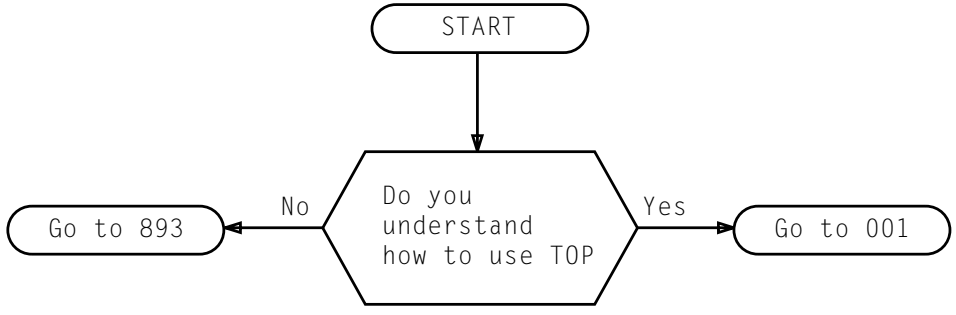
Lucent Technologies
Bell Labs Innovations

Task Oriented Practice (TOP)

4ESS™ Switch
With 1B Processor
Expanded Time Slot Interchange (XTSI) Cabinet
Trouble Clearing Procedures



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Developed by Lucent Technologies Network Systems TSVS Information Development

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

FIND YOUR JOB IN THE LIST BELOW	THEN GO TO
Layout Of Alarm LEDs on XTSI Cabinet	TAD-106
Maintenance Philosophy	TAD-100
Remove XTSI Cabinet Unit From Service	DLP-511
Replace Air Filters - XTSI Cabinet	DLP-509
Replace A-Link Cable - XTSI Cabinet	TAP-127
Replace Fan - XTSI Cabinet	DLP-506
Replace Fuse Circuit Module - XTSI Cabinet	DLP-514
Replace **FUSE**/**FAN**/**POWER** LED Terminal Board - XTSI Cabinet	DLP-508
Replace Fuse And Filter Unit - XTSI Cabinet	TAP-122
Replace XTSI Cabinet Circuit Pack	NTP-003
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Specific Cautions And Warnings - XTSI Cabinet	TAD-101
Test Fuse Unit **NIP A/B** LEDs — XTSI Cabinet	DLP-520
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XTSI Phase 41 Diagnostics Failure Analysis	TAP-128

No acceptance test procedures are required for the Expanded Time Slot Interchange (XTSI) cabinet. The readiness of this cabinet 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	Using Trouble Ticket Or Verbal Instructions Received From Technical Support Group, Identify XTSI Member Number, Unit, Circuit Pack Code And Circuit Pack Location Associated With Circuit Pack To Be Replaced	—
	WARNING: A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins.	—
2	Replace Circuit Pack	DLP-500
3	Diagnose XTSI Unit Containing Circuit Pack Previously Replaced (DGN:XTSI a,b c:TLP!)	DLP-505
4	Notify Technical Support Group That Circuit Pack Replacement Is Complete With Acceptable Diagnostic Results	—
5	If Additional Circuit Packs Are To Be Replaced, Repeat From Step 1	—
6	Record Results For Local Records	—

DO THE ITEMS BELOW IN THE ORDER LISTED		FOR DETAILS, GO TO
1	Using Trouble Ticket Or Verbal Instructions Received From Technical Support Group, Identify XTSI D3U Member Number Containing Paddleboard (470A Circuit Module) To Be Replaced	–
2	At 1B Processor MTC Terminal, Remove Identified XTSI D3U From Service (**RMV:XTSI a,D3U b!**)	DLP-511
	WARNING: A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins. *CAUTION: Extreme care must be taken when aligning paddleboard with retaining shroud to ensure paddleboard is not installed onto pins outside of retaining shroud area. Misalignment of paddleboard onto shroud could possibly cause power alarms in both controllers thus forcing an XTSI controller duplex failure*	–
3	Replace D3U Paddleboard (470A Circuit Module)	DLP-515
4	Diagnose XTSI D3U Containing Paddleboard (470A Circuit Module) Previously Replaced (**DGN:XTSI a,D3U b:TLP!**)	DLP-505
5	At 1B Processor MTC Terminal, Restore XTSI D3U To Service (**RST:XTSI a,D3U b!**)	DLP-507
6	Notify Technical Support Group That D3U Paddleboard (470A Circuit Module) Replacement Is Complete With Acceptable Diagnostic Results	–
7	If Additional D3U Paddleboards (470A Circuit Modules) Are To Be Replaced, Repeat From Step 1	–
8	Record Results For Local Records	–

XTSI CABINET OVERVIEW

The Expanded Time Slot Interchange (XTSI) complex includes two XTSI cabinets measuring 72 inches high, 29.92 inches wide and 23.39 inches deep. Only one XTSI cabinet is required to house equipment for the initial XTSI release. The second cabinet will remain vacant for the initial XTSI release and be utilized in future XTSI releases. The XTSI is a 4ESS Switch peripheral that replaces the functionality of the Digital Interface Frame (DIF) and Time Slot Interchange (TSI) frames. In addition to functionally replacing the DIF and TSI frames, the XTSI cabinet will accept a DS3 transmission interface. The XTSI cabinet is composed of four units:

- Fuse and Filter unit (J4A034AC)
- XTSI Controller (XTC) unit (J4A034AA)
- XTSI Fan unit (J4A034AD)
- XTSI Fabric unit (J4A034AB).

FUSE/FILTER UNIT

The XTSI fuse and filter unit uses a modular design powered by ten -48VDC feeders from a 4ESS Switch power distribution frame. Each of the ten power distribution frame -48VDC feeders is fused at 20 Amperes and filtered to reduce conductive noise on feeders exiting the unit. The modular fuse unit contains 20 fuse circuit modules and each module contains 5 fuse positions for a total of 100 fuse positions per frame. The XTSI frame uses 80-type flag fuses that provide a visual indicator identifying when the fuse is blown. The unit also contains an alarm card and two TEL/TTY jacks. The alarm card controls the major fuse alarm signals for blown fuses; the two TEL jacks provide access to the office telephony circuits and the two TTY jacks provide access to Bus A and B maintenance channels.

XTSI CONTROLLER (XTC) UNIT

The XTSI Controller (XTC) unit includes two circuit pack shelf assemblies that are bolted together and electrically connected via a common backplane. The XTC unit can house up to 20 circuit packs (10 circuit packs per shelf) with each circuit pack slot keyed to accept only specific coded circuit packs. The XTC unit accepts TN, UN and KBN circuit pack types that are 7.67 inches high and 13.86 inches deep. The XTC backplane uses FASTEC technology for pin layouts and equipment locations. The backplane is silk screened to identify cable and paddleboard locations on the rear of the XTC unit.

XTSI FAN UNIT

The XTSI fan unit houses six fans and is mounted between the XTC and XTF units. The fan unit directs air from three fans upward through the XTC unit and from the other three fans downward through the XTF unit. In addition to fans, the fan unit is equipped with two replaceable air filters; control circuitry and thermistors that sense the cabinet's cooling demands. The complete fan system includes 6 thermistors that sense the air temperature exiting at the top and bottom of the cabinet. A major alarm is activated when a failure of any fan system component is detected.

XTSI FABRIC (XTF) UNIT

The XTSI fabric (XTF) unit includes two circuit pack shelf assemblies that are bolted together and electrically connected via a common backplane. The XTF unit can house up to 44 circuit packs (22 circuit packs per shelf) with each circuit pack slot keyed to accept only specific coded circuit packs. The XTF unit accepts 4WB circuit pack types that are 16.17 inches high and 13.84 inches deep. The XTF backplane uses METRAL technology for pin layouts and FASTEC technology for equipment locations. The backplane is silk screened to identify cable and paddleboard locations on the rear of the XTF unit.

XTSI CABINET DOCUMENTATION

The preventive maintenance and trouble-clearing procedures contained in this Task Oriented Practice (TOP) are based upon the design of XTSI cabinet hardware, diagnostic software and test equipment employed. The procedures are intended to aid personnel in performing routine preventive maintenance trouble-clearing functions required to keep the XTSI cabinet functional and trouble free. The degree to which these procedures accomplish this depends upon input and feedback from the user. Submittal of additions, corrections and improvements to the data are encouraged. Manufacturer, engineering and software documentation such as Input/Output (I/O) message manuals and schematic diagrams (SDs) which are available to the customer are referenced where applicable rather than duplicating that information in the TOP. However, some portions of this type of documentation may be utilized in procedures as examples for the purpose of explanation. Test equipment (oscilloscopes, voltmeters, etc.) and the parameters involved in circuits being tested, adjusted or checked are usually prescribed. However, the setup and method of operation of such equipment is not described unless it is unusual or unique in some manner.

NOTE: It is assumed that all coaxial cabling is non-faulty. Improper handling of cabling may damage cables or cause service interruption. Extreme care must be exercised when handling any coaxial cable.

XTSI CABINET TROUBLE CLEARING DOCUMENTATION STRUCTURE

The XTSI cabinet trouble-clearing documentation is documented using Task Oriented Practices (TOPs). The TOP is structured using different elements to present different types of TOP procedures. These elements include:

- Task Index List (IXL)
- Non-Trouble Procedures (NTPs)
- Trouble Analysis Diagrams (TADs)
- Trouble Analysis Procedures (TAPs)
- Detail Level Procedures (DLPs).

The task index list (IXL) is structured to provide fast access to the directly accessible procedures contained within this TOP. Procedures not listed on the IXL are designed to support the directly accessible procedures with preconditioning and system restoration steps covered in those level procedures. Therefore, ***procedures not designed to be directly accessed are a threat to equipment operation and may compound trouble-clearing problems when accessed using a hunt-and-find method.*** The more knowledgeable and experienced personnel may access this TOP at a point in trouble clearing when analysis of a problem is complete (the faulty component and/or condition determined) and only the corrective action is required. This situation requires special attention since most procedures in this TOP are designed to both isolate and clear the problem. If the TOP is entered under these conditions, it is the sole responsibility of the user to verify that the correct entry point on a directly accessible procedure is identified. Otherwise, equipment damage and/or interruption to service is possible.

All procedures directly accessible from the IXL are written for both the experienced and inexperienced maintenance personnel with appropriate bypassing techniques built into the procedures. Therefore, when using procedures written for personnel with different experience levels, it is the responsibility of the user to make the determination as to what their experience level is and whether it is necessary to access the detail as referenced. However, if it is determined by experienced personnel to bypass the detail provided to complete specific steps, it is assumed that the step is performed correctly.

Non-trouble procedures (NTPs) are used to document routine preventive maintenance and other maintenance procedures that are not directly related to a specific trouble.

Trouble analysis diagrams (TADs) are used to present trouble-clearing aids such as simplified schematics, functional schematics, charts, pictorials, tables and text describing system maintenance philosophy or trouble-clearing strategies for a particular TOP volume. In general, a TAD may be used to present any nonprocedural-type information that will aid the user in understanding or performing procedures in the TOP. TADs can be directly accessed from the IXL or they may only be referenced from the procedure from which they are intended to provide additional support information to aid in clearing a problem.

Trouble analysis procedures (TAPs) are used to document trouble-clearing procedures which attempt to isolate and clear specific problems. TAPs can be directly accessible from the IXL or accessed only after a directly accessible TAP has been exhausted and additional analysis and trouble-clearing effort is required to clear a trouble.

Detail level procedures (DLPs) are used to document step-by-step detailed procedures which attempt to perform a single specific function. DLPs can be directly accessible from the IXL or accessed from NTPs, TAPs or other DLPs in an attempt to provide additional detailed data to support a specific step. DLPs written to be accessed from NTPs, TAPs, and other DLPs are written to provide additional detail and are targeted to the inexperienced audience. However, in cases where DLPs are written to be directly accessed from the IXL, the procedures are targeted to both the experienced and inexperienced audience.

XTSI CABINET DOCUMENTATION/TRAINING TRADE-OFFS

As a team, documentation and training share a single goal to provide the recipient of training and user of TOPs with a comprehensive information package to support the XTSI cabinet equipment as designed. This package will allow personnel to attain an entry level knowledge of the XTSI cabinet equipment to be maintained and a package of detailed procedures that will aid in performing routine preventive maintenance and trouble analysis when problems arise. Documentation/training trade-offs have been identified and agreements reached as to the skills and knowledge to be possessed by the target audience, subjects to be covered by the training packages and procedures to be documented in the TOP.

XTSI CABINET TROUBLE-CLEARING APPROACH

When documenting a procedural approach to trouble clearing, certain assumptions are made. It is assumed that only one fault is being cleared at a time. When directing maintenance personnel to perform an action, it is assumed that the action is performed correctly. Similarly, when directed to make replacements, the replacement part is always assumed to be good. Equipment used for testing, both built-in (hardware and software) and commercial, is assumed to be good. Input messages entered at the maintenance terminal will be used to ensure the removal and restoral of units while performing trouble-clearing procedures. In addition, any time hardware is replaced, diagnostics must be run with an All-Tests-Pass (ATP) result expected. These assumptions and the fact that trouble-clearing procedures are designed for faults with consistent fault signatures provide procedures with a clean straightforward approach to trouble clearing. It is possible that some faults will not present a consistent fault signature or a Trouble Locating Procedure (TLP) pack list. If this occurs, the diagnostic should be repeated a number of times and the most consistent fault and TLP list used, following the same general approach provided in the procedures. This

repetitive diagnostic method should be used each time an attempt is made to correct the problem so that it can be determined if there is any change in the fault signature due to the corrective action that has been taken. If the action performed resulted in clearing the problem, an All-Tests-Pass (ATP) diagnostic result should be expected.

Trouble-clearing procedures provided to clear diagnostic failures are provided on two levels for the XTSI cabinet. The first level addresses what to do with a software generated Trouble Locating Procedure (TLP) SUSPECTED FAULTY EQUIPMENT list and provides a step-by-step procedure for replacing suspect circuit packs one at a time, running diagnostics and analyzing the results. This first level approach to clearing diagnostic failures is straightforward and requires some familiarity with the equipment, maintenance terminal techniques and diagnostic printouts. Access to this procedure is made directly from the IXL.

The second level approach to clearing diagnostic failures is accessed from the first level when attempts have failed to clear the problem, or accessed directly from the IXL. This level is known as raw data analysis and describes what to do with the summary and supplemental data printed either with or instead of the SUSPECTED FAULTY EQUIPMENT list. It is expected that this analysis will lead to the identification of faulty circuits and possibly additional suspect hardware not previously identified. This second level approach to clearing diagnostic failures is more complex and requires an increase in the capabilities cited in the first level with additional knowledge of the equipment, maintenance terminal techniques, diagnostic printouts, schematic diagrams (SDs), program listings (PRs), etc.

XTSI CABINET TEST EQUIPMENT AND TOOL LIST

The XTSI cabinet recommended tools list [TAD-108] identifies the recommended test equipment and tools required to perform routine preventive maintenance and trouble clearing on the XTSI cabinet.

XTSI CABINET ROUTINE PREVENTIVE MAINTENANCE TASK LIST

The routine preventive maintenance task list provides a a list of procedures that are recommended for routine preventive maintenance. Information identifying these procedures is arranged in the following order from left to right — Frequency, Procedure Title and Procedure Number.

Recommended routine preventive maintenance procedures include:

FREQUENCY	PROCEDURE TITLE	PROCEDURE NUMBER
3M	Test Power Group LEDs — XTSI Cabinet	DLP-504
3M	Test Fuse Unit **NIP A/B** LEDs — XTSI Cabinet	DLP-520
3M	Replace Air Filters — XTSI Cabinet	DLP-509

GENERAL INFORMATION

The cautions and warnings provided in this element are specific to performing trouble-clearing and routine preventive maintenance on the XTSI cabinet (SD-4A034A). The most important goals while performing any job are to complete the job safely while minimizing service interruptions and avoiding equipment damage. Thus, cautions and warnings have been defined to protect against these possible hazards:

- CAUTION - Identifies the possibility of service interruption.
- WARNING - Identifies the possibility of equipment damage.

This element will group the different admonishment types into two separate categories depending upon their importance. Cautions will appear first and warnings will appear second. When a condition exists that will cause more than one of the identified admonishments, the highest priority will be used.

At the beginning of each category (CAUTIONS and WARNINGS), an index will appear to identify each specific admonishment for easy access. This element is not intended to replace or supersede the step-by-step instructions provided in the Non-Trouble Procedures (NTPs), Trouble Analysis Procedures (TAPs) and Detail Level Procedures (DLPs) where applicable cautions and warnings will be identified at the specific step that they need to be observed.

CAUTIONS

The following is an index of the CAUTIONS that reside in this element:

1. Aligning D3U Paddleboard (47OA Circuit Module) Onto Backplane Pins

2. D3U Paddleboard (47OA Circuit Module) Replacement Can Possibly Interrupt Service

CAUTION 1 - ALIGNING D3U PADDLEBOARD (470A CIRCUIT MODULE) ONTO BACKPLANE PINS
Extreme care must be taken when aligning paddleboard with retaining shroud to ensure paddleboard is not installed onto pins outside of retaining shroud area. Misalignment of paddleboard onto shroud could possibly cause power alarms in both controllers thus forcing an XTSI controller duplex failure.

CAUTION 2 - D3U PADDLEBOARD (470A CIRCUIT MODULE) REPLACEMENT CAN POSSIBLY INTERRUPT SERVICE
672 trunks are associated with each XTSI D3U circuit pack. Replacing a D3U paddleboard will degrade service and possibly interrupt established calls.

WARNINGS

The following is an index of the WARNINGS that reside in this element:

1. Static Discharge

2. Excessive Force When Replacing Circuit Packs

3. Push/Pull Fuses Straight To Avoid Breakage

4. Fan Controller Board Replacement

5. Fan A Replacment

6. Verification Fan Is Not Running

WARNING 1 - STATIC DISCHARGE

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

WARNING 2 - EXCESSIVE FORCE WHEN REPLACING CIRCUIT PACKS

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

WARNING 3 - PUSH/PULL FUSES STRAIGHT TO AVOID BREAKAGE

When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.

WARNING 4 - FAN CONTROLLER BOARD REPLACEMENT

When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A.

WARNING 5 - FAN A REPLACEMENT

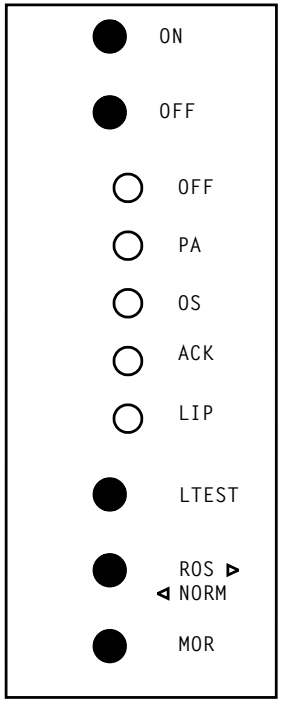
When replacing FAN A, care must be taken to avoid shorting fan to -48V terminal strip lugs located directly above FAN A.

WARNING 6 - VERIFICATION FAN IS NOT RUNNING

Place sheet of paper over grill of faulty fan to verify fan is not running. If fan is running, paper will be pulled against fan grill. The paper can also be folded into a 1-inch wide strip and inserted into the grill to stop any fan blade movement while fan is being removed from fan unit.

WARNING 7 - FAILURE TO FORCE OUT-OF-SERVICE UNIT ACTIVE PRIOR TO CIRCUIT PACK REPLACEMENT IN ACTIVE MATE OR HELPER UNIT

Failure to force an out-of-service unit active prior to replacing circuit packs in an active mate or helper unit could possibly cause a duplex failure resulting in a service degrading condition or customer service outage.



LEGEND:

● - PUSHBUTTON/SWITCH

○ - LED

POWER SWITCH FACEPLATE LAYOUT

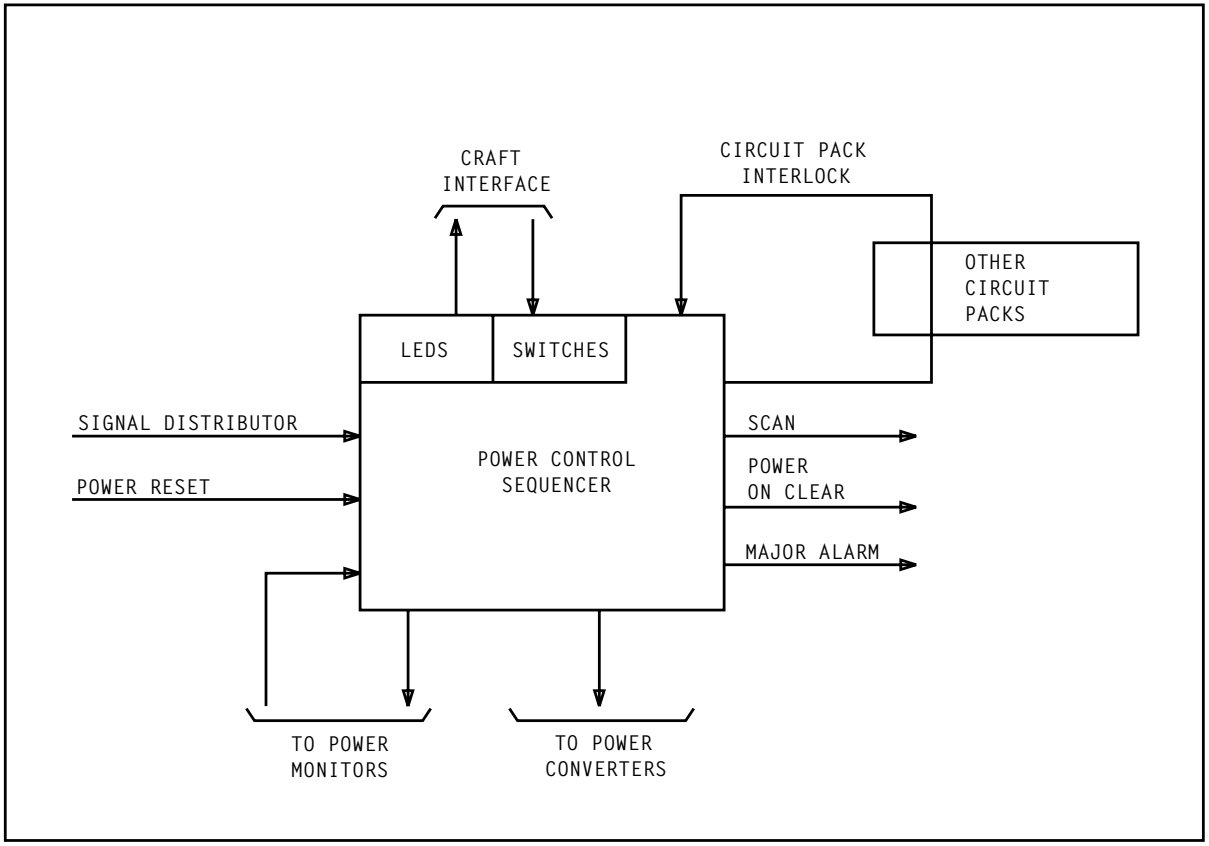
TABLE A
POWER SWITCH LED INDICATORS

IDENTIFIER	NAME	COLOR	FUNCTION (WHEN LIGHTED)
OFF	Power Off	Red	Power off
PA	Power Alarm	Red	Fault in power system
OS	Out-of-Service	Yellow	Unit out-of-service
ACK	Acknowledge	Green	Acknowledges operator request
LIP	Low Input Power	Red	Incoming -48V power lost due to blown fuse or voltage less than -37.5 volts

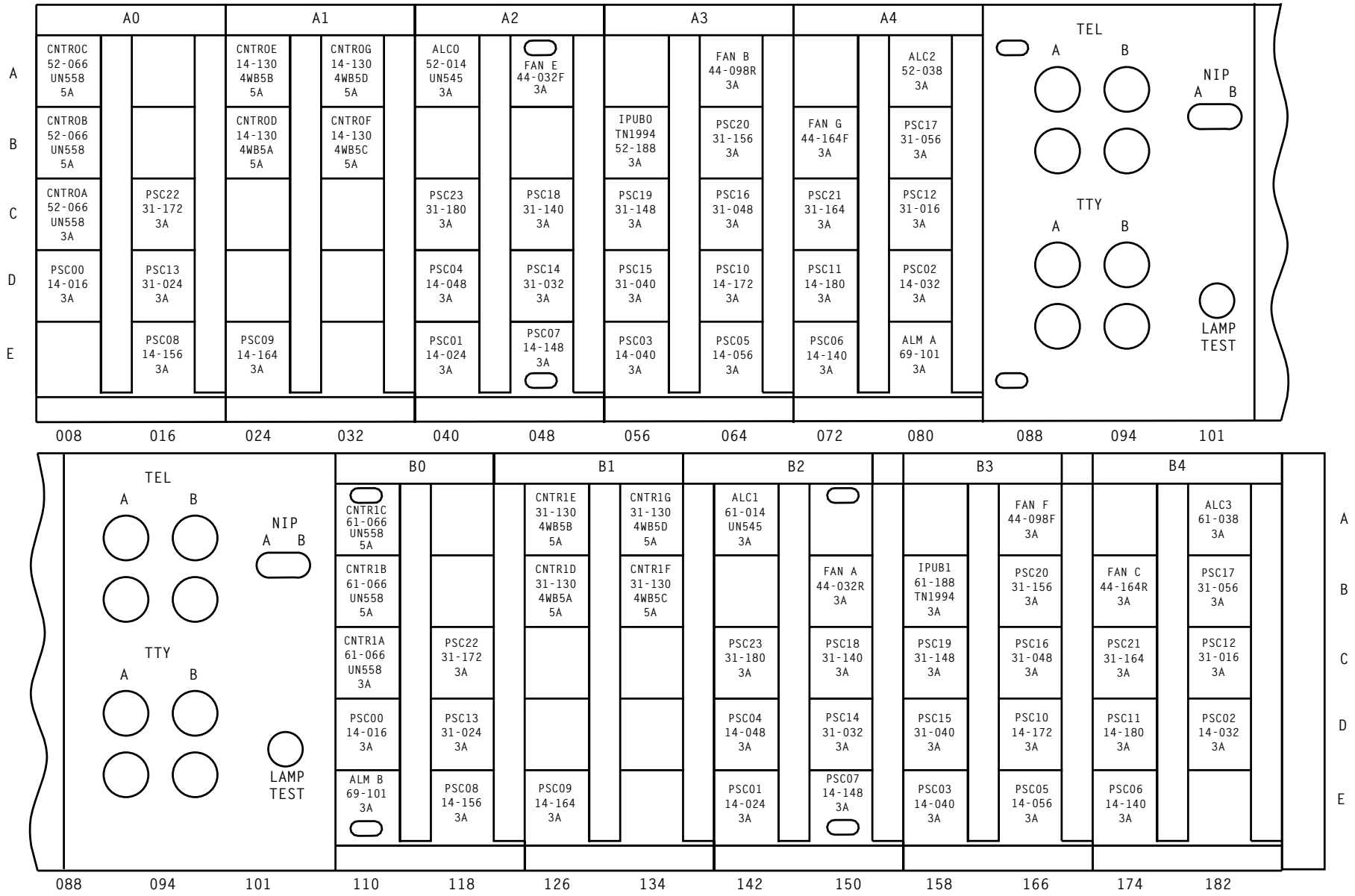
TABLE B
POWER SWITCH FUNCTIONS

IDENTIFIER	NAME	SWITCH TYPE	FUNCTION
ON	Power On	Pushbutton	Powers up unit from power off state. No software intervention required
OFF	Power Off	Pushbutton	Powers down out-of-service unit. When operated simultaneously with **MOR** pushbutton, powers down in-service unit. Clears any alarm state. No software intervention required.
ROS/ NORM	Request Out-of-Service/ Normal	Two Position Toggle	When positioned to the right (request out-of-service position), a request to remove unit from service is initiated. **ACK** LED will flash and **OS** LED will light. Software intervention required.
			When positioned to the left (normal position), a request to restore unit to service is initiated. **ACK** LED will flash and **OS** LED will go off. Software intervention required.
LTEST	Lamp Test	Pushbutton	Test power switch LED indicators and **PA** LEDs on power group circuit packs.
MOR	Manual Override	Pushbutton	When operated simultaneously with **OFF** pushbutton, powers down in-service unit. No software intervention required.

