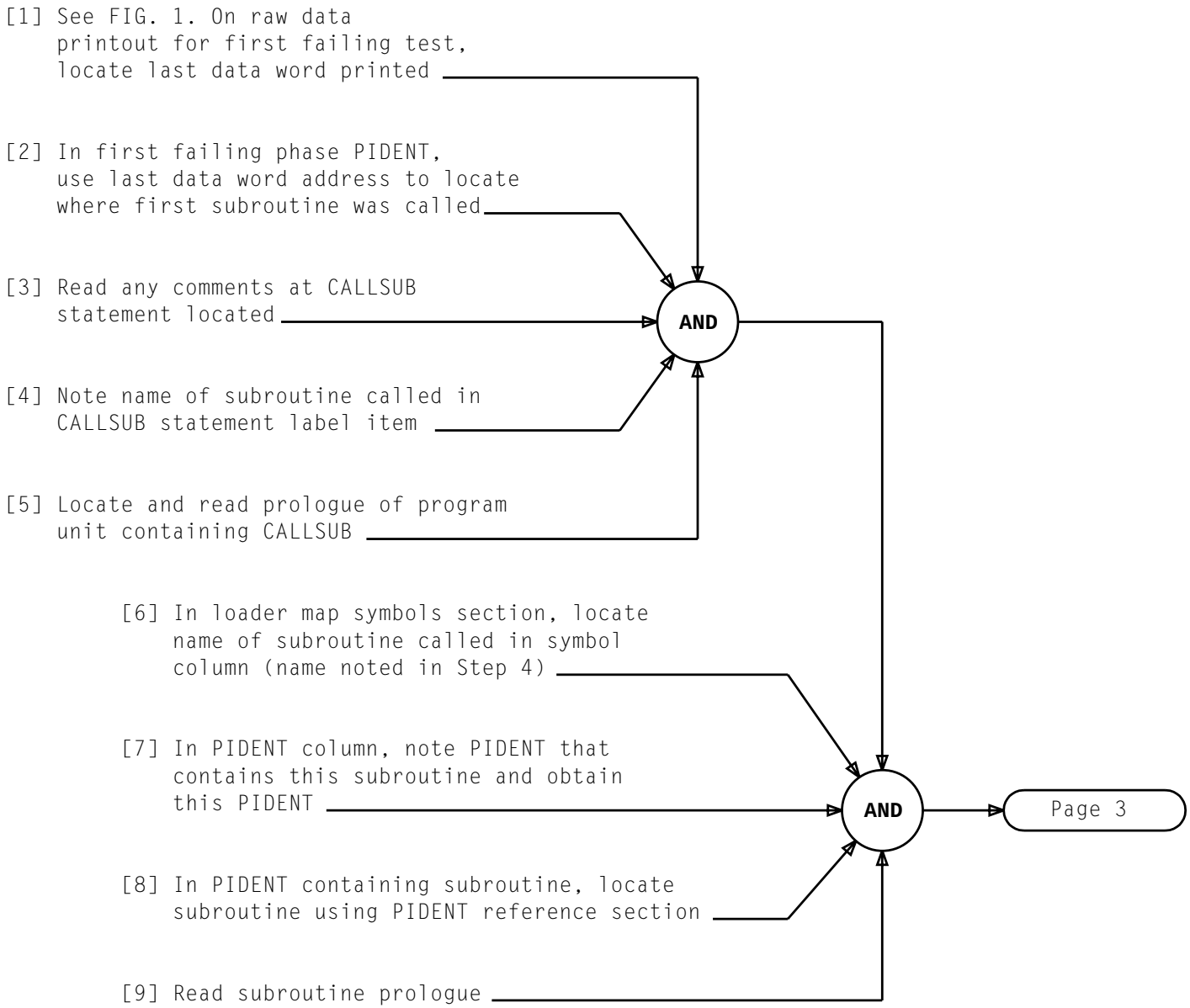
SD-4A012-01, 02

CIRCUIT PACK LOCATIONS	FUSE	
	BLOCK LOCATION	NAME
0-68-40	1-07-33	**AB**

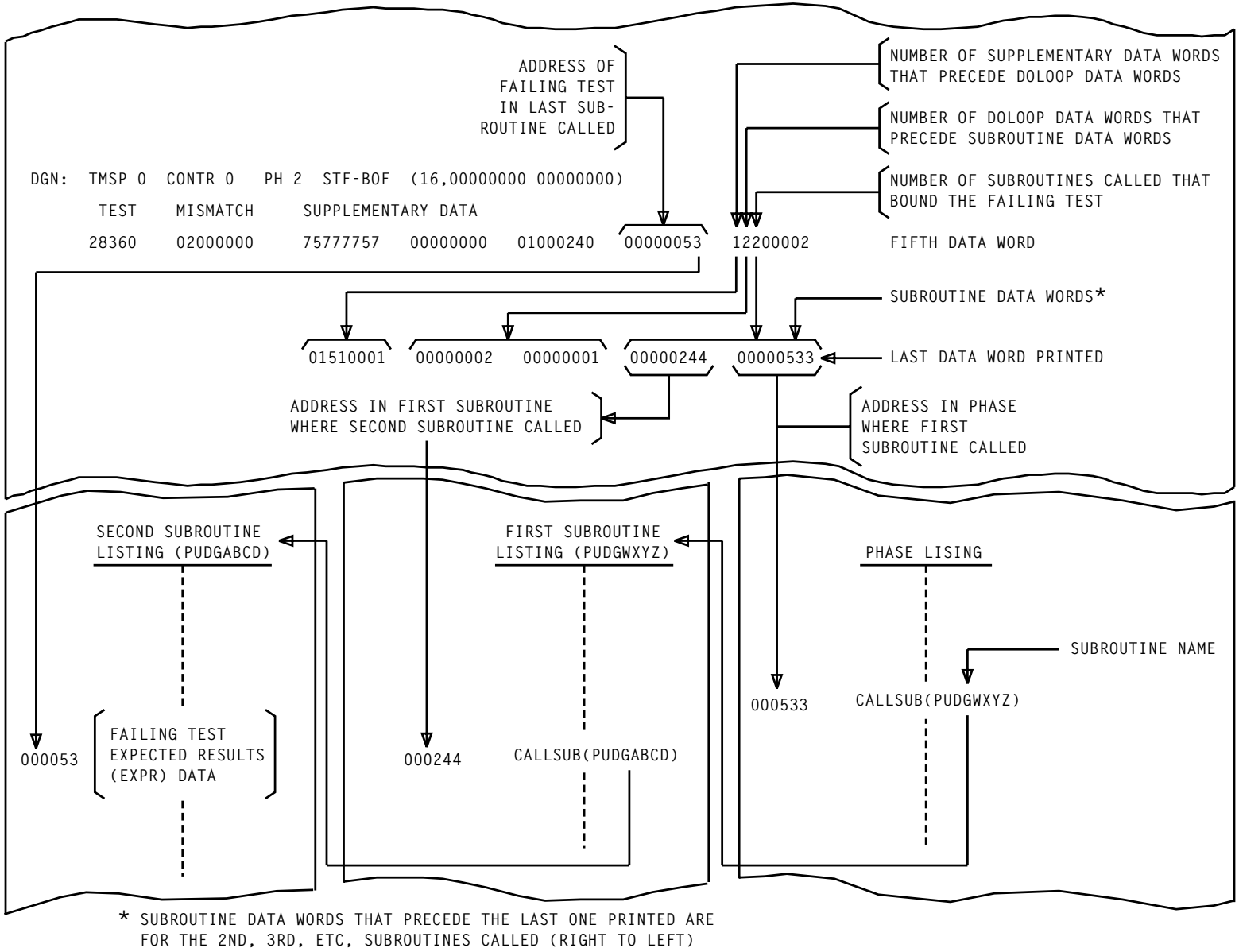
SD-4A087-01

CIRCUIT PACK LOCATIONS	FUSE		
	BLOCK LOCATION	NAME	
		BAY 0	BAY 1
*-44-26	*-07-46	**C0A**	**C1A**
*-44-28 to 44-34	*-07-46	**C0B**	**C1B**

* Circuit Packs located in Bay 0 or Bay 1 are controlled, respectively, by fuses located in Bay 0 and Bay 1



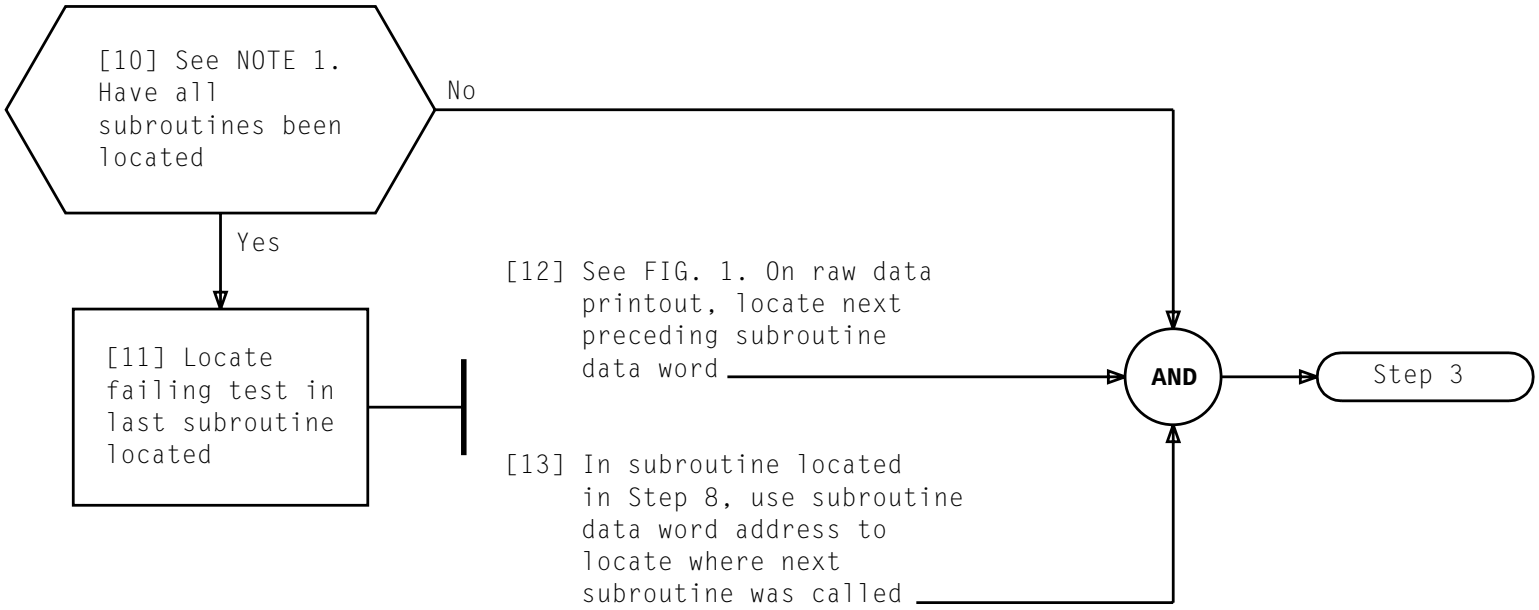
DETERMINE LOCATION AND FUNCTION OF SUBROUTINES CALLED



* SUBROUTINE DATA WORDS THAT PRECEDE THE LAST ONE PRINTED ARE FOR THE 2ND, 3RD, ETC, SUBROUTINES CALLED (RIGHT TO LEFT)

FIG. 1 — Relationship of Subroutine Data Words to Phase and Subroutine Listings

DETERMINE LOCATION AND FUNCTION OF SUBROUTINES CALLED



NOTE 1
On raw data printout, sixth digit in fifth data word following mismatch data indicates number of subroutines called

DETERMINE LOCATION AND FUNCTION OF SUBROUTINES CALLED

NOTE: Section 234-180-020 contains descriptions of dial statements

1. Read several DIAL statements just before failing test to determine what occurred prior to test failing

2. Read failing test DIAL statement and comments

3. Note "asterisk data" that follows failing test number in listing

4. See FIG. 1. Note relationship of asterisk line data to first five raw data printout words that follow mismatch data

5. In TABLE A, locate failing DIAL statement and use description column to determine meaning of data contained in second and third raw data words following mismatch data

   NOTE: For scan point, SD point, and SP point addresses, third data word breaks down as follows:
   23-17 = Don't care
   16-12 = SP number
   11-10 = Matrix
   09-04 = Row
   03-00 = Column

6. Use TABLE B to obtain additional information with respect to second and third data words

End of procedure

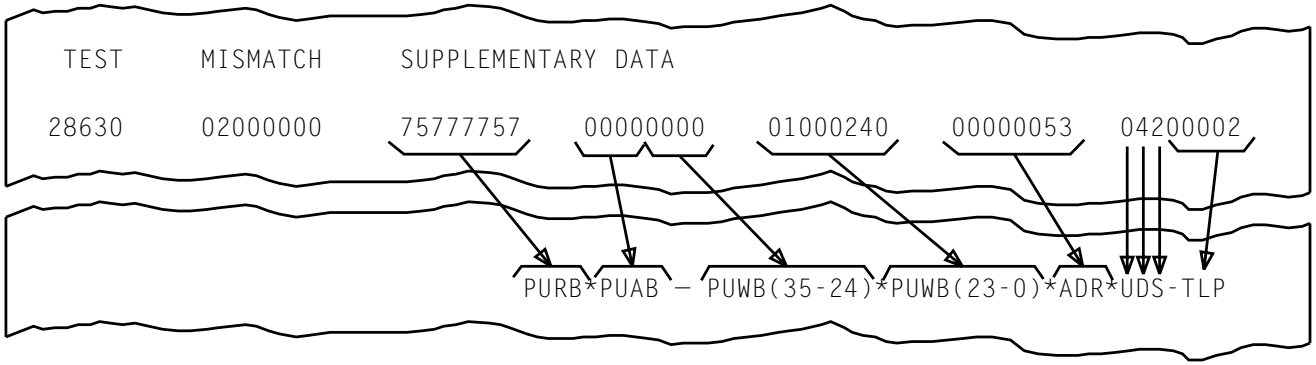


FIG. 1 — Example of Raw Data Printout Relationship to Asterisk Line at Failing Test

TABLE A
DESCRIPTION OF DATA CONTAINED IN SECOND AND THIRD DATA WORD FOR EACH TYPE DIAL TEST STATEMENT

DIAL TEST STATEMENT	DESCRIPTION*
CCBB	A = B = 0, C = buffer bus address
CITOP CITOPI	Standard PUB format†
CLKOP	A = fault chain, B = reply bus C = CC pulse point address
MEMOPI	Standard PUB format† PUWB bits 16-10 = address of memory accessed PUWB bits 9-7 = memory level For time slot memories and busy-idle map Memories bit 0 = switching and permuting CKT
MTXMOP	Standard PUB format† PUWB bits 8-0 = matrix under test
PLOP	MA pulse point accessed by an SP: A (bits 11-2) = SP K-code B = SP OPCODE to bit pulse point 0/ (1640) C = address of point MA pulse point accessed by CC pulse point A = B = 0, C = CC pluse point address
PUDROP PUDROPI	Standard PUB format†
PULSE	A = B = 0, C = CC pulse point address
PULSI	Same as PLOP statement
PUOP PUOPI	Standard PUB format†
PUOPBBR PUOPIBBR	PUOP part: standard PUB format† BBR part: A = B = 0, C = buffer bus address

DIAL TEST STATEMENT	DESCRIPTION*
SCANI	A(bits 11-2) = SP K-code B = SP OP code to read scan points 0/(1540) C = address of point
SDI	A(bits 11-2) = SP K-code B = SP OPCODE to read SD points 0/(1440) C = address of point
SESOP	Standard PUB format†
STORE	A = B = 0, C = specified expected result for VIC diagnostic B = VIC failing test
TMSOP TMSOPI	Standard PUB format† PUWB bits 16-10 = address of memory accessed
TSIESR	Standard PUB format† except C = don't care
TSIMOP	Same as MEMOPI statement

*The following format relates A, B, and C to the second and third data words following mismatch data:

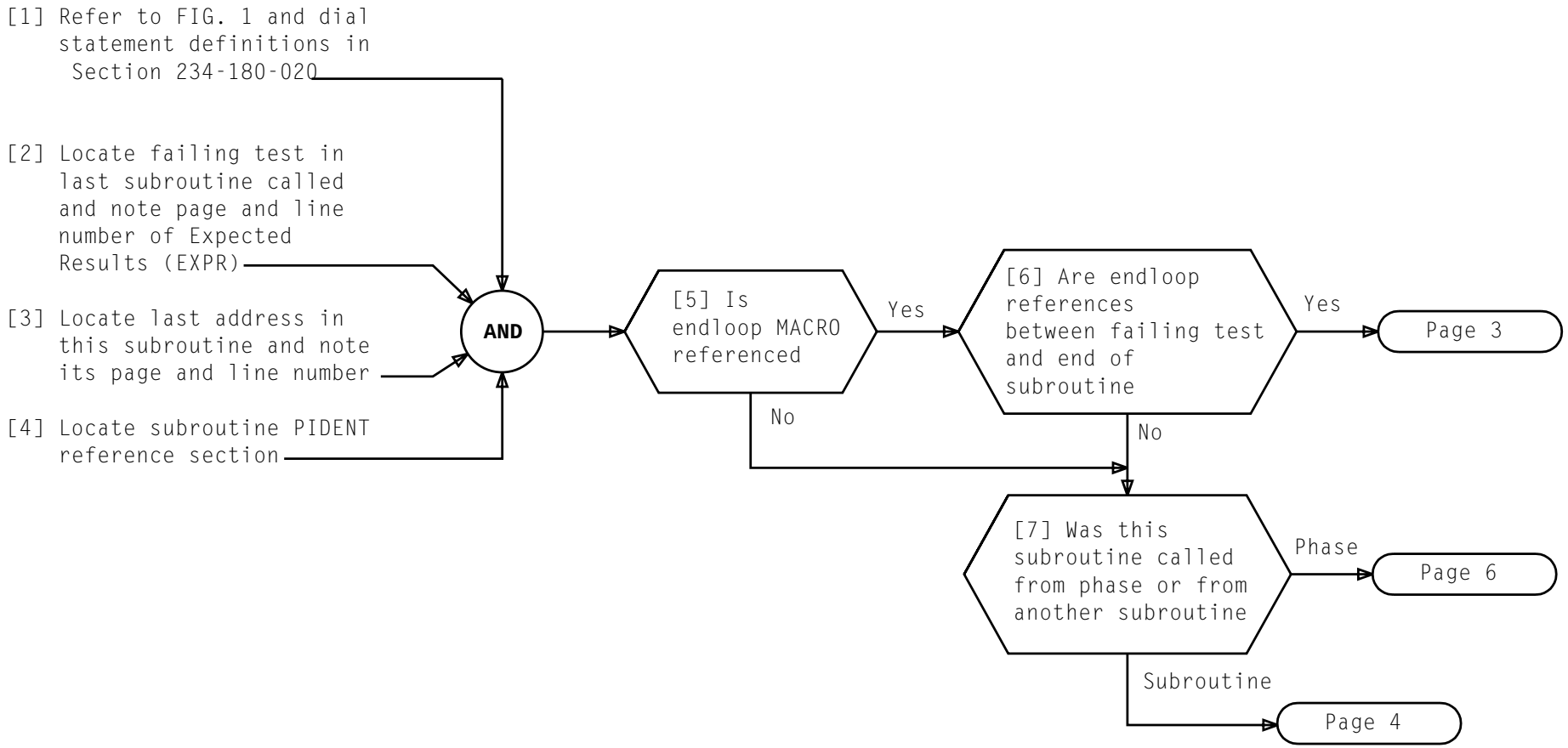
SECOND WORD	THIRD WORD
AAAABBBB	CCCCCCCC

†The standard PUB format is:
A = PUEA/PUAB
B = PUWB (bits 35-24) = OPAD, (bits 35-29) = OPCODE
C = PUWB (bits 23-0) = ADDRESS

TABLE B			
SECOND AND/OR THIRD DATA WORD	**LOCATION OF INFORMATION**		
	SD-4A012-01 FRAME	**SD-4A012-02 FRAME**	**SD-4A087-01 FRAME**
OPAD/OPCODE	SD-4A026-01 (B16GA)	SD-4A026-02 (B16GA)	SD-4A088-01 (B16GA)
SD point address	VER:SPMTXPK:SDP,MDN O'a! a = SD point address		
Scan point address	VER:SPMTXPK:SCP,MSN O'a! a = scan point address		

SUMMARY

Locate failing test in last subroutine called. Look PAST failing test for endloop statements. For each endloop statement located in subroutine, use endloop label variable to identify location of the associated doloop statements. Locate each doloop statement. Obtain doloop index values from raw data printout and determine their meaning for each doloop [FIG. 1]. If an endloop statement was not found in subroutine, go to where subroutine was called and look for endloop statements after CALLSUB statement. Continue to look for endloop statements after CALLSUB statements until all doloops indicated on raw data printout for first failing test are located. Read comments at the doloop statements.