XTSI CABINET UNIT POWER SWITCHES



Power Switch Functional Block Diagram



Example of XTSI Cabinet Fuse Layout Chart

XTSI CABINET FUSE LAYOUT CHART

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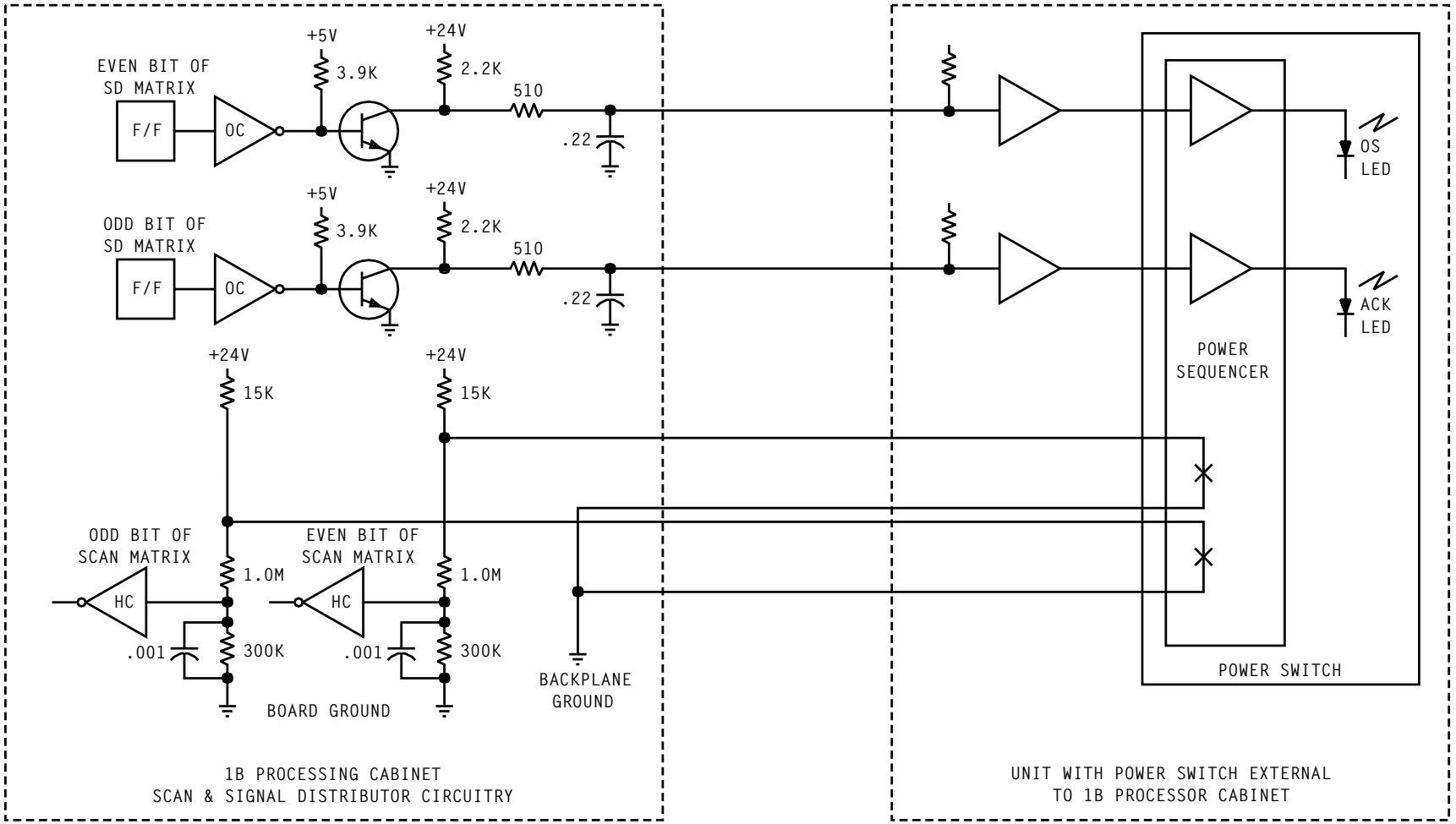
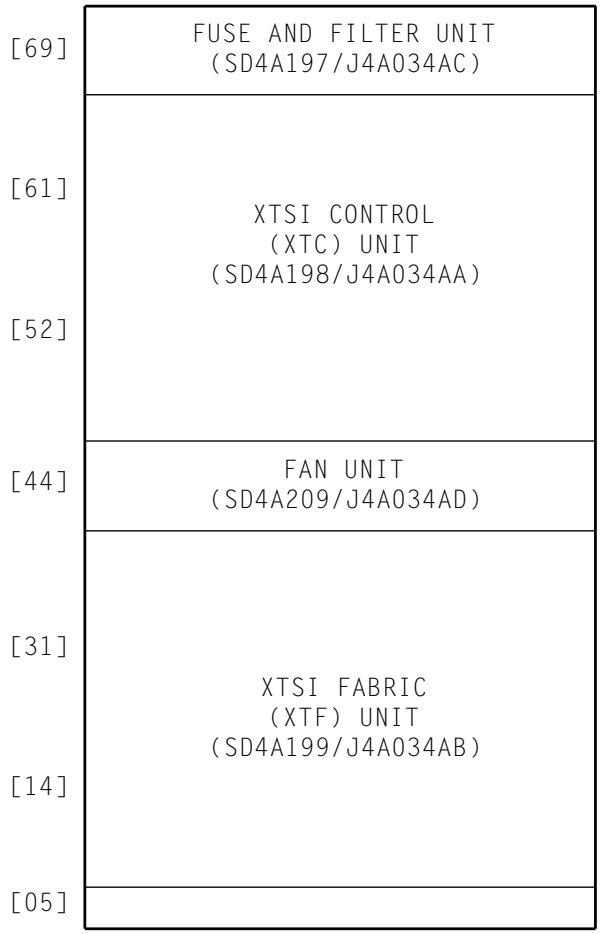


SCAN AND SIGNAL DISTRIBUTOR (SSD) FLOW – XTSI CABINET



Physical Layout of XTSI Cabinet (SD4A196/J4A034A)

Example of Alarm LEDs on XTSI Cabinet

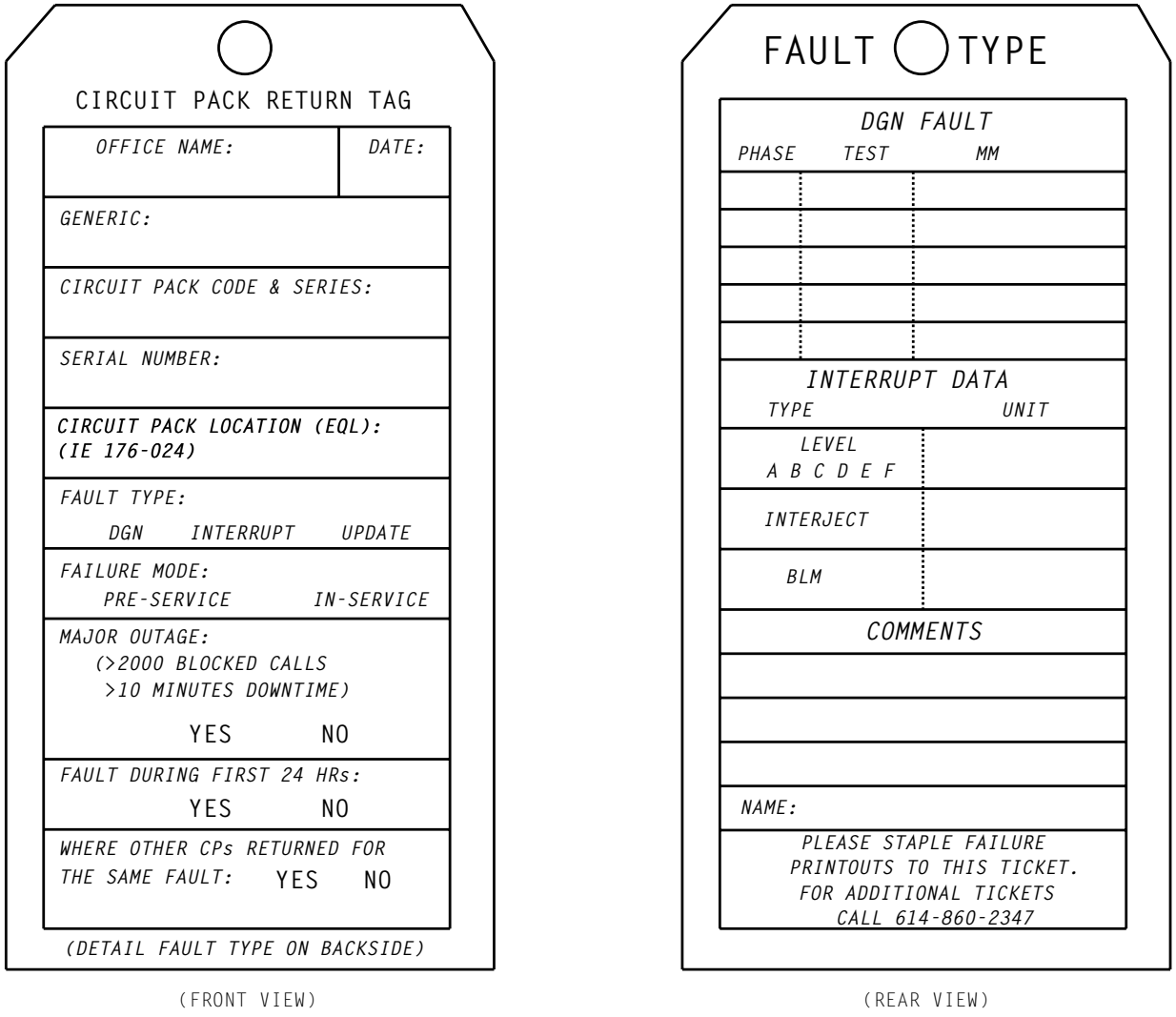
LAYOUT OF ALARM LEDs ON XTSI CABINET

GENERAL

The information entered on the Circuit Pack Return Tag will provide manufacturing personnel with data necessary to ensure the highest quality equipment repair service. The data can be used to focus additional testing in the problem area that occurred in the field. This focus will allow all defects to be identified and corrected prior to returning equipment to the field and/or prevent equipment that has caused major service affecting incidents from being returned to the field when a "No Trouble Found" test result occurs during the repair process. Thus, the correct and detailed data provided on the Circuit Pack Return Tag will improve the quality of customer service. Refer to Table A for the Circuit Pack Return Tag data fields and associated data to be entered.

TABLE A
CIRCUIT PACK RETURN TAG DATA

DATA FIELD	DESCRIPTION OF DATA TO BE ENTERED
OFFICE DATA	Office 11-digit CLLI code (OKBKILOA52T)
DATE	Date of failure (02/20/94)
GENERIC	Office operating generic at time of failure (4E19.4)
CIRCUIT PACK CODE & SERIES	Circuit pack code and series identifiers (KLW21, Series 5)
SERIAL NUMBER	Serial number from scanner identification (93CB04013895)
CIRCUIT PACK LOCATION (EQL)	Circuit pack equipment location including bay (176-024)
FAULT TYPE	Circle appropriate reason for removal (DGN, Interrupt or Update)
FAILURE MODE	Circle whether failure occurred IN-SERVICE or PRE-SERVICE
MAJOR OUTAGE	Circle YES if fault caused major outage (Major outage is defined as "Greater Than 2000 Blocked Calls Or More Than 10 Minutes Downtime)"
FAULT DURING FIRST 24 HOURS	Circle Yes if fault occurred during first 24 hours of service
WERE OTHER CIRCUIT PACKS RETURNED FOR THE SAME REASON	Circle YES if multiple circuit packs were returned for the same failure. Circle NO if this is only circuit pack returned for identified failure
DGN FAULT	Data relative to diagnostic failure (Phase, Test and MM)
INTERRUPT DATA	If applicable, data relative to interrupt
COMMENTS	Provide any additional useful comments about failure
NAME	Provide name of person having most knowledge about failure
NOTE	Attach any additional failure printouts to Return Tag that may aid in resolving failure

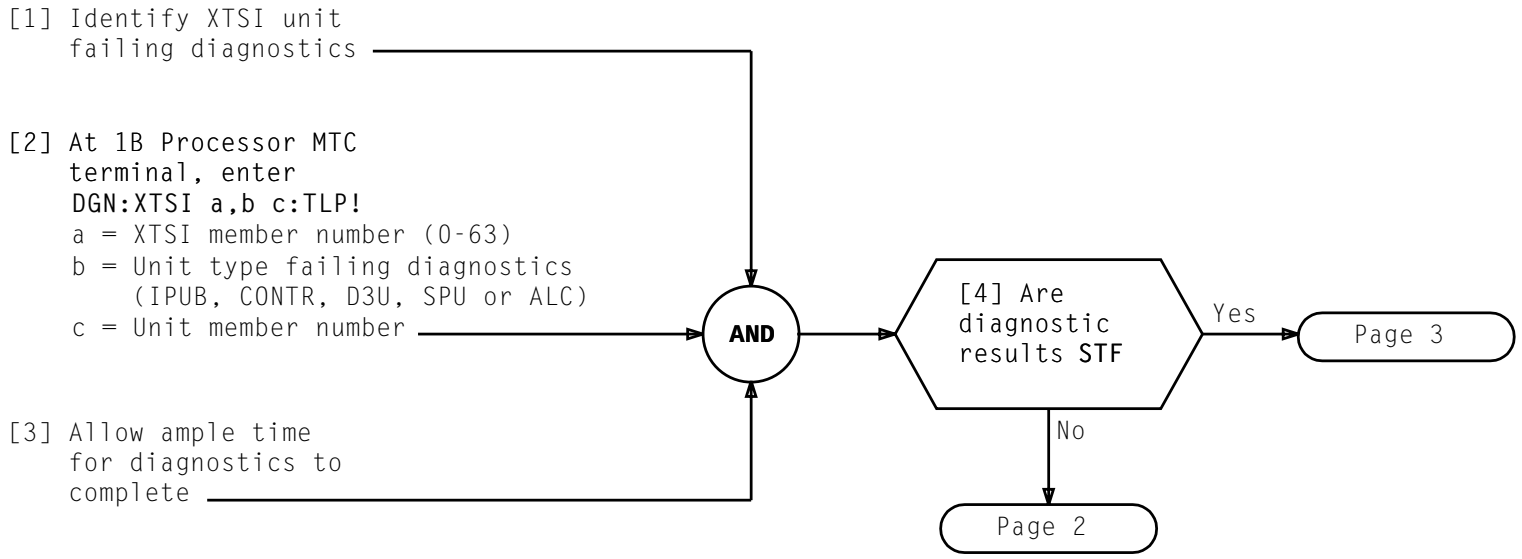


Example of Circuit Pack Return Tag

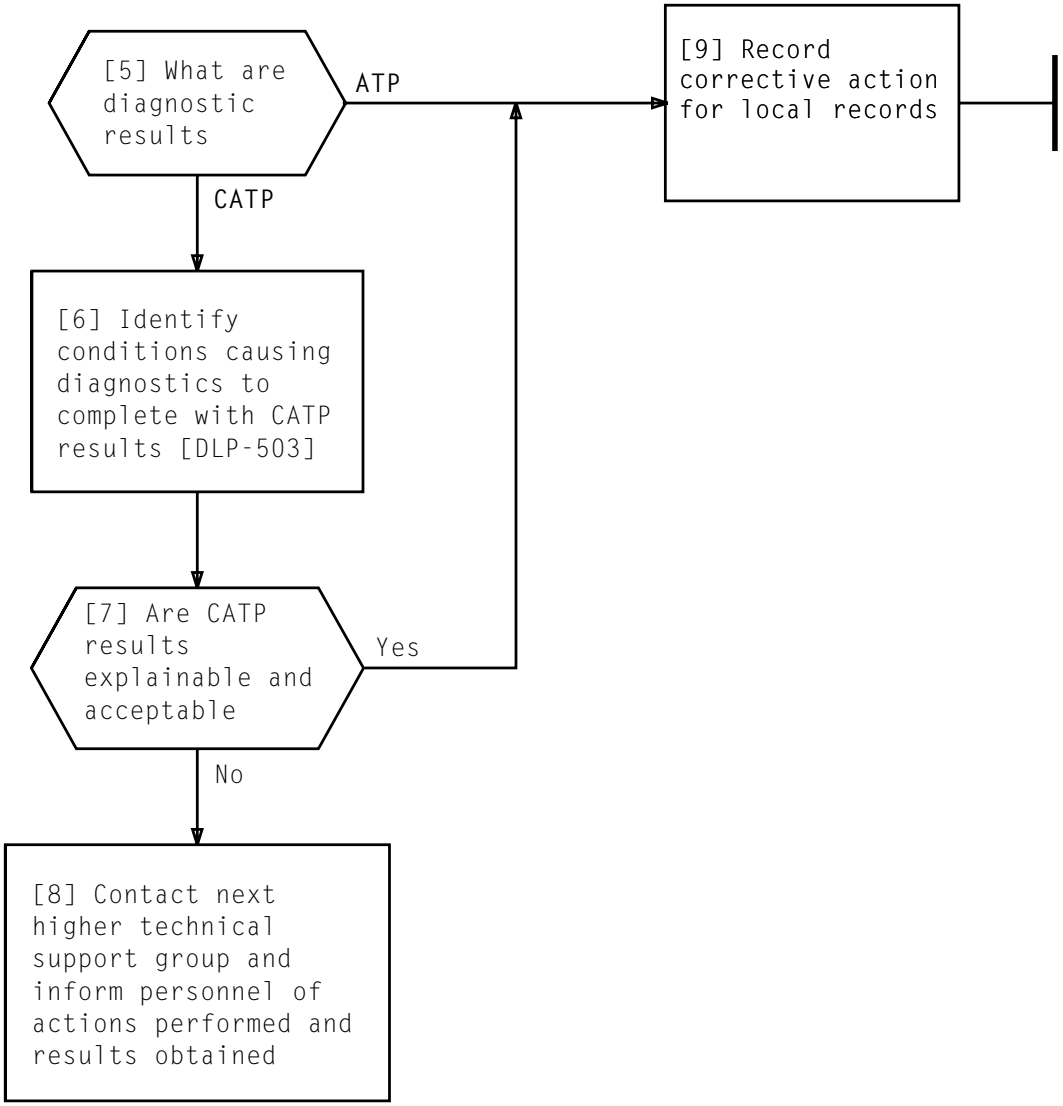
CIRCUIT PACK RETURN TAG DATA IDENTIFICATION

TABLE A					
XTSI CABINET RECOMMENDED TOOLS					
TOOL NAME	**COMCODE**	**ED**	**ITE**	**SUPPLIER**	**DEPLOYMENT**
Frame Dollies	050035146	NA	NA	Lucent Technologies	One per installation site
Scope Adapter Unit	106825870	NA	6818	Lucent Technologies Installation	One per installation site
Heat Gun	NA	NA	NA	Newark Electronics, ALPHA Wire Corp.	One per installation site
Oscilloscope, Remotable	NA	NA	NA	Tektronix, Inc.	One per office, NESAC, PEDD & TCC
Logic Analyzer, Remotable	NA	NA	NA	Hewlett Packard	One per Geographical Area, NESAC, PECC & TCC
Amp Meter/Current Gun	NA	NA	NA	Golbeck Milota Assoc.	One per office
Digital Volt Meter	NA	NA	NA	Hewlett Packard	One per office
RS-232 Mini-Tester	NA	NA	NA	Black Box	One per office
High Intensity Lamp	NA	NA	NA	Roxter Corp	One per office
Magnifier Light	NA	NA	NA	Grainger Equipment	One per office
Wrist Straps	901003562	NA	NA	Semtronics	Two per office
Fuse/Fuse Module Extractor Tool	846983641	NA	NA	NA	Part of Product
Backplane Pin Repair Kit (KS-22876,L5)	Kit-406902817 Extension-406902833 Instructions-406902825	NA	NA	Lucent Technologies	One per office
Backplane Pin-Field Clean and Lube Tool Kit	UN Kit-103661542 KLW Kit-106967722 Pads-843940206 Cleaner-106967722	NA	NA	Lucent Technologies - Kansas City Works	One per office
UN Circuit Pack Key Block Repair Tool	NA	NA	NA	Lucent Technologies -OK City	One per TCC, NESAC & PECC
Orange Stick (KS6329,L1/L2)	Wood-996780946 Plastic-401921341	NA	NA	Lucent Technologies	Two per office
Cutters	NA	NA	NA	Newark Electronics	One per office

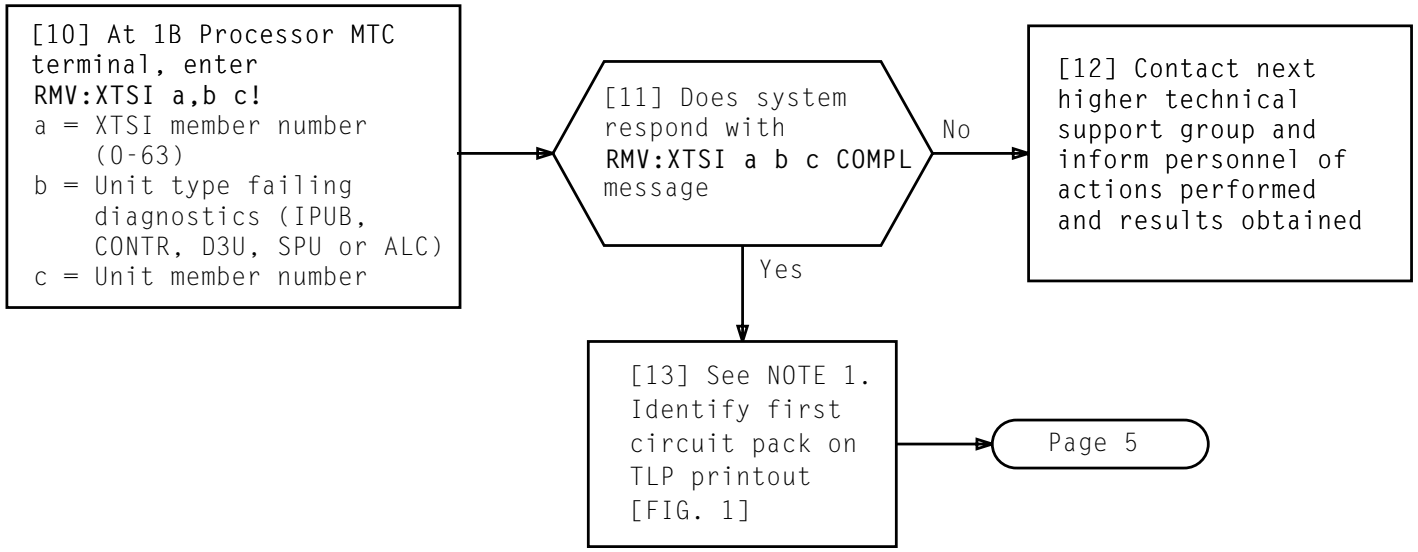
TABLE A (Contd)					
XTSI CABINET RECOMMENDED TOOLS					
TOOL NAME	**COMCODE**	**ED**	**ITE**	**SUPPLIER**	**DEPLOYMENT**
Cable Ties	401682273	NA	NA	Panduit, Thomas & Betts	One per office
Lacing	900308990	NA	NA	Indian Head Yarn & Thread	One per office
A-link Cable Removal Tool	W.L. Gore Part Number 2MMT2014	NA	NA	W.L. Gore & Associates, Inc.	One per office



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



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



NOTE 1

Suspect circuit packs are printed on TLP printout in the order that they are to be replaced

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

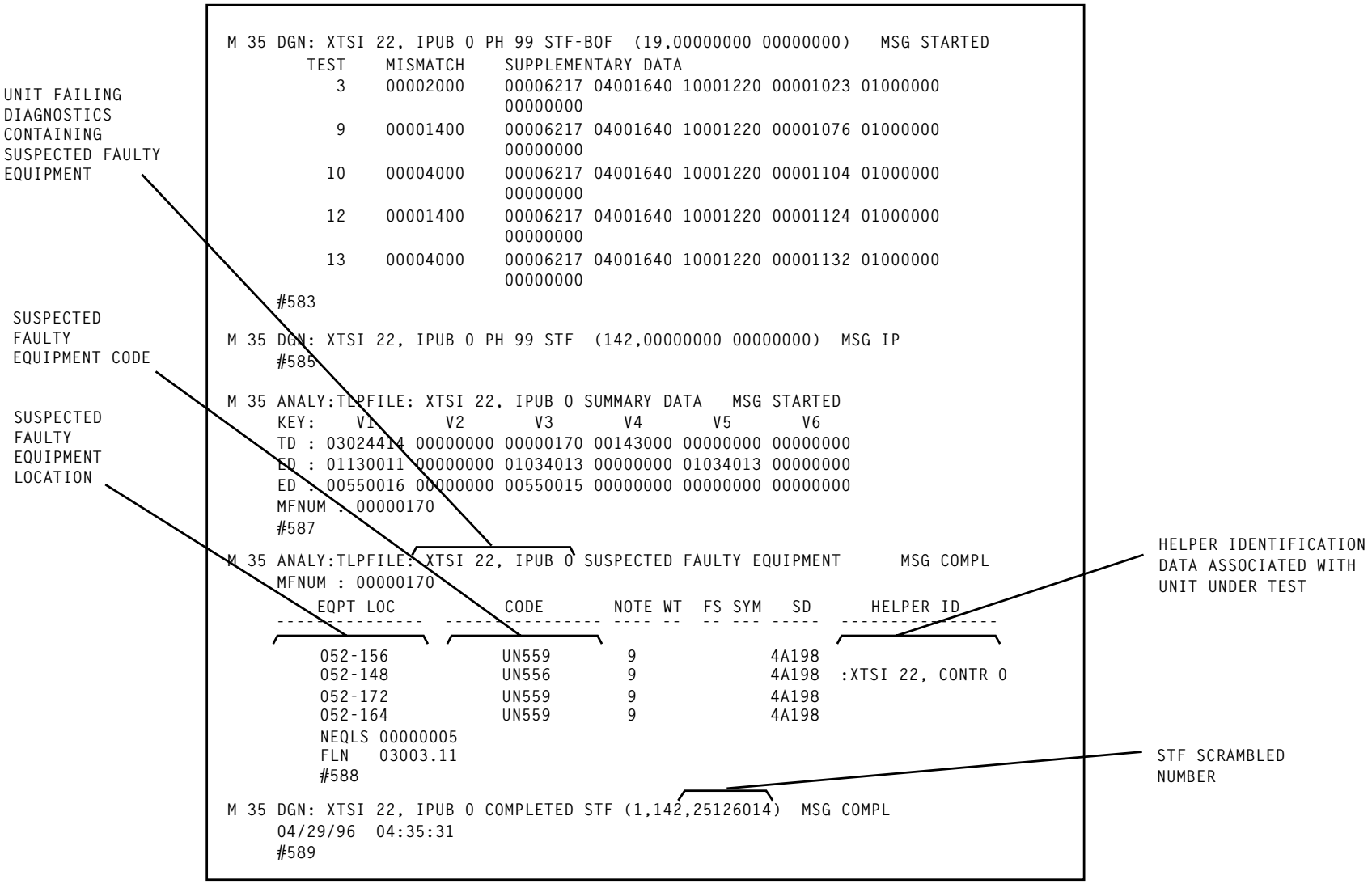
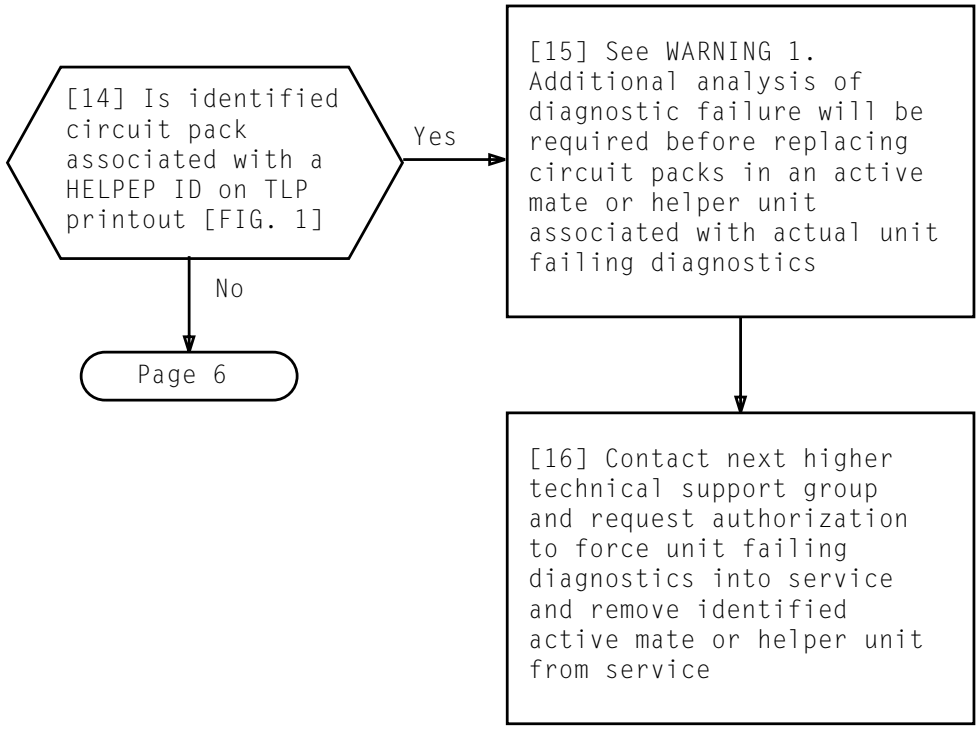


FIG. 1 - Sample Printout of TLP Suspected Faulty Equipment

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



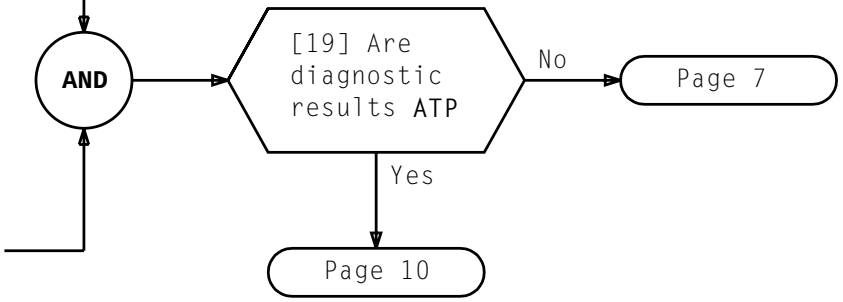
WARNING 1

Failure to force an out-of-service unit active prior to replacing circuit packs in an active mate or helper unit could possibly cause a duplex failure resulting in a service degrading condition or customer service outage

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

[17] See WARNING 2 and NOTE 2. Replace circuit pack [DLP-500]

[18] After moving applicable **ROS** switch left to normal position, allow ample time for diagnostics to complete