DETERMINE LOCATION AND FUNCTION OF DOLOOPS, SUBROUTINES CALLED

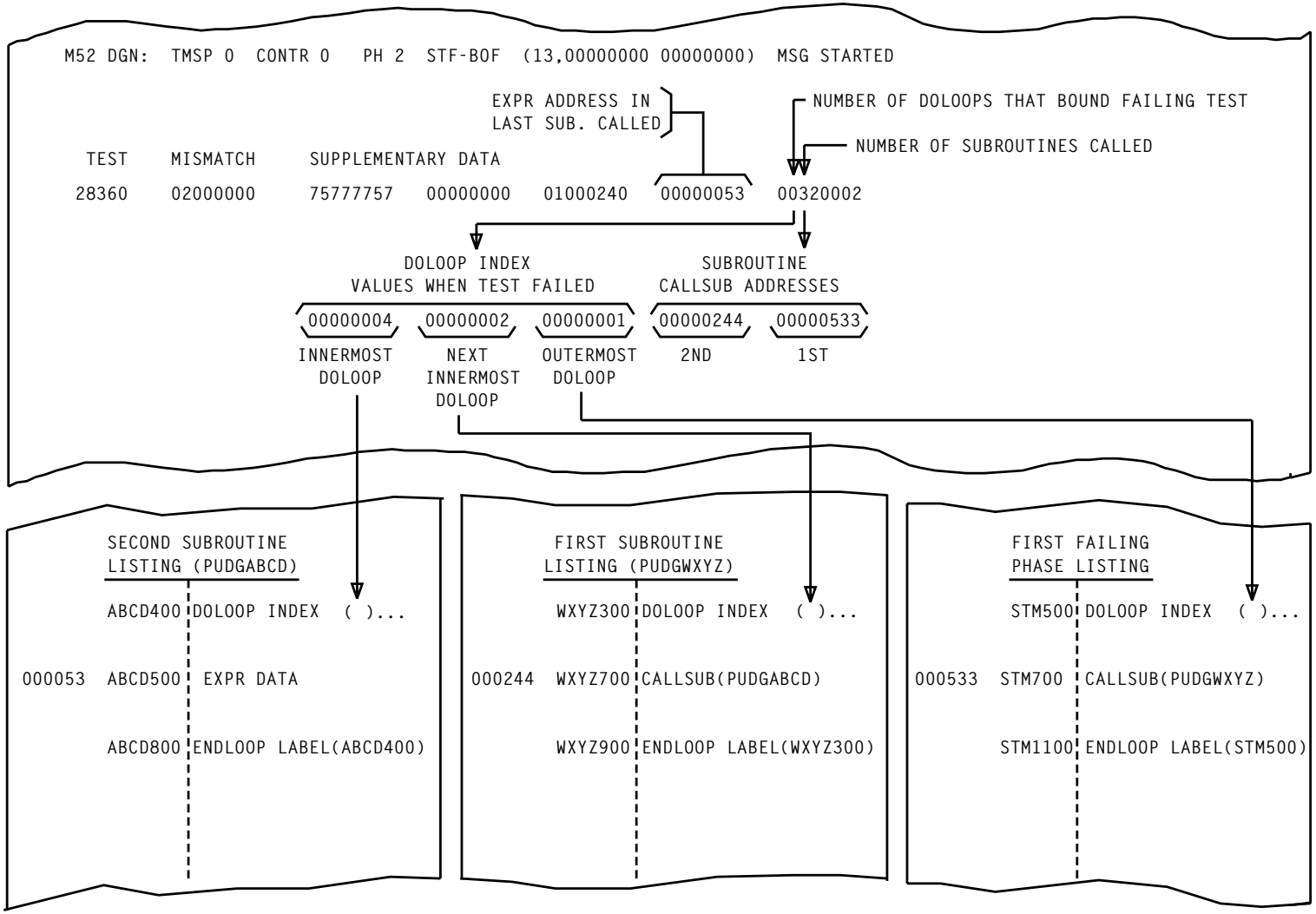
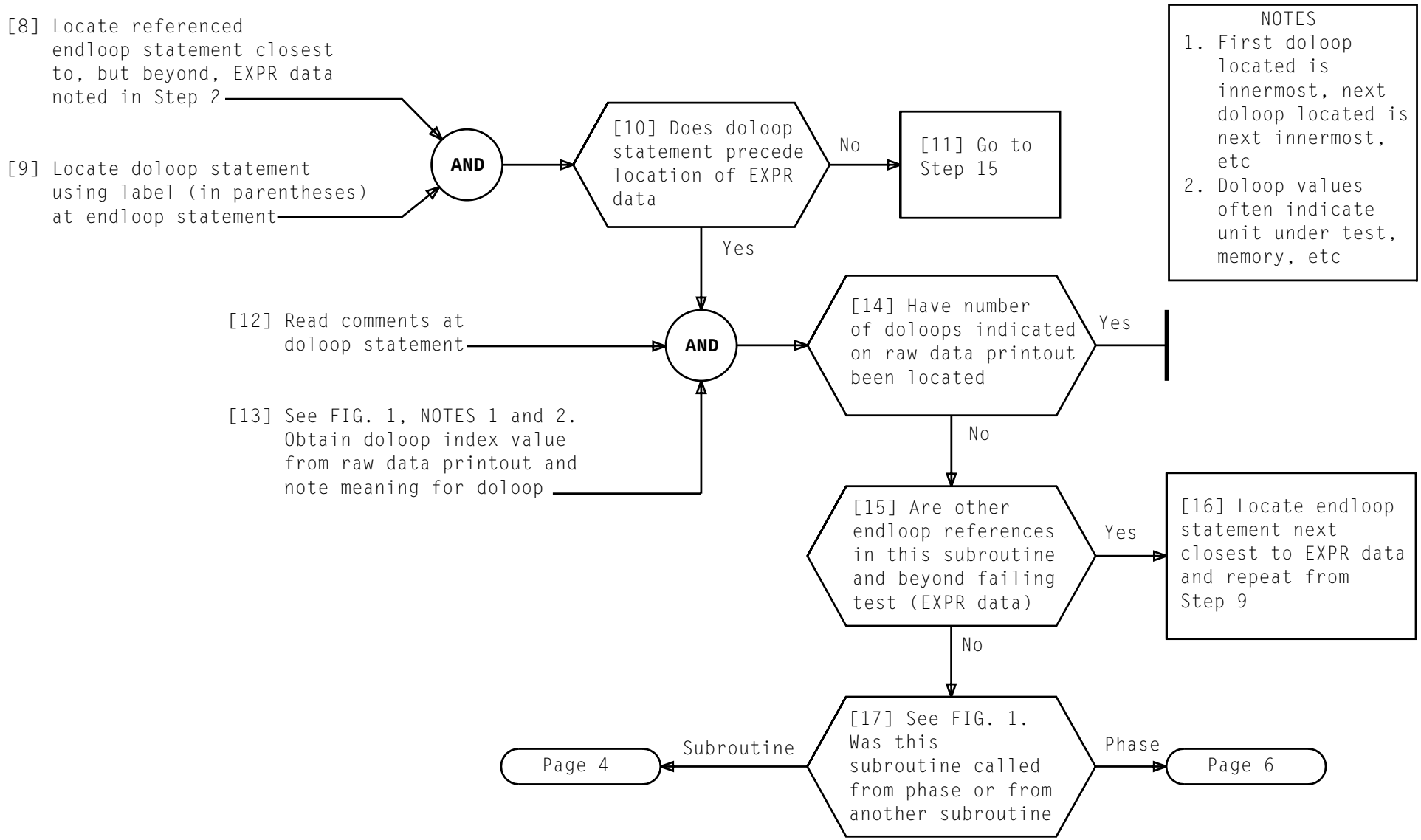
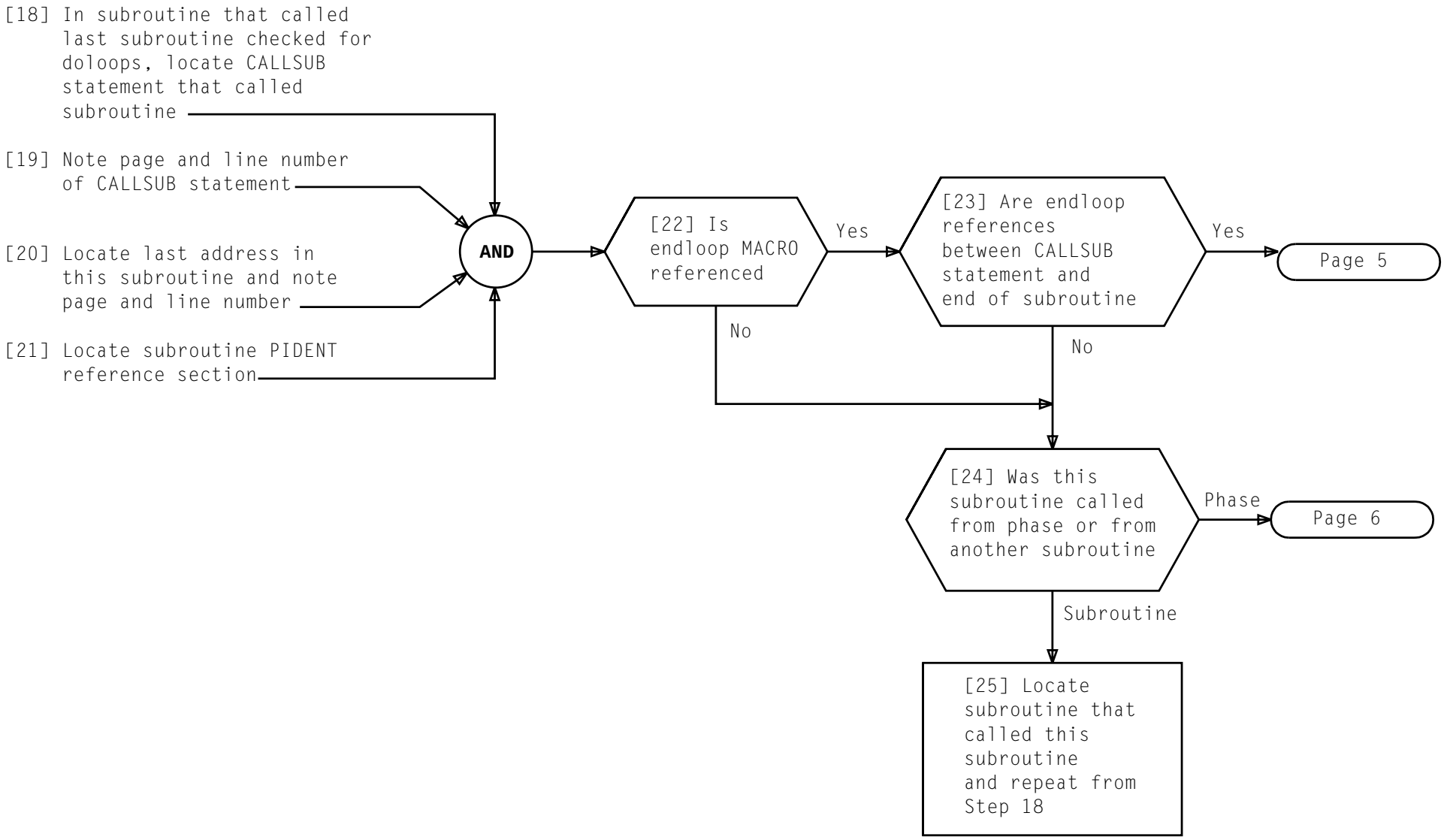


FIG. 1 — Example of Doloop Raw Data Relationship to Listings When Subroutines Called