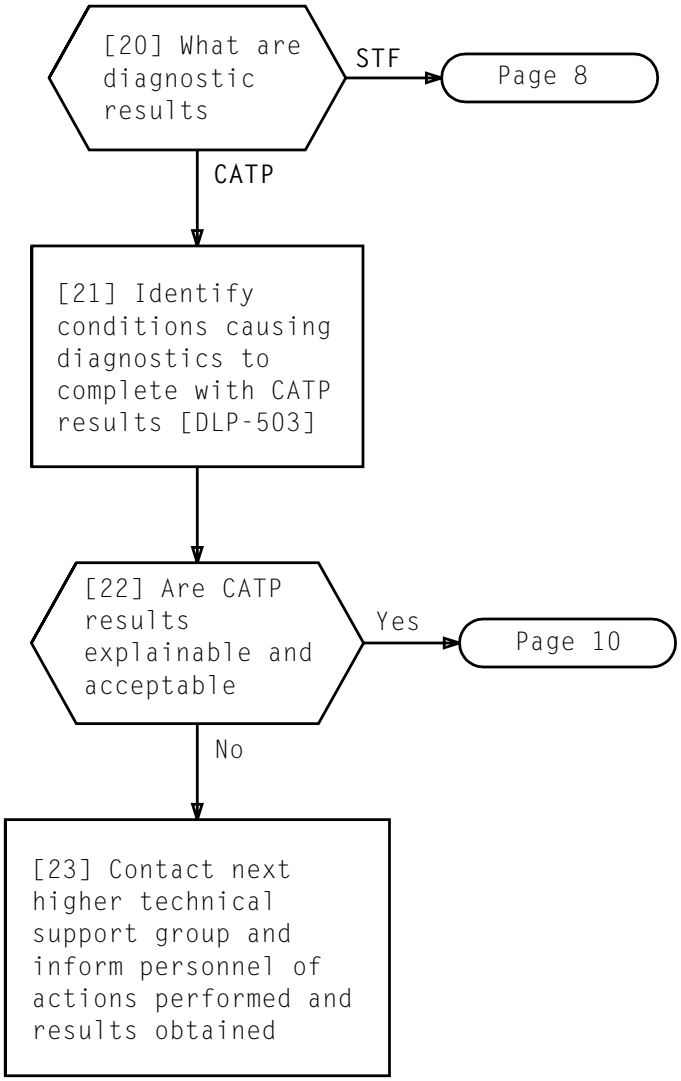
NOTE 2

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

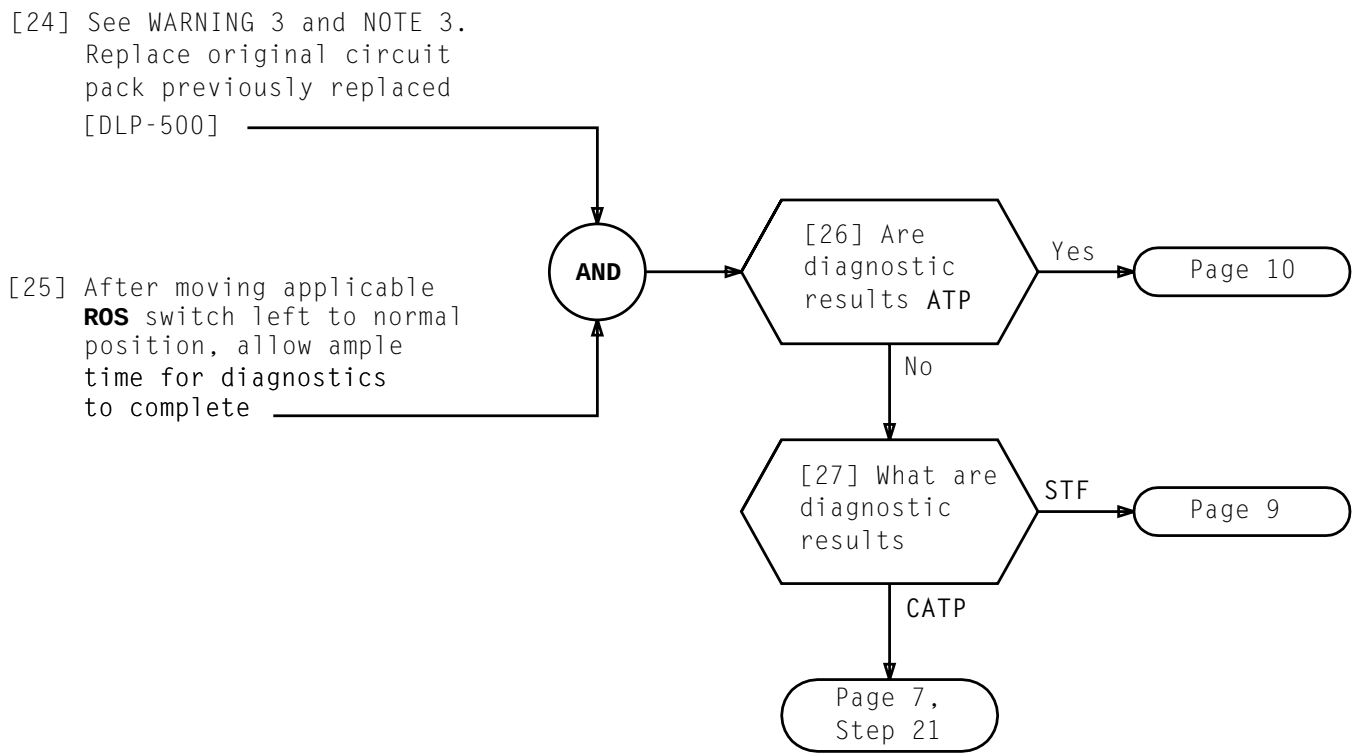
WARNING 2

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

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



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



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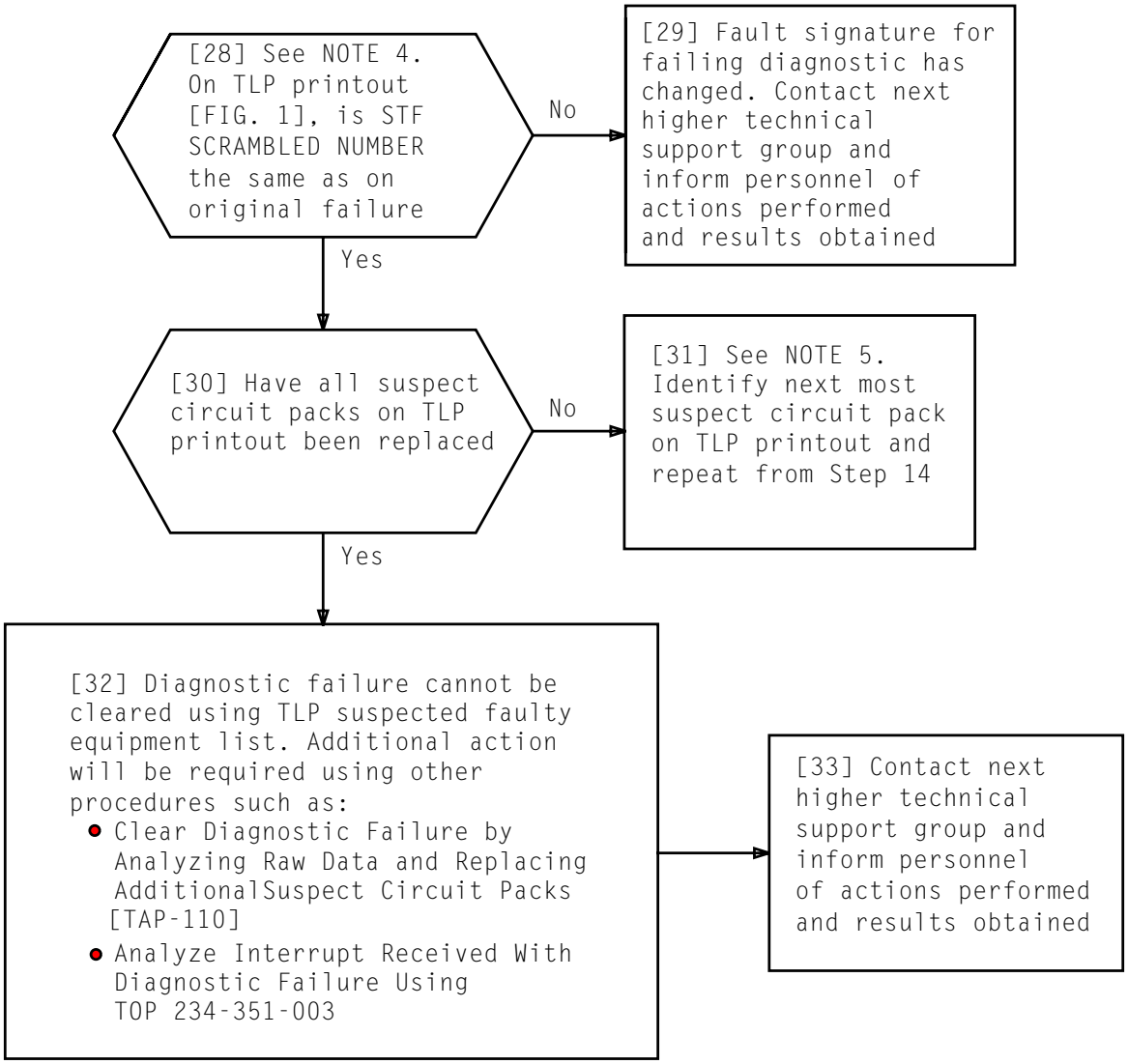
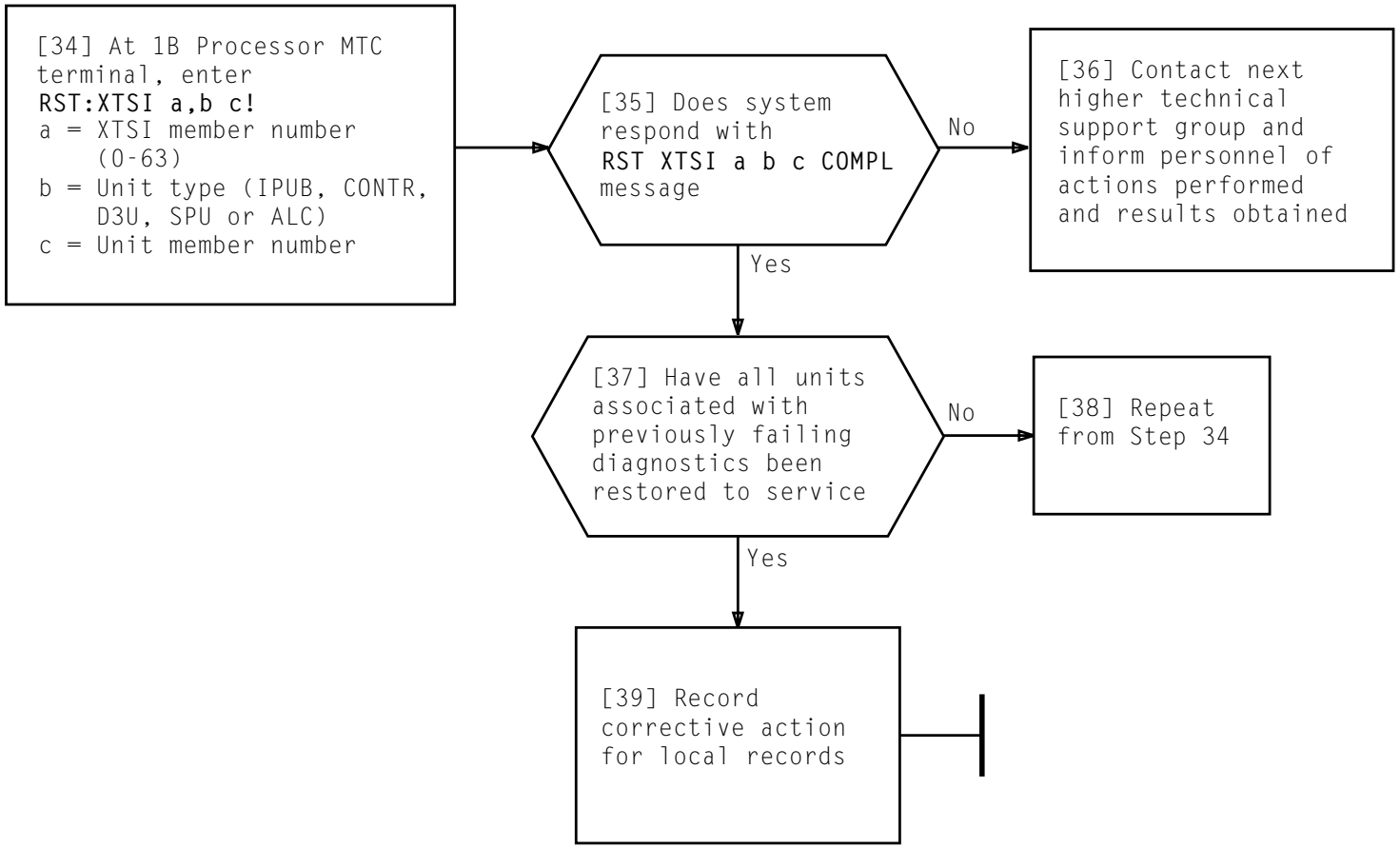
CLEAR DIAGNOSTIC FAILURE BY REPLACING CIRCUIT PACKS ON TLP SUSPECTED FAULTY EQUIPMENT LIST



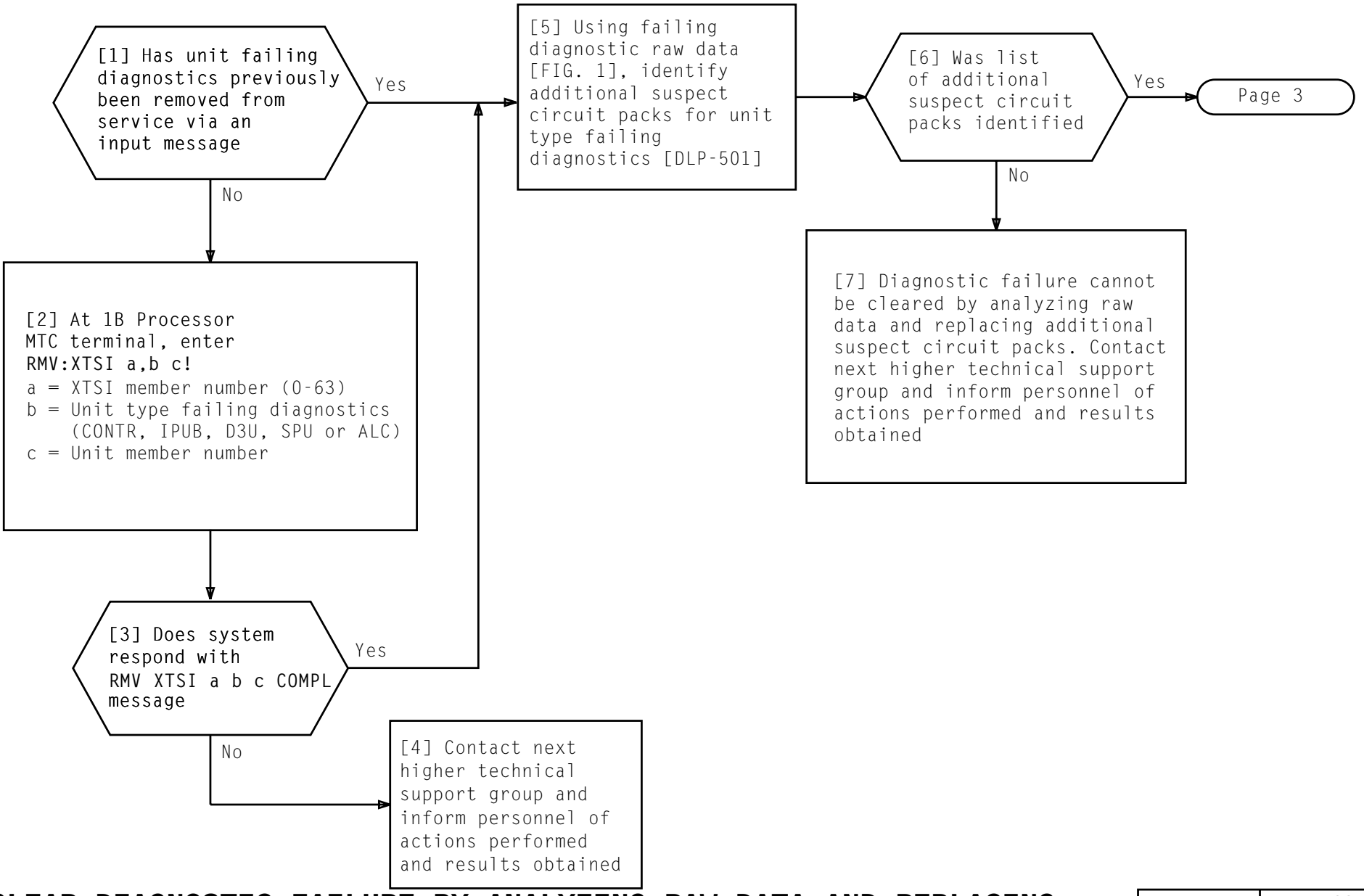
NOTES

4. The STF SCRAMBLED NUMBER indicates if all the diagnostic raw data (test and mismatch) is identical or different for two diagnostic runs. If STF SCRAMBLED NUMBER value is same, diagnostic raw data is identical. Otherwise, diagnostic raw data has changed in some manner
5. Suspect circuit packs are printed on TLP printout in the order that they are to be replaced

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



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



CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS

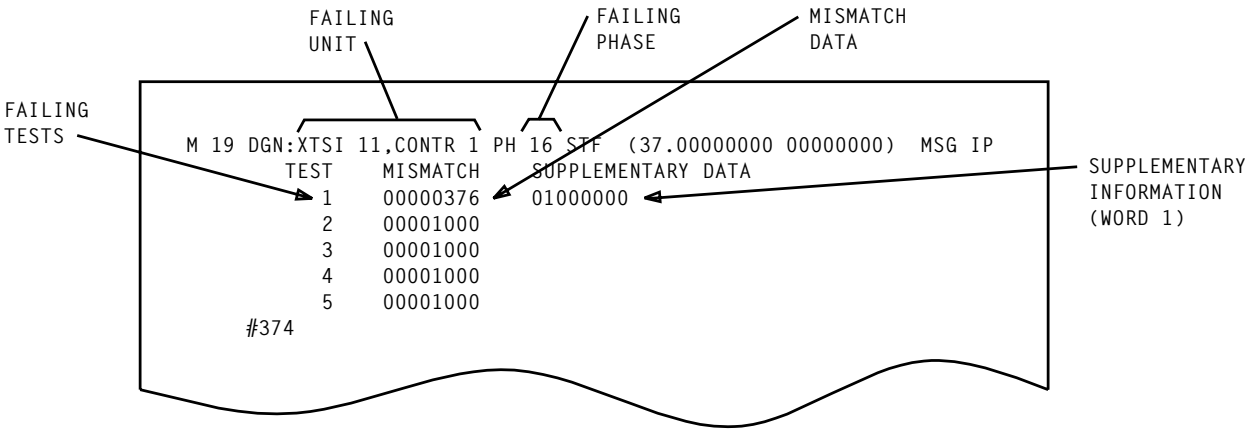
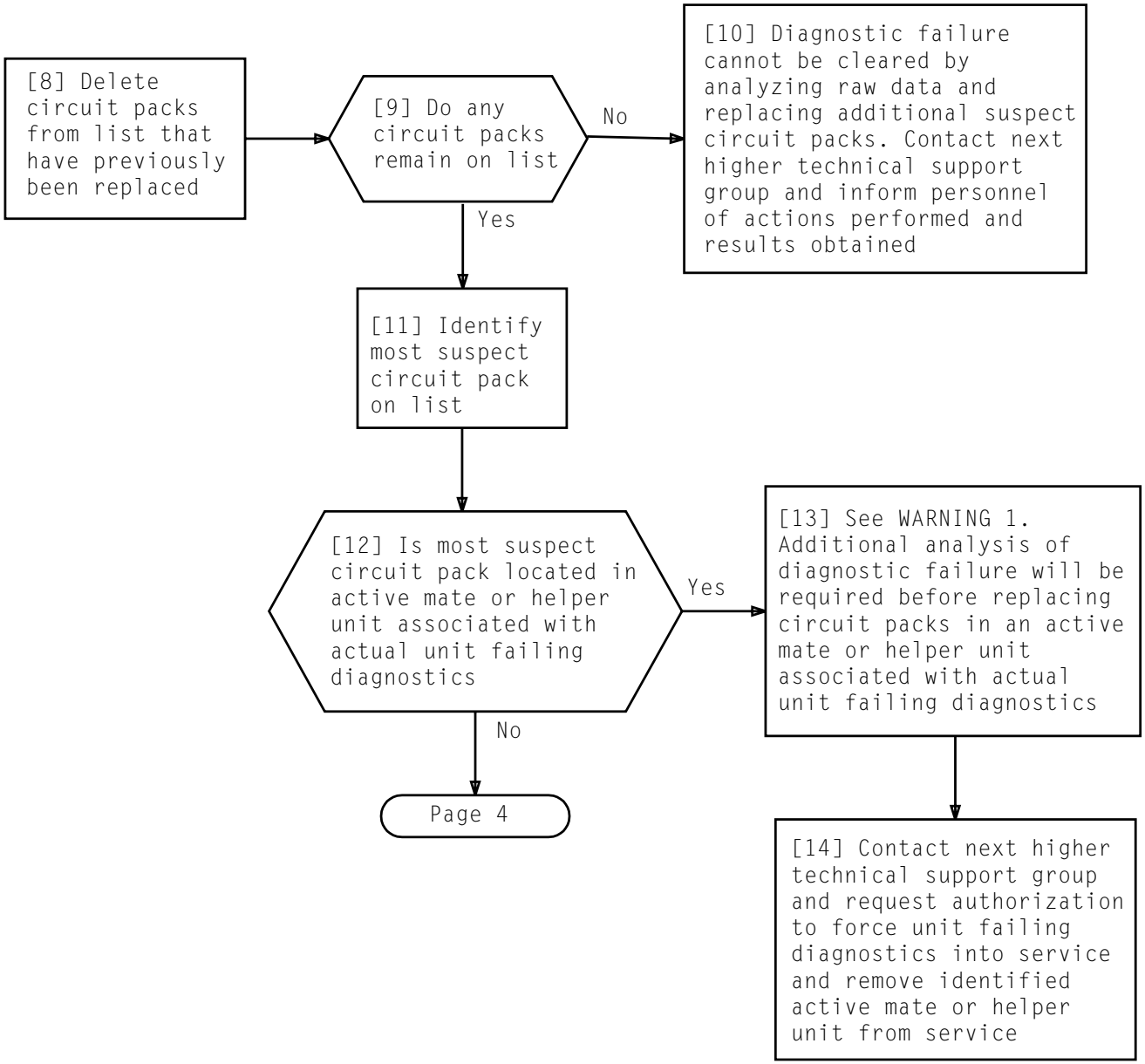


Fig. 1 - Sample Printout of Failing Diagnostic Raw Data



WARNING 1

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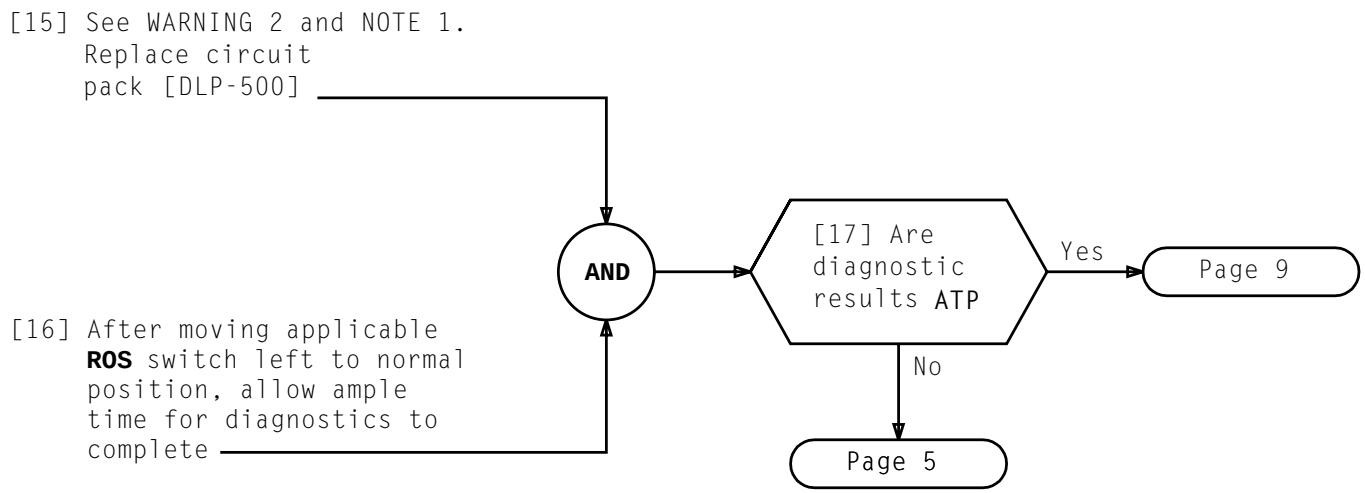
CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS



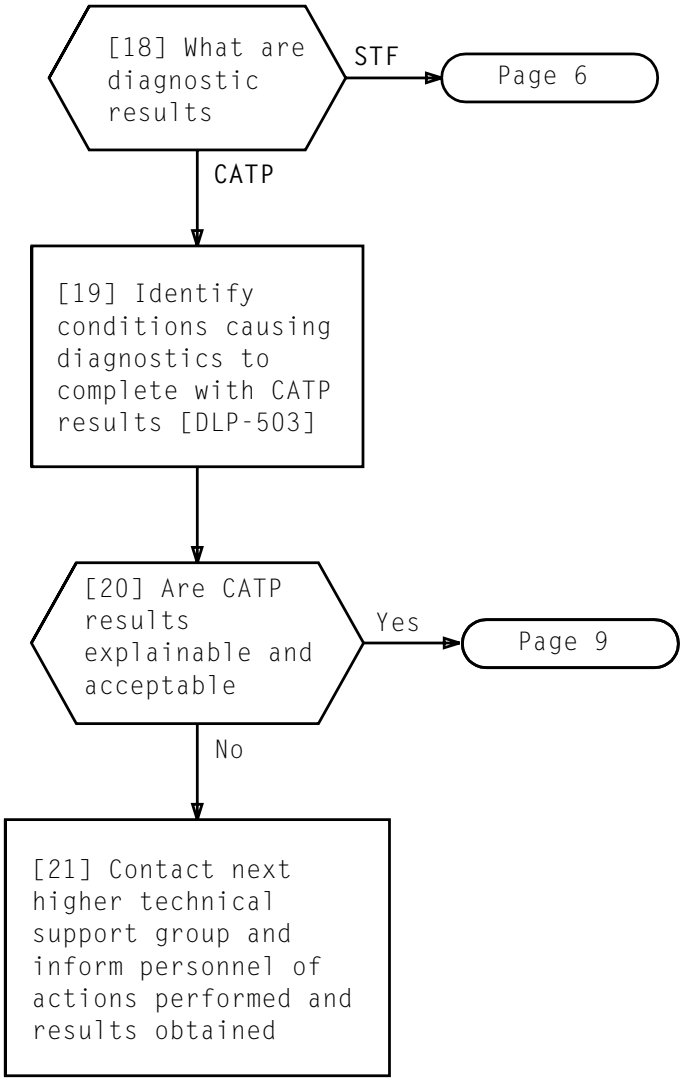
NOTE 1

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

WARNING 2

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

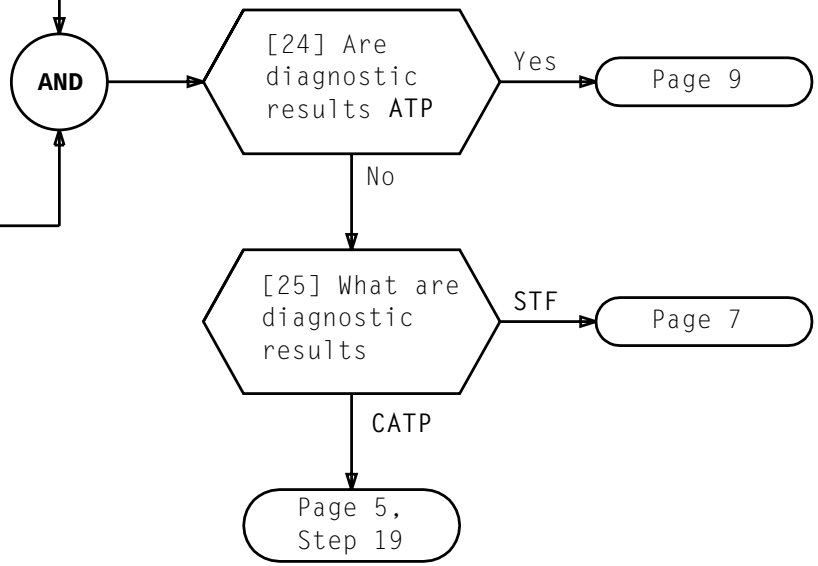
CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS



CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS

[22] See WARNING 3 and NOTE 2. Replace original circuit pack previously replaced [DLP-500]

[23] After moving applicable **ROS** switch left to normal postion, allow ample time for diagnostics to complete



NOTE 2

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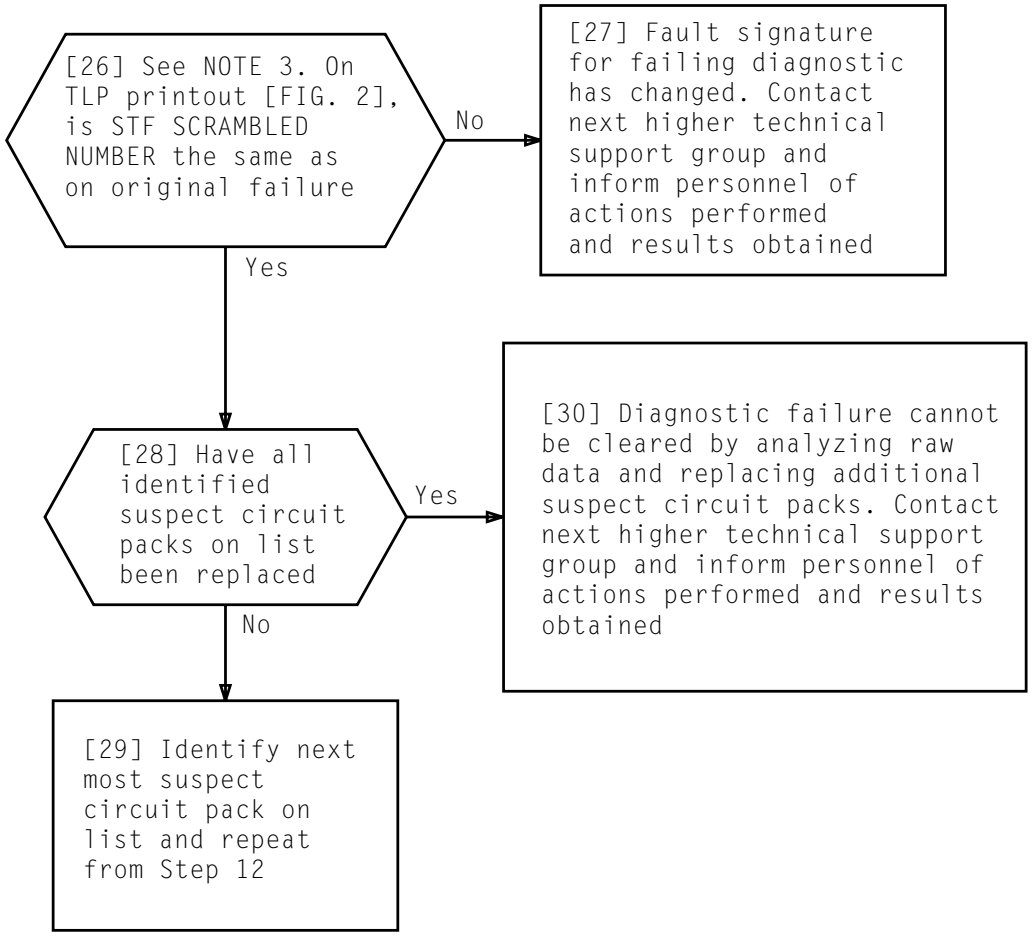
CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS



NOTE 3
The STF SCRAMBLED NUMBER indicates if all the diagnostic raw data (test and mismatch) is identical or different for two diagnostic runs. If STF SCRAMBLED NUMBER value is same, diagnostic raw data is identical. Otherwise, diagnostic raw data has changed in some manner.

CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS

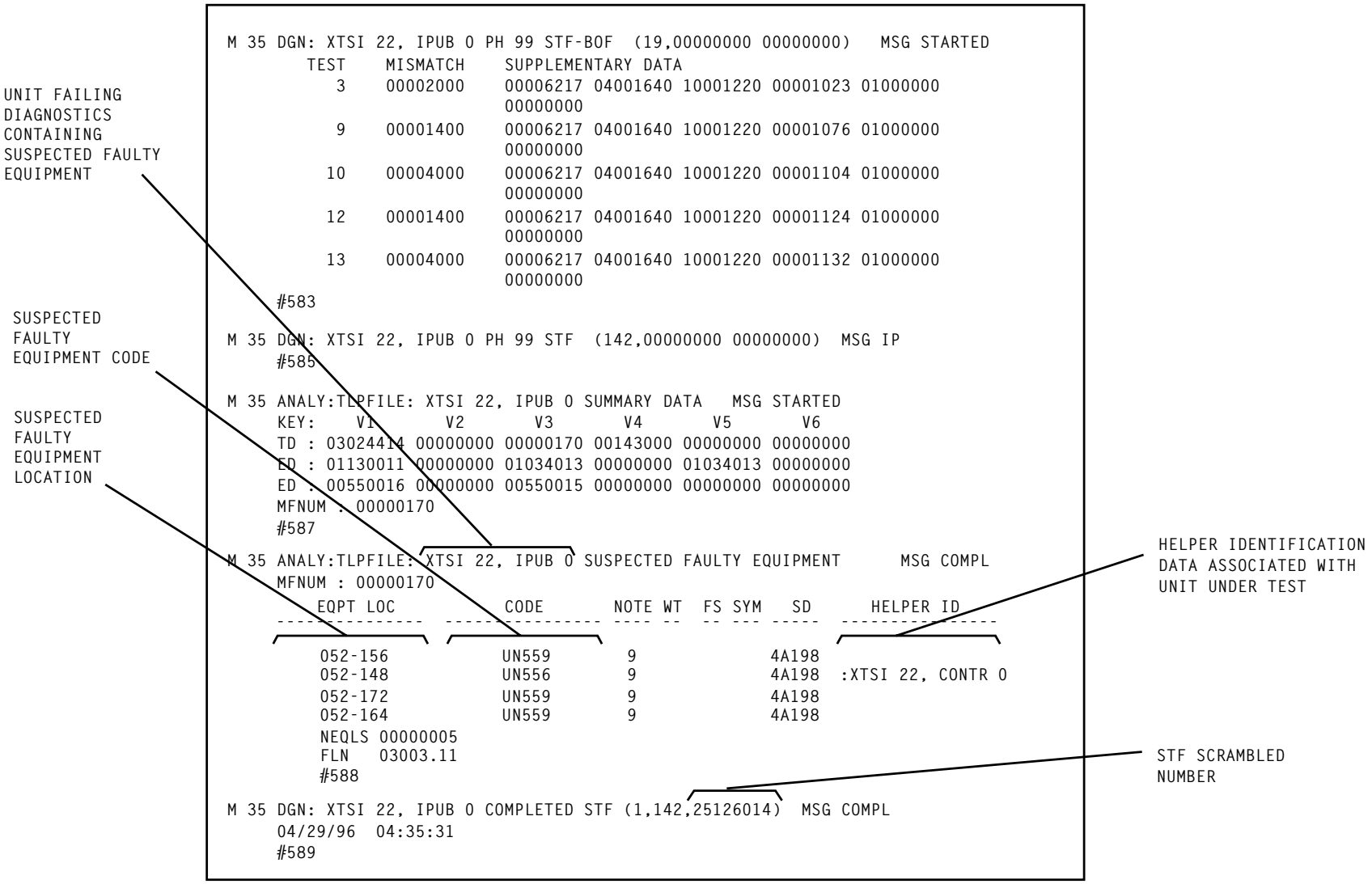
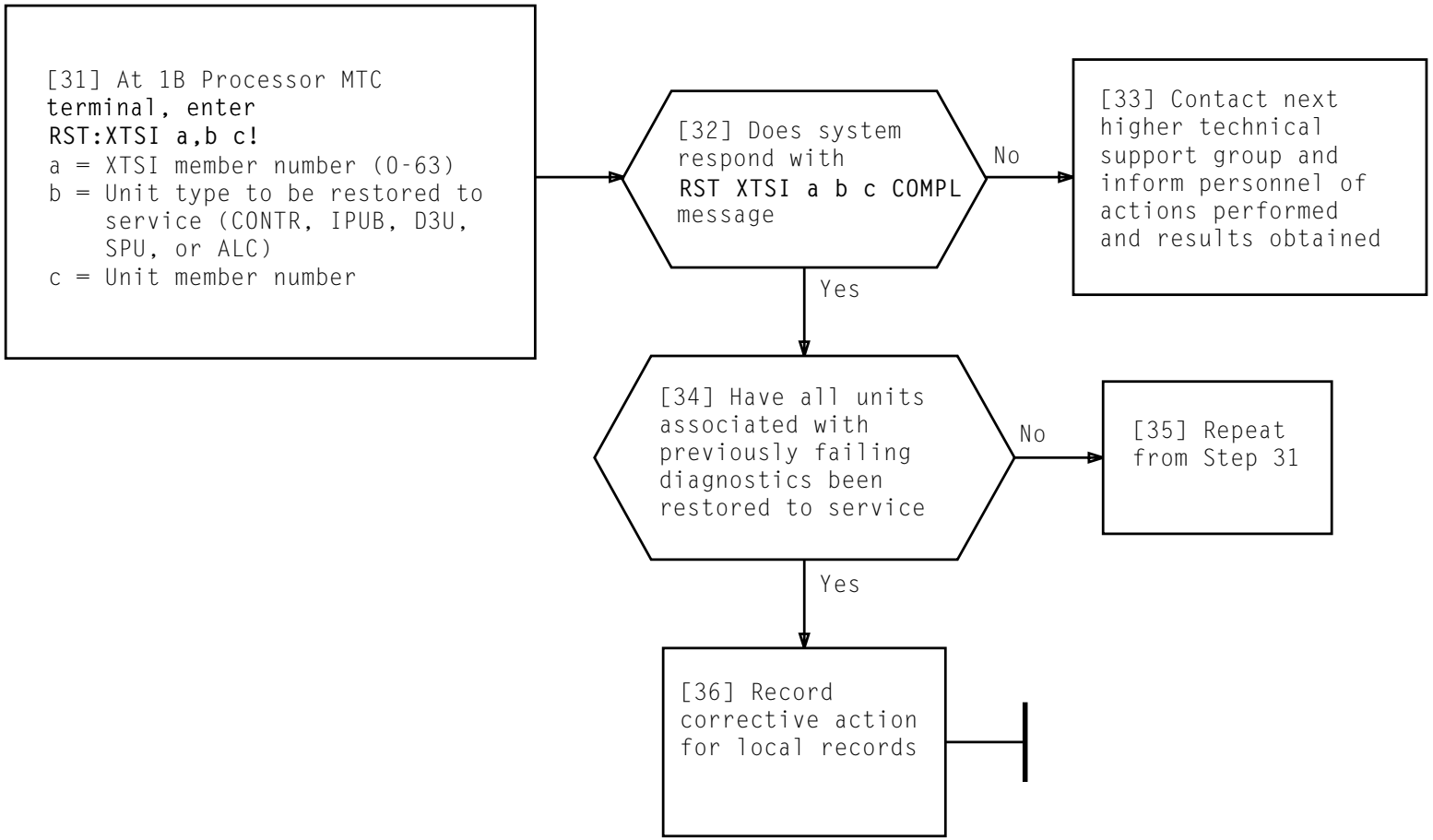
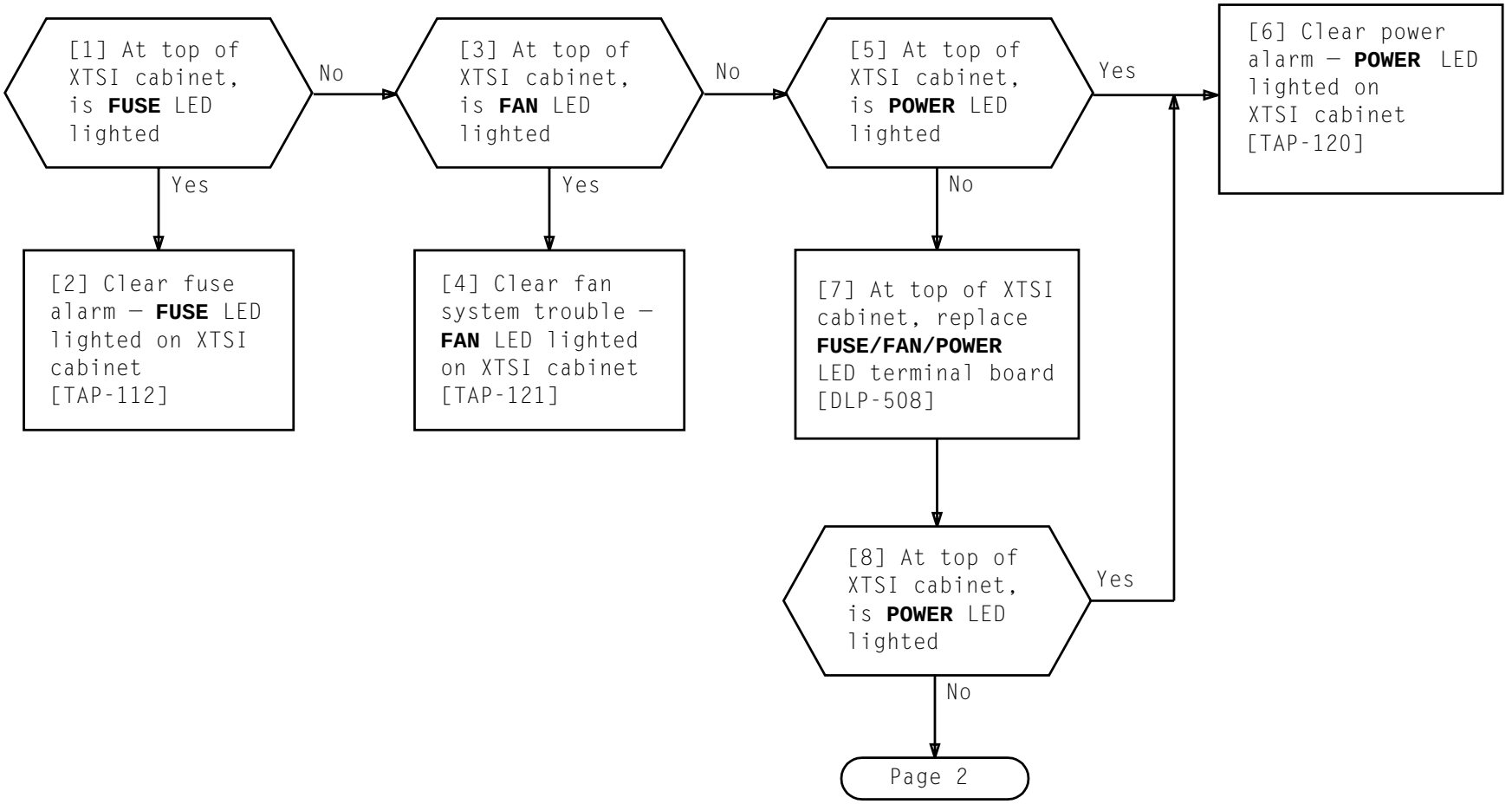


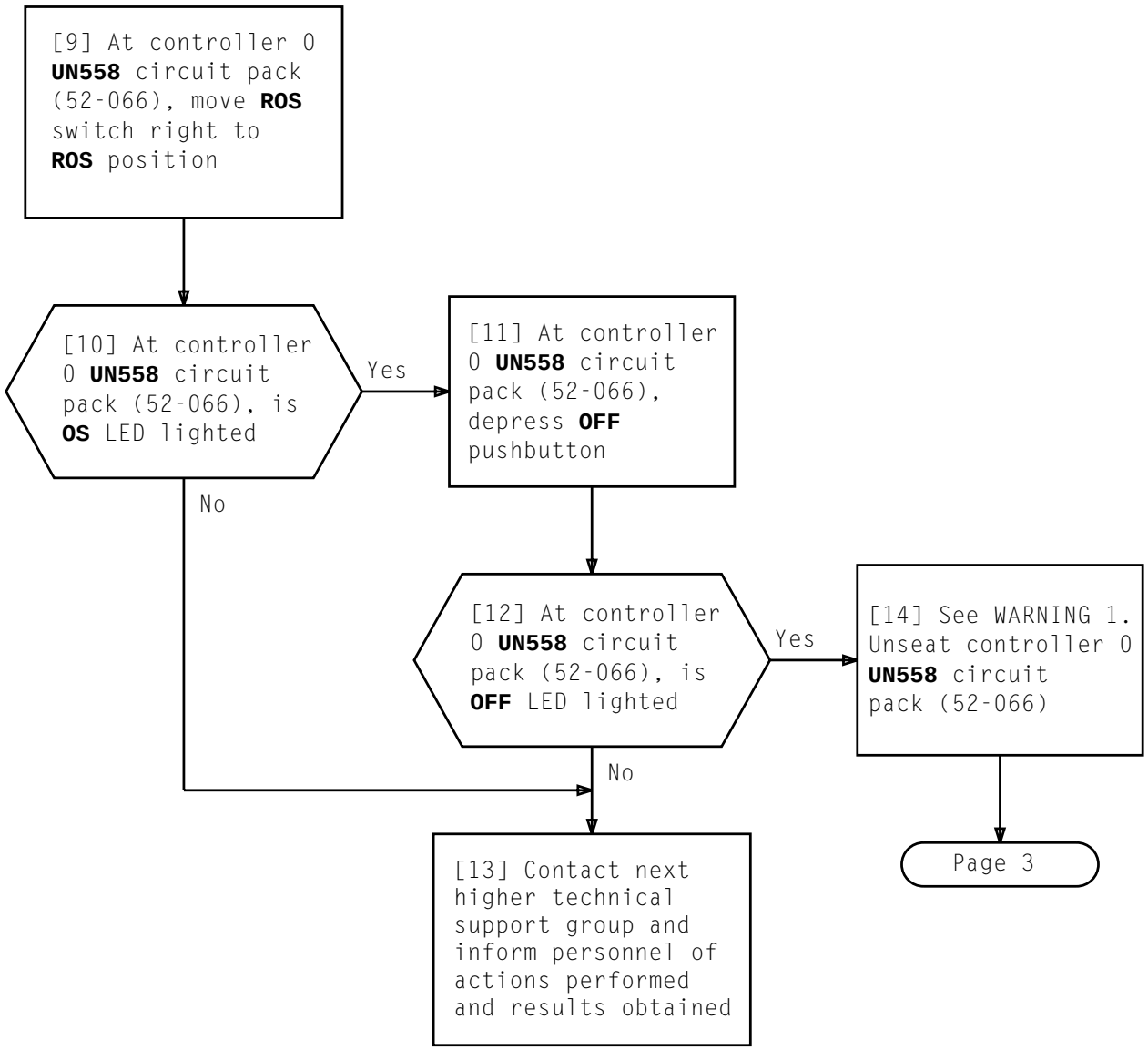
FIG. 2 - Sample Printout of TLP Suspected Faulty Equipment



CLEAR DIAGNOSTIC FAILURE BY ANALYZING RAW DATA AND REPLACING ADDITIONAL SUSPECT CIRCUIT PACKS

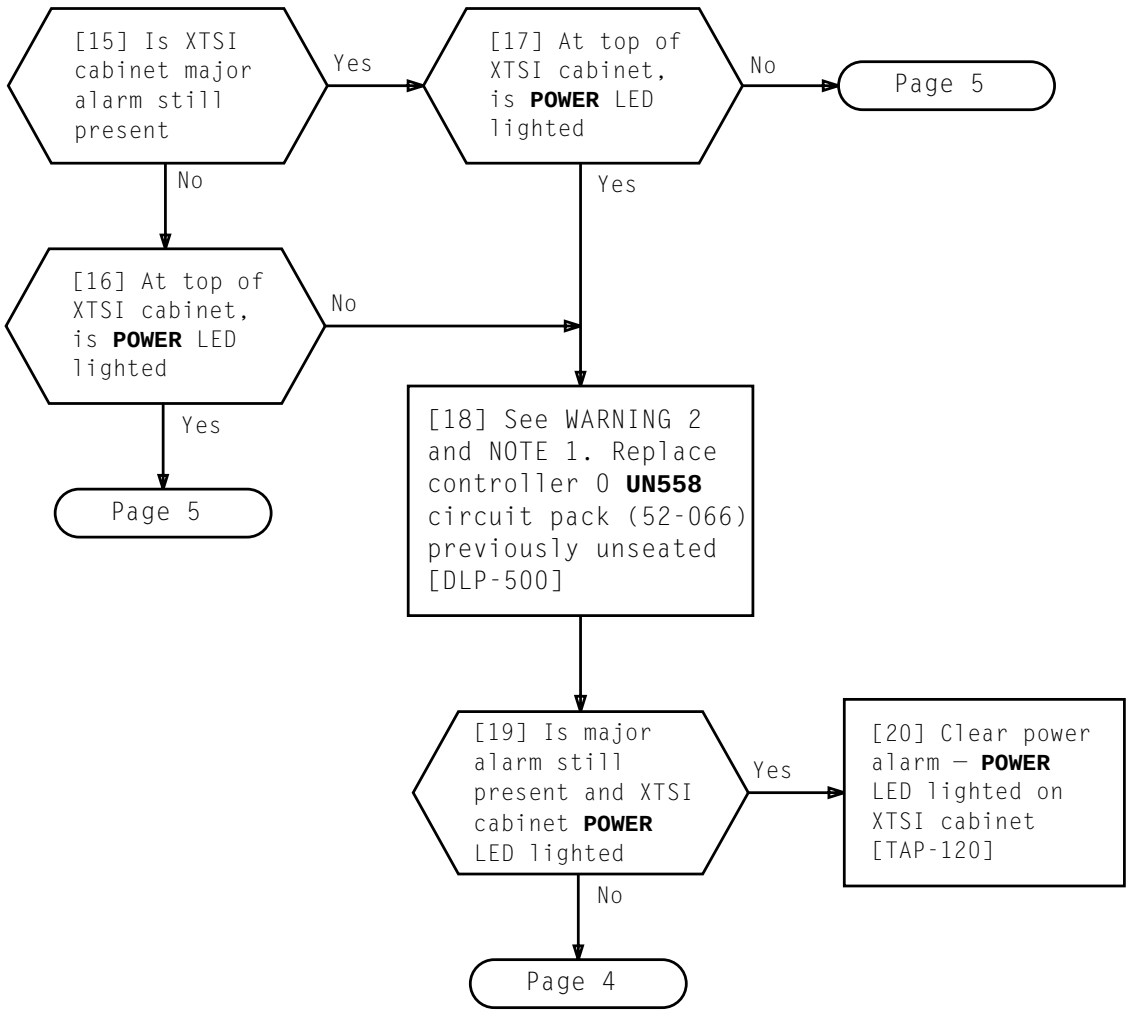


CLEAR MAJOR ALARM — XTSI CABINET



WARNING 1

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

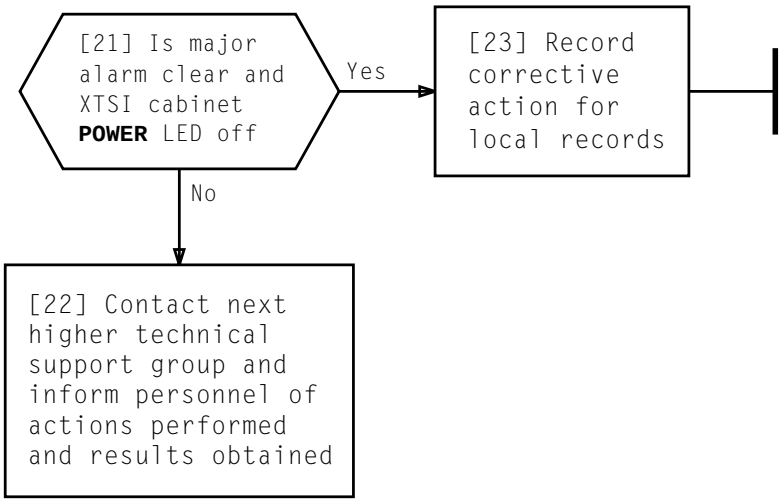


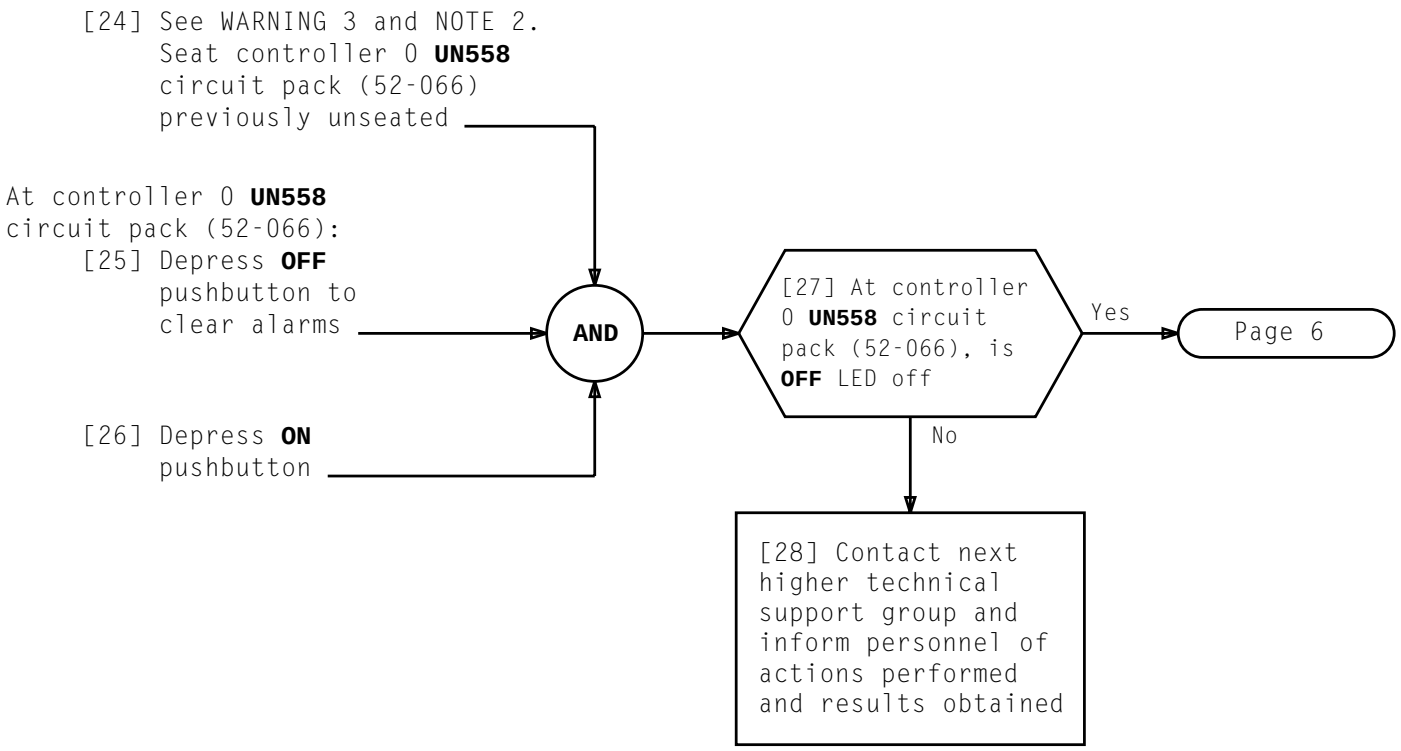
NOTE 1

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

WARNING 2

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


[21] Is major alarm clear and XTSI cabinet **POWER** LED off
Yes
[23] Record corrective action for local records
No
[22] Contact next higher technical support group and inform personnel of actions performed and results obtained