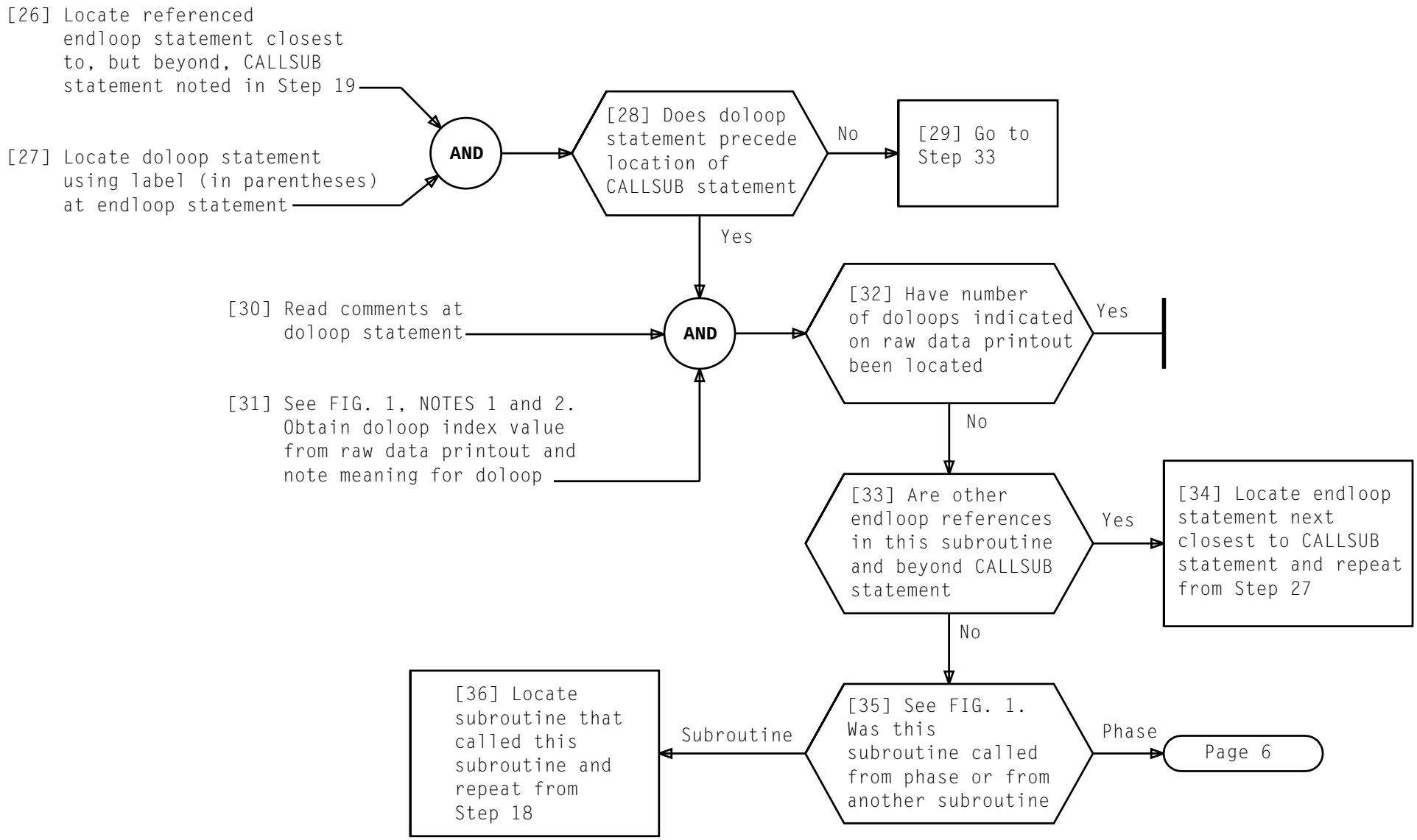
DETERMINE LOCATION AND FUNCTION OF DOLOOPS, SUBROUTINES CALLED



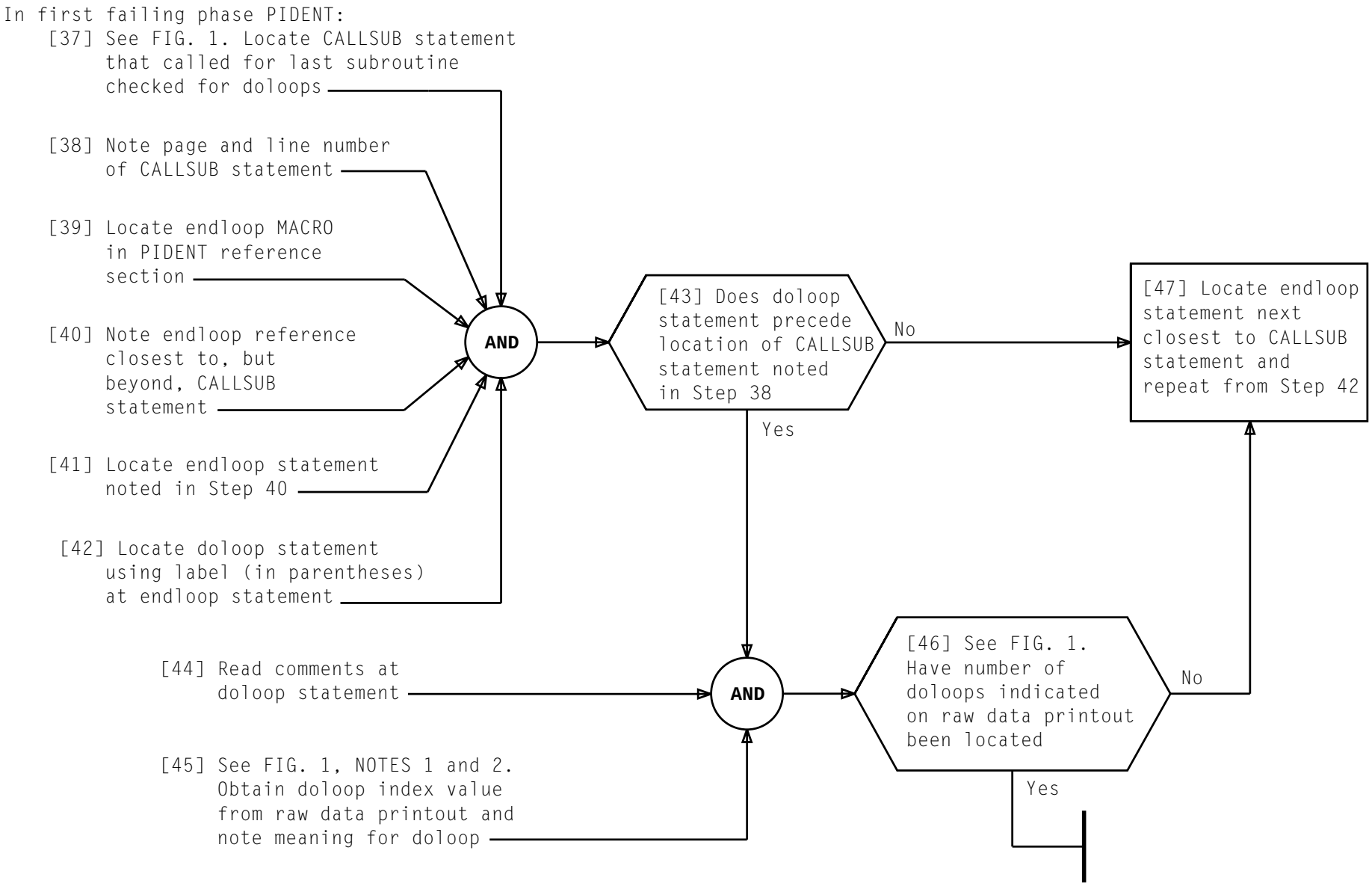
DETERMINE LOCATION AND FUNCTION OF DOLOOPS, SUBROUTINES CALLED



DETERMINE LOCATION AND FUNCTION OF DOLOOPS, SUBROUTINES CALLED

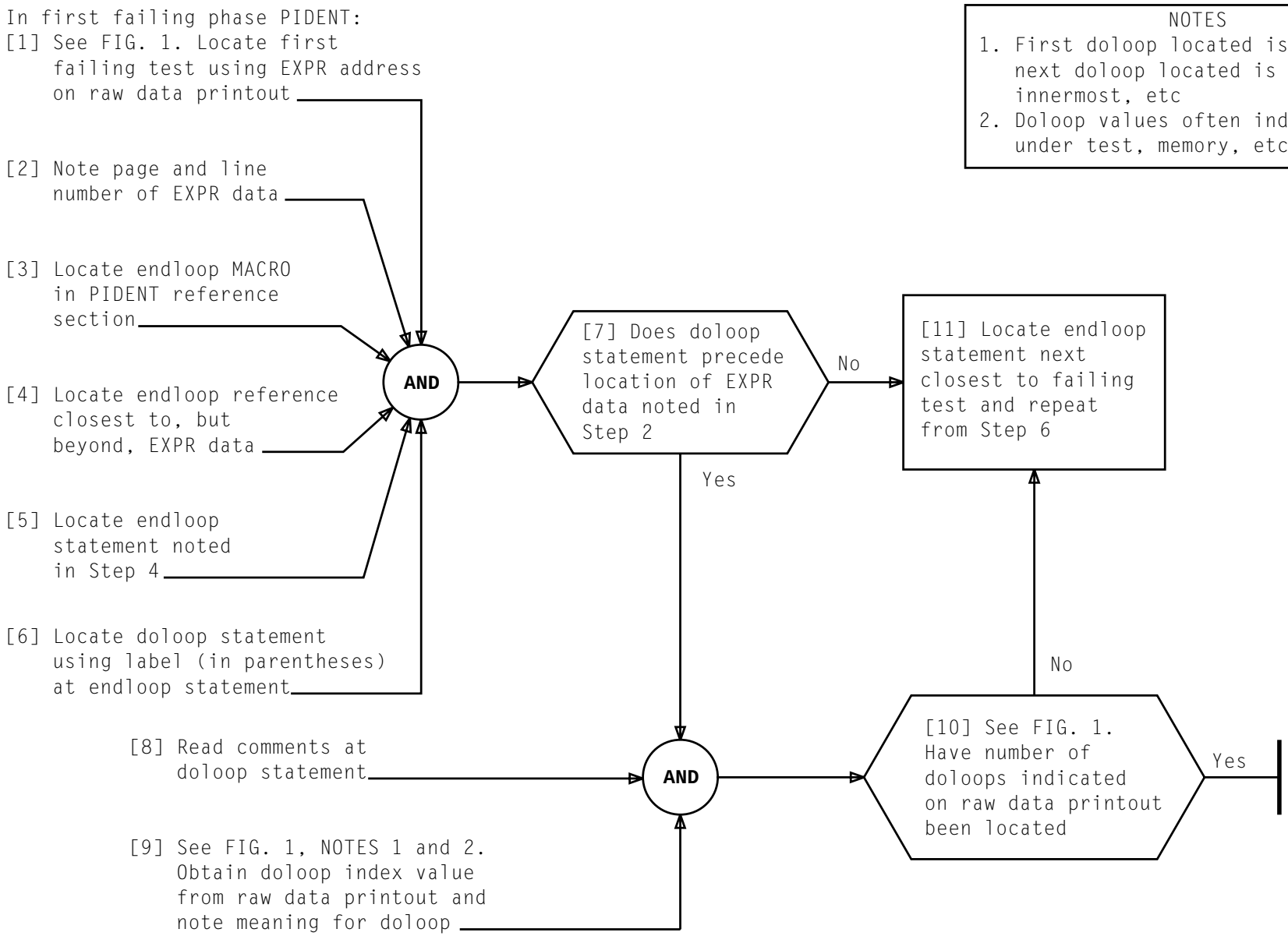


DETERMINE LOCATION AND FUNCTION OF DOLOOPS, SUBROUTINES CALLED



DETERMINE LOCATION AND FUNCTION OF DOLOOPS, SUBROUTINES CALLED

DETERMINE LOCATION AND FUNCTION OF DOLOOPS, NO SUBROUTINES CALLED



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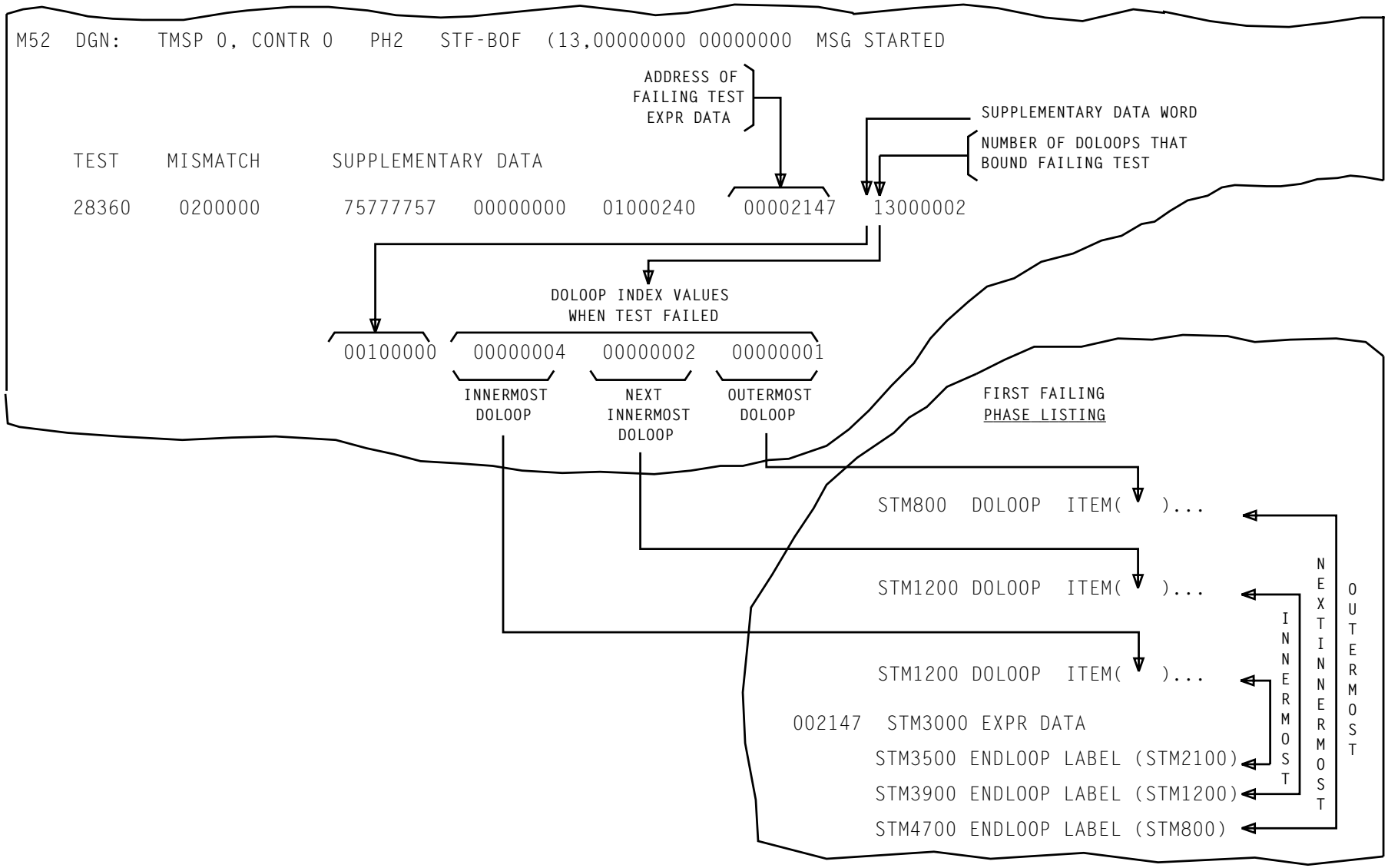
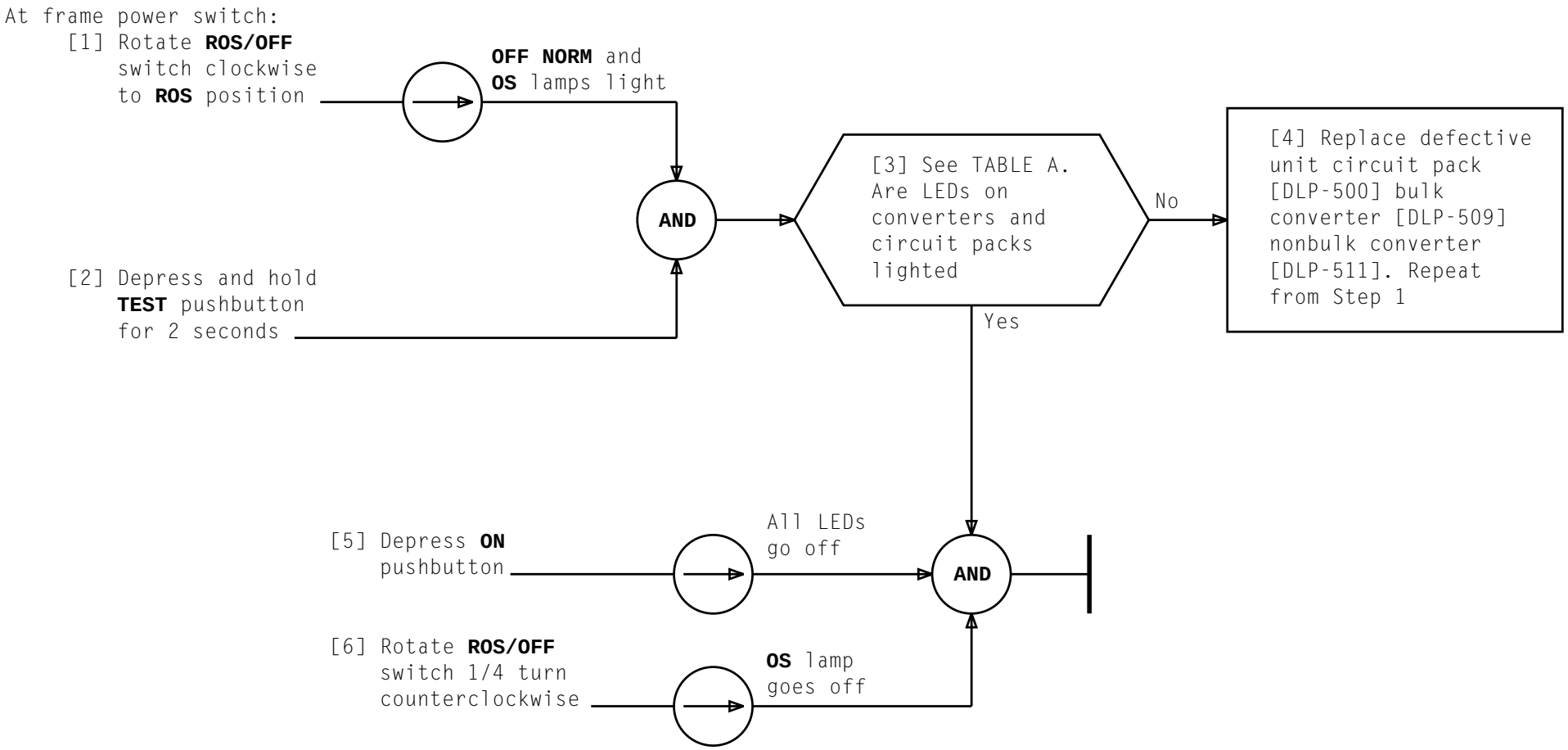
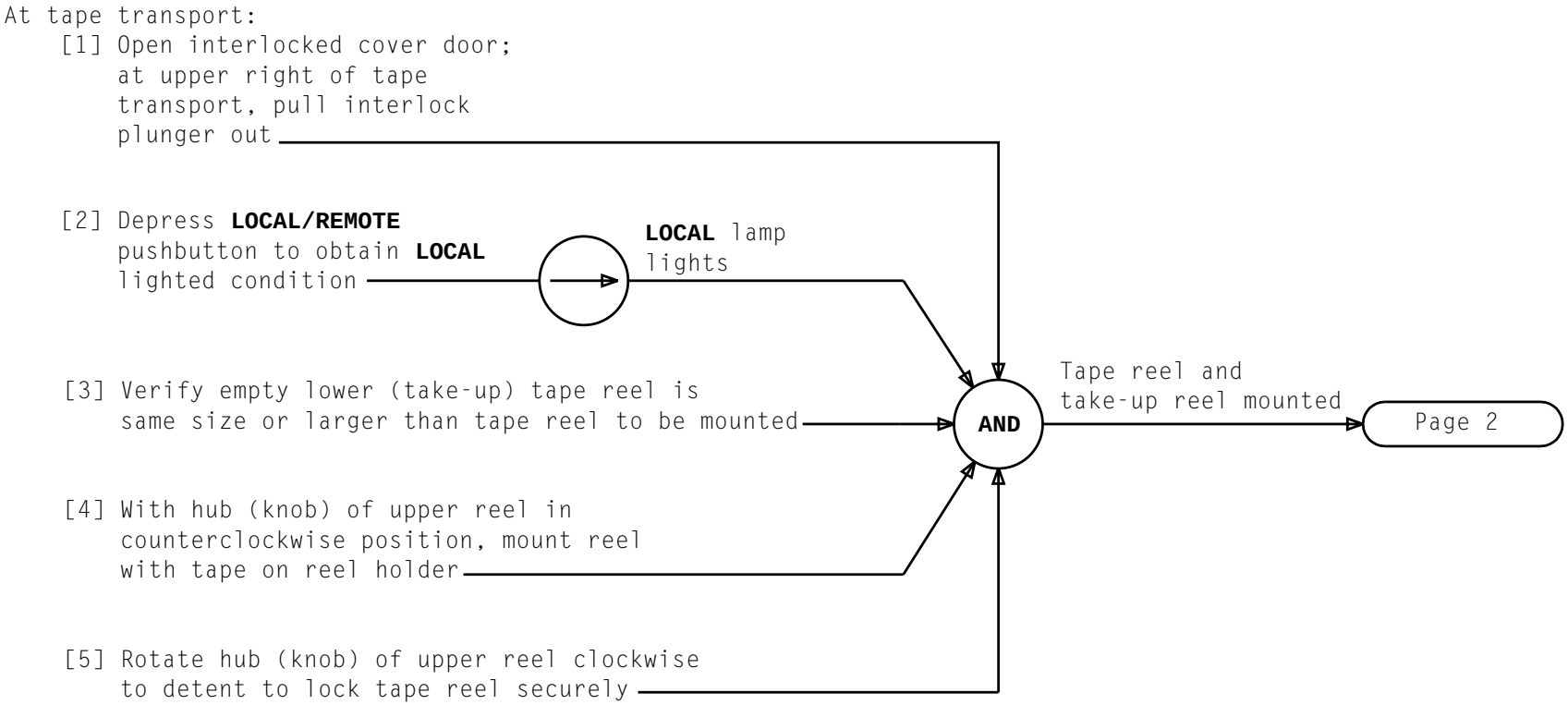


FIG. 1 – Example of Raw Data Doloop Word Relationship to Failing Listing

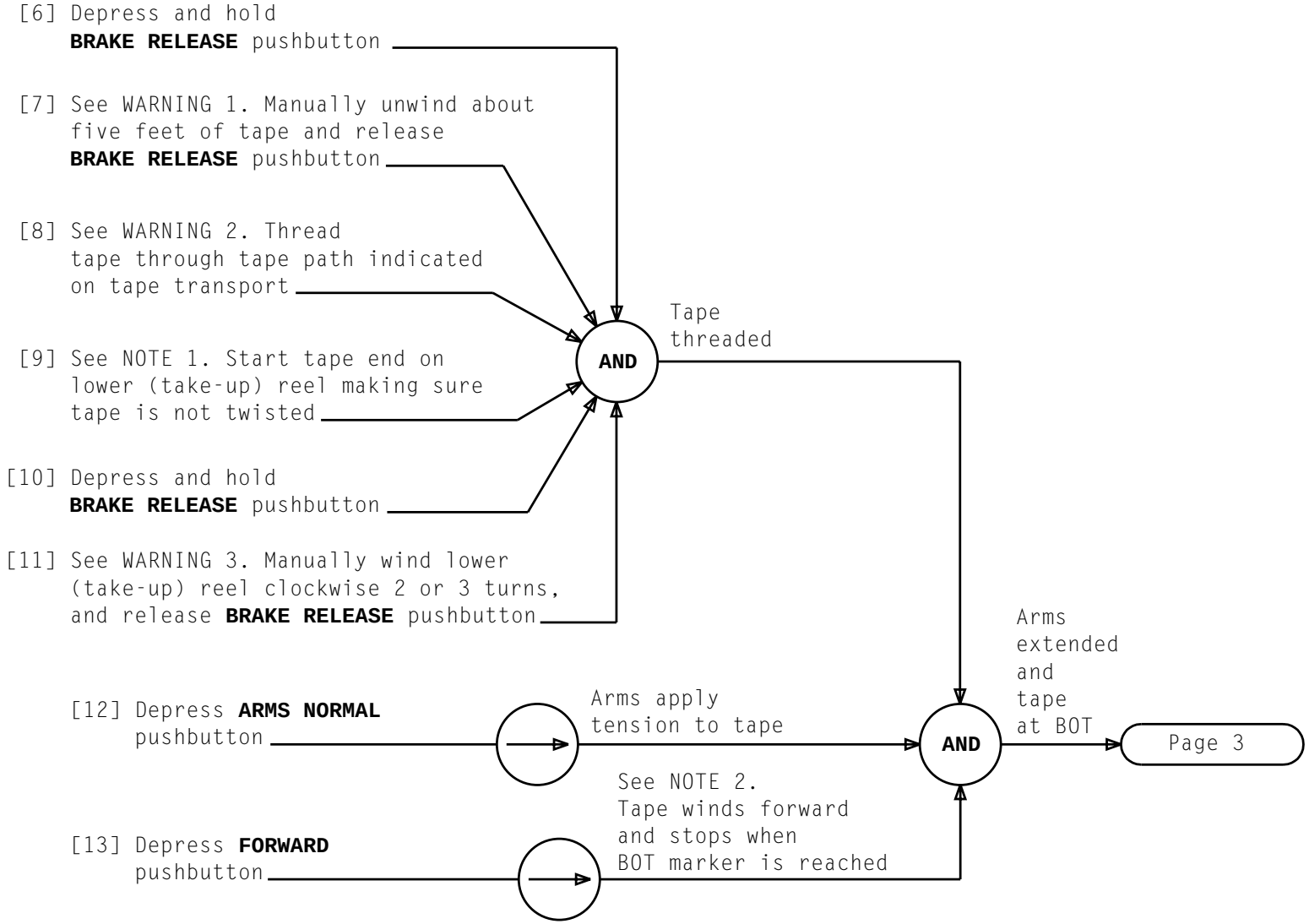


TEST POWER ALARM CIRCUITS

TABLE A — LED LOCATIONS			
TMS FRAME	CONVERTERS		CIRCUIT PACK LOCATIONS
	TYPE	LOCATIONS	
SD-4A012-01	+3V converters	80-26 12-00, 06,12,18,24,30,36,42 017-00,06,12,18,24,30,39,45 117-24,30,36,42	068-40
	−3V converters	17-36,42	
	+9V converters	021-40 121-04,40	
SD-4A012-02	+3V converters	80-26 12-00,06,12,18,24,30,36,42 017-00,06,12,18,24,30 117-24,30,36,42	068-40
	−3V converters	17-36 80-36	
SD-4A087-01	+3V converters	76-36 80-36	64-20,52 60-20,52 52-20,52 48-20,52 44-28 40-20,52 36-20,52 28-20,52 24-20,52
	−3V converters	14-24,30,36,42	
	+3V 245A converters	14-12,60	



MOUNT TAPE ON TAPE TRANSPORT, TAPE UNIT



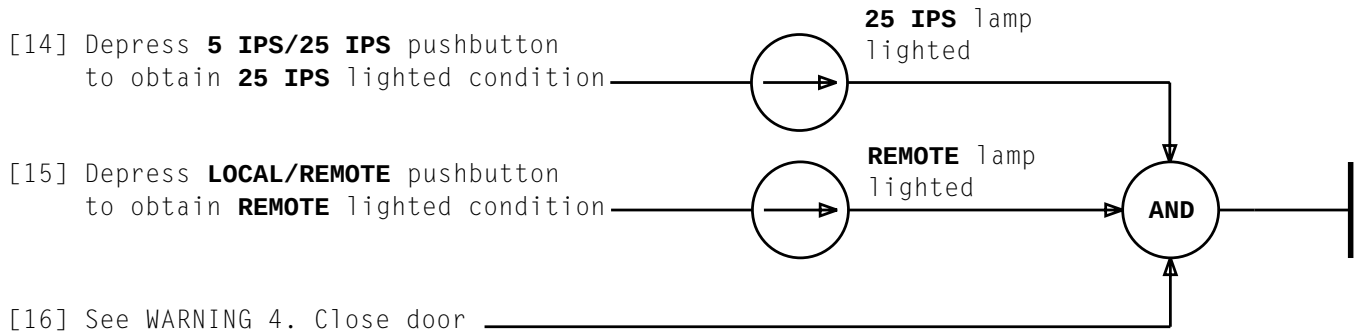
NOTES

1. To start tape on take-up reel, it may help to moisten the tape end (moistened fingers) and stick it to the reel axle
2. Tape may not stop at BOT marker if fast forward is depressed

WARNINGS

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

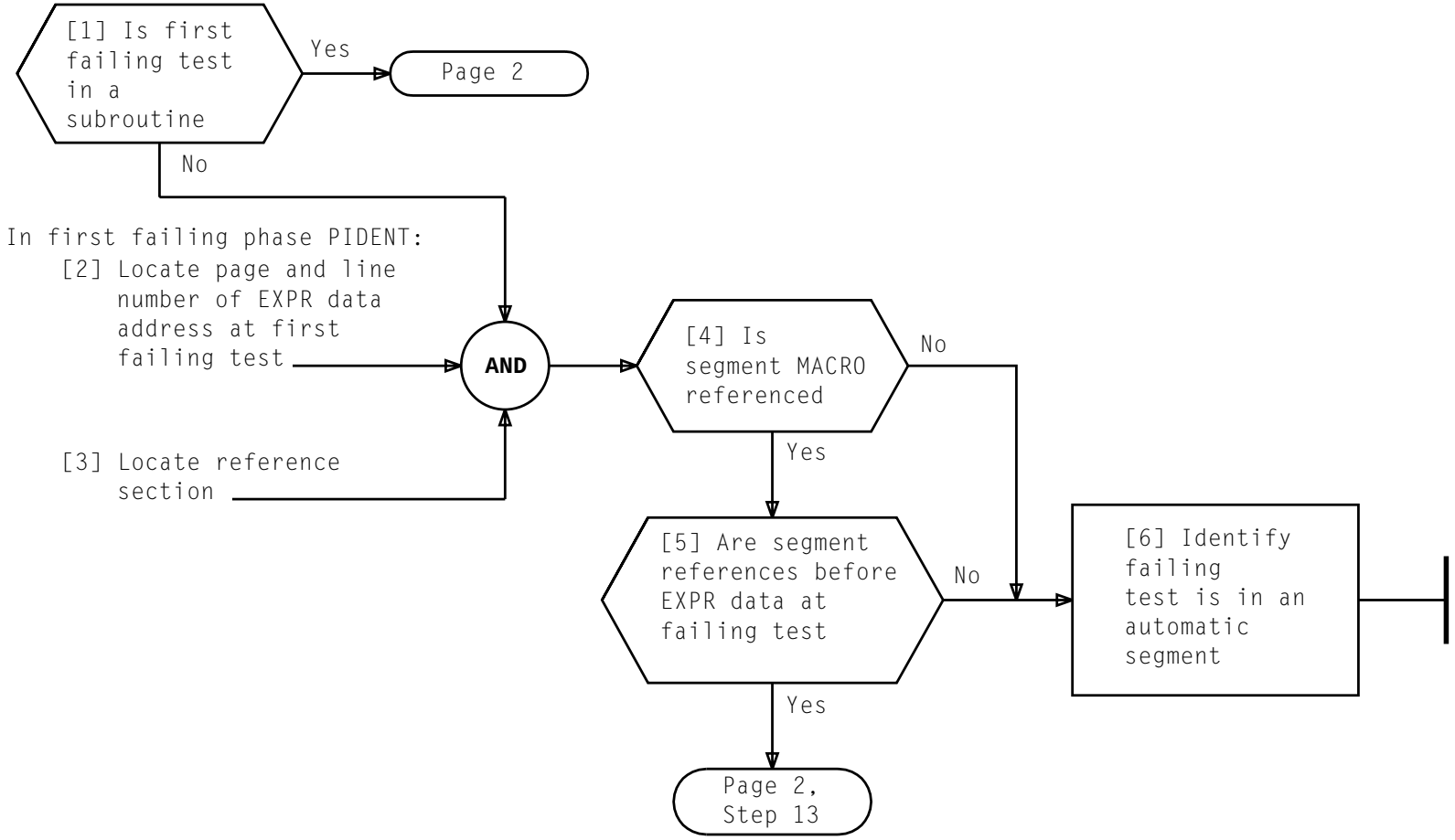
MOUNT TAPE ON TAPE TRANSPORT, TAPE UNIT



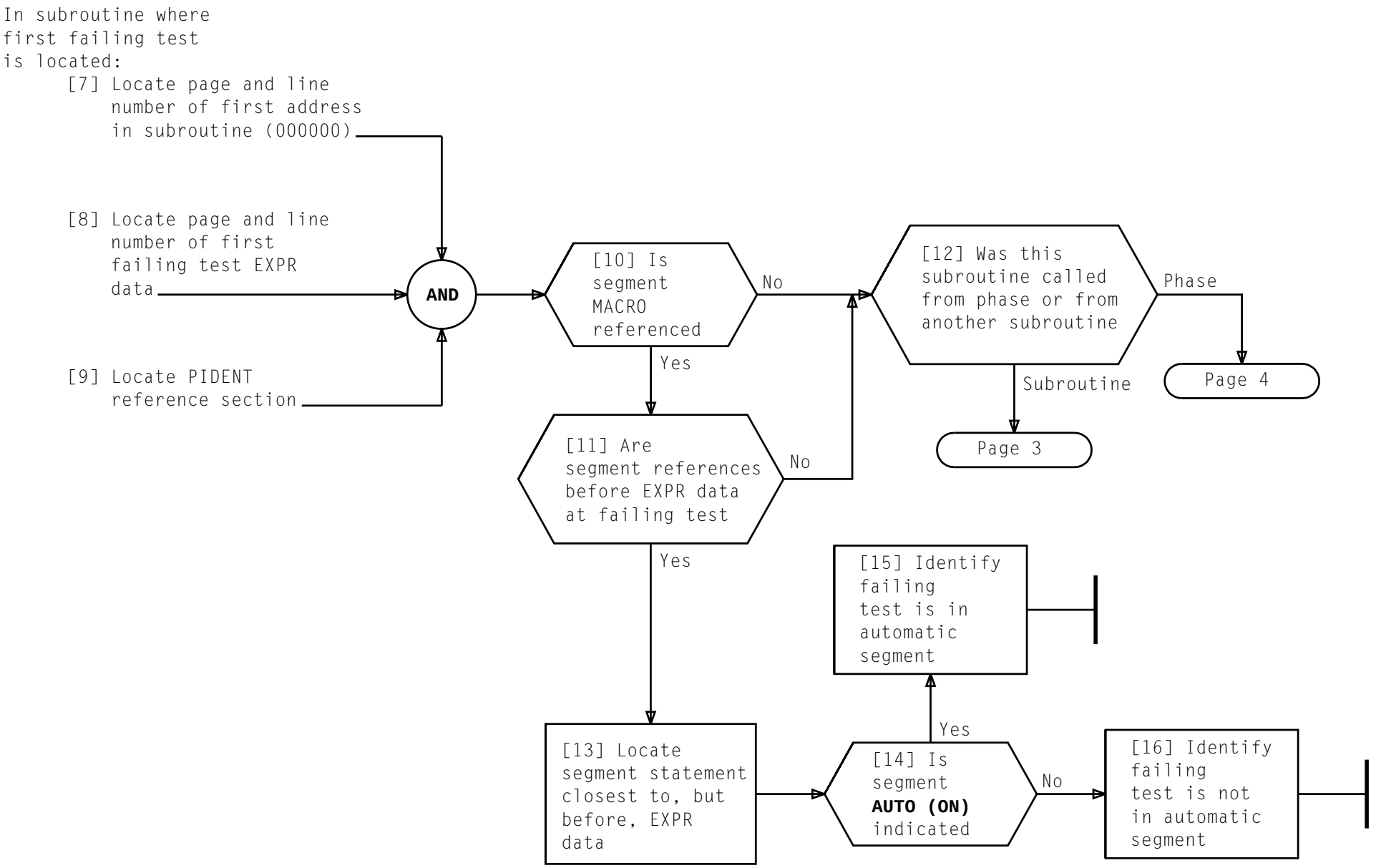
WARNING 4
Closing tape transport door in a harsh manner may upset alignment