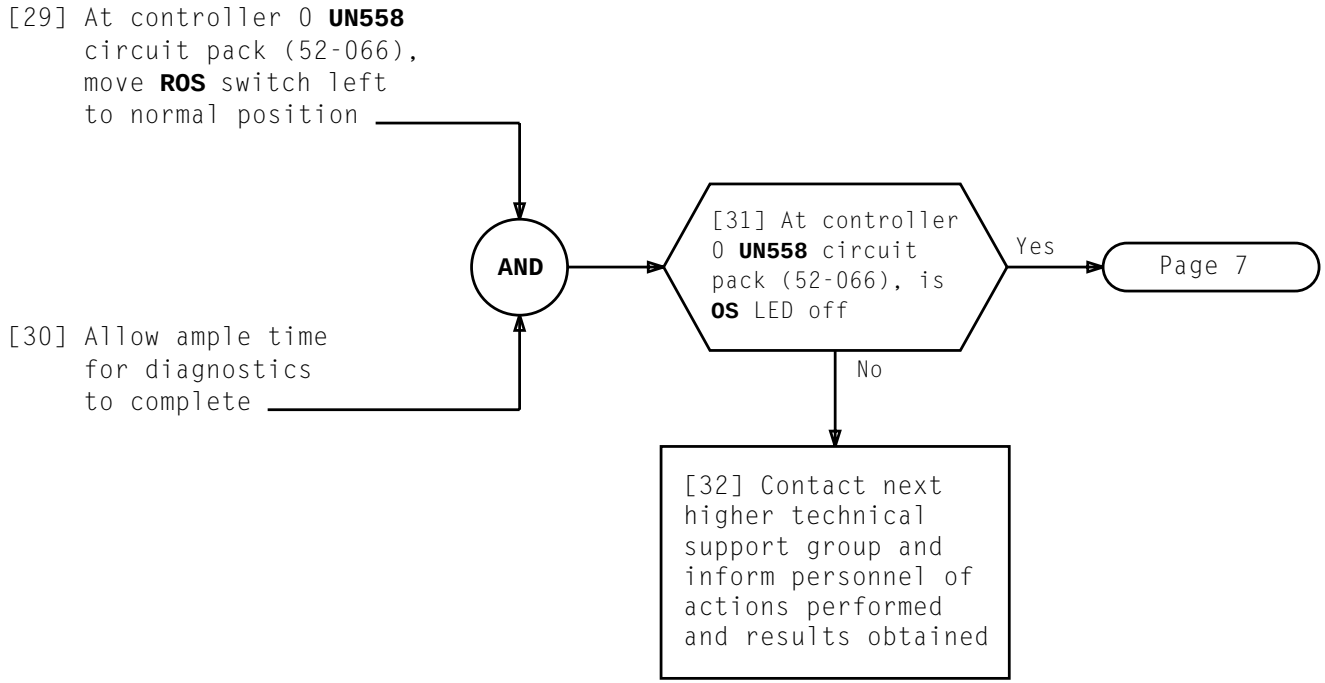


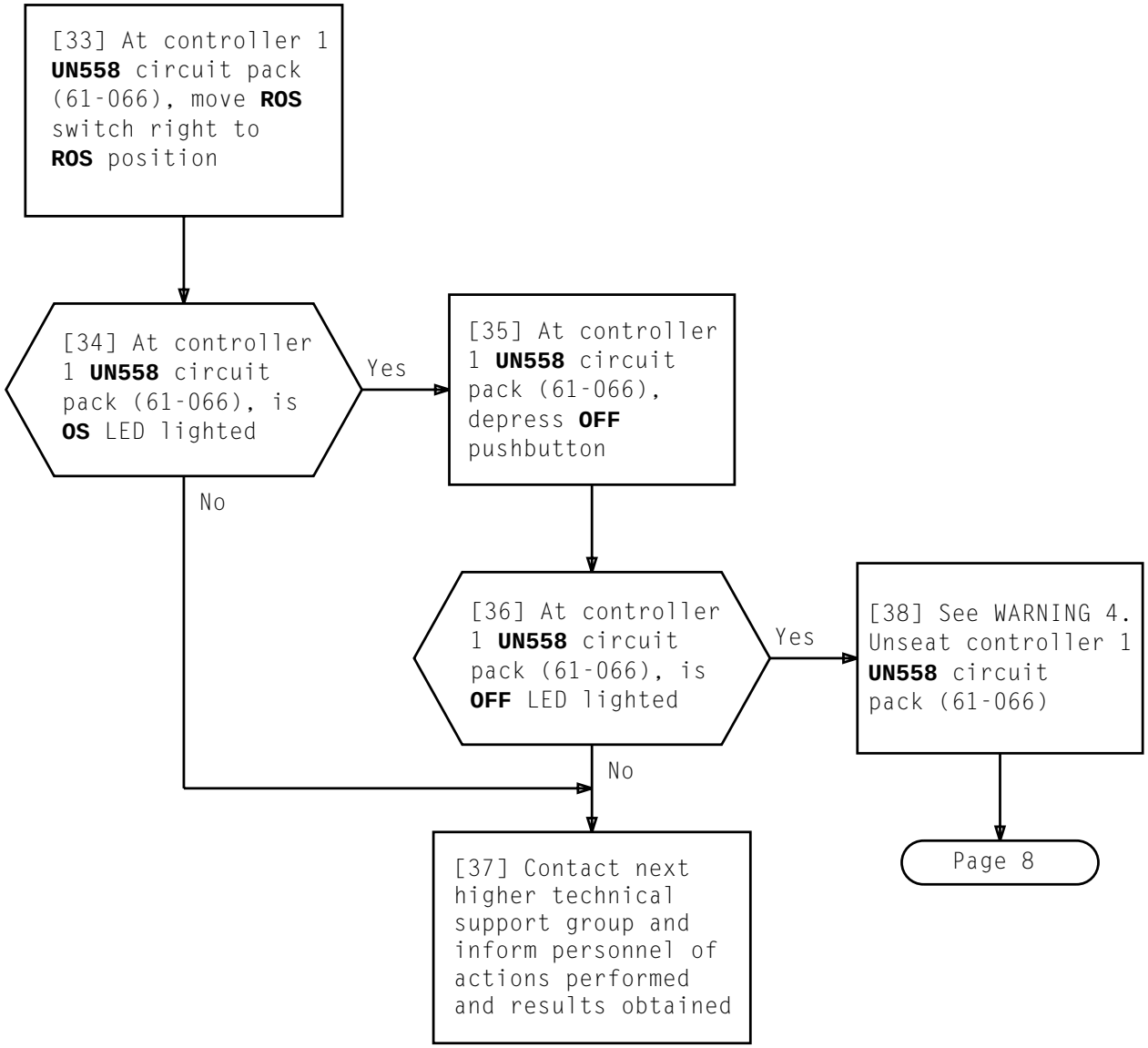
NOTE 2

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

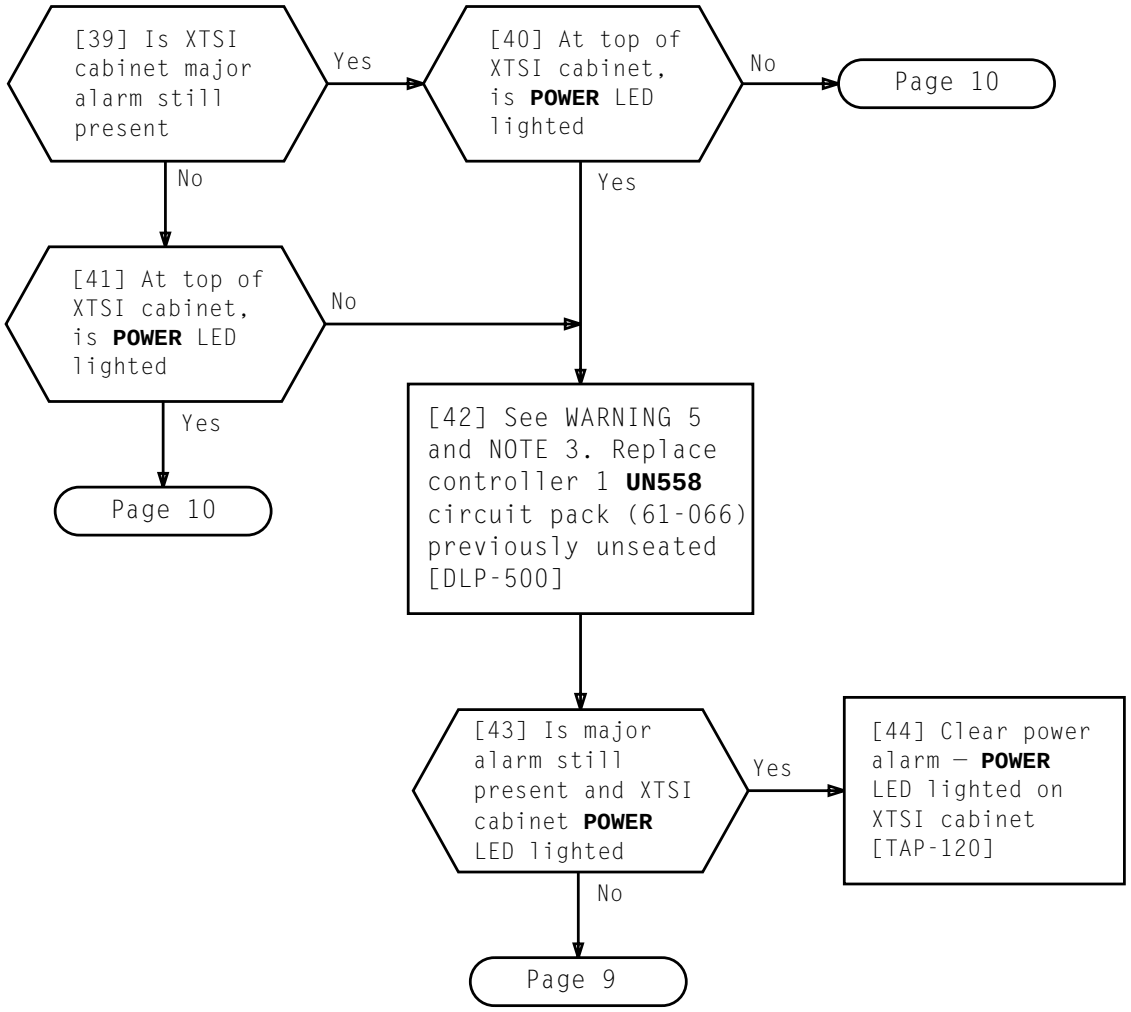
WARNING 3

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


[29] At controller 0 **UN558** circuit pack (52-066), move **ROS** switch left to normal position
AND
[30] Allow ample time for diagnostics to complete
[31] At controller 0 **UN558** circuit pack (52-066), is **OS** LED off
Yes
Page 7
No
[32] Contact next higher technical support group and inform personnel of actions performed and results obtained



WARNING 4
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins



NOTE 3

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WARNING 5

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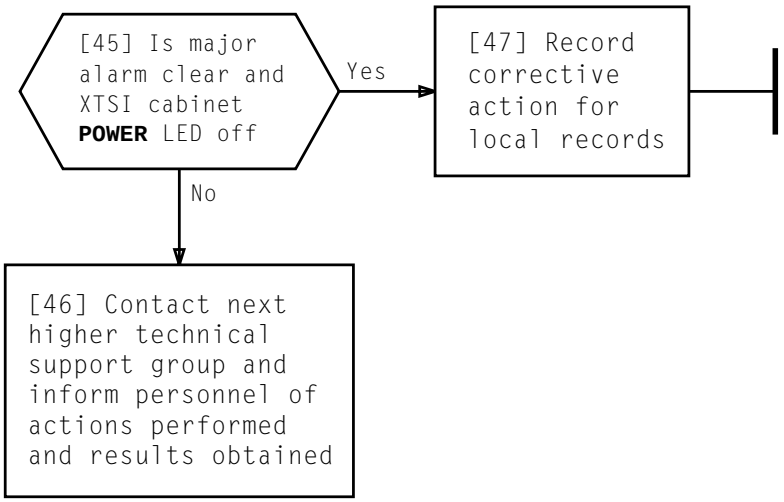
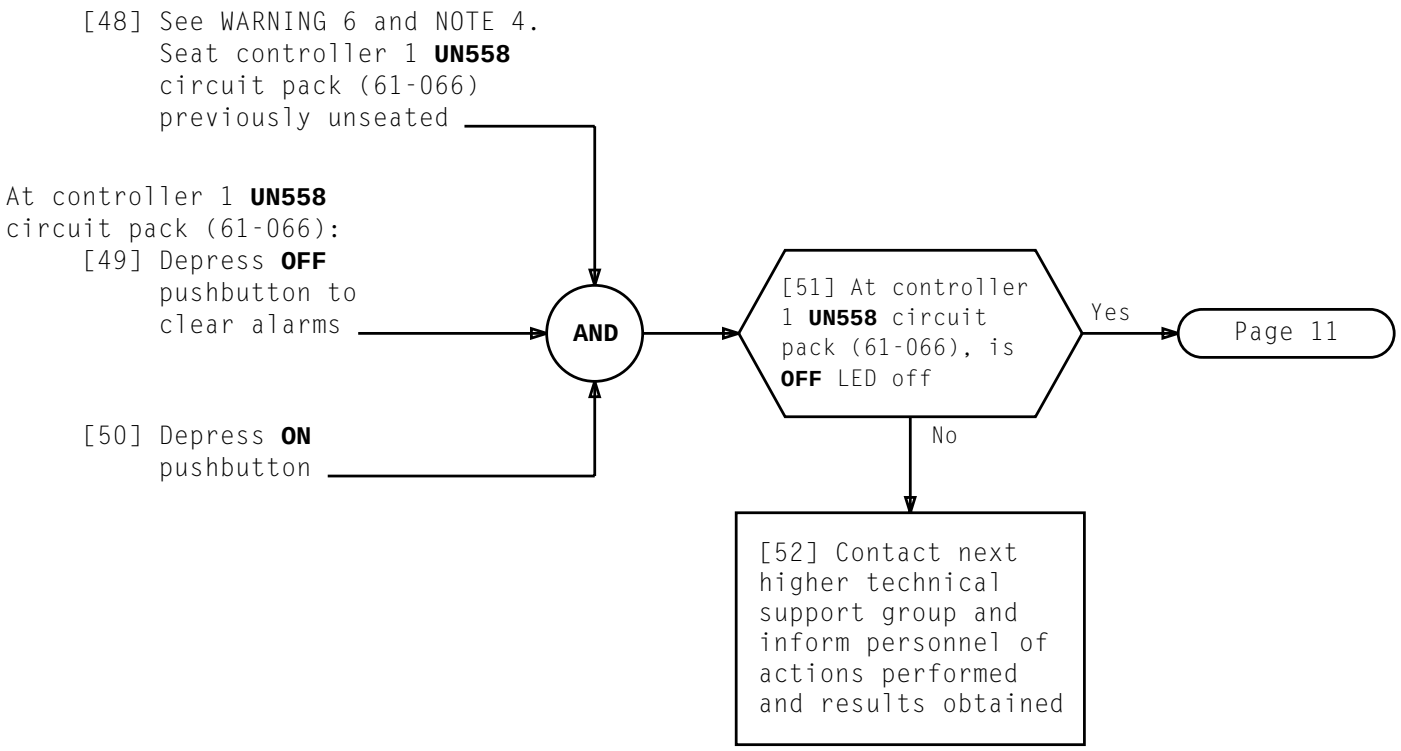
CLEAR MAJOR ALARM — XTSI CABINET


[45] Is major alarm clear and XTSI cabinet **POWER** LED off
Yes
[47] Record corrective action for local records
No
[46] Contact next higher technical support group and inform personnel of actions performed and results obtained



NOTE 4

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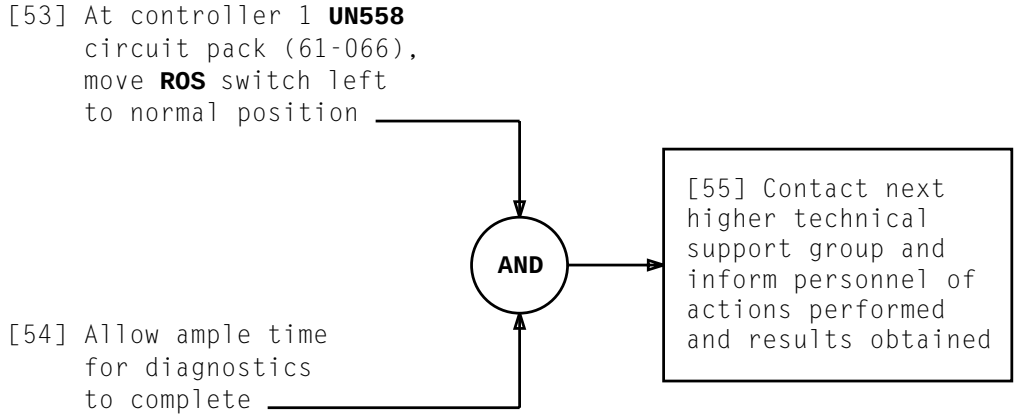
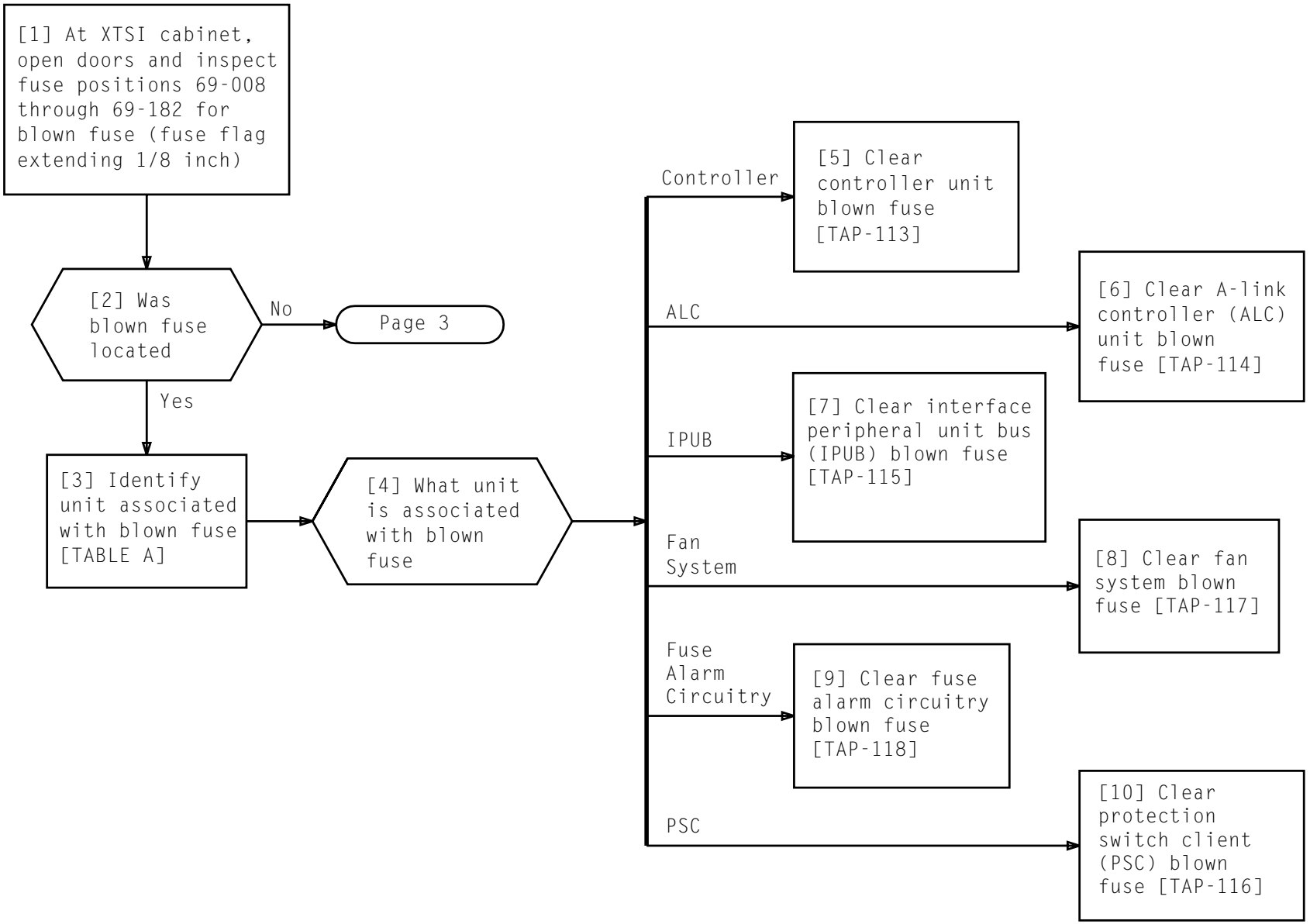
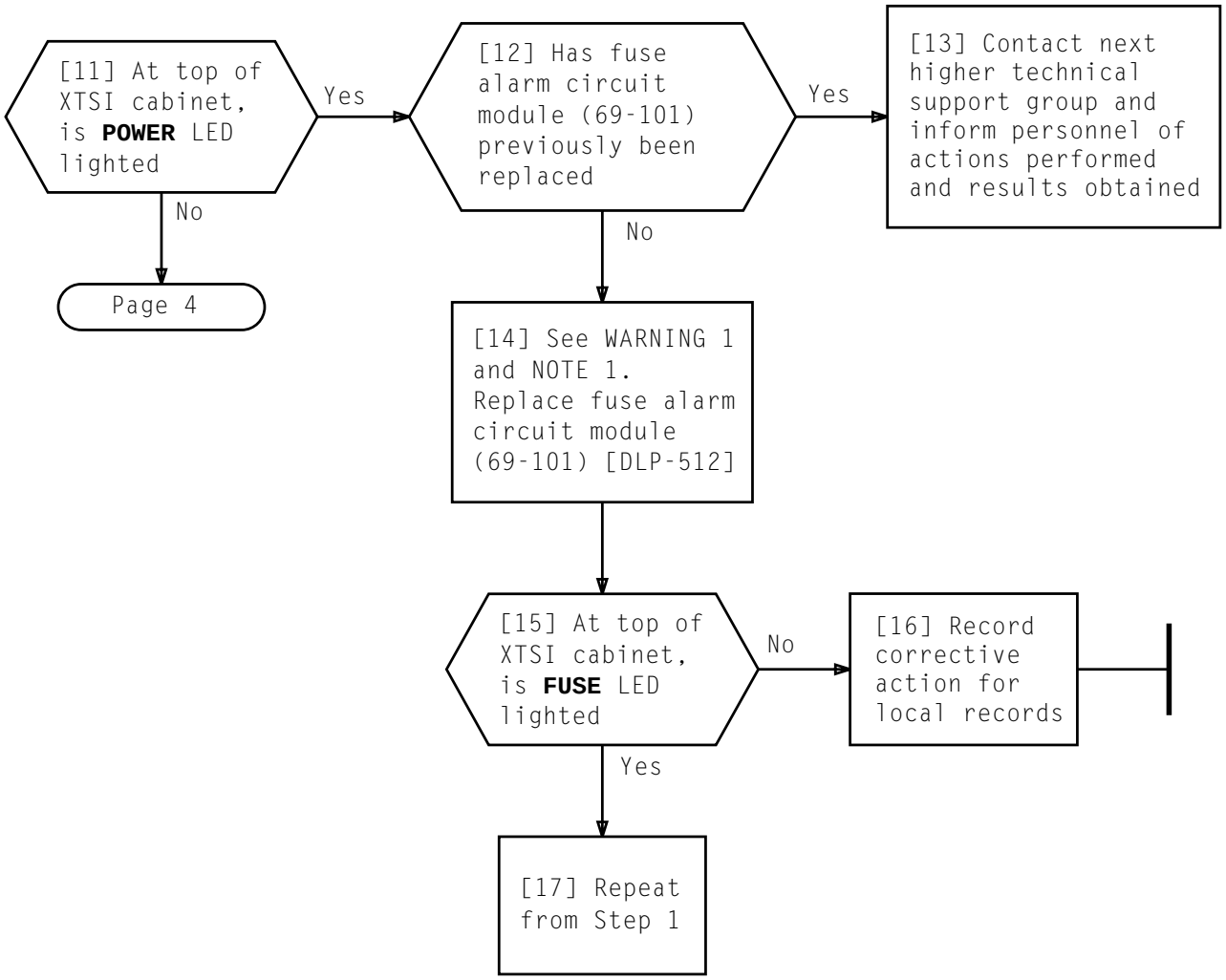

[53] At controller 1 **UN558** circuit pack (61-066), move **ROS** switch left to normal position
AND
[55] Contact next higher technical support group and inform personnel of actions performed and results obtained
[54] Allow ample time for diagnostics to complete



CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET

TABLE A
XTSI CABINET FUSE LOCATIONS AND ASSOCIATED UNITS

BLOWN FUSE LOCATION	ASSOCIATED UNIT	BLOWN FUSE LOCATION	ASSOCIATED UNIT	BLOWN FUSE LOCATION	ASSOCIATED UNIT
69-008A	Controller 0	69-080E	ALARM A	69-080C	PSC 12 (SPU 10)
69-008B		69-110E	ALARM B	69-182C	
69-008C		69-008D	PSC 0 (D3U 6)	69-016D	PSC 13 (SPU 0)
69-024A		69-110D		69-118D	
69-024B		69-040E	PSC 1 (D3U 0)	69-048D	PSC 14 (SPU 1)
69-032A		69-142E		69-150D	
69-032B		69-080D	PSC 2 (D3U 1)	69-056D	PSC 15 (SPU 2)
69-110A	Controller 1	69-182D		69-158D	
69-110B		69-056E	PSC 3 (D3U 2)	69-064C	PSC 16 (SPU 3)
69-110C		69-158E		69-166C	
69-126A		69-040D	PSC 4 (UNASSIGNED)	69-080B	PSC 17 (SPU 4)
69-126B		69-142D		69-182B	
69-134A		69-064E	PSC 5 (UNASSIGNED)	69-048C	PSC 18 (SPU 11)
69-134B		69-166E		69-150C	
69-040A	ALC 0	69-072E	PSC 6 (UNASSIGNED)	69-056C	PSC 19 (SPU 5)
69-080A	ALC 2	69-174E		69-158C	
69-142A	ALC 1	69-048E	PSC 7 (UNASSIGNED	69-064B	PSC 20 (SPU 6)
69-182A	ALC 3	69-150E		69-166B	
69-056B	IPUB 0	69-016E	PSC 8 (D3U 7)	69-072C	PSC 21 (SPU 7)
69-158B	IPUB 1	69-118E		69-174C	
69-150B	FAN A	69-024E	PSC 9 (D3U 3)	69-016C	PSC 22 (SPU 8)
69-064A	FAN B	69-126E		69-118C	
69-174B	FAN C	69-064D	PSC 10 (D3U 4)	69-040C	PSC 23 (SPU 9)
69-048A	FAN E	69-166D		69-142C	
69-166A	FAN F	69-072D	PSC 11 (D3U 5)		
69-072B	FAN G	69-174D			



NOTE 1

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WARNING 1

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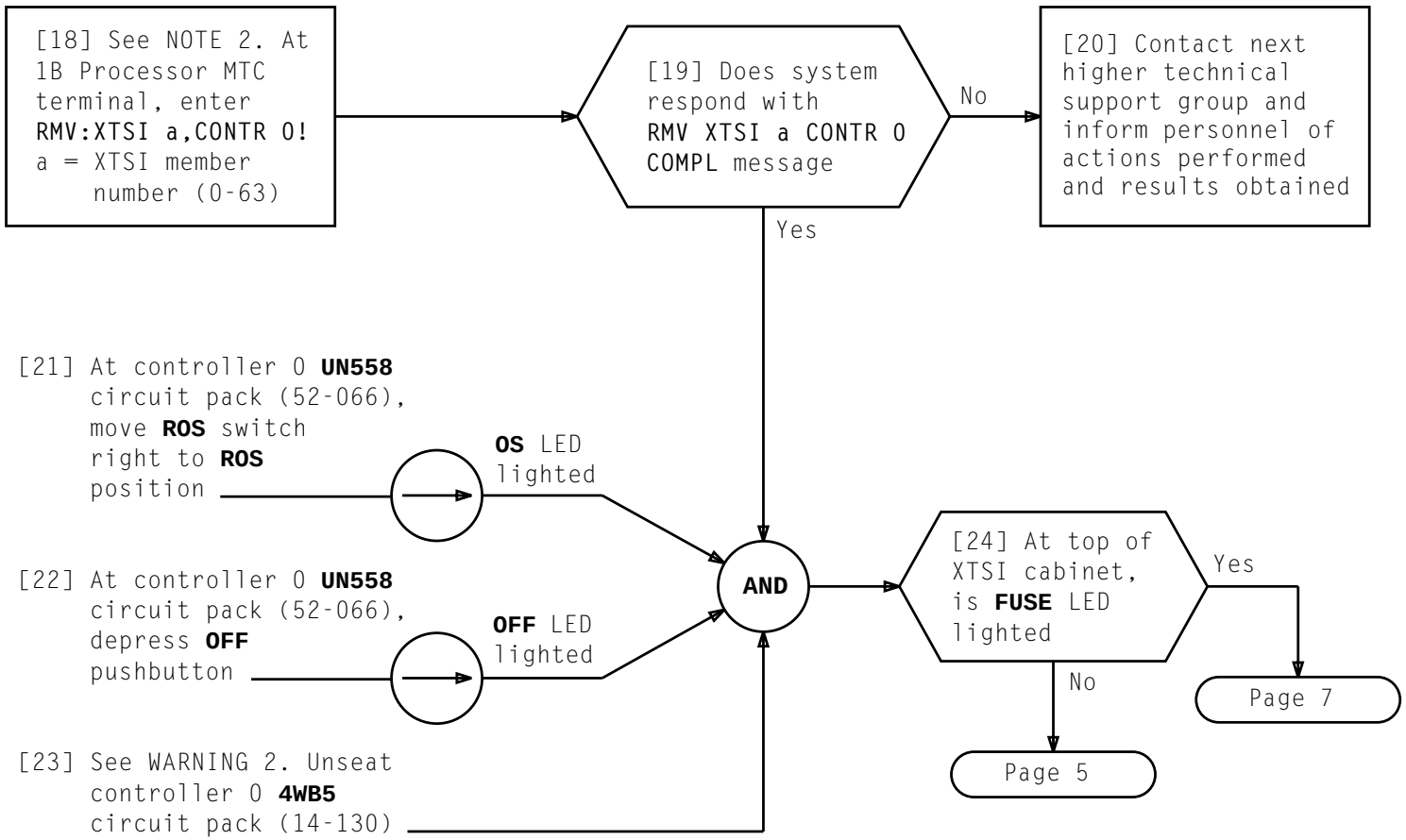
CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



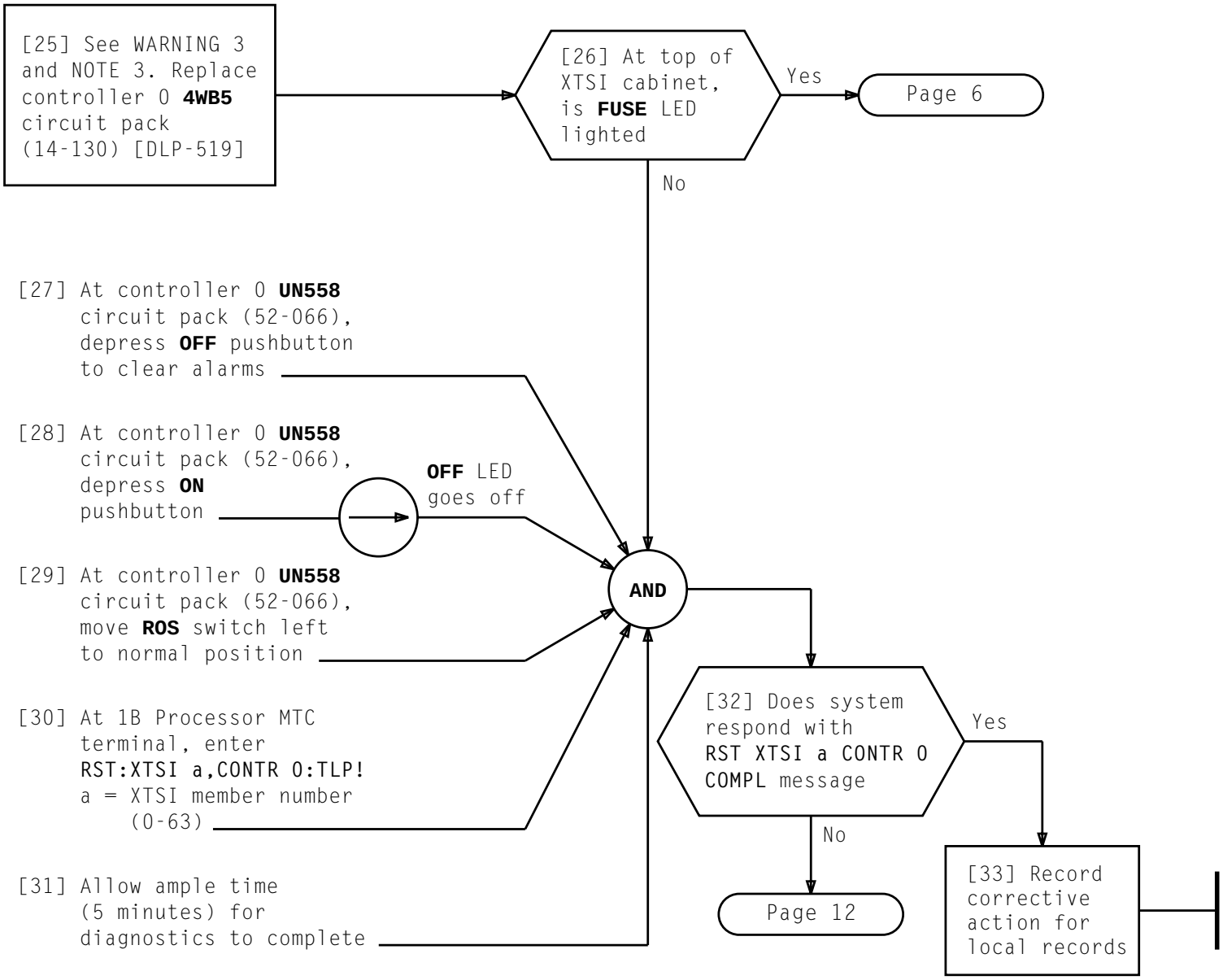
NOTE 2

An XTSI cabinet lighted **FUSE** LED with no lighted **POWER** LED is caused by an input from diagnostics. This condition indicates that circuitry on circuit packs **4WB2** and **4WB5** could possibly be faulty

WARNING 2

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

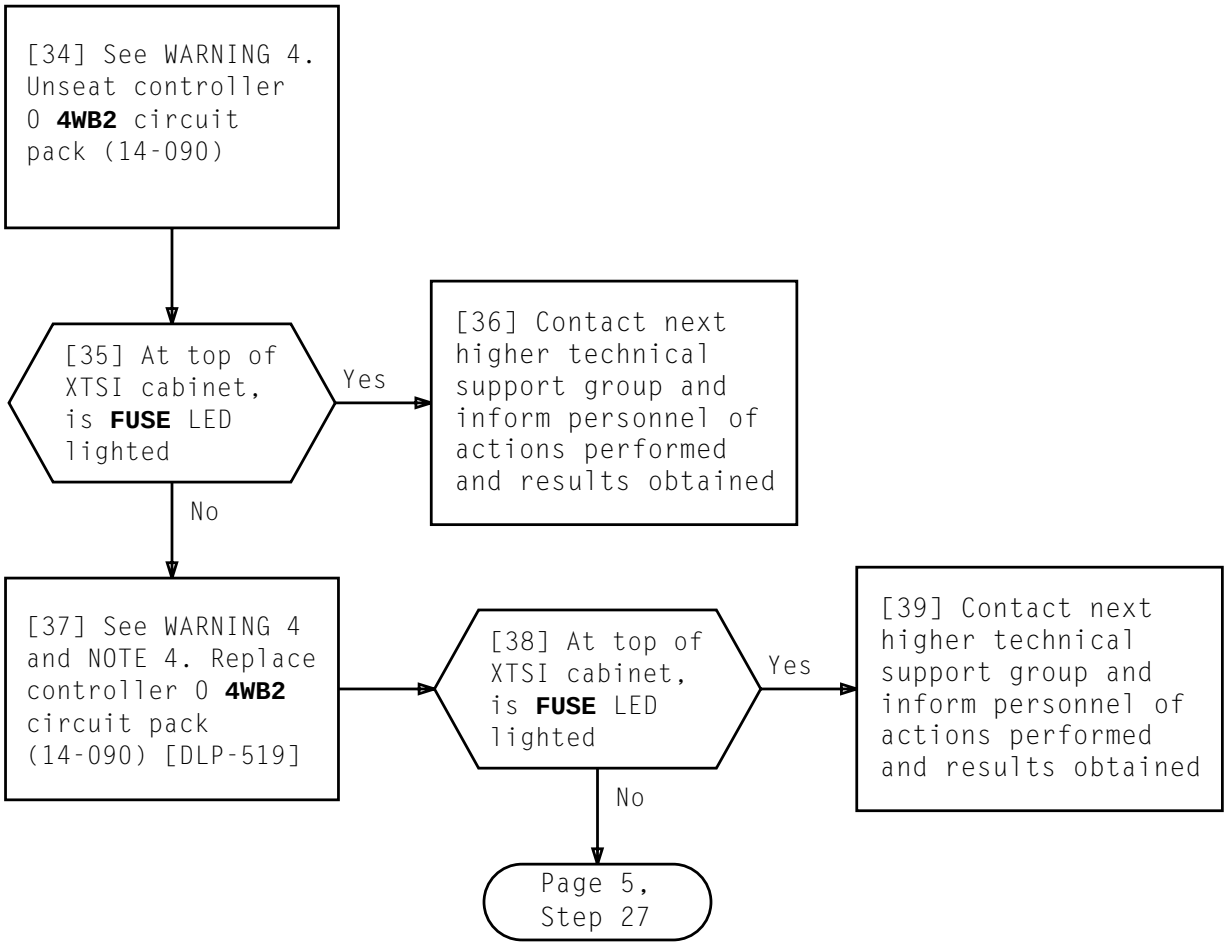
CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



NOTE 3
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

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

CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



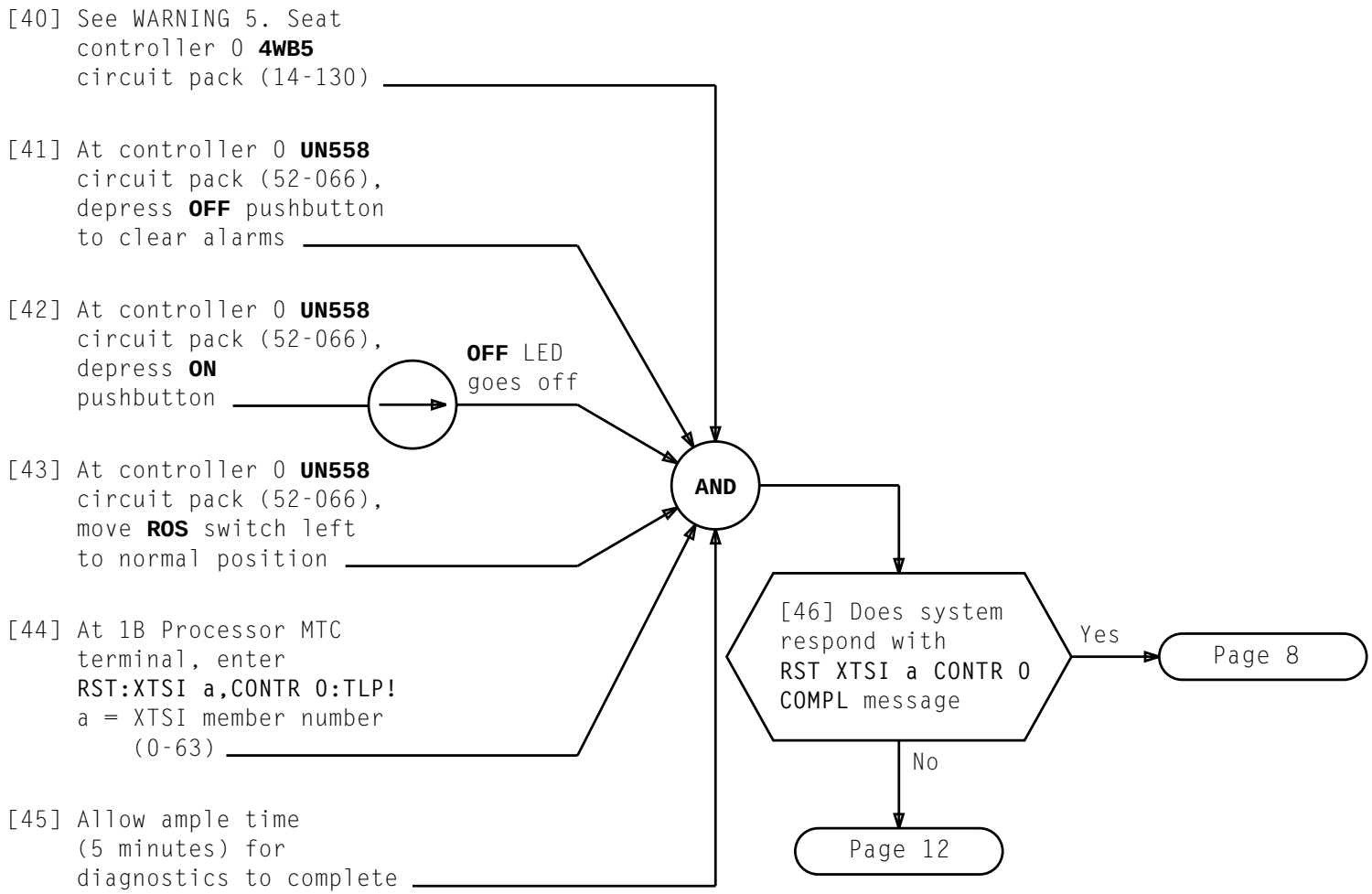
NOTE 4

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

WARNING 4

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

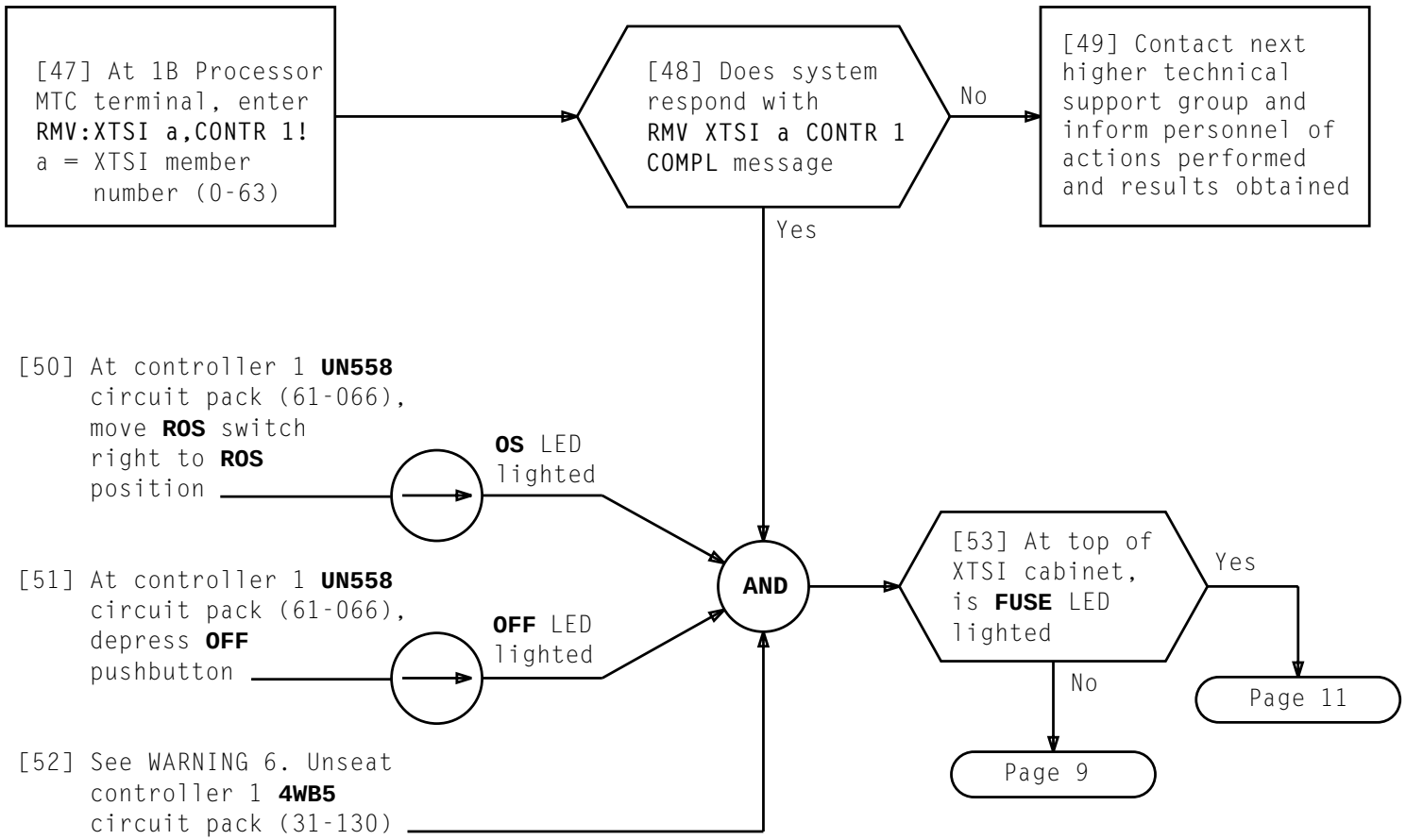
CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



WARNING 5

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

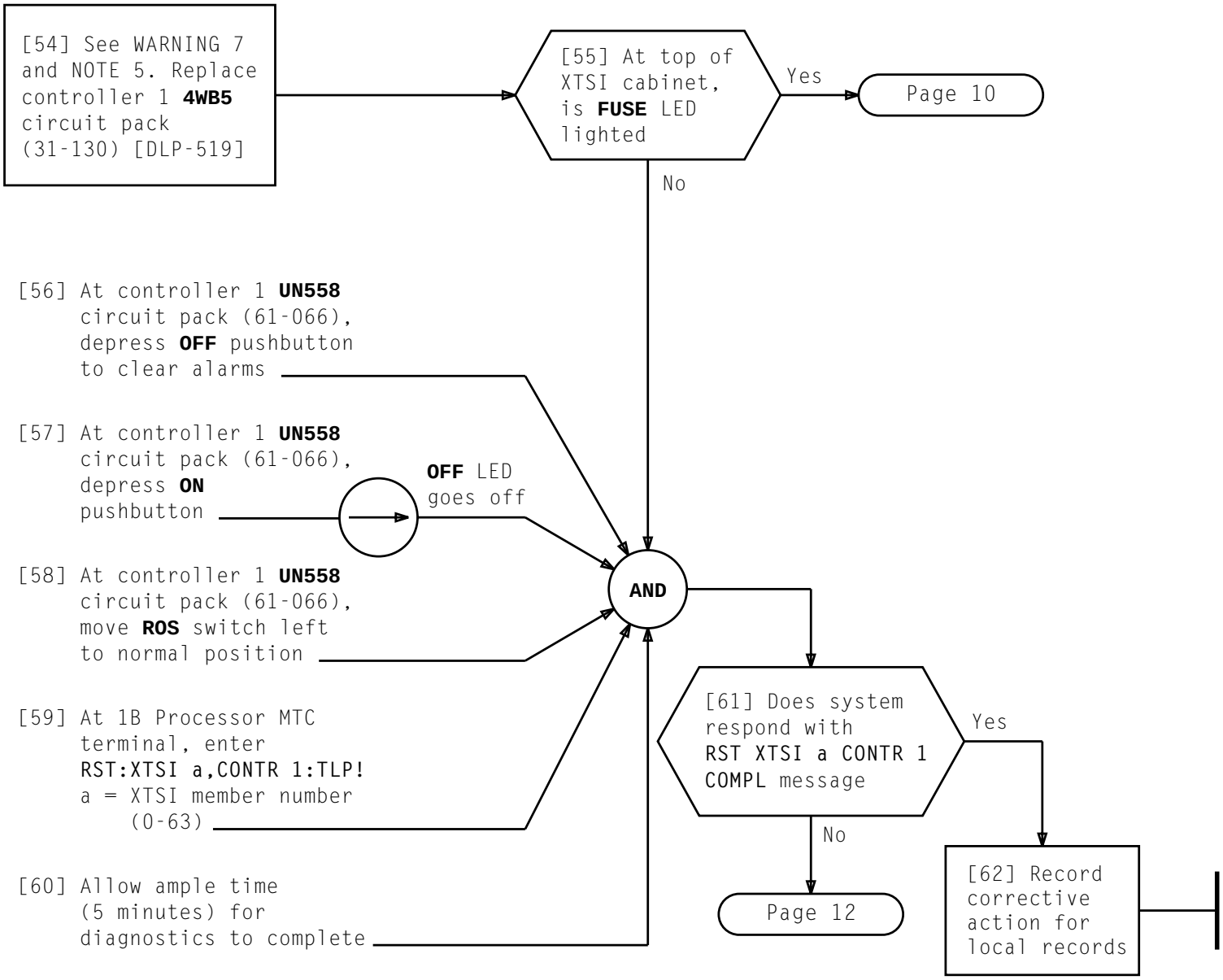
CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



WARNING 6

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

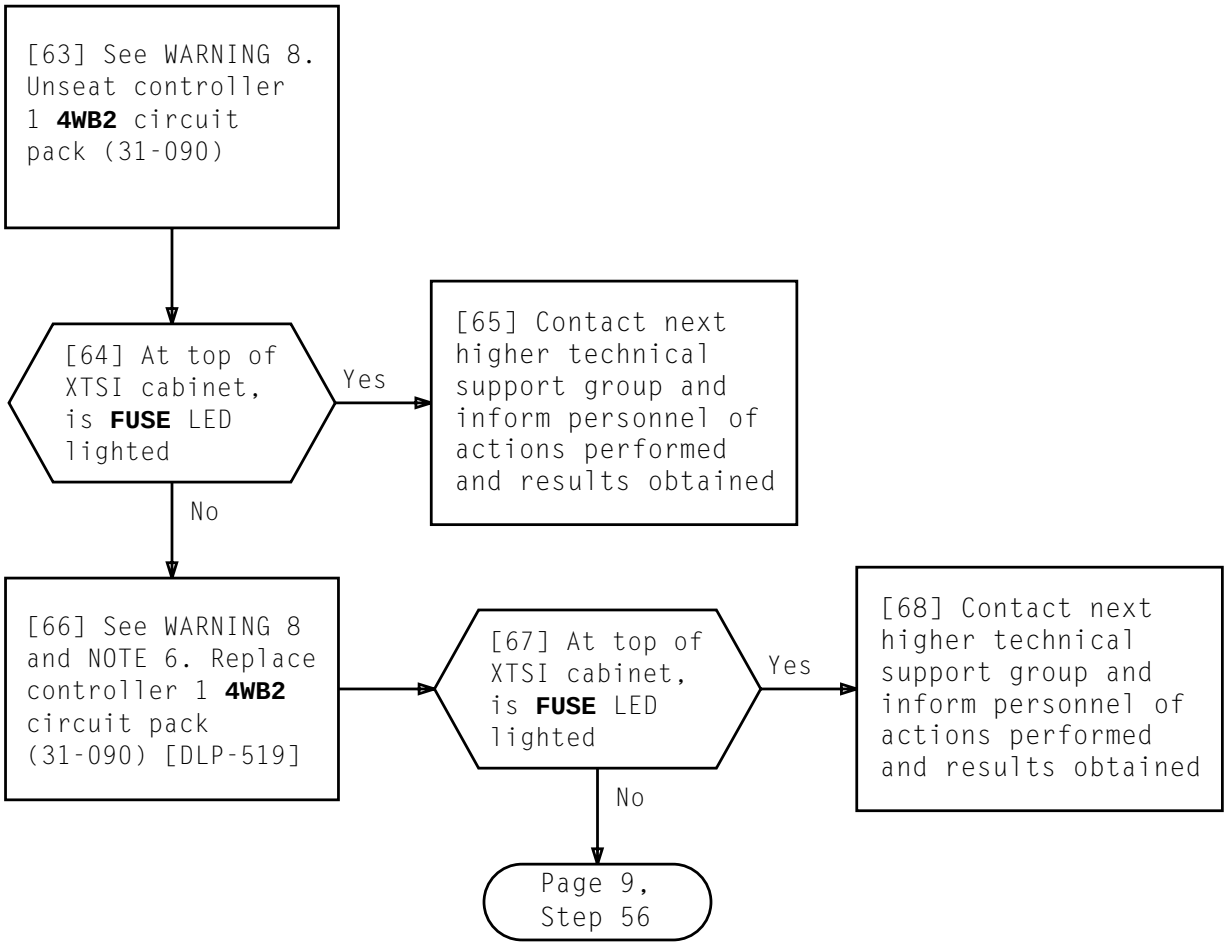
CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



NOTE 5
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 7
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET



NOTE 6

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

WARNING 8

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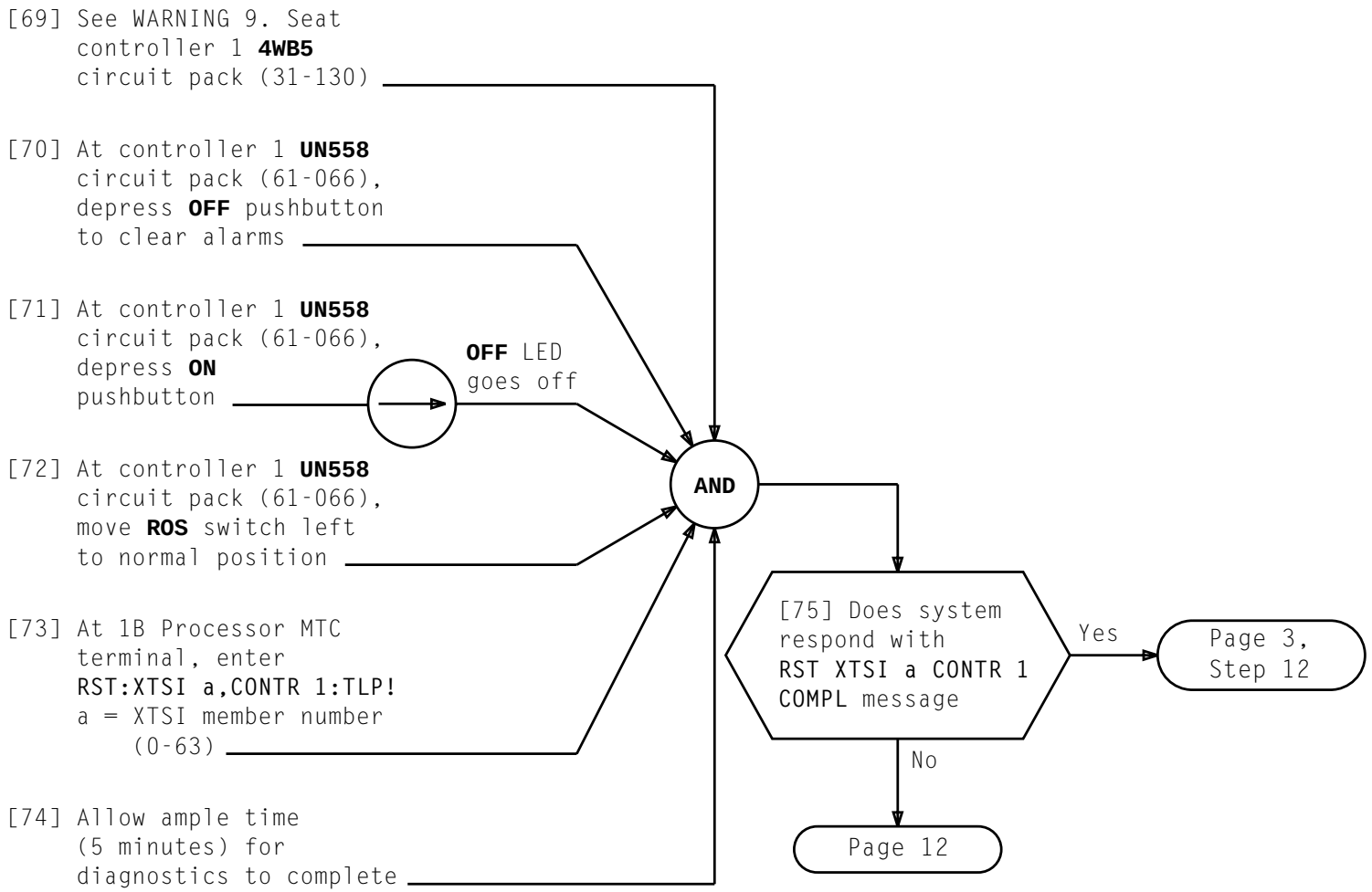
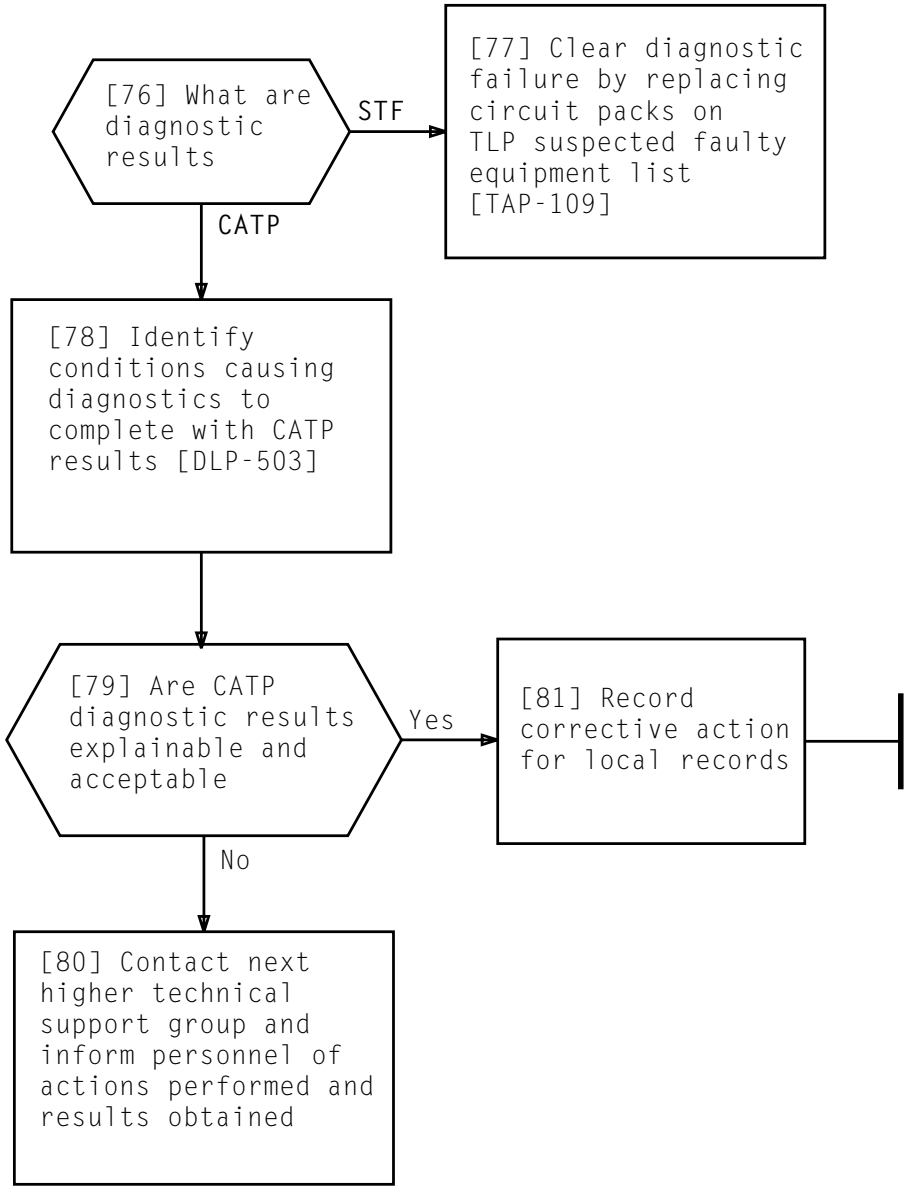
CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET

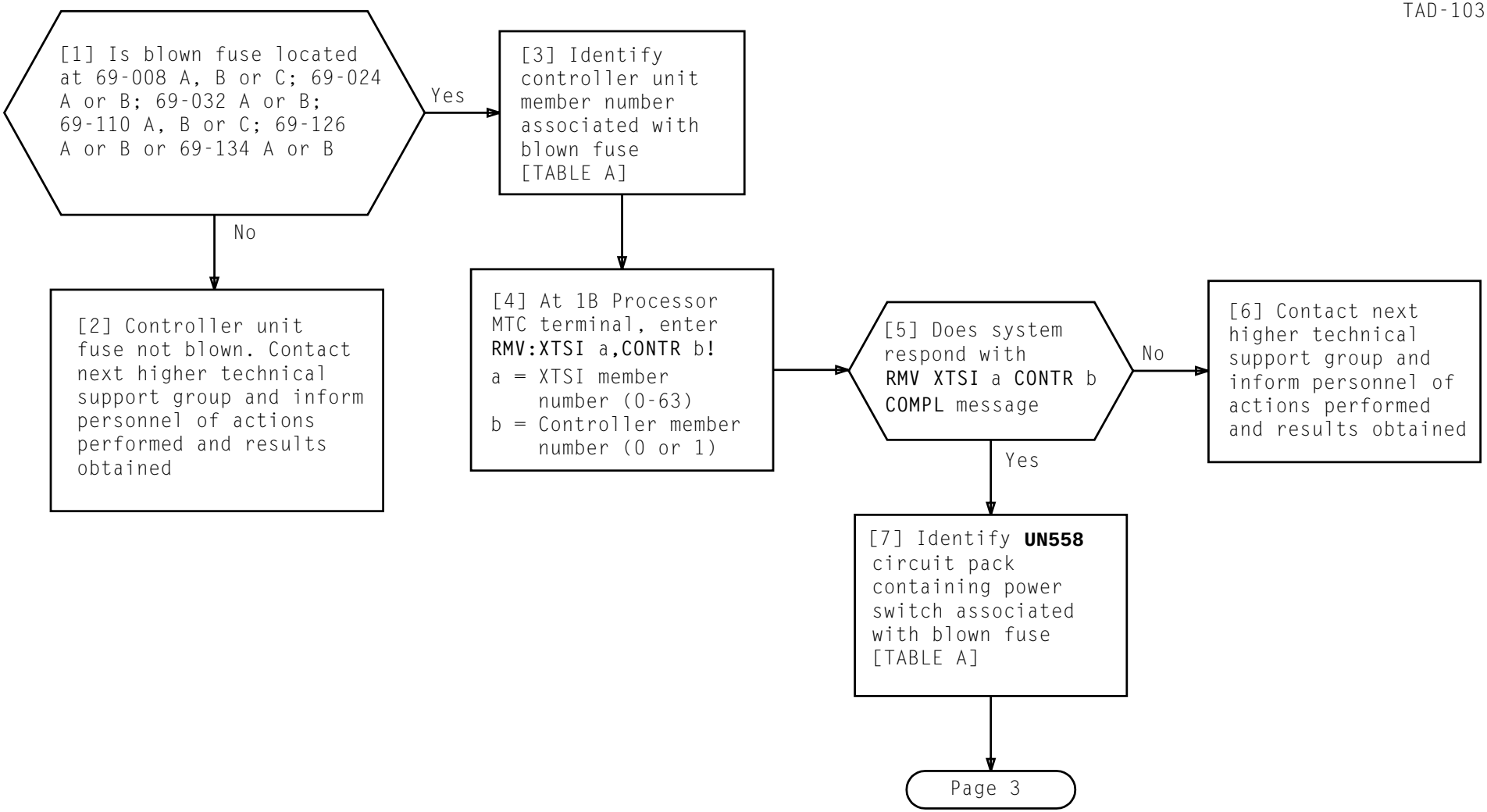


WARNING 9

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

CLEAR FUSE ALARM — FUSE LED LIGHTED ON XTSI CABINET

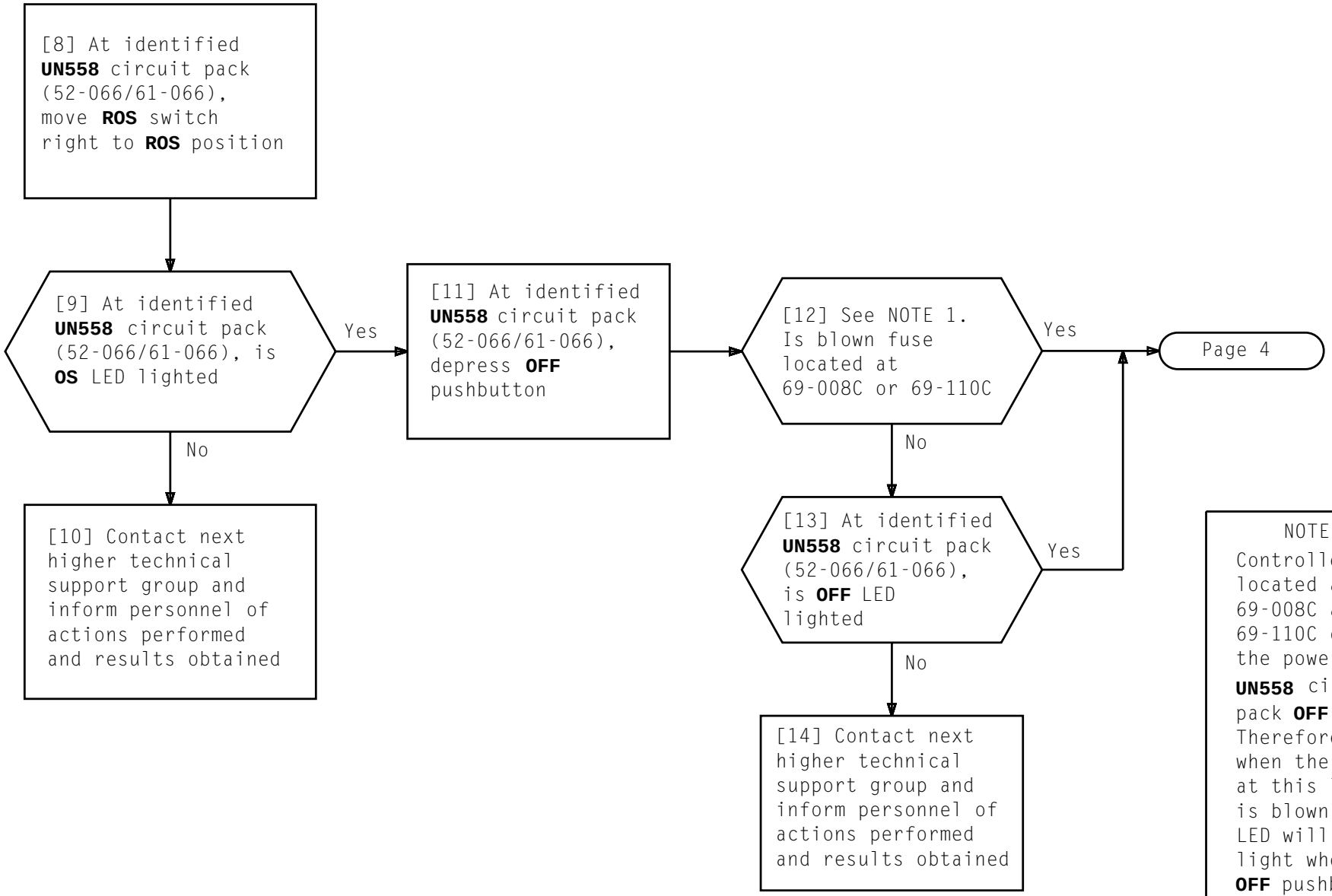




CLEAR CONTROLLER UNIT BLOWN FUSE

TABLE A
XTSI CABINET CONTROLLER UNIT FUSES AND ASSOCIATED CIRCUIT PACKS

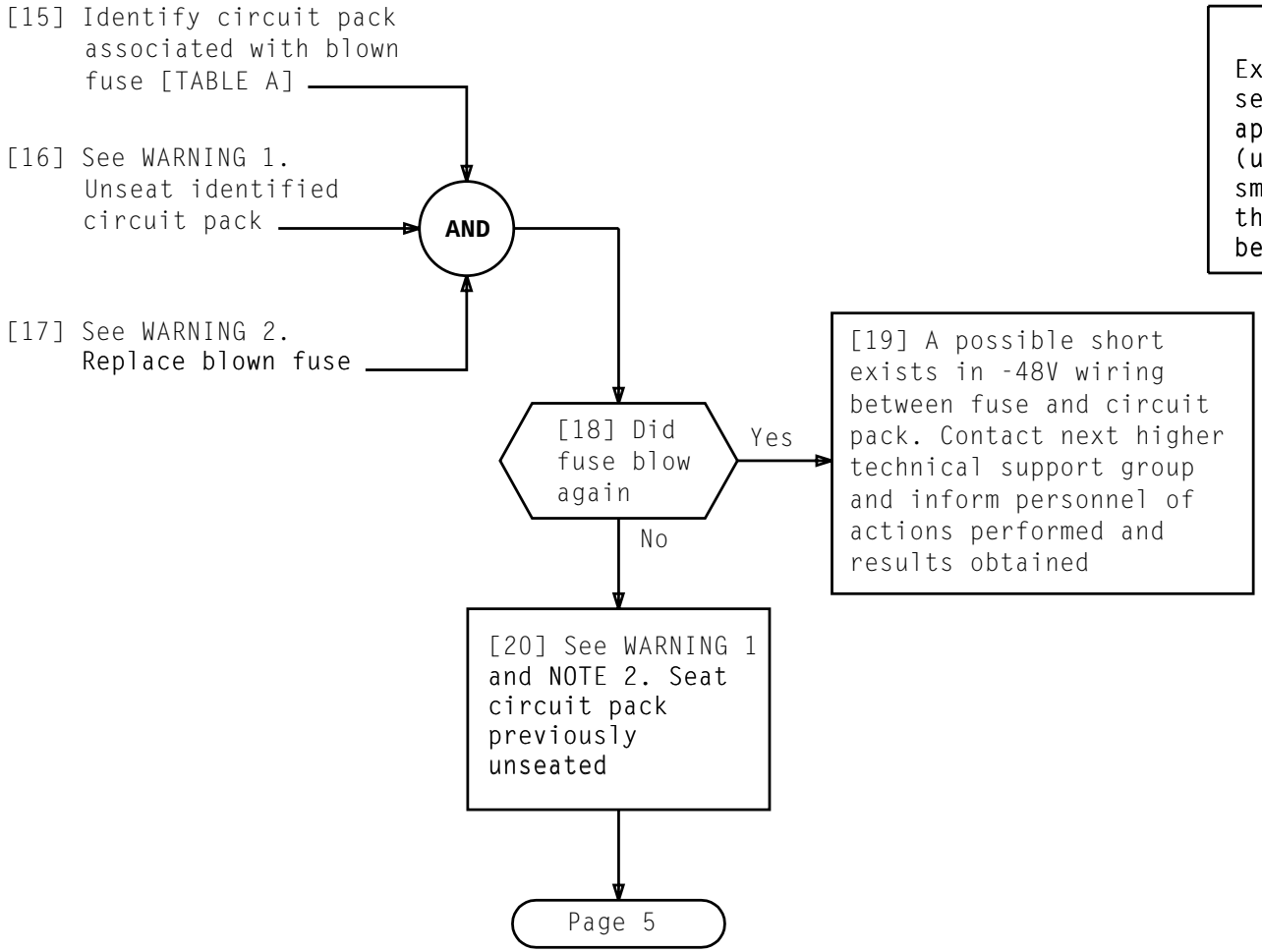
BLOWN FUSE			ASSOCIATED CIRCUIT PACK		CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CONTROLLER UNIT
IDENTIFIER	LOCATION	TYPE	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
CNTROC	69-008A	80D (5A, Green)	**UN558**	52-066	**UN558**	52-066	CONTROLLER 0
CNTROB	69-008B						
CNTROA	69-008C	80D (3A, Blue)					
CNTROE	69-024A	80D (5A, Green)	**4WB5**	14-130			
CNTROD	69-024B						
CNTROG	69-032A						
CNTROF	69-032B						
CNTR1C	69-110A	80D (5A, Green)	**UN558**	61-066	**UN558**	61-066	CONTROLLER 1
CNTR1B	69-110B						
CNTR1A	69-110C	80D (3A, Blue)					
CNTR1E	69-126A	80D (5A, Green)	**4WB5**	31-130			
CNTR1D	69-126B						
CNTR1G	69-134A						
CNTR1F	69-134B						



NOTE 1

Controller fuse located at 69-008C and 69-110C controls the power to **UN558** circuit pack **OFF** LED. Therefore, when the fuse at this location is blown, the **OFF** LED will not light when the **OFF** pushbutton is depressed

CLEAR CONTROLLER UNIT BLOWN FUSE

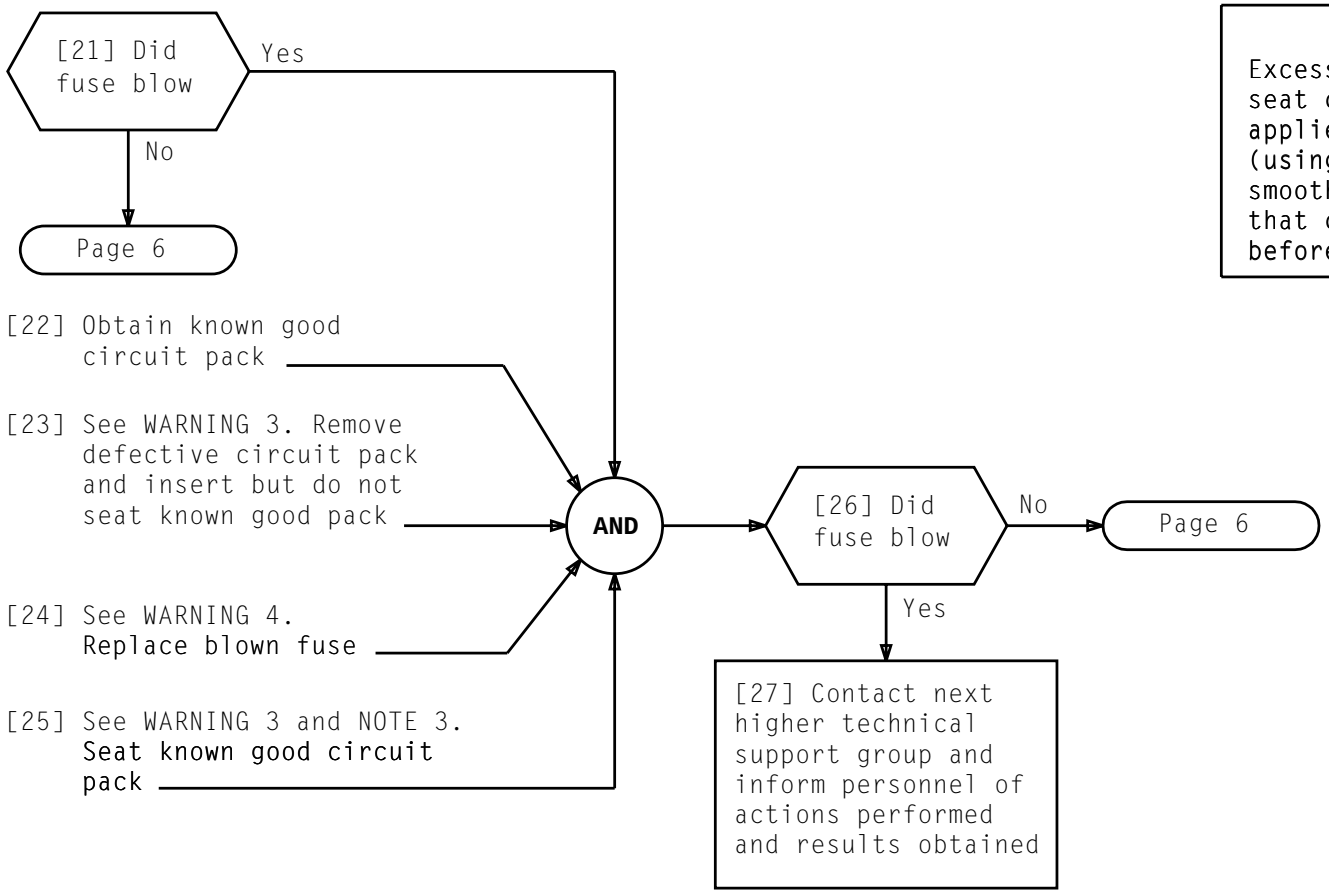


NOTE 2

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

WARNINGS

1. *A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*
2. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*



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WARNINGS

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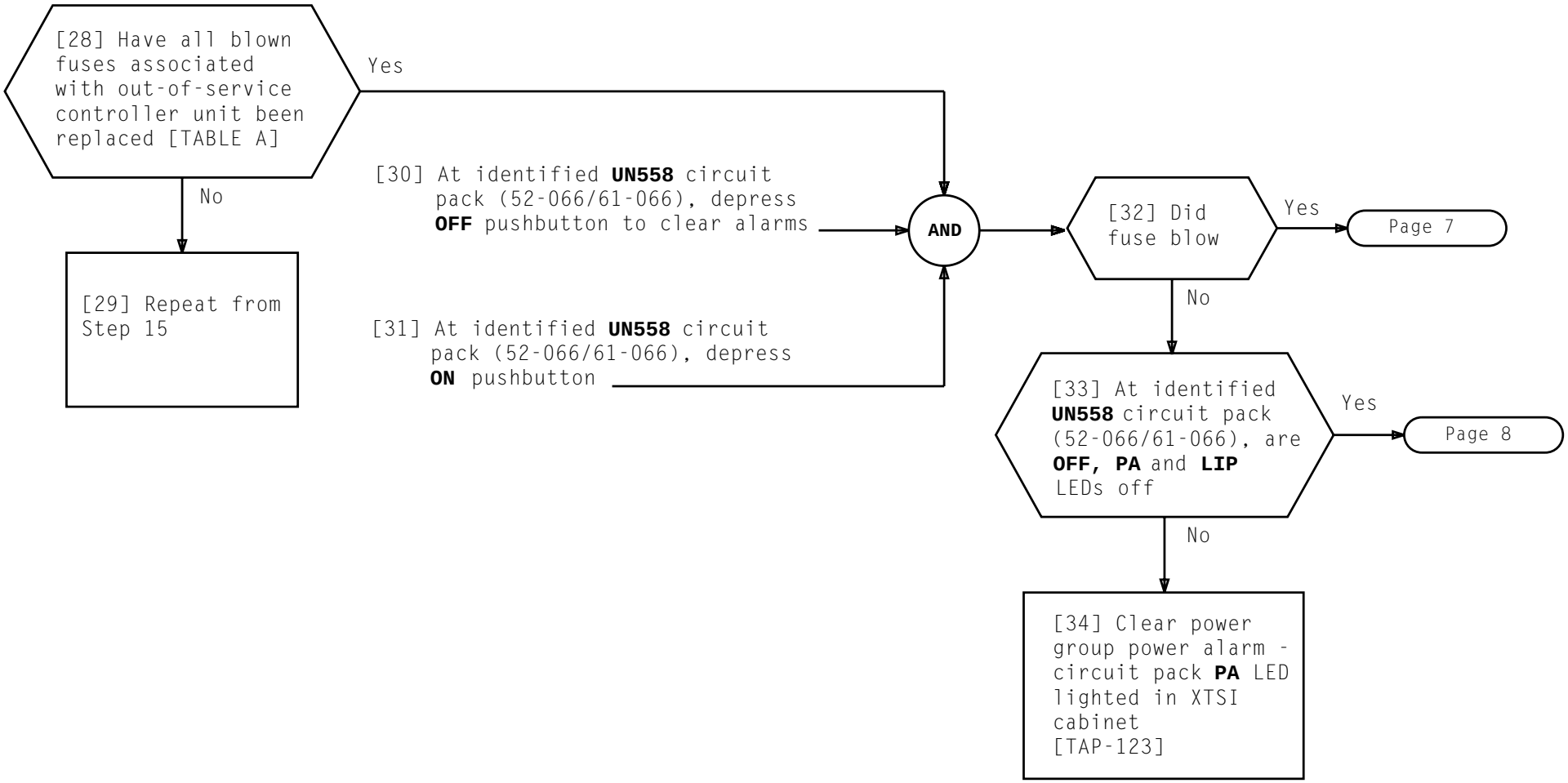
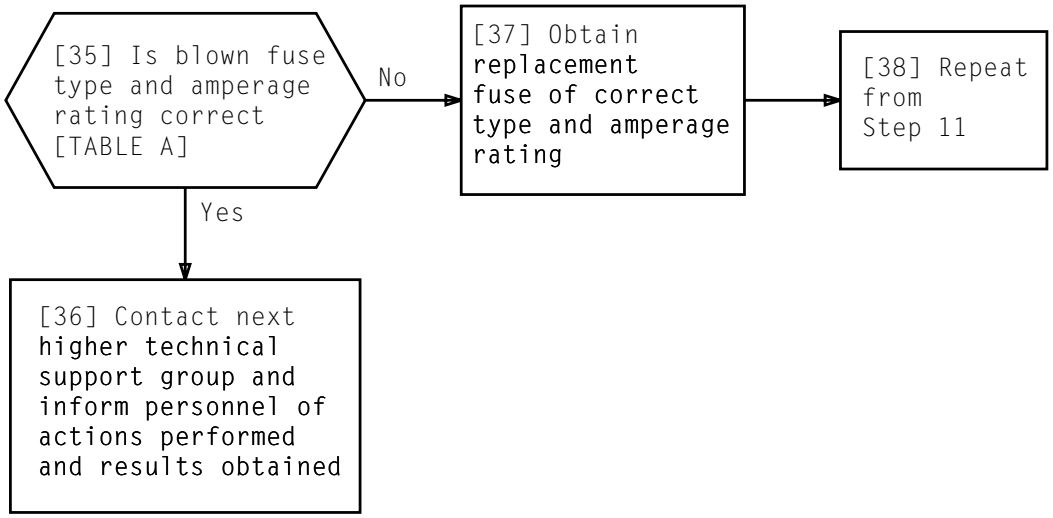
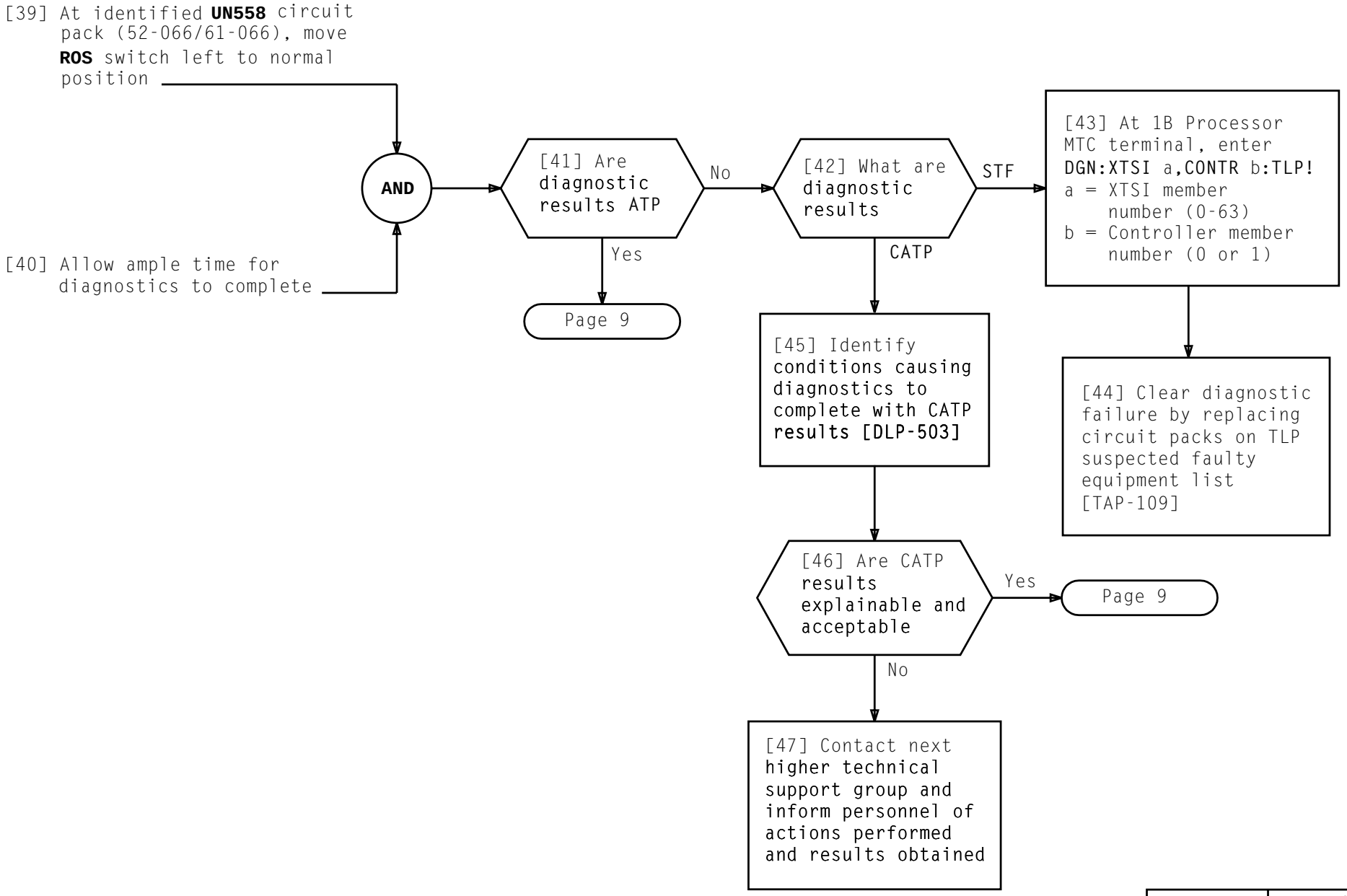
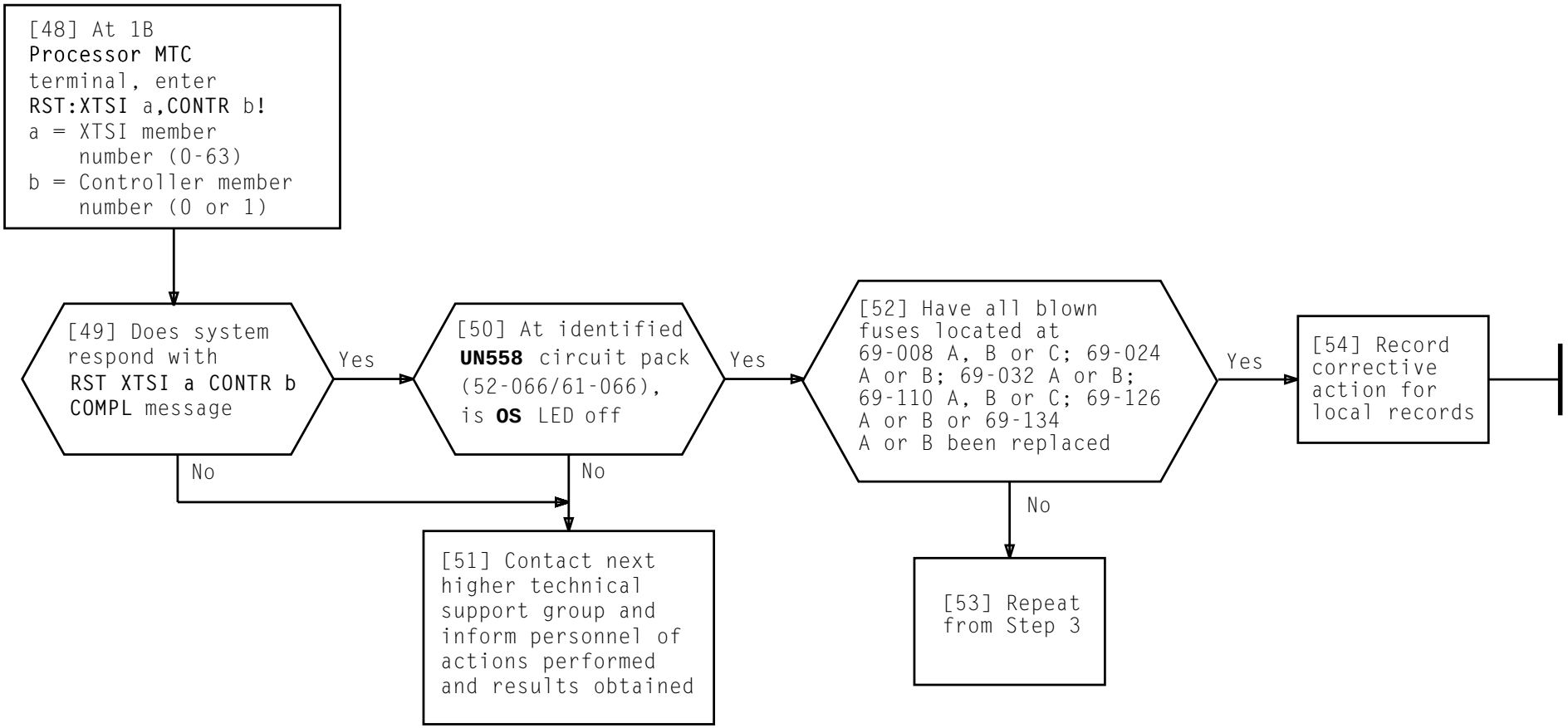


CLEAR CONTROLLER UNIT BLOWN FUSE

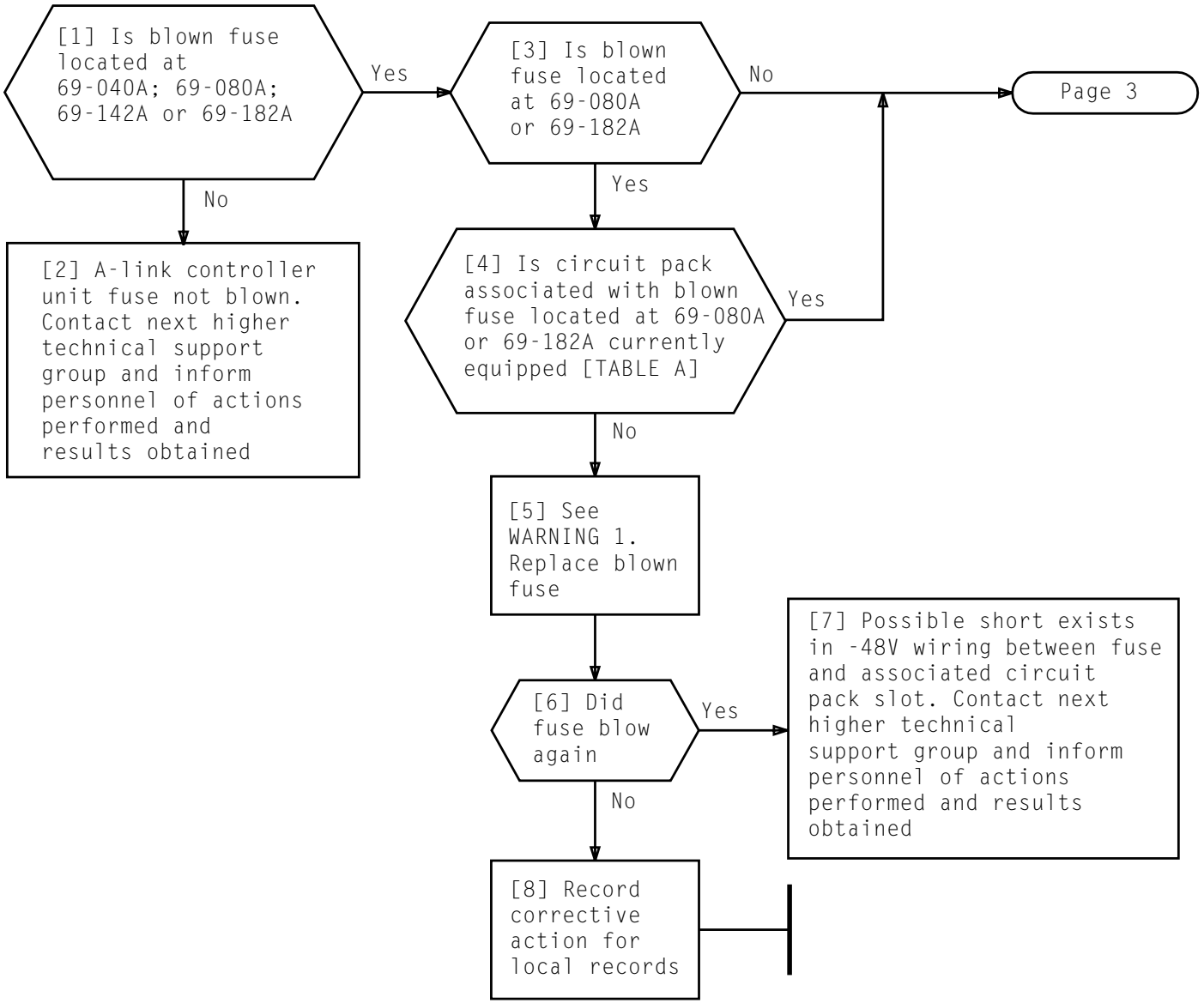

[35] Is blown fuse type and amperage rating correct [TABLE A]
No
[37] Obtain replacement fuse of correct type and amperage rating
[38] Repeat from Step 11
Yes
[36] Contact next higher technical support group and inform personnel of actions performed and results obtained