SUMMARY

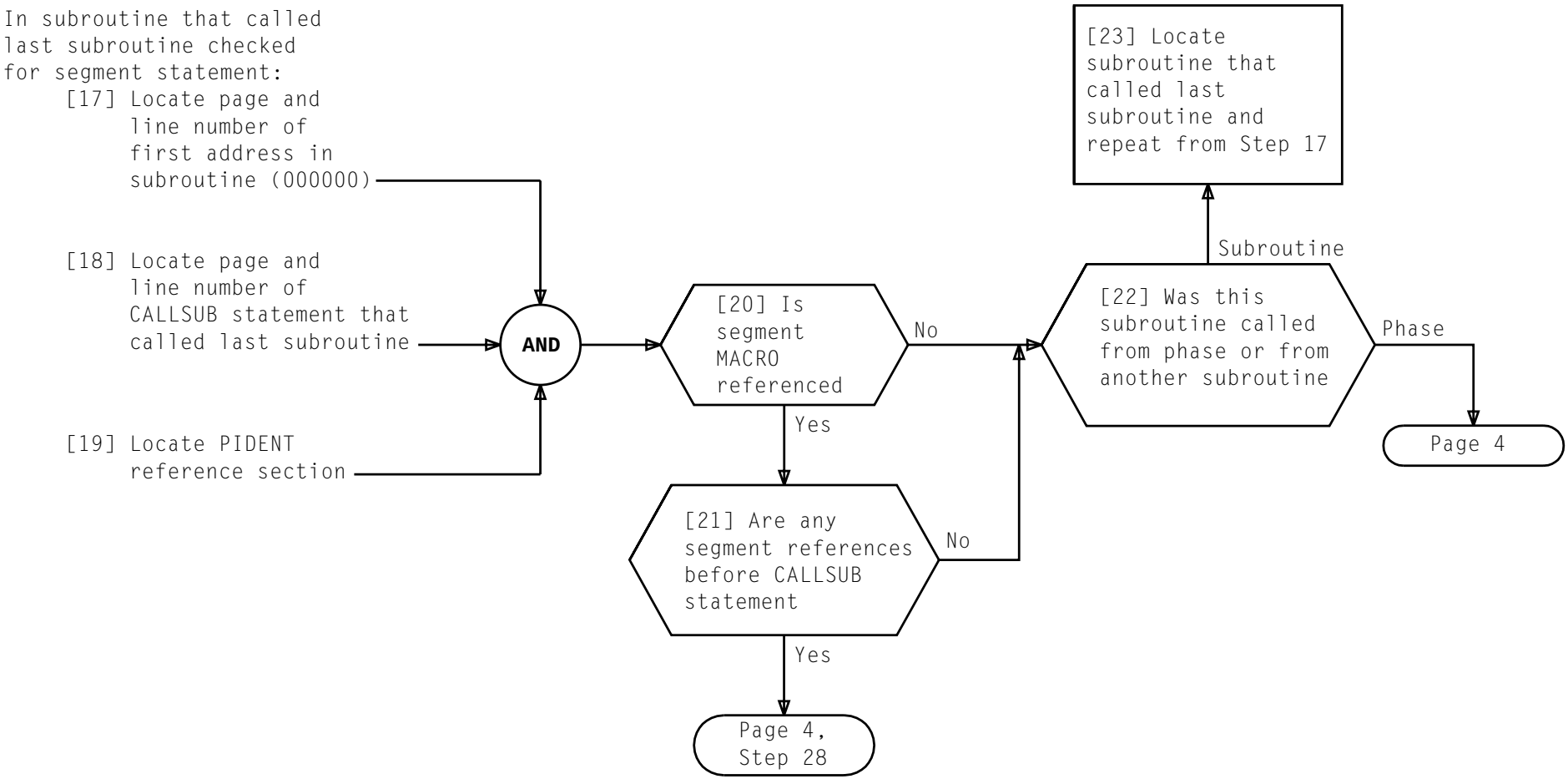
Locate first segment statement before first failing test. If segment statement has **AUTO (ON)** indicated, the failing test is in an automatic segment. If **AUTO (ON)** is not indicated, the failing test is not in an automatic segment. If no segment statement is found before the first failing test, the failing test is in an automatic segment.



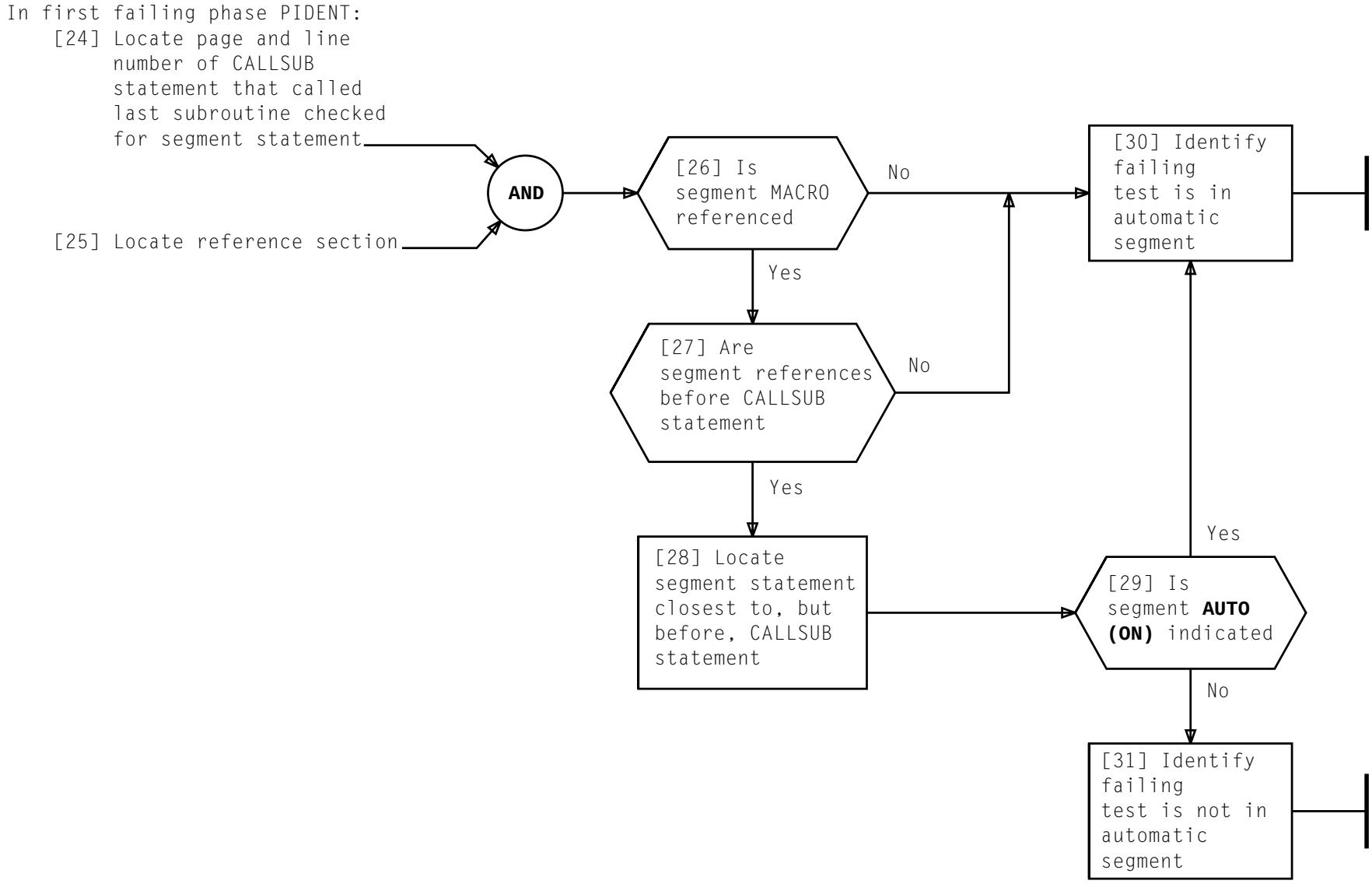
DETERMINE IF FAILING TEST IS IN AN AUTOMATIC SEGMENT



DETERMINE IF FAILING TEST IS IN AN AUTOMATIC SEGMENT



DETERMINE IF FAILING TEST IS IN AN AUTOMATIC SEGMENT



DETERMINE IF FAILING TEST IS IN AN AUTOMATIC SEGMENT

1. Locate segment statement that determined failing test was not in automatic segment

2. Note segment statement index word address for later use (loop start address)

3. Locate first segment statement after first failing test

4. Note index word address of dial statement that follows first segment statement after first failing test (loop end address)

5. Type in **EX:TMSP** a**;RPT 2:PH** b**,ADR** c-d!
   a = failing TMSP member number
   b = first failing phase
   c = loop start address [Step 2]
   d = loop end address [Step 4]

End of procedure

SET UP LOOP OVER FIRST FAILING TEST WHEN TEST IN A FORCE SEGMENT

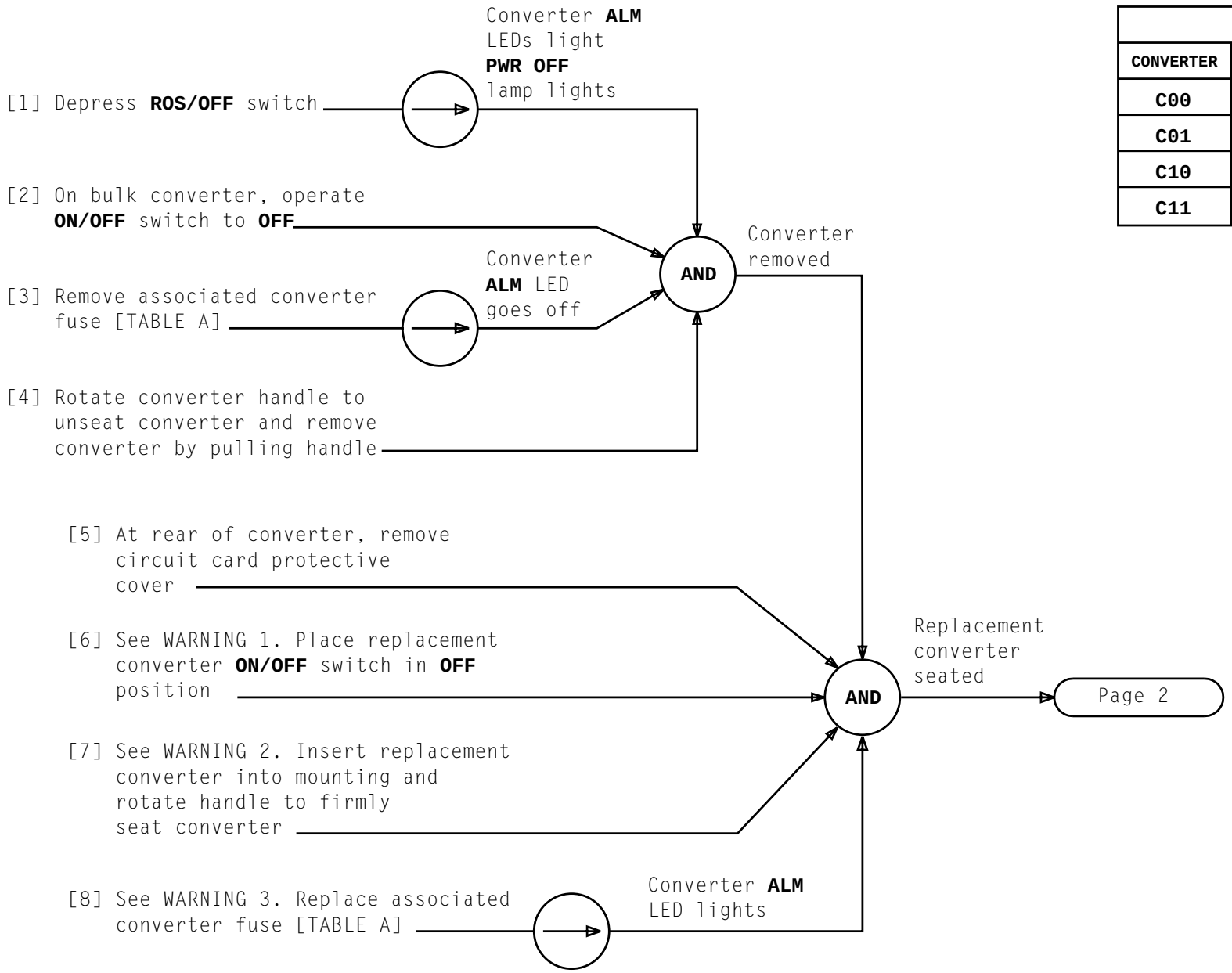


TABLE A			
CONVERTER	**LOCATION**	**FUSE**	**LOCATION**
C00	014-12	**A0A**	007-13
C01	014-60	**A0B**	007-13
C10	114-12	**A1A**	107-13
C11	114-60	**A1B**	107-13

WARNINGS

1. *Failure to have* **ON/OFF** *switch in* **OFF** *position could result in damage to unit*
2. *Improper seating of unit may cause damage to connector*
3. *Current surge could damage converters if fuses are not replaced before turning converter* **ON/OFF** *switches to* **ON**

Reissued

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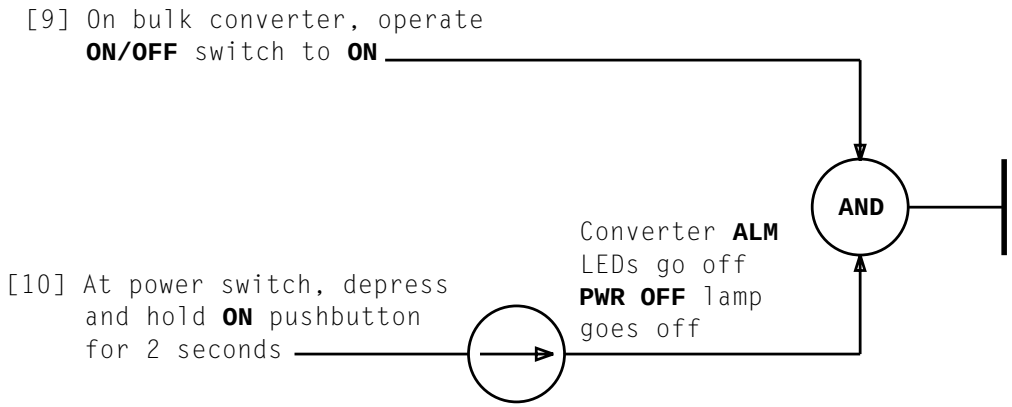
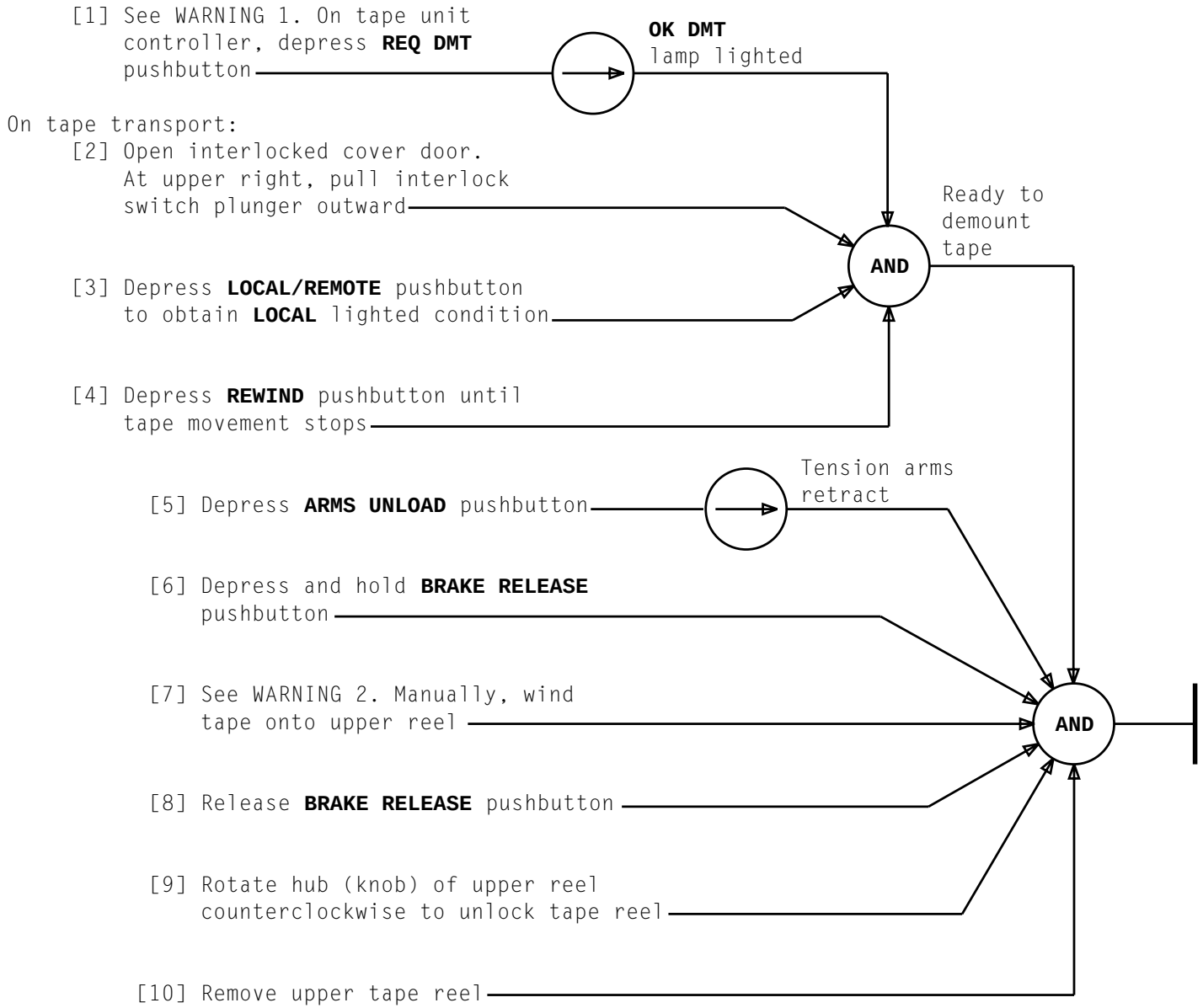
REPLACE BULK CONVERTER (245A WITH 245A)



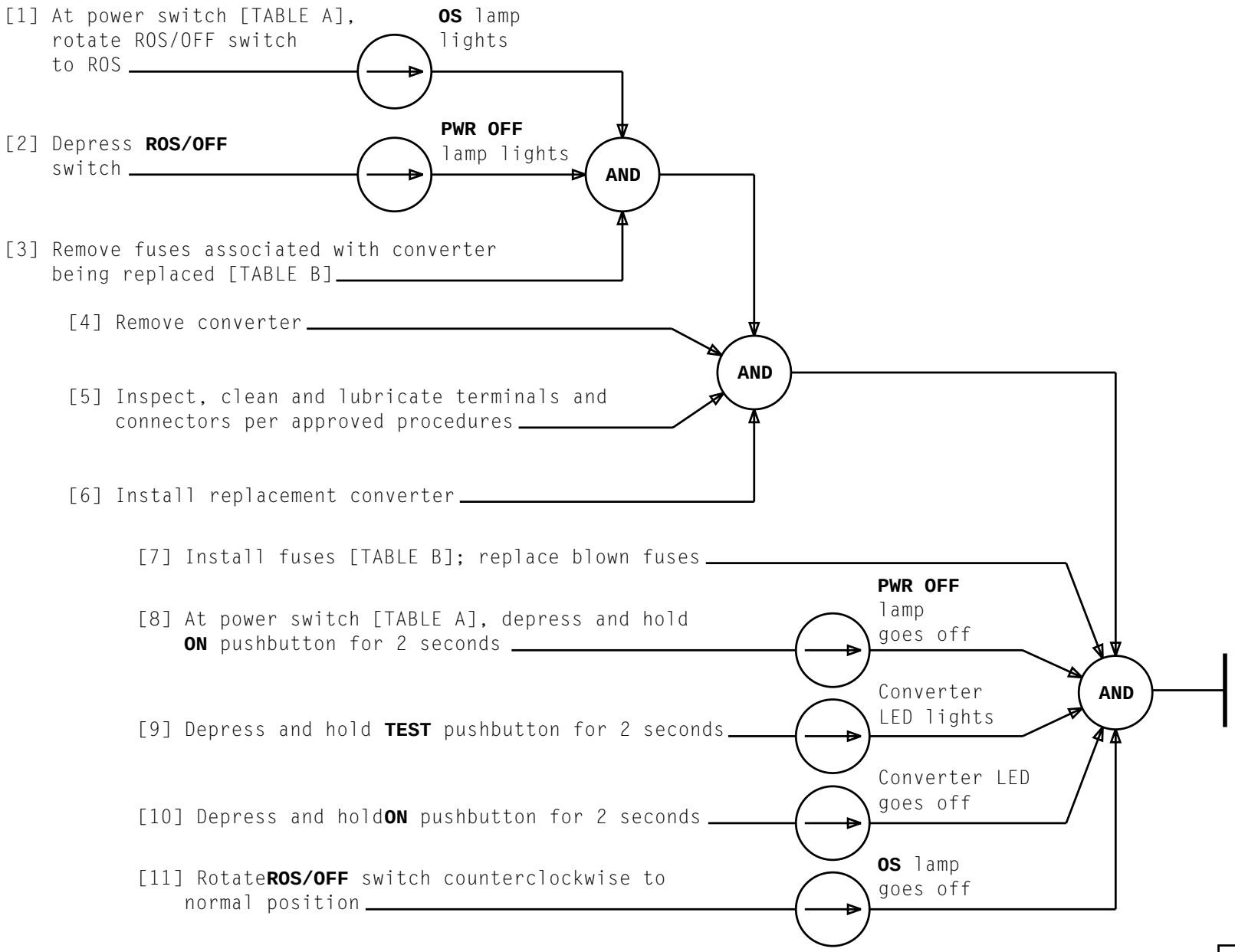
REPLACE BULK CONVERTER (245A WITH 245A)



WARNINGS

1. *Cycling tape transport or tape unit controller with tape over read/write heads may garbage tapes*
2. *Pulling or dragging last 2 feet of tape across heads may contaminate heads*

DEMOUNT TAPE ON TAPE TRANSPORT, TAPE UNIT

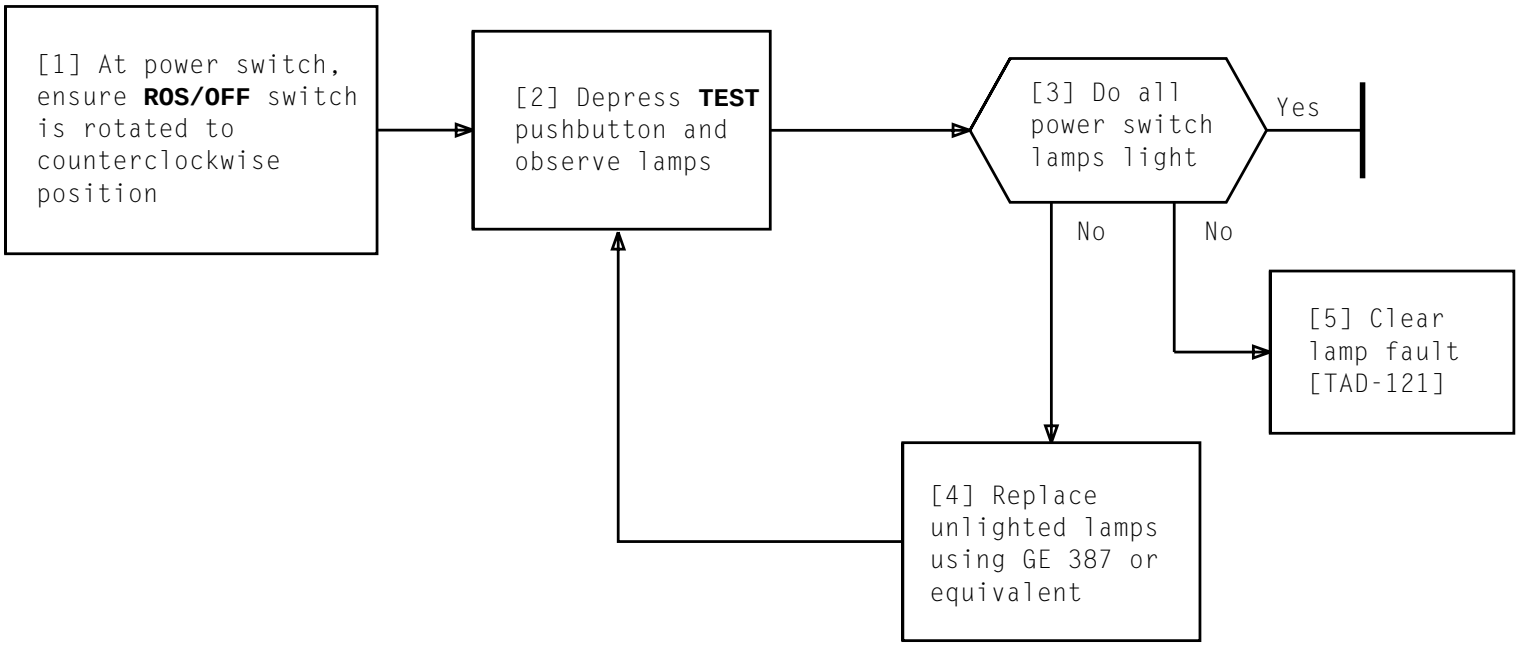


REPLACE NONBULK CONVERTER

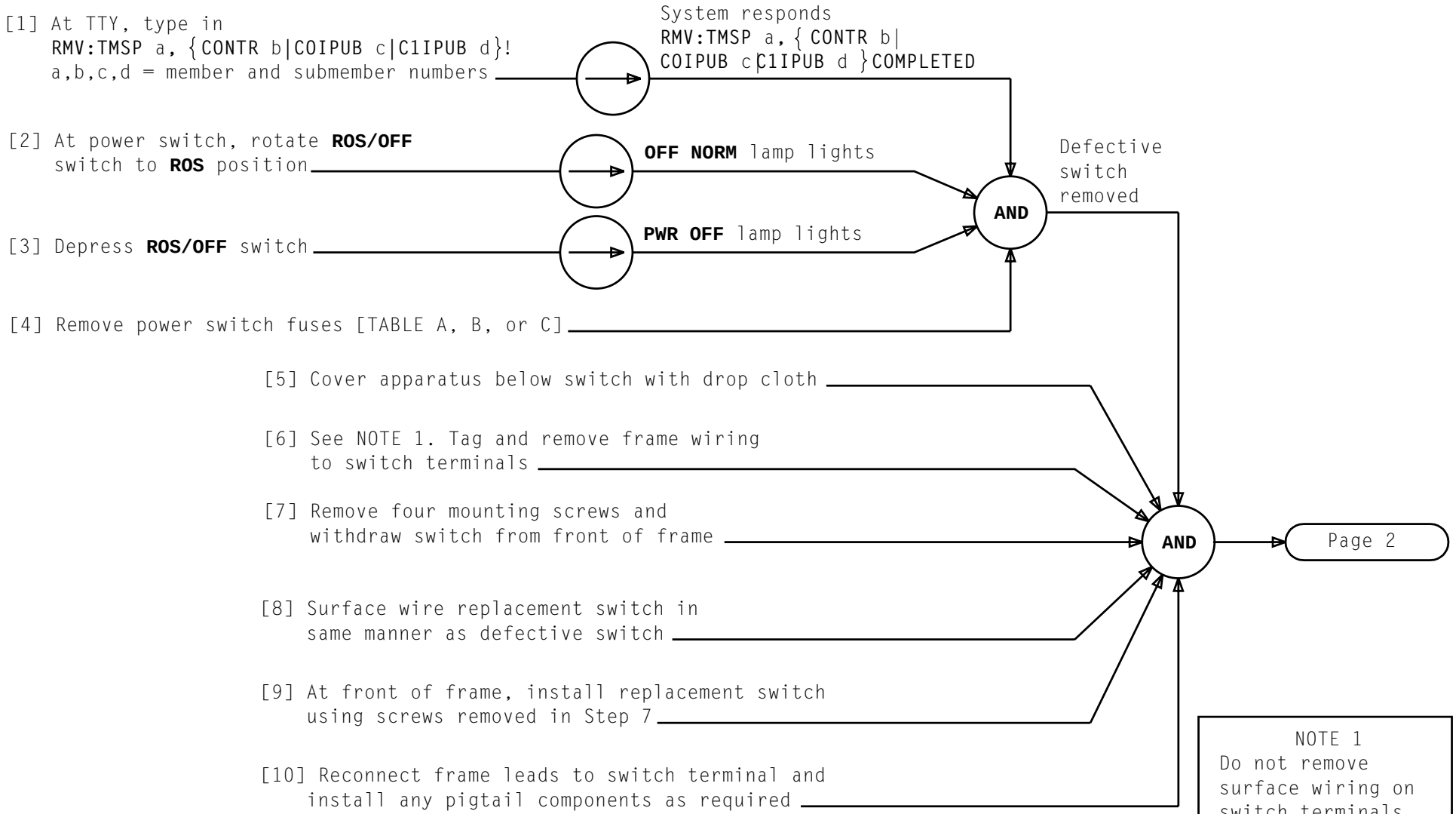
TABLE A			
SD-4A012-01, 02			
CONVERTER LOCATION	POWER SWITCH		
	LOCATION	NAME	
		BAY 0	BAY 1
*-80-26	*-80-29	**IPUB0**	**IPUB1**
All others	1-68-09	—	**CONTR**
4A087-01			
*-80-36	*-80-42	**COIPUB1**	**C1IPUB1**
*-76-36	*-76-42	**COIPUB0**	**C1IPUB0**
All others	*-44-38	**CONTR0**	**CONTR1**
* Converters located in Bay 0 or Bay 1 are controlled, respectively, by switches located in Bay 0 and Bay 1			

TABLE B			
4A012-01,02			
CONVERTER LOCATION	FUSE		
	BLOCK LOCATION	NAME	
		BAY 0	BAY 1
*-80-26	*-07-26	**BA**	**CA**
*-12-00,06,12,18	*-07-05	**AOA**	**A1A**
	*-07-13	**BOA**	**B1A**
	*-07-19	**DOA**	**D1A**
*-12-24,30,36,42	*-07-05	**AOB**	**A1B**
	*-07-13	**BOB**	**B1B**
	*-07-19	**DOB**	**D1B**
*-17-24,27,30,33,36,39 42,45	*-07-05	**AOC**	**A1C**
	*-07-13	**BOC**	**B1C**
	*-07-19	**DOC**	**D1C**
*-17-00,06,12,18	*0-07-05	**AOD**	—
	*0-07-13	**BOD**	—
	*0-07-19	**DOD**	—
1-21-04	*1-07-05	—	**A1D**
	*1-07-13	—	**B1D**
	*1-07-19	—	**D1D**
*-21-40	*-07-05	**AOE**	**A1E**
	*-07-13	**BOE**	**B1E**
	*-07-19	**DOE**	**D1E**
4A087-01			
*-80-36	*-07-53	**BOB**	**B1B**
*-76-36	*-07-53	**BOA**	**B1A**
*-14-24,30,36,42	*-07-13	**AOC**	**A1C**
	*-07-46	**COC**	**C1C**
	*-07-46	**DOC**	**D1C**
* Converters located in Bay 0 or Bay 1 are controlled, respectively, by fuses located in Bay 0 and Bay 1			

REPLACE NONBULK CONVERTER



TEST LAMPS ON POWER SWITCH



NOTE 1
Do not remove surface wiring on switch terminals. It will be used as guide to surface wire replacement switch

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REPLACE POWER SWITCH

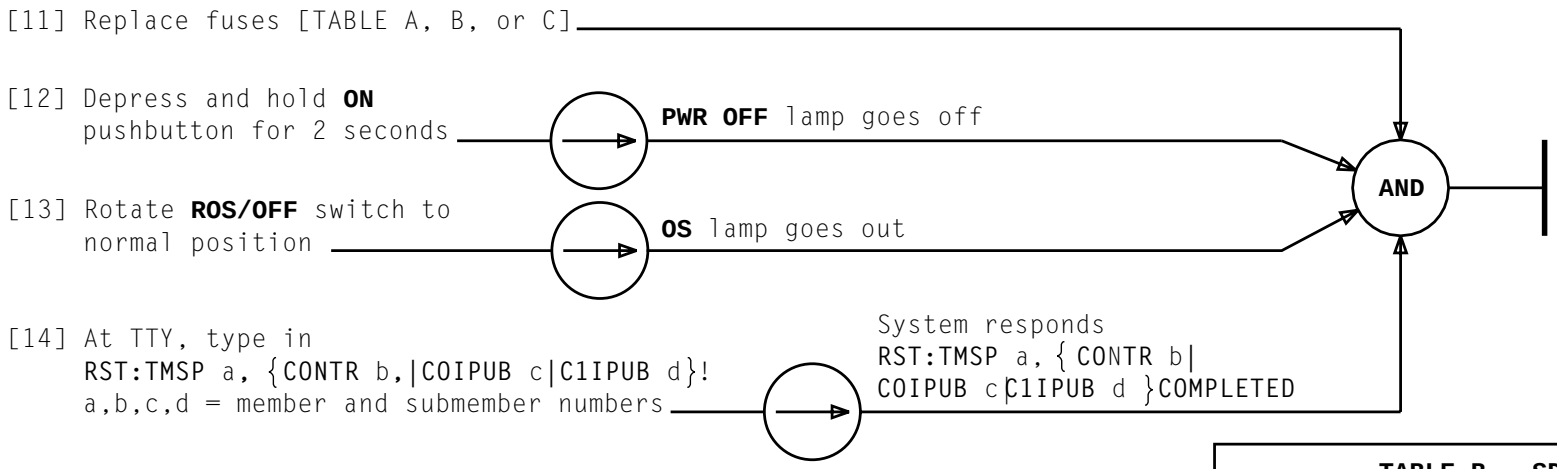


TABLE A — SD-4A012-01 FRAME

BAY 0			BAY 1		
SWITCH LOCATION	FUSE	FUSE LOCATION	SWITCH LOCATION	FUSE	FUSE LOCATION
80-29	**BA** **LB**	07-26 07-19	80-29	**CA** **LC**	07-26 07-19
			68-09	**SW** **LA**	07-33 07-26

TABLE B — SD-4A012-02 FRAME

BAY 0			BAY 1		
SWITCH LOCATION	FUSE	FUSE LOCATION	SWITCH LOCATION	FUSE	FUSE LOCATION
80-29	**BA** **LB**	07-13 07-19	80-29	**CA** **LC**	07-13 07-19
			68-08	**SW** **LA**	07-26 07-26

TABLE C — SD-4A087-01 FRAME

BAY 0			BAY 1		
SWITCH LOCATION	FUSE	FUSE LOCATION	SWITCH LOCATION	FUSE	FUSE LOCATION
80-42	**B0B** **L0C**	07-53 07-53	80-42	**B1B** **L1C**	07-53 07-53
76-42	**B0A** **L0B**	07-53 07-53	76-42	**B1A** **L1B**	07-53 07-53
44-38	**0SW** **L0A**	07-46 07-53	44-38	**1SW** **L1A**	07-46 07-53

REPLACE POWER SWITCH

1. Type in
   VER:UTYPE:TSI a!
   a = member number

On VER:UTYPE Message output [FIG. 1]:

2. In word 5, if bit 23 is set (1), convert bits 18 through 22 to find EST member number

3. Convert word 16 to binary and determine frame type and member number of frame receiving clock signals from TSI [TABLE A]

End of Procedure

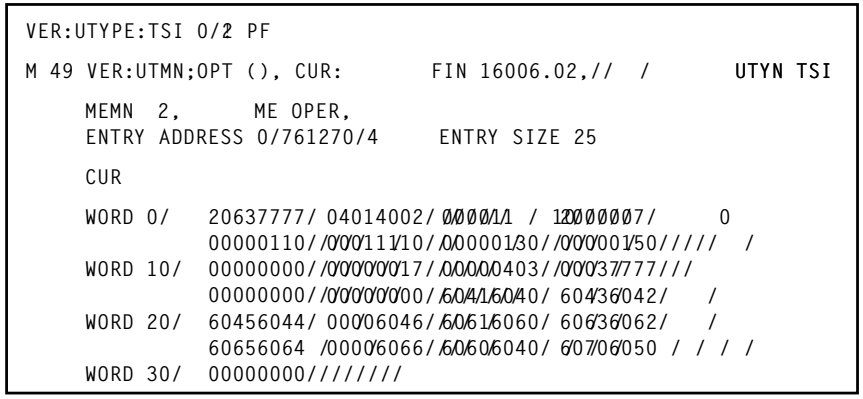


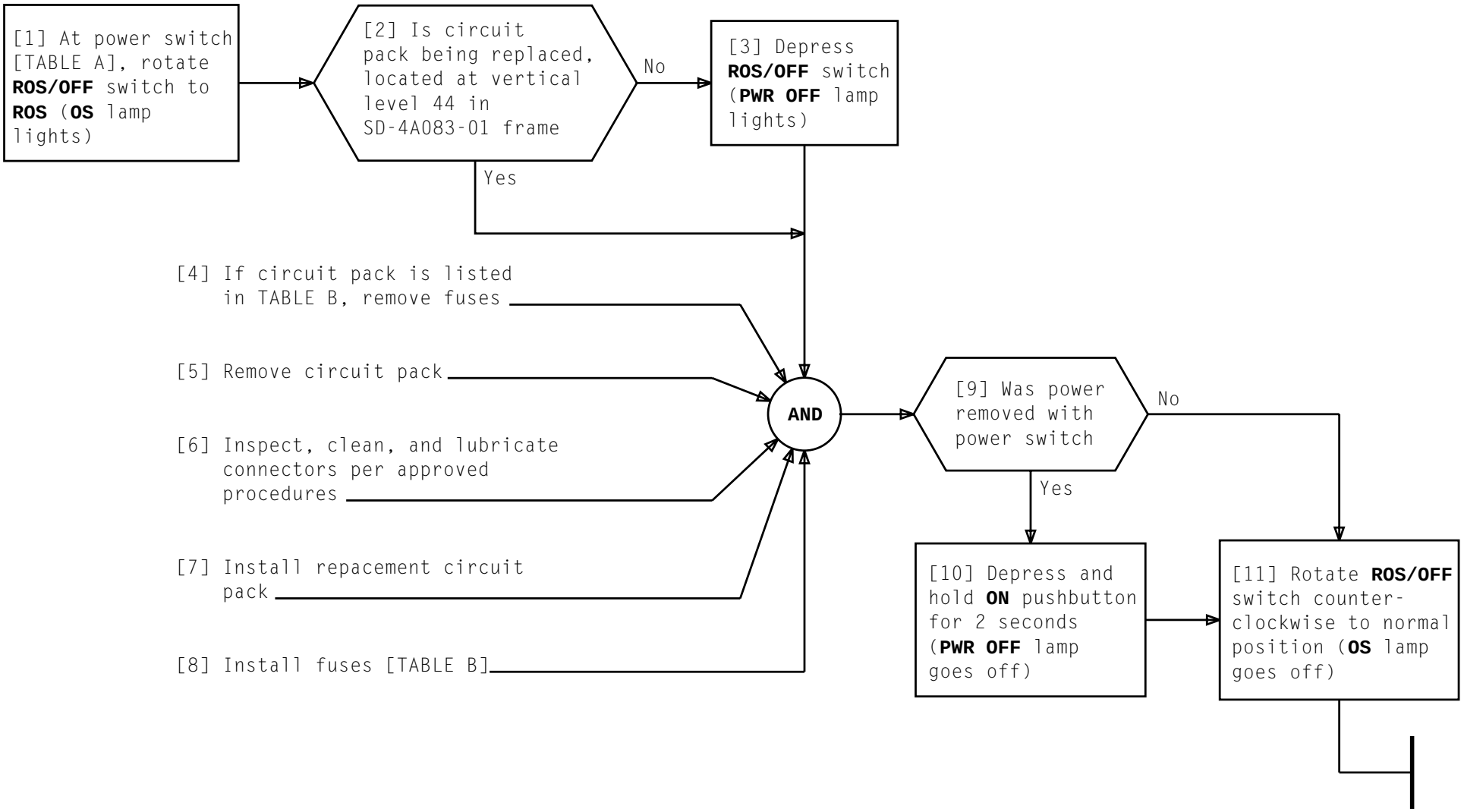
FIG. 1 — Typical Example of VER:UTYPE output message

TABLE A
WORD 16 BIT TRANSLATION

CLOCK	BITS	DEFINITION
0	0-6	member number
	7-10	frame type*
1	11-17	member number
	18-21	frame type*

* 0001 = DT, 0011 = VIF, 0100 = DIR, 0101 = PUC

IDENTIFY UNITS RECEIVING CLOCK SIGNALS FROM TSI FRAME (SD-4A011-02)



REPLACE CIRCUIT PACK IN TSI FRAME

TABLE A

SD-4A011-01

CIRCUIT PACK LOCATION	POWER SWITCH		
	LOCATION	NAME	
		BAY 0	BAY 1
*-80-All	*-80-63	**IPUB0**	**IPUB1**
*-76-03 to *-76-07	*-80-17	**ALC0**	**ALC1**
1-56-57,61	0-53-40	**CONTR0**	**—**
All others	*-53-40	**CONTR0**	**CONTR1**

SD-4A011-02

CIRCUIT PACK LOCATION	POWER SWITCH		
	LOCATION	NAME	
		BAY 0	BAY 1
*-80-All	*-80-29	**IPUB0**	**IPUB1**
*-76-03 to *-76-07	*-80-23	**ALC0**	**ALC 1**
1-56-57,61	0-53-43	**CONTR0**	**—**
All others	*-53-43	**CONTR0**	**CONTR1**

SD-4A083-01

CIRCUIT PACK LOCATION	POWER SWITCH		
	LOCATION	NAME	
		BAY 0	BAY 1
*-80-All	*-80-65	**IPUB0**	**IPUB1**
*-76-06 to *-76-26	*-72-03	**ALC0**	**ALC1**
0-64-63-,67	1-44-37	**—**	**CONTR1**
0-52-63,67	1-44-37	**—**	**CONTR1**
0-40-63,67	1-44-37	**—**	**CONTR1**
0-28-63-67	1-44-37	**—**	**CONTR1**
All others	*-44-37	**CONTR0**	**CONTR1**

* Circuit packs located in Bay 0 or Bay 1 are controlled, respectively, by switches located in Bay 0 and Bay 1

TABLE B

SD-4A011-01

CIRCUIT PACK LOCATION	FUSE		
	BLOCK LOCATION	NAME	
		BAY 0	BAY 1
*-56-42	*-07-30	**OAB**	**1AB**

SD-4A011-02

CIRCUIT PACK LOCATION	FUSE		
	BLOCK LOCATION	NAME	
		BAY 0	BAY 1
*-56-35,38,39	*-07-37	**NOA,NOB**	**NIA,NIB**
*-56-40	*-07-30	**OAB**	**1AB**

SD-4A083-01

CIRCUIT PACK LOCATION	FUSE		
	BLOCK LOCATION	NAME	
		BAY 0	BAY 1
*-72-27	*-07-37	**OCLFM,OCLS**	**1CLFM,1CLS**
*-44-28,29,31	*-07-53	**OVM**	**1VM**
*-44-30	*-07-46	**OVIC**	**1VIC**
*-44-33	*-07-46	**OVIC**	**1VIC**
	*-07-53	**OPC**	**1PC**

* Circuit packs located in Bay 0 or Bay 1 are controlled, respectively, by fuses located in Bay 0 and Bay 1

REPLACE CIRCUIT PACK IN TSI FRAME

[1] Type in,
VER:UTYPE:TSI a!
a = even member number
having clockpack replaced

[2] Type in,
VER:UTYPE:TSI b!
b = odd member number in frame
with TSI a above

On VER:UTYPE Message output [FIG. 1]:

[3] If either word 5 has bit 23 set (1), convert bits 18 through 22 of that word to find EST member number

[4] Convert word, associated with clock pack being replaced, to binary and determine frame type and member number of frame receiving clock signals [TABLE A]

End of procedure

```
VER:UTYPE:TSI 0/2 PF
M 49 VER:UTMN;OPT (), CUR:       FLN 16006.02,//  /       UTYN TSI
     MEMN  2,      ME OPER,
     ENTRY ADDRESS 0/761270/4     ENTRY SIZE 25
     CUR
     WORD 0/   20637777/ 04014002/ 0000011 / 12000007/     0
               00000110//000111710//00001730//0000015 0////  /
     WORD 10/  00000000//0000001 7//0000403//0003777///
               00000000//0000000 0//6041604 0/ 6043604 2/    /
     WORD 20/  60456044/ 0006046/ 6061606 0/ 6063606 2/    /
               60656064 /0006066/ 6060604 0/ 6070605 0 / / / /
     WORD 30/  00000000////////
```

FIG. 1 — Typical Example of VER:UTYPE output message

TABLE A
BIT TRANSLATIONS

CLOCK	WORD	BITS	DEFINITION
A	16	0-6	member number
		7-10	frame type*
B	16	11-17	member number
		18-21	frame type*
C	17	0-6	member number
		7-10	frame type*
D	17	11-17	member number
		18-21	frame type*
E	20	0-6	member number
		7-10	frame type*

* 0001 = DT, 0011 = VIF,
0100 = DIR, 0101 = PUC

IDENTIFY UNITS RECEIVING CLOCK SIGNALS FROM TSI FRAME (SD-4A083-01)

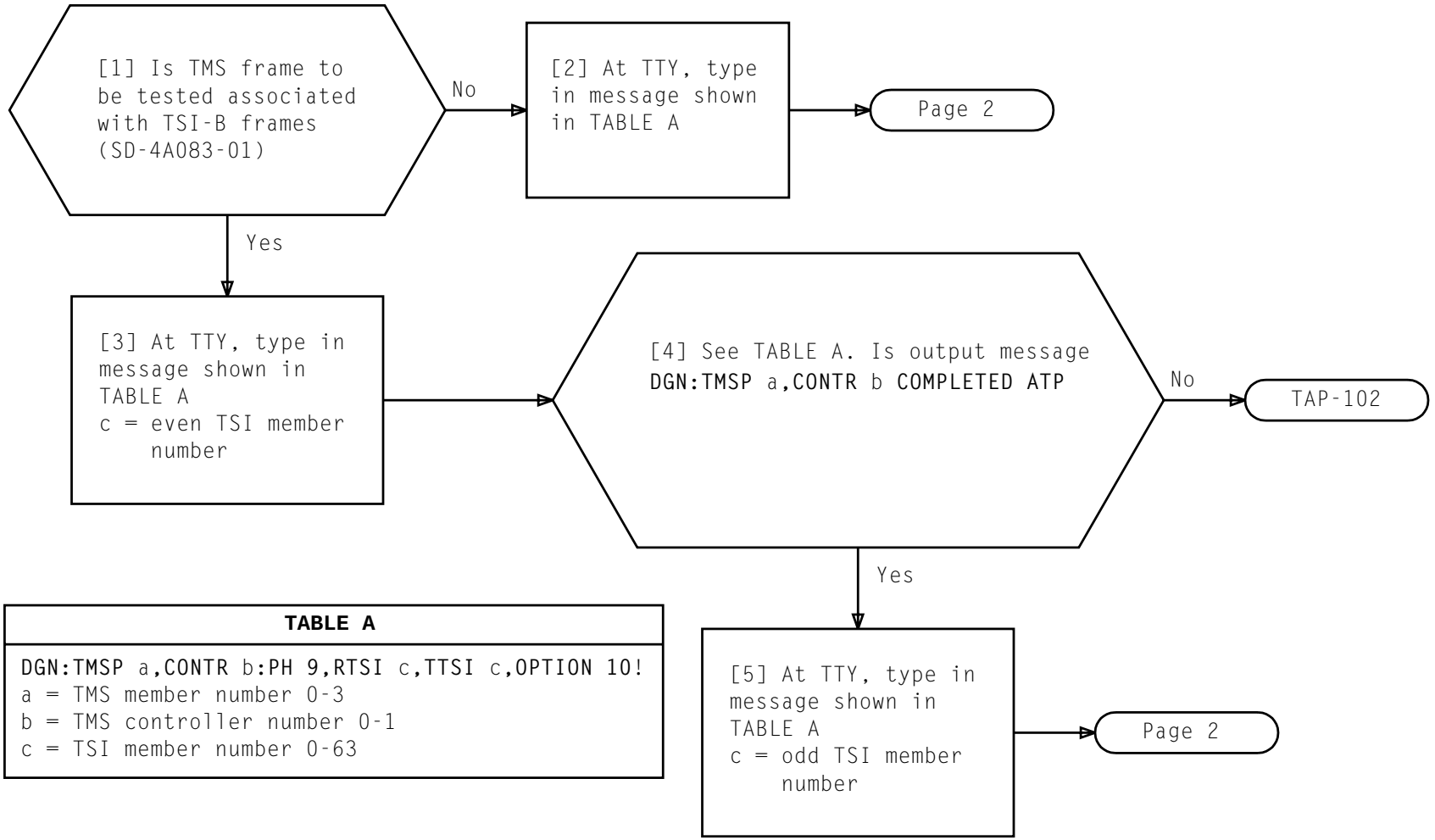
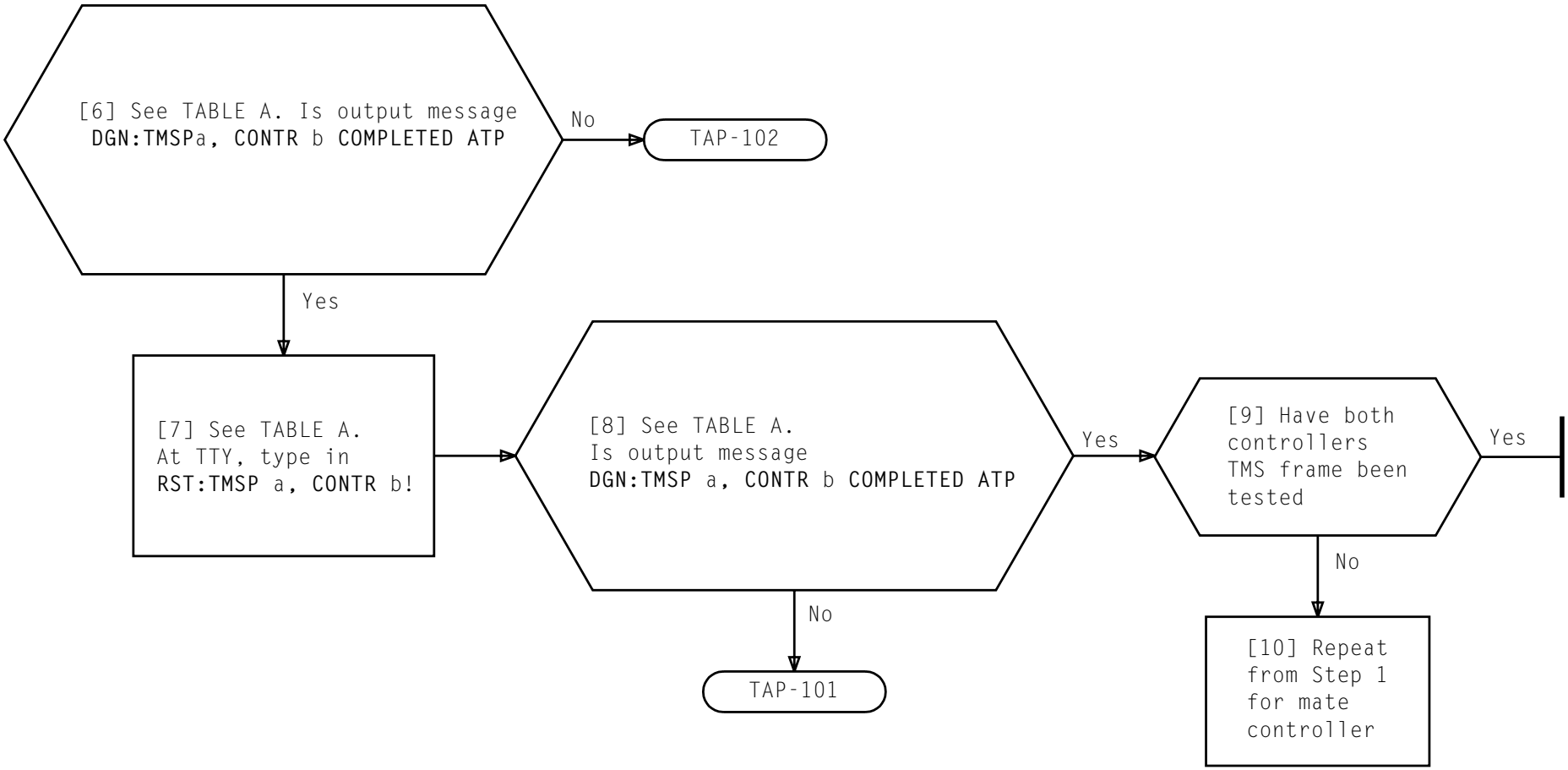


TABLE A

DGN:TMSP a,CONTR b:PH 9,RTSI c,TTSI c,OPTION 10!
a = TMS member number 0-3
b = TMS controller number 0-1
c = TSI member number 0-63

DIAGNOSE DEMAND PHASE 9



DIAGNOSE DEMAND PHASE 9

On Summary Data Printout [FIG. 1]:

1. Note monitor point address on first CD line under V1 column

2. Convert to decimal, octal failing bit in leftmost four octal digits of word under adjacent V2 column

In Test Access PK Document:

NOTE: Negative addresses, eg, 77771510 precede positive addresses in PK. If address is not found, other addresses and bits may be investigated using other V column pairs (first CD line or other CD lines). The PK data for these addresses will be further removed from the fault and PR data may be of greater value

3. Find address and failing bit

4. Note pack type and register (gate) name for failing bit

In Circuit Pack Schematic for Pack Type:

5. Locate component list section

NOTE: If A or B appears after gate name in test access PK, it indicates A or B half of register (gate)

6. Look in each DESIG column for gate name

7. In adjacent SH LOC column use location indicated to find gate in Circuit Pack Schematic

8. At gate, note output lead name and terminal leaving the gate to outside the pack [FIG. 2]

In Test Access PK Document:

9. For failing bit, identify FS, SD, and symbol name

In SD FS indicated:

10. Locate symbol number having same symbol name as identify in Test Access PK for failing bit

11. Find lead interconnection section for this symbol

12. Using terminal and lead name noted in Step 8, find corresponding SD lead name

End of procedure

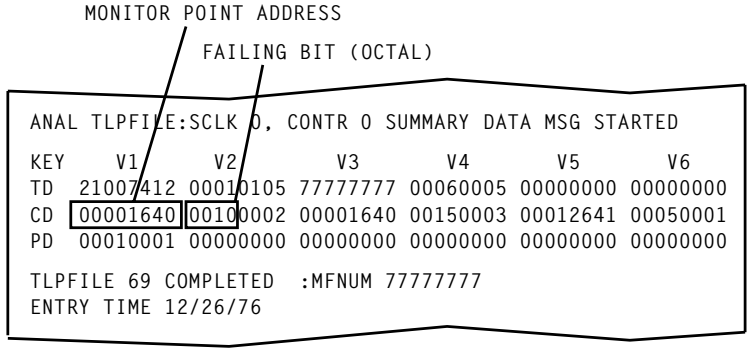


FIG. 1 — Example of Summary Data Printout

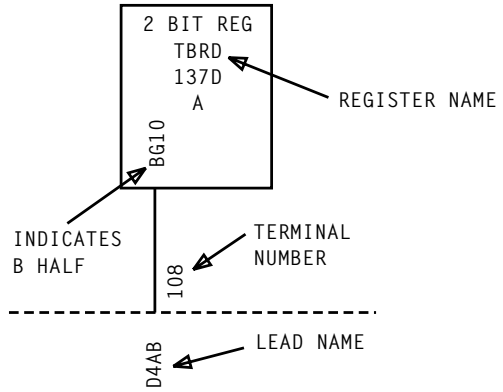


FIG. 2 — Example of lead leaving B half of a CPS register

IDENTIFY LEAD IN PATH OF FAILING BIT USING SUMMARY DATA PRINTOUT AND TEST ACCESS PK DOCUMENT

1. Define error using PMDs [TABLE A]

End of procedure

TABLE A

PMD-006 Fault isolated by TNFRISAD. PMD will indicate that one controller of suspect member failed access test. Controller which failed will be suspect controller

PMD-007 Fault isolated by TNFRISAD. PMD will indicate that both controllers failed access test. Each controller is assigned half weight indicating nonunique failure

PMD-010 Fault isolated by TNFRTMMN. Retry was performed and passed. This is a unique fault which is up in only one controller; therefore, it is transient unique (AINT)

PMD-011 Fault isolated by TNFRTMMN. Retry was performed and failed. This is a unique fault which is up in only one controller; therefore, it is hard unique (AINT)

PMD-012 Fault isolated by TNFRTMMN. Retry was performed and passed. This is a unique fault which is up in one controller only; therefore, it is transient unique (AINT)

PMD-013 Fault isolated by TNFRTMMN. Retry was performed and failed. This is a unique fault which is up in one controller only; therefore, it is hard unique (AINT)

PMD-020 Fault isolated by TNFRTMMN. This is a matched or nonunique type error which occurred in both controllers. Retry was performed and passed; therefore, it is transient nonunique (AINT)

PMD-021 Fault isolated by TNFRTMMN. This is a matched or nonunique type error which occurred in both controllers. Retry was performed and failed; therefore, it is hard nonunique (AINT)

PMD-050 Fault isolated by TNFRTMMN. Retry was performed and passed. This is a unique fault which is up in only one controller; therefore, it is transient unique (ASWF)

PMD-051 Fault isolated by TNFRTMMN. Retry was performed and failed. This is a unique fault which is up in only one controller; therefore, it is hard unique (ASWF)

PMD-052 Fault isolated by TNFRTMMN. This is a software type fault. This PMD indicates that software has caused a problem. Hardware is not suspected (ASWF)

PMD-053 Fault isolated by TNFRTMMN. Retry was performed and passed. This is a unique type fault which occurred in both controllers; therefore, it is transient nonunique (ASWF)

PMD-054 Fault isolated by TNFRTMMN. Retry was performed and failed. This is a unique type fault which occurred in both controllers

PMD-055 Fault isolated by TNFRTMMN. Retry was performed and passed. This is a match type fault which occurred in one controller only; therefore, it is transient unique (ASWF)

PMD-056 Fault isolated by TNFRTMMN. Retry was performed and failed. This is a match type fault which occurred in one controller only; therefore, it is is hard unique (ASWF)

TABLE A (Contd)

PMD-100 Fault isolated by TNFRTSMN. Fault type is unique class-1 transient (retry passed). Error will be PFE,PFO,MODEF,RTSMPF,TTSMPF,BIMPF, or ASWF in only one controller when unit is simplex or duplex; or an RTSMA,TTSMA, or BIMA in only one controller when unit is duplex (ASWF)

PMD-101 Fault isolated by TNFRTSMN. Fault type is a unique class-1 hard (retry failed). Error will be PFE,PFO, MODEF,RTSMPF,TTSMPF, BIMPF, or ASWF in only one controller when unit is simplex or duplex; or RTSMA, TTSMA,or BIMA in only one controller when unit is duplex (ASWF)

PMD-102 Fault isolated by TNFRTSMN. Fault type is unique soft. Error will be MODEF in both controllers or RTSMA,TTSMA, or BIMA in both controllers if unit is duplex; or up in the in-service controller if unit is simplex (ASWF)

PMD-103 Fault isolated by TNFRTSMN. Fault type is unique transient (retry passed). Error is AMM,DWMM, or BIMWM in only one controller if unit is duplex; or up in the in-service controller if unit is simplex. BIMWM is not checked for CRTSI (ASWF)

PMD-104 Fault isolated by TNFRTSMN. Fault type is unique class-3 hard (retry failed). Error is AMM,DWMM, or BIMWM in only one controller if unit is duplex; or up in the in-service controller if unit is simplex. BIMWM is not checked for CRTS1 (ASWF)

PMD-105 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 transient (retry passed). Error will be PFE,PFO,RTSMPF,TTSMPF,BIMPF, or ASWF in both controllers (ASWF)

PMD-106 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 hard (retry failed). Error will be PFE, PFO,RTSMPF,TTSMPF,BIMPF, or ASWF in both controllers (ASWF)

PMD-150 Fault isolated by TNFRTSMN. Fault type is unique class-1 transient (retry passed). Error up in AINT error source register may be AINT only or SSWF or any error which has secondary registers (RTMP,TTMP,BIMP, RSW, or BMAPF) where no errors are up in secondaries

PMD-151 Fault isolated by TNFRTSMN. Fault type is unique class-1 hard (retry failed). Error up in AINT error source register may be AINT only or SSWF or any error which has secondary registers (RTMP,TTMP,BIMP,RSW, or BMAPF) where no errors are up in secondaries

PMD-152 Fault isolated by TNFRSTMN. Fault type is unique class-2 transient (retry passed). Error in AINT error source register may be CE or TSSC in only one controller with errors up in secondary registers

PMD-153 Fault isolated by TNFRTSMN. Fault type is unique class-2 hard (retry failed). Error in AINT error source register may be CE or TSSC in only one controller or RTMP,TTMP,BIMP,RSW,BMAPF, or TSW in only one controller with errors in secondary register

PMD-160 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 transient (retry passed — both controllers). Error in AINT error source register or sense and and lock register may be AINT only, CE,SSWF, or TSSC in both controllers or RIMP,TIMP,BIMP, or BMBPF in both controllers with errors up in secondaries

TABLE A (Contd)

PMD-161 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 hard (retry failed — either controller). Error in AINT error source register or sense and lock register may be AINT only, CE, SSWF, or TSSC in both controllers or RTMP,TTMP,BIMP, or BMBPF in both controllers with errors up in secondaries

PMD-170 Fault isolated by TNFRTSMN. Either a receive or transmit time slot memory parity failure has been detected in the AINT and/or SAL error source registers in only one controller. The error is partitionable and a retry of the failing controller has failed. The AUX data block provides the K-code of the suspect unit and the failing level. This is a class-2 hard fault

PMD-171 Fault isolated by TNFRTSMN. Either a receive or transmit time slot memory parity failure has been detected in the AINT and/or SAL error source registers in only one controller. The error is partitionable and a retry of the failing controller has passed. The AUX data block provides the K-code of the suspect unit and the failing level. This is a class-2 transient fault

PMD-172 Fault isolated by TNFRTSMN. A receive or transmit time slot memory parity failure has been detected in the AINT and/or SAL error source registers in both controllers. One or both of the controllers have failed the retry. The AUX data block provides the K-code of the suspect unit and the failing level. This is a class-4 hard failure

PMD-173 Fault isolated by TNFRTSMN. A receive or transmit time slot memory parity failure has been detected in the AINT and/or SAL error source registers in both controllers. Both of the controllers have passed the retry. The AUX data block provides the K-code of the suspect unit and the failing level. This is a class-4 transient failure

PMD-207 Fault isolated by TNFRTSMN. Fault is either TRPF, TMM, or TSW. The channel is busy to a time slot. In attempting to trace the call through the network, a mismatch in the TSM data was found in the RTSI. An RTMP error was then found in the RTSI AINT ESR. Suspect frame will be changed to RTSI and fault isolation reentered

PMD-210 Fault isolated by TNFRXMIT. Fault type is either TRPF, TMM, or TSW. A path was found back to RTSI. RTSI has some error source bits set. Suspect frame will be changed to RTSI and fault isolation reentered

PMD-211 Fault isolated by TNFRXMIT. Fault type is either TRPF, TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, the network routine (NTRO) for one controller is incorrect. Fault is treated as unique error. AUX data block has more information

PMD-212 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, TTSM memory did not have appropriate data. AUX data block has more information. Fault is treated as unique error

TABLE A (Contd)

PMD-213 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, TTSM information from two controllers did not agree. Fault will be treated as nonunique error. AUX data block has more information

PMD-214 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, one TMS controller failed to pass access test. AUX data block has information. This TMS controller will be treated as unique fault

PMD-215 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, both TMS controllers failed to pass access test. Fault will be treated as nonunique TMS fault. AUX data block has more information

PMD-216 Fault isolated by TNFRXMIT. Fault type is either TRPF, TMM, or TSW. Channel is busy to a time slot. In attempting to trace call though network, mismatch in data stored in TSM memory was found. AUX data block has more information. Fault will be treated as TMS nonunique error

PMD-217 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, cutoff or multiple path has been found in TMS. AUX data block has more information. Fault will be treated as software fault

PMD-220 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, it was found RTSI duplex failed. AUX data block has more information. Fault will be treated by letting ERAT attempt to take out RTSI

PMD-221 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, one RTSI controller failed access test. AUX data block has more information. Fault will be treated as unique RTSI fault

PMD-222 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, both RTSI controllers failed access tests. More information in AUX data block. Fault will be treated as nonunique RTSI fault

PMD-223 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, broken or multiple path found in or multiple path found in RTSI. AUX data block has more information. Fault will be treated as RTSI software fault

PMD-224 Fault isolated by TNFRXMIT. Fault type is either TRPF,TMM, or TSW. Channel is busy to time slot. In attempting to trace call through network, mismatch in TMS routing F/F was found. AUX data has more information. Fault will be treated as RTSI nonunique fault

TABLE A (Contd)

PMD-225 Fault isolated by TNFRXMIT. Fault type is either TRPF, TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, one TRSI controller has incorrect network routing. AUX data has more information. Fault will be treated as TRSI unique fault

PMD-226 Fault isolated by TNFRXMIT. Fault type is either TRPF, TMM, or TSW. Channel is busy to a time slot. In attempting to trace call through network, mismatch in TSM data in RTSI was found. AUX data has more information. Fault will be treated as RTSI nonunique fault

PMD-227 Fault isolated by TNFRMIT. Fault is either TRPF, TMM, or TSW. The channel is busy to a time slot. In attempting to trace the call through the network, a broken or multiple path was found in the RTSI. An RTMP error was then found in the RTSI AINT ESR. Suspect frame will be changed to the RTSI and fault isolation reentered

PMD-230 Fault isolated by TNFRXMIT. Fault type is TRPF, TMM, or TSW with no corresponding secondary ESR bits set. Fault is probably in indicated controller ESRS

PMD-231 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error in both controllers but channel on which error occurred is not involved in network path. Therefore, fault is in this unit but is transient because retry passed. Fault may be in recorrelator or involve BUFC memory but cannot be isolated to controller

PMD-232 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error in both controllers but channel on which error occurred is not involved in network path. Therefore, fault is in this unit and is hard because retry failed. Fault may be in recorrelator or involve BUFC memory but cannot be isolated to unique controller

PMD-233 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error occurring in both controllers. Check of busy idle memory map bits against TS memory was run. Check found that suspect contoller has mismatch between time slot memory information and BIMM information. Information not found in other controller. Therefore, BIMM or TTSM in suspect controller may be at fault

PMD-234 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error occurring in both controllers. Check of busy idle memory map bits against TS memory was run. Check found mismatch in data between two controllers which is attributable to controller fault but cannot be further isolated to unique controller. BIMM or TTSM in one of two controllers is suspect

PMD-235 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error occurring in both controllers. Check of busy idle memory map bits against TS memory was run. Check has found data between controllers to match but BIMM data and TS data does not correlate. Therefore, error is probably result of software error

TABLE A (Contd)

PMD-236 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error occurring in both controllers. Check of BIMM and TTSM information passed. Recorrelator tested and both controllers failed. Problem may be in cross controller matchers and will be treated as nonunique

PMD-237 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error occurring in both controllers. Error of BIMM and TTSM information passed. Recorrelator tested and one controller failed. Fault is in recorrelator or associated circuits and will be treated as unique fault

PMD-240 Fault isolated by TNFRXMIT. Fault type is TMM or TSW error occurring in both controllers. Check of BIMM and TTSM information passed. Recorrelator tested and both controllers passed. Since failing channel is not involved in network path, no more testing can be done and fault must be in failing frame. Fault will be treated as nonunique

PMD-241 Fault isolated by TNFRXMIT. Fault type is either TRPF, TMM, or TSW. Path was found on failing time slot. Attempts made to isolate fault to one of six possible controllers by reconfiguring network routing. AUX data block has more information. Error was not isolated and must be considered nonunique. Final suspect list which is passed on to error analysis is found in AUX data block

PMD-250 Fault isolated by TNFRXMIT. Fault type is hard RSW (retry failed). Fault is probably not in TSI recording error but in transmission subunit connected to interrupting port. AUX data block has details of interrupting ports

PMD-251 Fault isolated by TNFRXMIT. Fault type is transient RSW (retry passed). Fault is probably not in TSI recording error, but in transmisson subunit connected to interrupting ports. AUX data block has details of interrupting ports

PMD-300 Fault isolated by TNFRMMRT. Fault type is unique class-3 hard. Attempt to change state of BMA port pest has failed

PMD-301 Fault isolated by TNFRMMRT. Fault type is unique class-3 hard. Attempt to change state of HFIS bit in hardware status register has failed

PMD-302 Fault isolated by TNFRMMRT. Fault type is unique class-3 hard. Attempt to reset FS and FE bits of hardware status register has failed

PMD-303 Fault isolated by TNFRMMRT. Fault type is unique software error. Mismatch between controllers of data in critical register dump at time of interrupt. Either HFIS bit of hardware status word (for non-CRTSI only) or port pests do not match or software state and CREG value of port pests do not match

PMD-304 Fault isolated by TNFRMMRT. Fault type is nonunique class-3 transient. RMM,BMAPF, or BMBPF BMBPF error not detected in SAL registers for either controller after both registers were cleared and unit was allowed to autonomously cycle

PMD-305 Fault isolated by TNFRMMRT. Fault type is nonunique class-3 hard. Network connection from failing channel in BMA to maintenance channel in BMD made. Data received in BMD does not match data sent from BMA for both controllers

TABLE A (Contd)

PMD-306 Fault isolated by TNFRMMRT. Fault type is unique class-3 hard. Network connection from failing channel in BMA to maintenance channel in BMD made. Data received in BMD does not match data sent from BMA for one controller

PMD-307 Fault isolated by TNFRMMRT. Fault type is nonunique class-3 hard. Attempt to make connection across the network failed.

PMD-310 Fault isolated by TNFRMMRT. Fault type is nonunique class-3 transient. Loop-around connection of network made. Data received in maintenance channel of BMD matches data sent through failing channel of BMA or both controllers

PMD-311 Fault isolated by TNFRMMRT. Fault type is nonunique class-3 transient. Loop-around connection of network made. Data received in maintenance channel of BMD does not match data sent through failing channel of BMA for both controllers

PMD-312 Fault isolated by TNFRMMRT. Fault type is unique class-3 hard. Loop-around connection of network has been made. Data received in maintenance channel of BMD does not match data sent through failing channel of BMA for one controller

PMD-313 Fault isolated by TNFRMMRT. Fault type is nonunique class-3 hard. No test made. Attempt to make loop-around connection of network failed

PMD-360 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 transient (retry passed). Error is BIMWM up in both controllers

PMD-361 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 hard transient (retry passed). Error is AMM in both controllers

PMD-362 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 transient (retry passed). Error is AMM in both controllers

PMD-363 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 hard (retry failed). Error is AMM in both controllers

PMD-364 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 transient (retry passed). Error is DWMM in both controllers

PMD-365 Fault isolated by TNFRTSMN. Fault type is nonunique class-4 hard (retry failed). Error is DWMM in both controllers

PMD-366 Fault isolated by TNFRTMMN. Match type error which occurred in both controllers. (MWM) Retry performed and passed; therefore, it is transient nonunique (ASWF)

PMD-367 Fault isolated by TNFRTMMN. Match type error which occurred in both controllers; (MWM) therefore, it is hard unique (ASWF)

PMD-370 Fault isolated by TNFRTMMN. Match type error which occurred in both controllers. (AMM) Retry performed and passed; therefore, it is transient nonunique (ASWF)

PMD-371 Fault isolated by TNFRTMMN. Match type error which occurred in both controllers. (AMM) Retry performed and failed; therefore, it is hard nonunique (ASWF)

1. See FIG. 1 and EXAMPLE 1. Check contents of CREG 3

2. Convert octal data to binary

3. Regroup bits 7-13 starting at bit 7 and grouping from right to left

4. Convert binary bits back to octal. This is the memory number

End of procedure

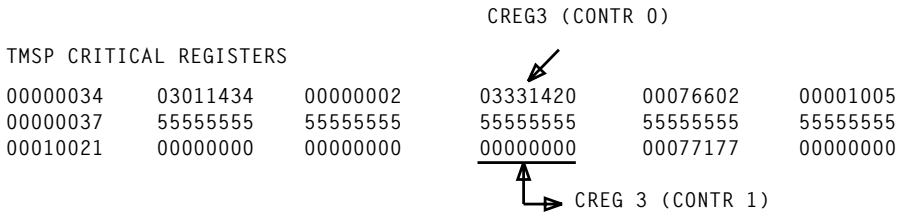


FIG. 1 – TMS ESR+1 Register

ESR+1 DATA	0			3			3			3			1			4			2			0		
BINARY	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	1	1	0	1	1	0	1	1	0	0	1	1	0	0	0	1	0	0	0	0
REGROUPED											1	1	0	0	1	1	0							
RECONVERTED OCTAL VALUE											* 1		4			6								

* INDICATES BAY (0 OR 1)

EXAMPLE 1 – Determine Memory Number

IDENTIFY SUSPECT MEMORY AND MEMORY REGISTER CIRCUIT PACKS, TIME MULTIPLEXED SWITCHING

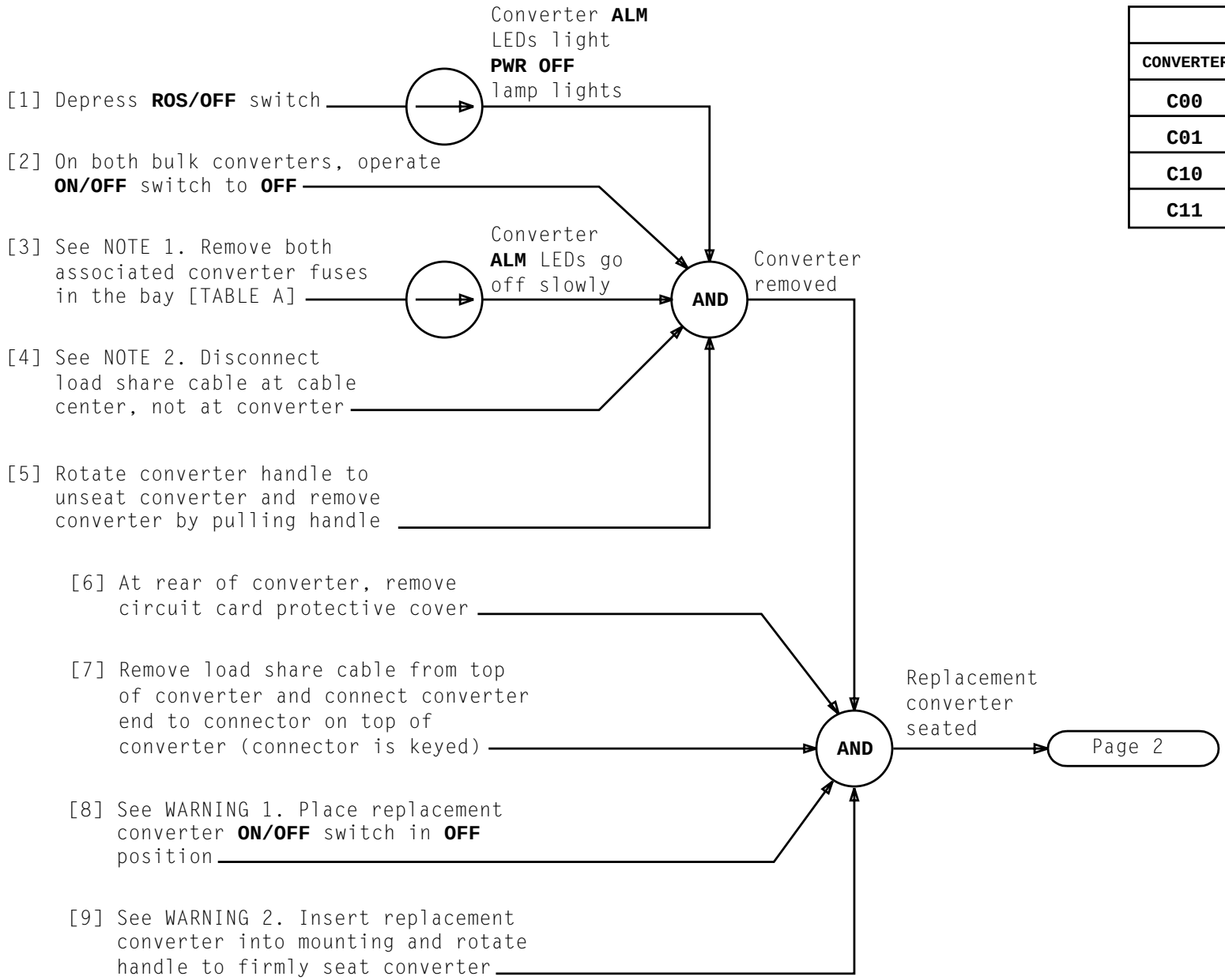


TABLE A			
CONVERTER	**LOCATION**	**FUSE**	**LOCATION**
C00	014-12	**A0A**	007-13
C01	014-60	**A0B**	007-13
C10	114-12	**A1A**	107-13
C11	114-60	**A1B**	107-13

NOTES
1. Allow converter **ALM** LEDs to go off completely before proceeding
2. Load share cable should be returned with defective converter

WARNINGS
1. *Failure to have* **ON/OFF** *switch in* **OFF** *position could result in damage to unit*
2. *Improper seating of unit may cause damage to connector*

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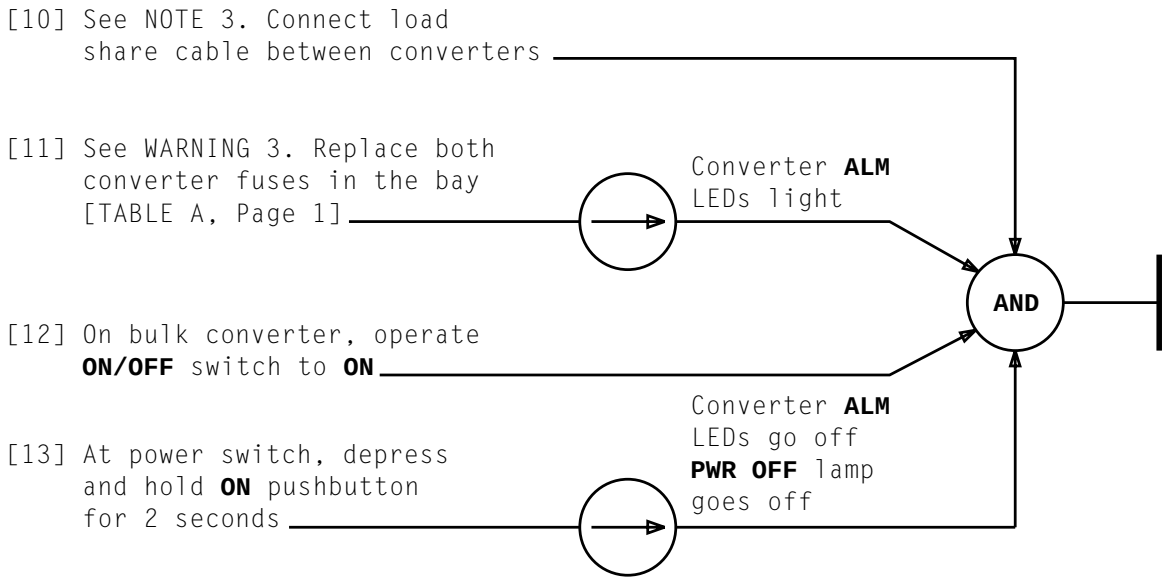
REPLACE BULK CONVERTER (245C WITH 245C)



NOTE 3
245C converters will not start unless load share cable is connected

WARNING 3
Current surge could damage converters if fuses are not replaced before turning converter **ON/OFF** *switches to* **ON**

REPLACE BULK CONVERTER (245C WITH 245C)

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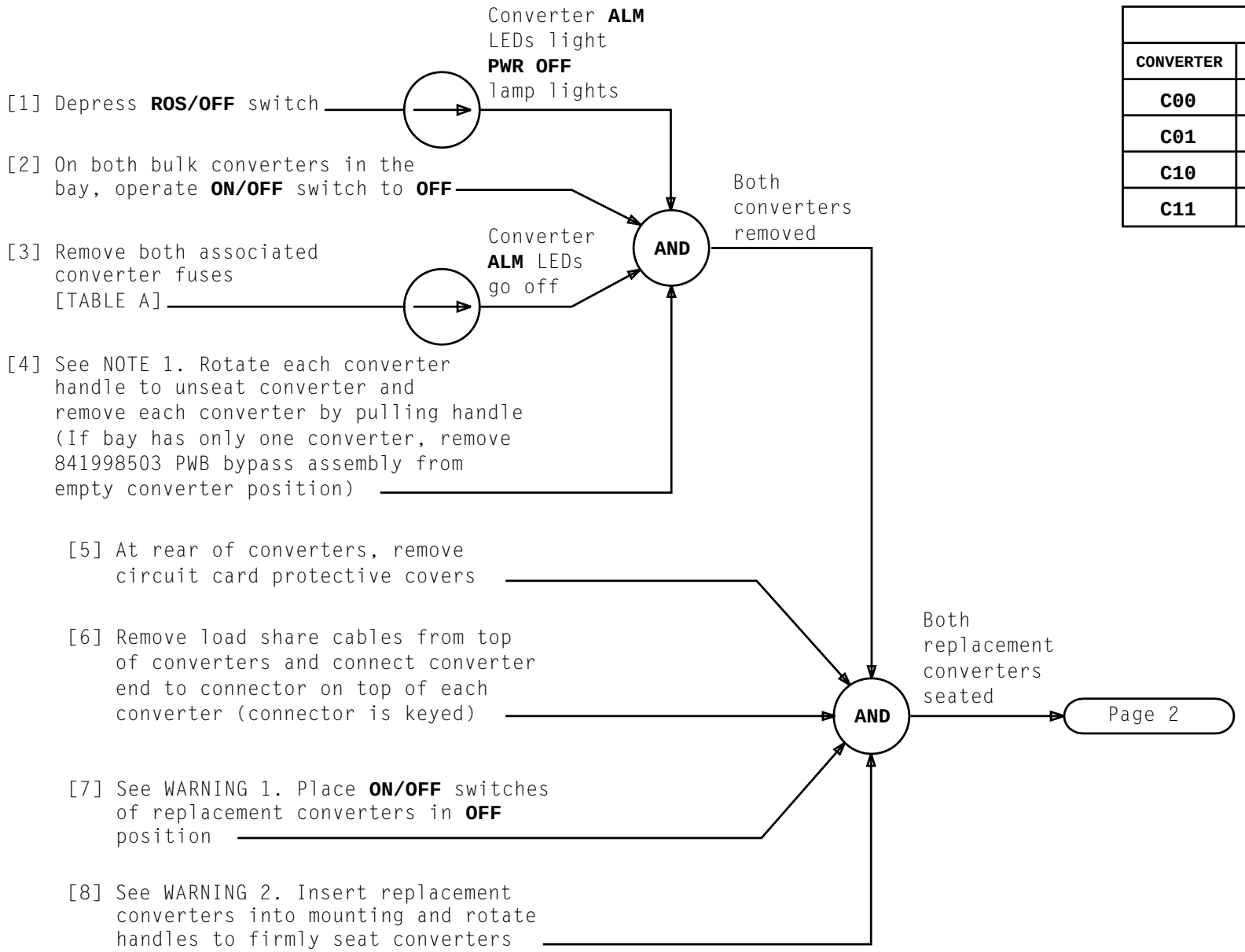
REPLACE BULK CONVERTER (245A WITH 245C)

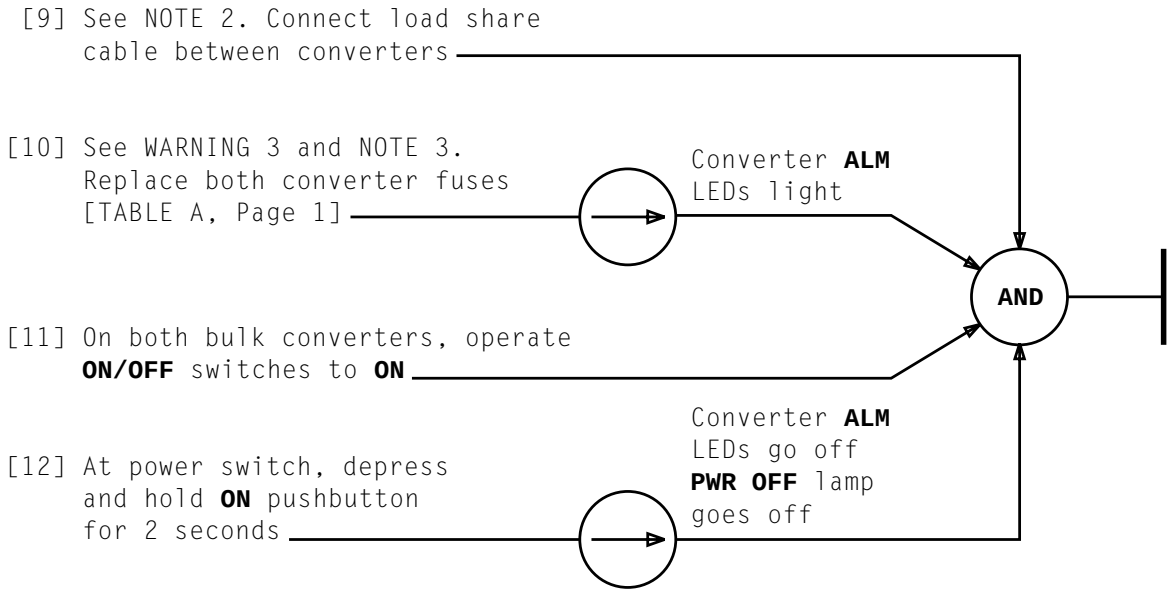
TABLE A			
CONVERTER	**LOCATION**	**FUSE**	**LOCATION**
C00	014-12	**A0A**	007-13
C01	014-60	**A0B**	007-13
C10	114-12	**A1A**	107-13
C11	114-60	**A1B**	107-13



NOTE 1
245A and 245C converters cannot be mixed in the same bay of a TMS

WARNINGS

1. *Failure to have* **ON/OFF** *switch in* **OFF** *position could result in damage to unit*
2. *Improper seating of unit may cause damage to connector*



NOTES

2. 245C converters will not start unless load share cable is connected
3. If bay had only one converter to begin with, one fuse was a "dummy" and must be replaced with a fuse of the same type as the line fuse

WARNING 3

Current surge could damage converters if fuses are not replaced before turning converter **ON/OFF** *switches to* **ON**

REPLACE BULK CONVERTER (245A WITH 245C)

REPLACE BULK CONVERTER (245C WITH 245A)

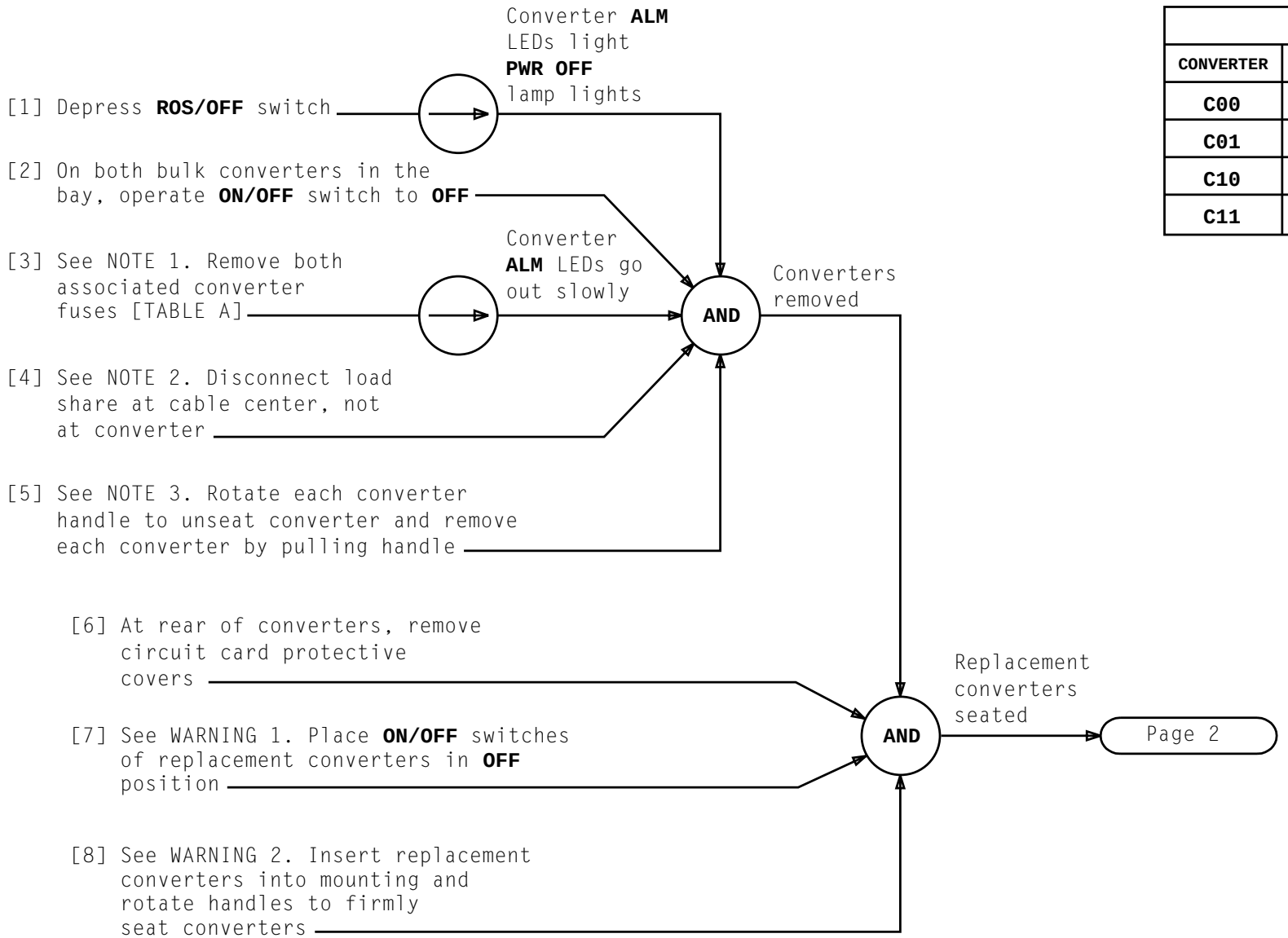


TABLE A			
CONVERTER	**LOCATION**	**FUSE**	**LOCATION**
C00	014-12	**A0A**	007-13
C01	014-60	**A0B**	007-13
C10	114-12	**A1A**	107-13
C11	114-60	**A1B**	107-13

NOTES

1. Allow converter **ALM** LEDs to go off completely before proceeding
2. Load share cable should be returned with defective converter
3. 245A and 245C converters cannot be mixed in the same bay of a TMS

WARNINGS

1. *Failure to have* **ON/OFF** *switch in* **OFF** *position could result in damage to unit*
2. *Improper seating of unit may cause damage to connector*

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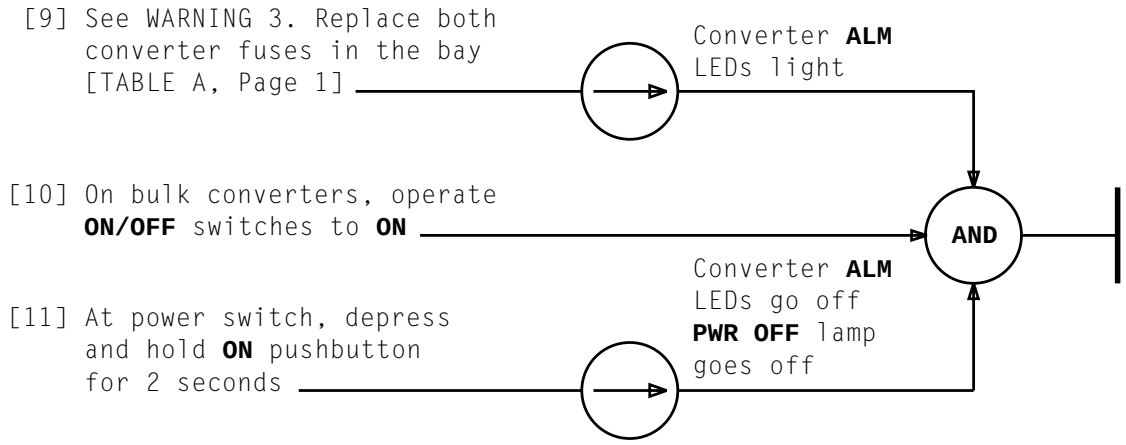


WARNING 3
Current surge could damage converters if fuses are not replaced before turning converter **ON/OFF** *switches to* **ON**

REPLACE BULK CONVERTER (245C WITH 245A)

SUMMARY

If the office has no spare capacitors or diodes available Do Not execute this procedure, and notify next level of support per local practice. Prior to performing this procedure technician must procure materials to perform this replacement procedure: stencil kit, digital VOM, plastic/ rubber sheets or equivalent insulating material, electrical tape, screwdrivers (standard and *Phillips**), needlenose pliers, trouble light, soldering iron, markers for leads, SD-4A087-01 and solder.

[1] See CAUTION 1. On affected TMS remove front kickplate and check for presence of +140V on "+" (plus) lead of all +140V filter capacitors

[2] See TABLE A, Page 2. Is +140V present on all capacitors

No

Yes

[3] Abort procedure and notify next level of support per local practice

[4] Mark leads of capacitors and diodes to ensure correct removal/replacement in later steps

[5] See NOTE 1, Figures 1, and 2. Remove the "-" post on capacitors and insulate leads (isolates capacitors and diodes)

[6] Using VOM on Ohms scale, determine which capacitor is possibly shorted (expect a high resistance >1.5 M)

Page 2

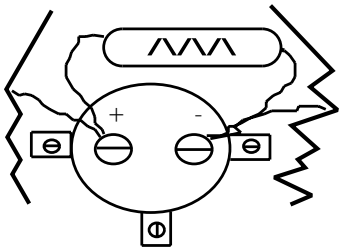


Figure 1 – Capacitor Sample

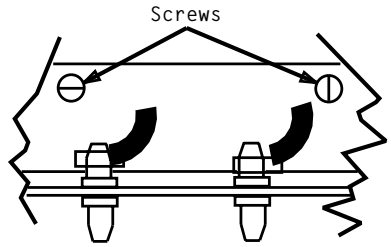


Figure 2 – Diode Sample

NOTE 1

A 12-inch standard screwdriver with insulation from handle to blade should be used to prevent shorting

CAUTION 1

Other components use +24V, caution must be taken to avoid shorting of surrounding circuitry

*** Trademark of Phillips Screw Company**

Added

REPLACE FILTER CAPACITOR AND DIODE TIME MULTIPLEX SWITCHING (TMS) FRAME

REPLACE FILTER CAPACITOR AND DIODE TIME MULTIPLEX SWITCHING (TMS) FRAME

[7] See CAUTION 1. Install insulating material around unit filter capacitor area for protection of components using various voltages

[8] See NOTE 2 and TABLE A. Is there a shorted Cap

No

Yes

[14] Using VOM, determine which diode is bad (expected ohms, 100K or open, depending on VOM polarity)

[15] See NOTE 2. Is there a bad diode

No

Yes

[16] Abort procedure and notify next level of support per local practice

[9] Mark polarity of leads to ensure removal or proper replacement

[17] Mark polarity of leads to ensure removal or proper replacement

Page 3, Step 22

[10] See NOTE 1, CAUTION, and Figure 1. Remove "+" lead from Capacitor and insulate

[11] Note orientation of capacitor and remove three screws holding Capacitor mounting ring

[12] Carefully pull Capacitor out to position for taking off unit mounting ring

[13] Remove screw from mounting ring and remove defective capacitor

Page 3

Added

TABLE A			
Capacitor	**Location**	**Diode**	**Location**
C1	x02-17	CR3	x07-17RA
C3	x02-35	CR4	x07-21RA
x = 0 or 1 depending on controller			

NOTE 2
Regardless of which filter circuit-component is defective, the associated diode or capacitor must be replaced to prevent further circuit damage or failure. Use SD-4A087-01 for component association

CAUTION
Other components use +24V, caution must be taken to avoid shorting of surrounding circuitry

[18] Stamp proper identification on new capacitor being installed

[19] Properly orient new capacitor and secure in unit mounting ring

[20] Carefully place new capacitor in frame and replace three mounting ring screws

AND

Capacitor replaced

[21] Reconnect leads and resistor to Capacitor and ensure polarity as observed earlier

[22] At rear of TMS frame place insulation material around working area

[23] See Figure 3 and Table A, page 2, remove screws from diode mounting plate and carefully pull plate away from frame

AND

Page 4

[24] Mark leads of associated or defective diode and note polarities if not done in step 4, page 1

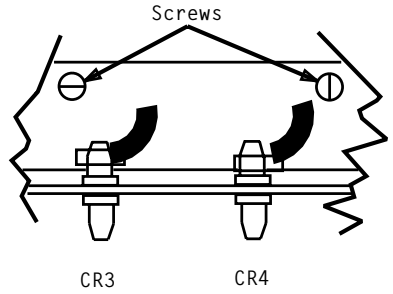
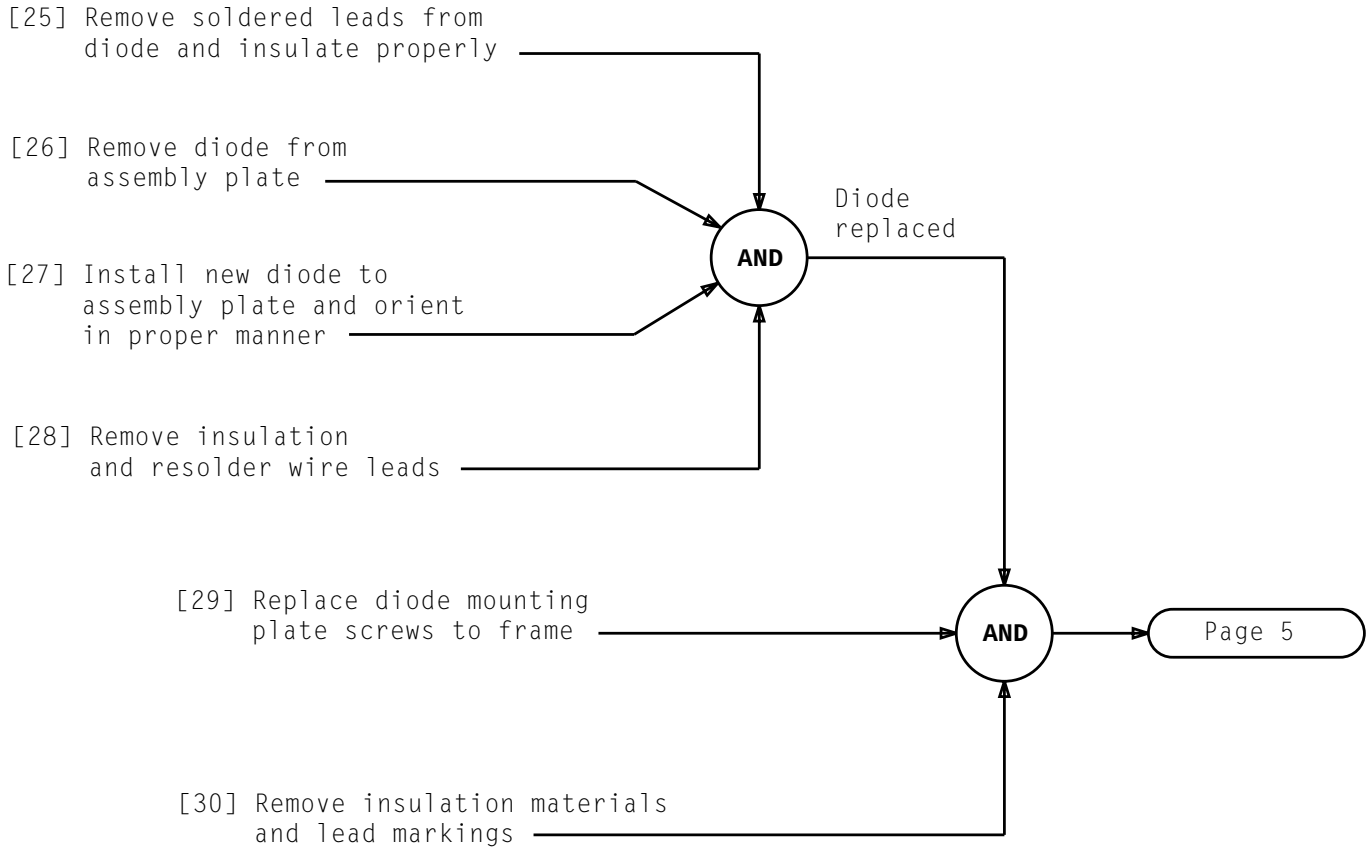


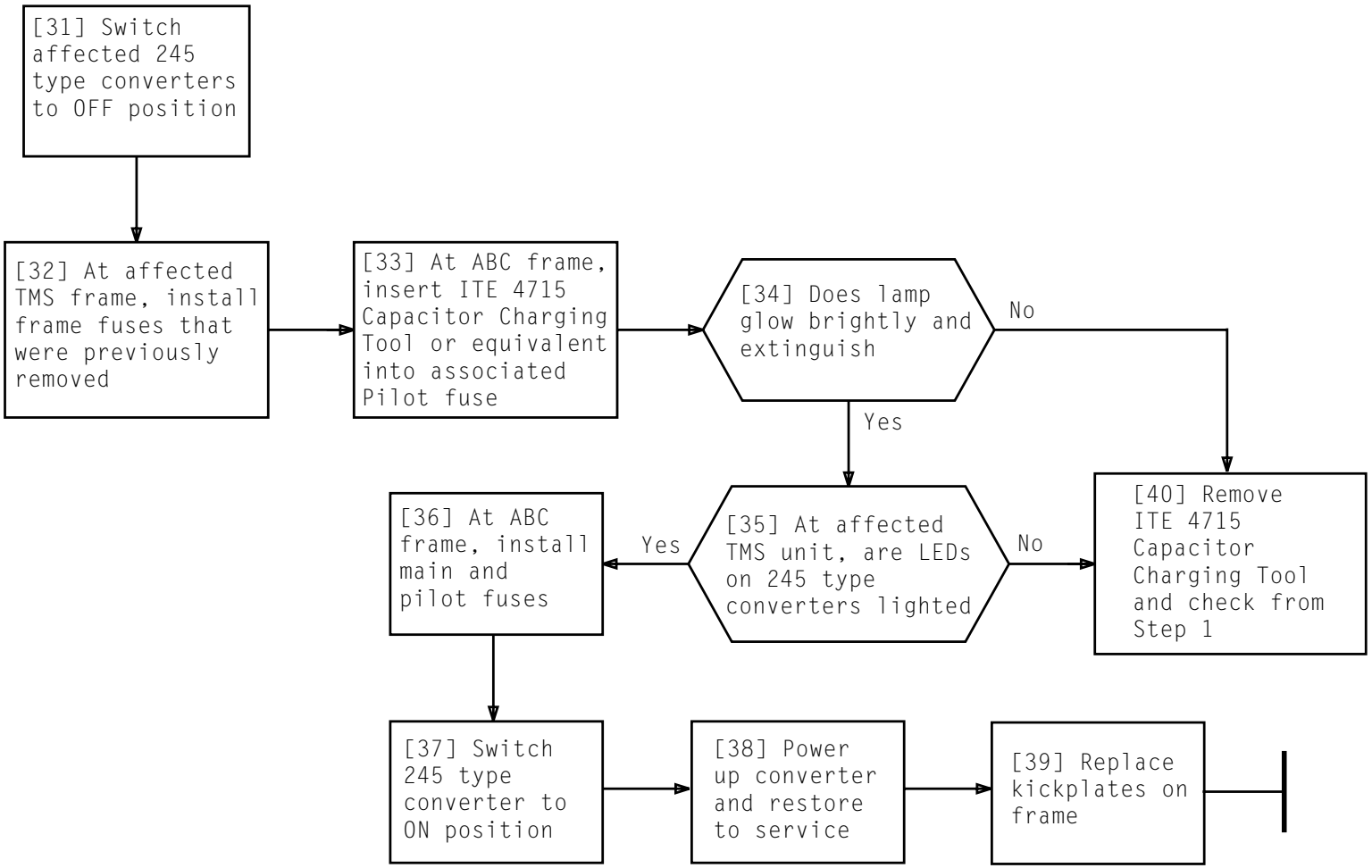
Figure 3 – Diode Sample

REPLACE FILTER CAPACITOR AND DIODE TIME MULTIPLEX SWITCHING (TMS) FRAME



REPLACE FILTER CAPACITOR AND DIODE TIME MULTIPLEX SWITCHING (TMS) FRAME

Added



REPLACE FILTER CAPACITOR AND DIODE TIME MULTIPLEX SWITCHING (TMS) FRAME

Added

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
TPG-000		TAP-127									
• IXL-001		TAP-128									
NTP-002		TAP-129									
NTP-003		□ TAP-130									
NTP-004		□ TAP-131									
NTP-005		□ TAD-132									
NTP-006		□ TAP-133									
NTP-007		• TAP-134									
• TAD-100		DLP-500									
TAP-101		DLP-501									
TAP-102		DLP-502									
• TAP-103		DLP-503									
ISD-104		DLP-504									
ISD-105		DLP-505									
ISD-106		DLP-506									
TAP-107		DLP-507									
TAP-108		DLP-508									
TAP-109		DLP-509									
TAP-110		DLP-510									
ISD-111		• DLP-511									
TAP-112		DLP-512									
ISD-113		DLP-513									
TAP-114		DLP-514									
ISD-115		DLP-515									
TAP-116		DLP-516									
ISD-117		DLP-517									
TAP-118		DLP-518									
ISD-119		DLP-519									
TAP-120		DLP-520									
TAD-121		DLP-521									
TAP-122		DLP-522									
TAP-123		DLP-523									
TAP-124		• DLP-524									
TAP-125		• CKL-891									
ISD-126		TNG-893									

• REVISED OR ADDED ITEM □ CANCELED ITEM

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CHECKLIST

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