CLEAR CONTROLLER UNIT BLOWN FUSE



CLEAR CONTROLLER UNIT BLOWN FUSE



WARNING 1
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

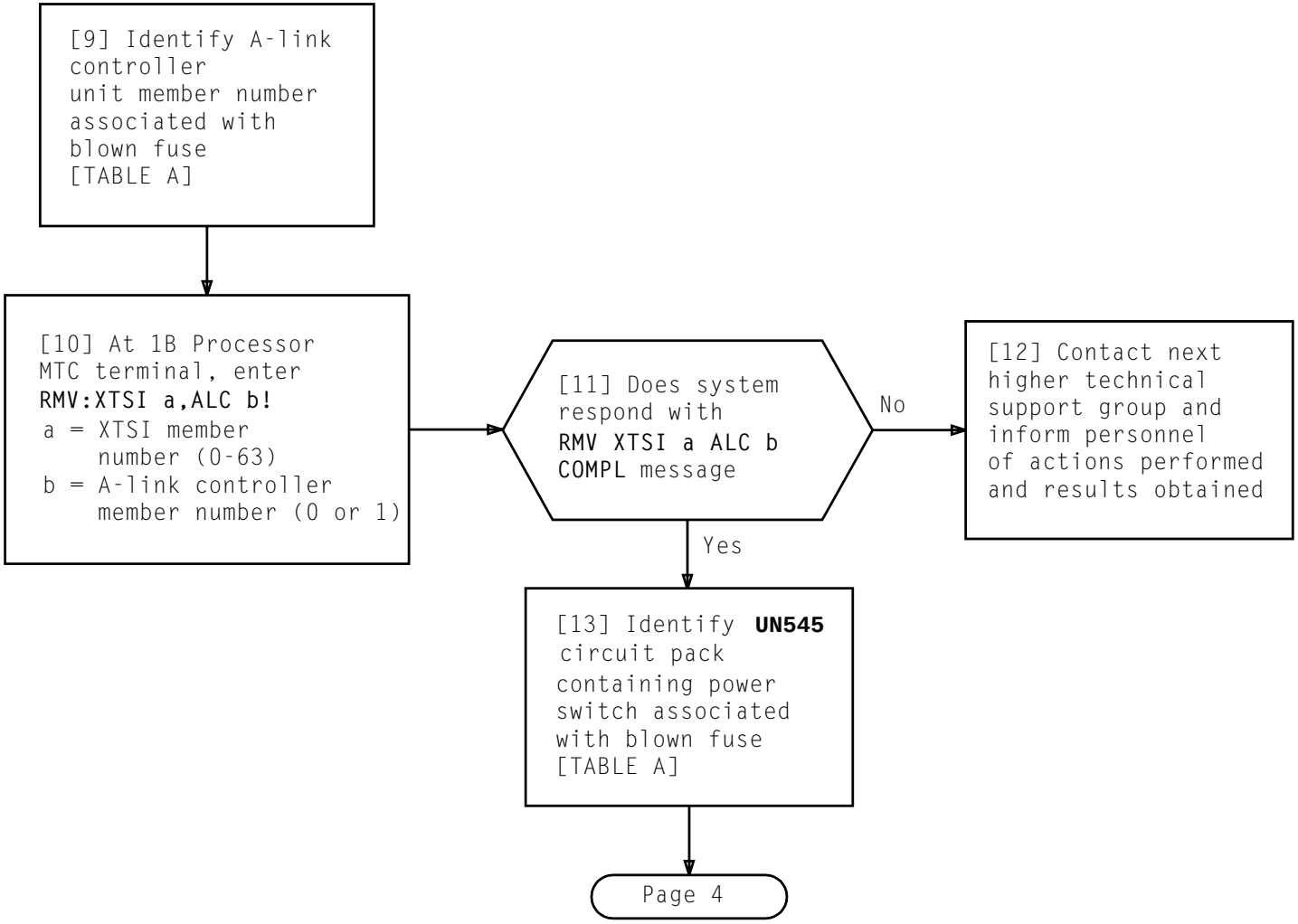
CLEAR A-LINK CONTROLLER (ALC) UNIT BLOWN FUSE

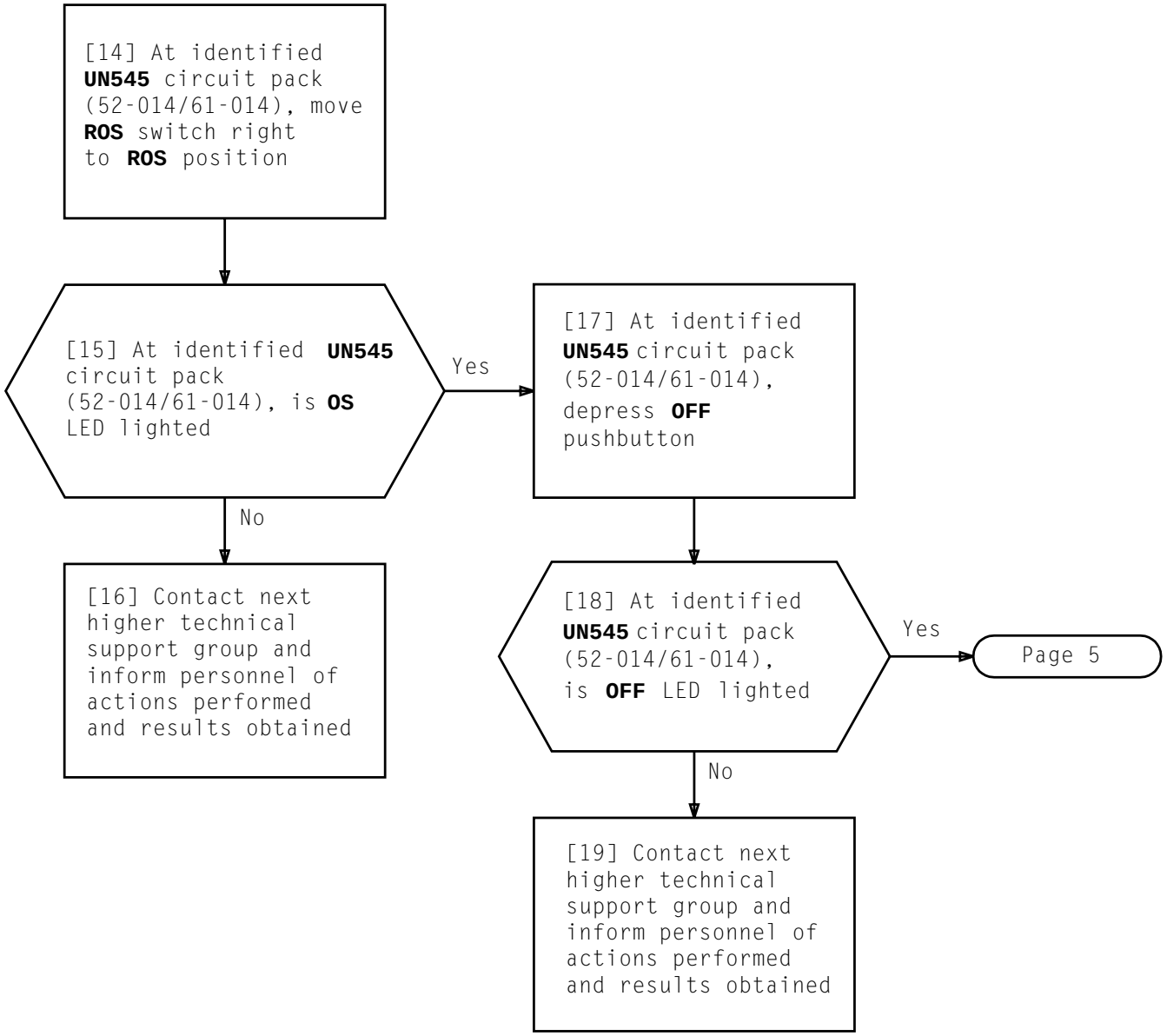
TABLE A
XTSI CABINET A-LINK CONTROLLER UNIT FUSES AND ASSOCIATED CIRCUIT PACKS

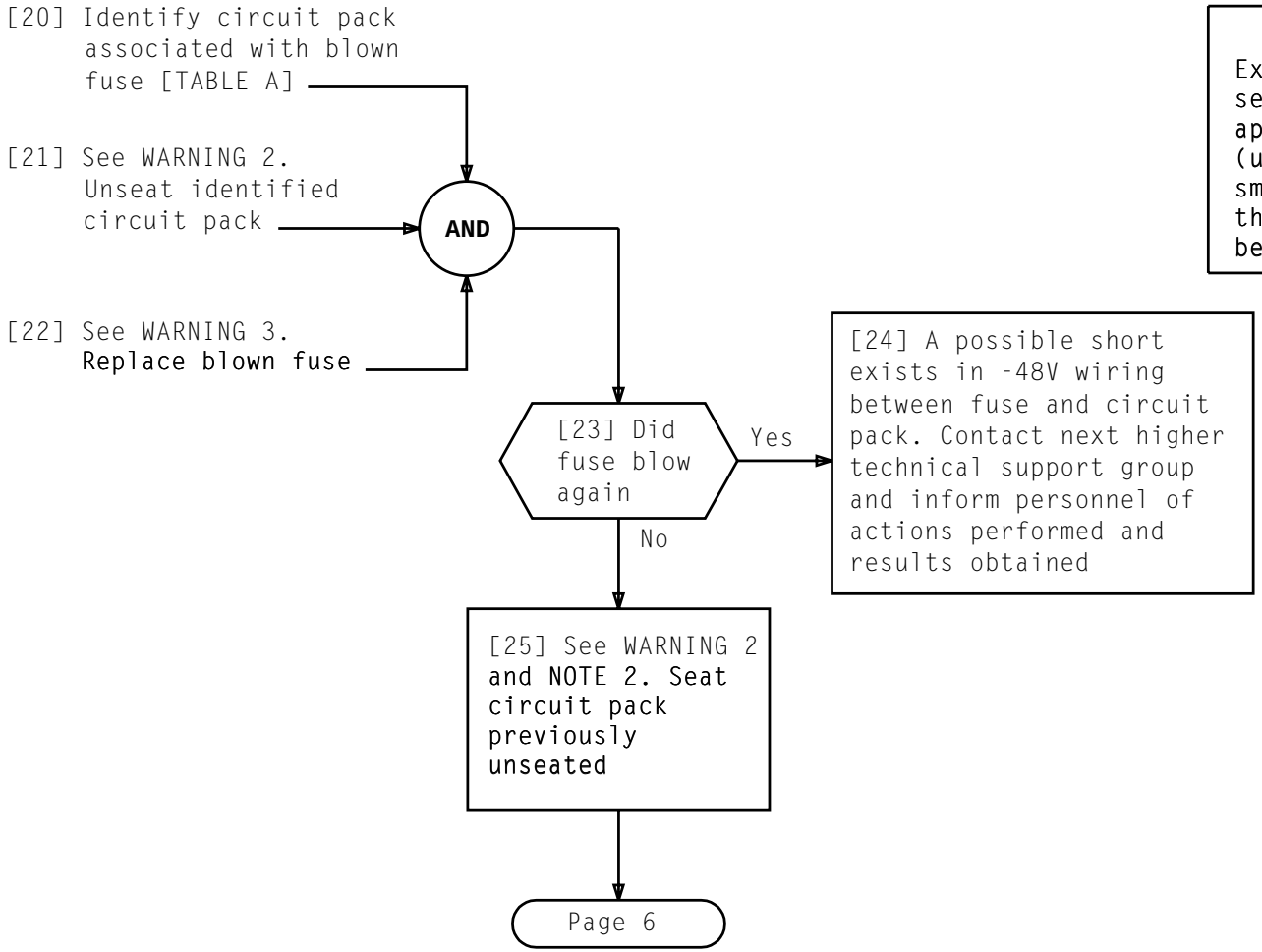
BLOWN FUSE			ASSOCIATED CIRCUIT PACK		CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED ALC UNIT
IDENTIFIER	LOCATION	TYPE	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
ALC0	69-040A	80D (3A, Blue)	**UN545**	52-014	**UN545**	52-014	ALC 0
ALC2	69-080A		See NOTE 1	52-038	See NOTE 1	52-038	ALC 2
ALC1	69-142A		**UN545**	61-014	**UN545**	61-014	ALC 1
ALC3	69-182A		See NOTE 2	61-038	See NOTE 2	61-038	ALC 3

NOTE 1: No hardware is currently associated with identified fuse. Circuit pack slot is wired and fused for future A-link driver (ALD) hardware to support A-link controller 2 (ALC 2)

NOTE 2: No hardware is currently associated with identified fuse. Circuit pack slot is wired and fused for future A-link driver (ALD) hardware to support A-link controller 3 (ALC 3)


[9] Identify A-link controller unit member number associated with blown fuse [TABLE A]
[10] At 1B Processor MTC terminal, enter
RMV:XTSI a,ALC b!
a = XTSI member number (0-63)
b = A-link controller member number (0 or 1)
[11] Does system respond with RMV XTSI a ALC b COMPL message
No
[12] Contact next higher technical support group and inform personnel of actions performed and results obtained
Yes
[13] Identify UN545 circuit pack containing power switch associated with blown fuse [TABLE A]
Page 4



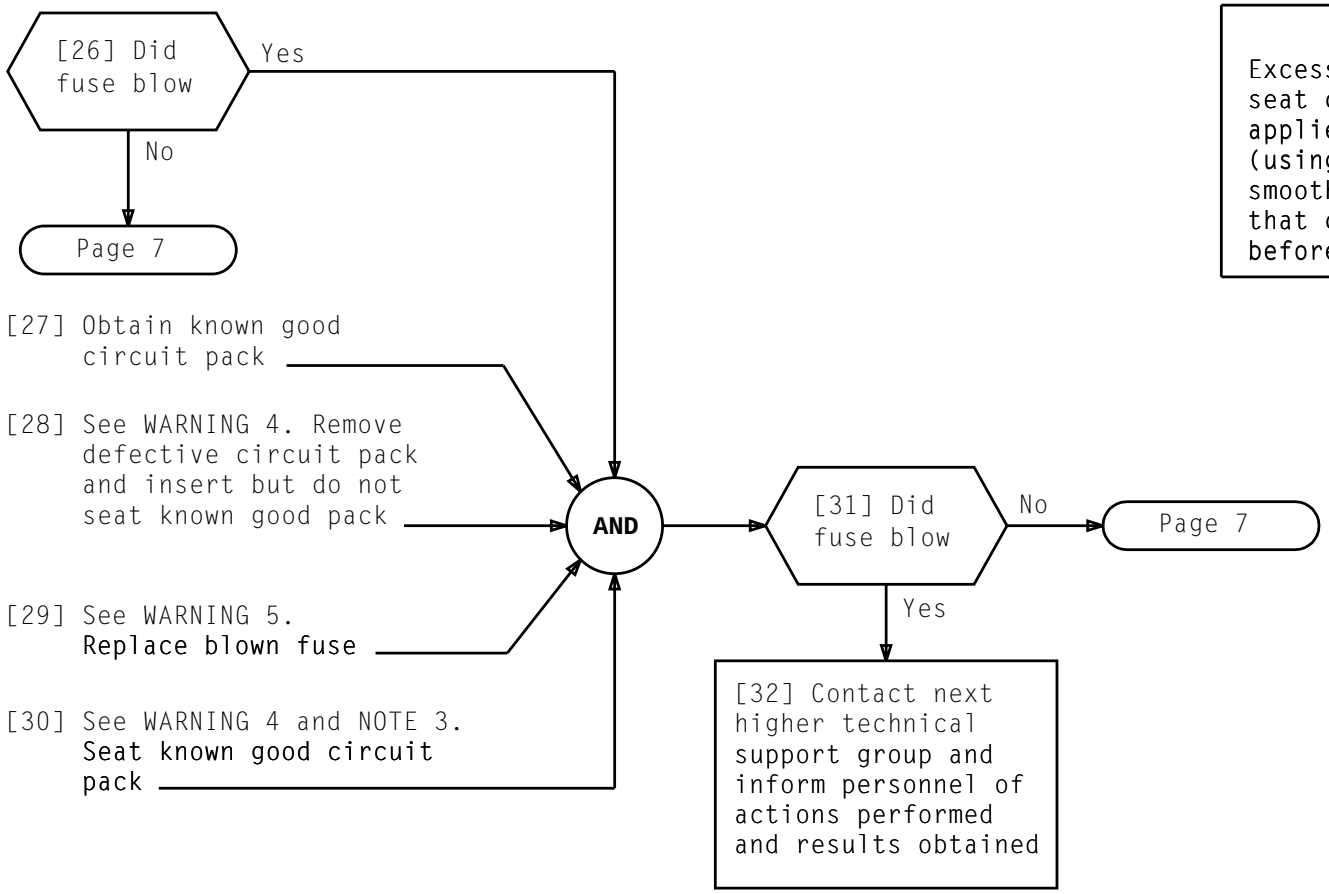


NOTE 2

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

WARNINGS

2. *A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*
3. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*



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WARNINGS

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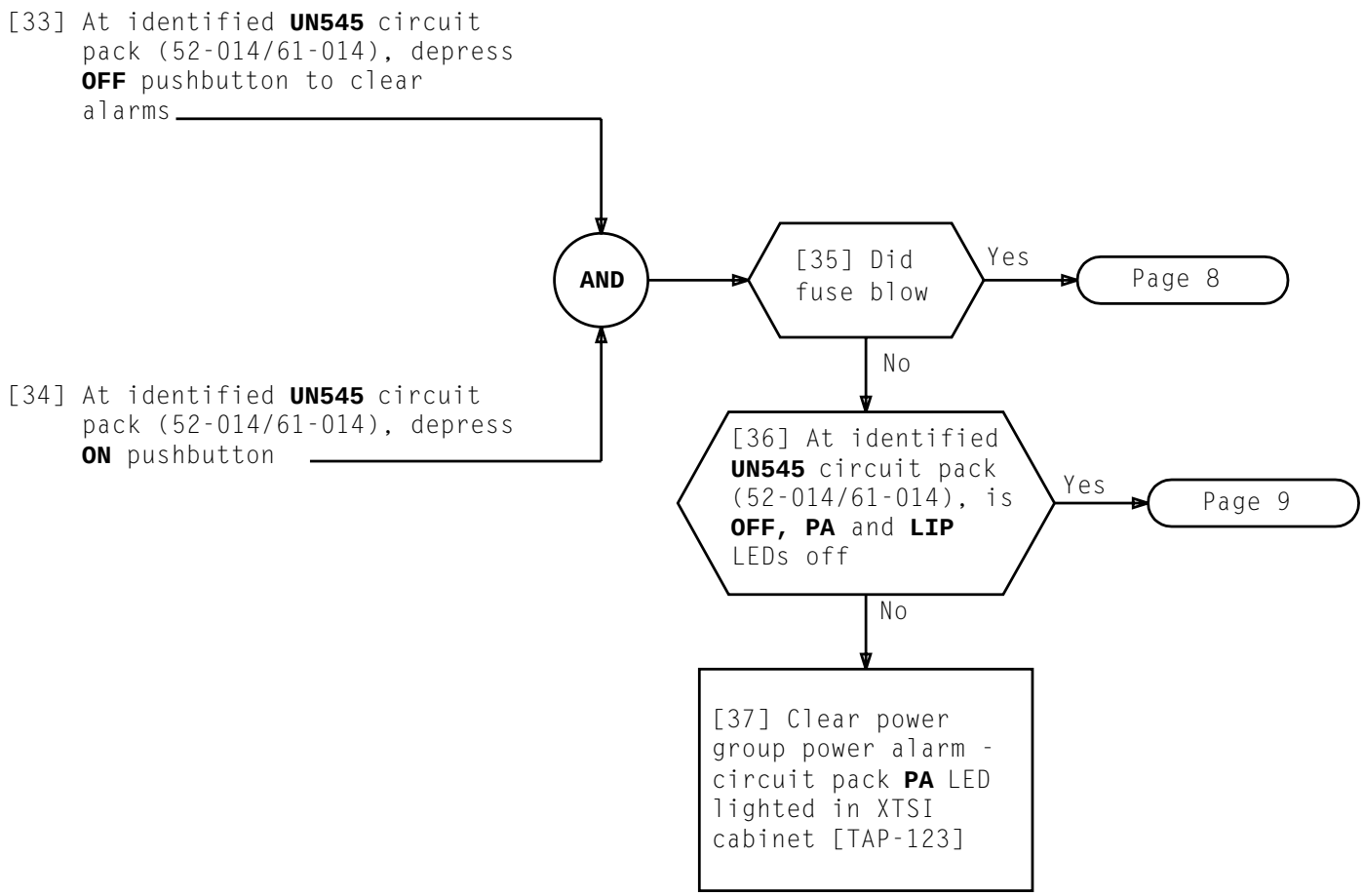
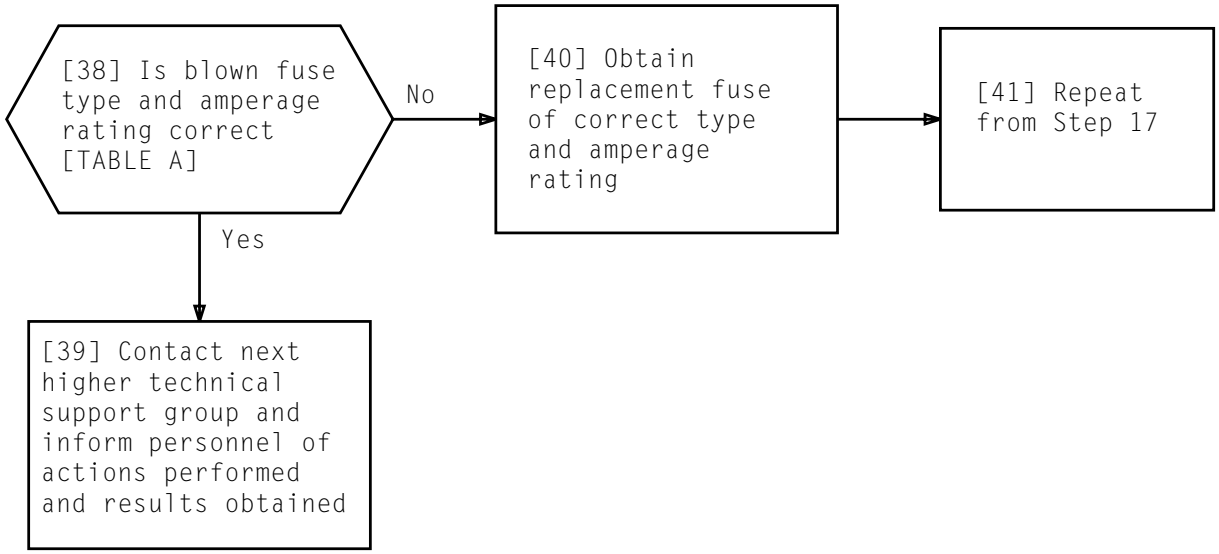
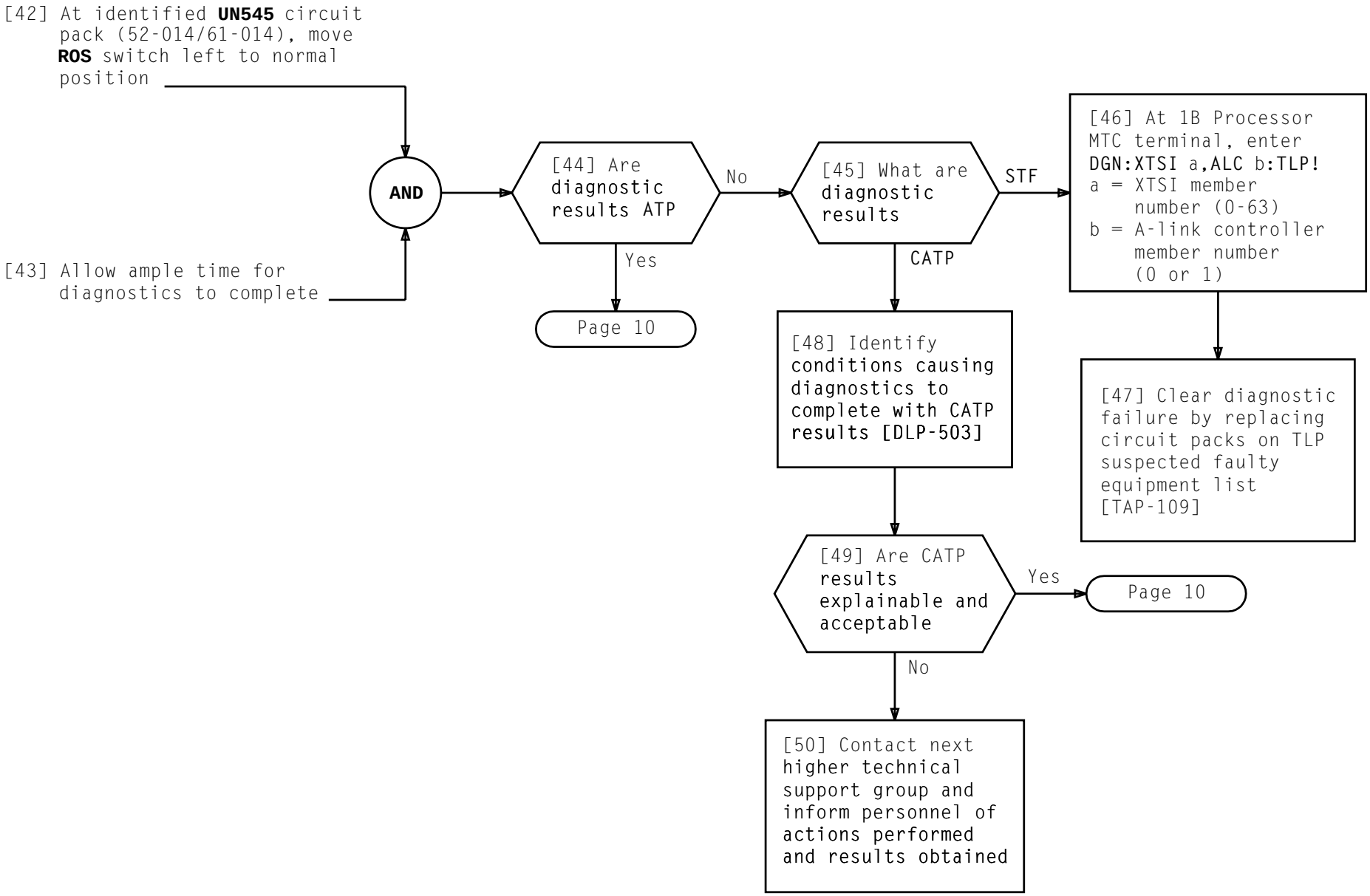
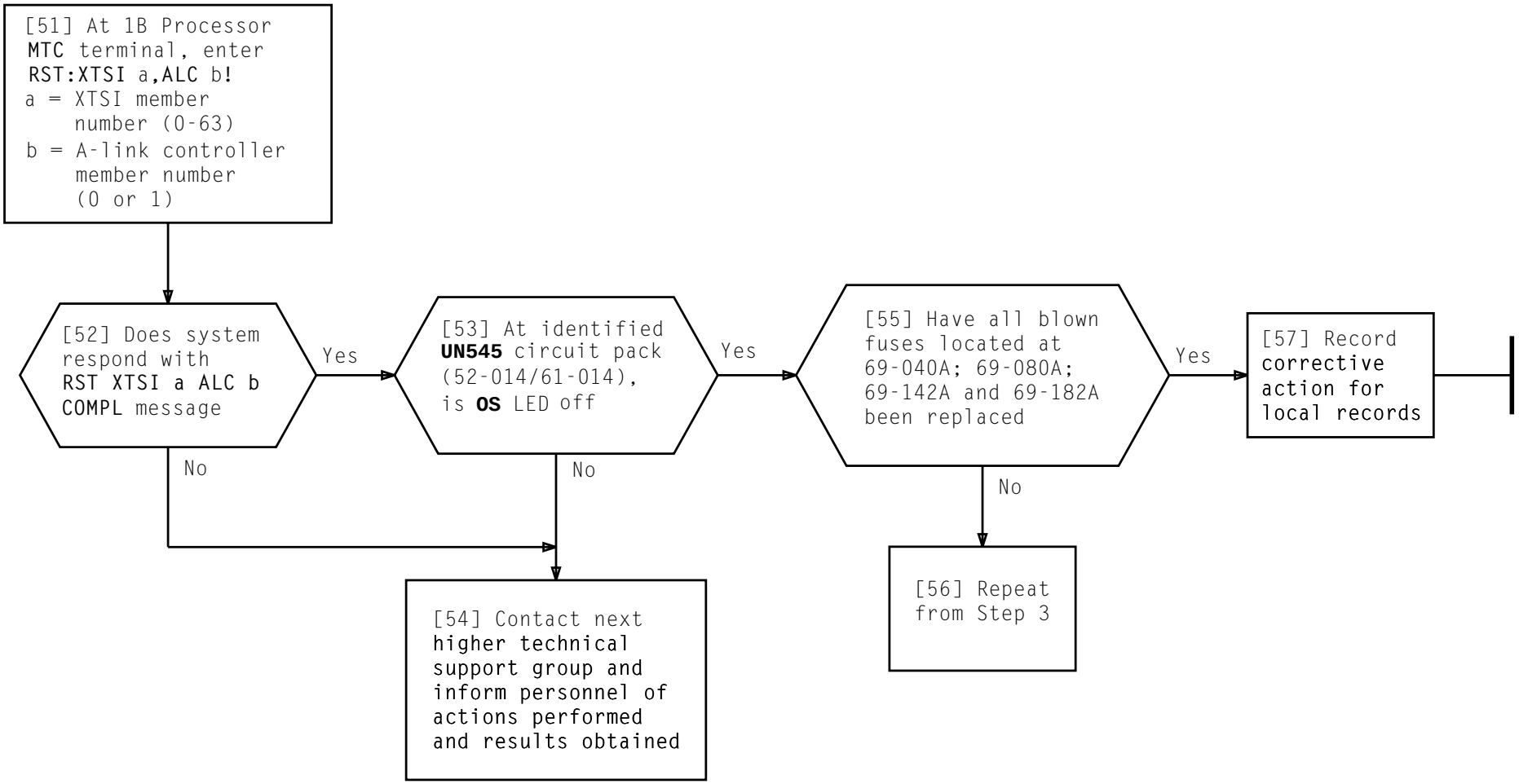
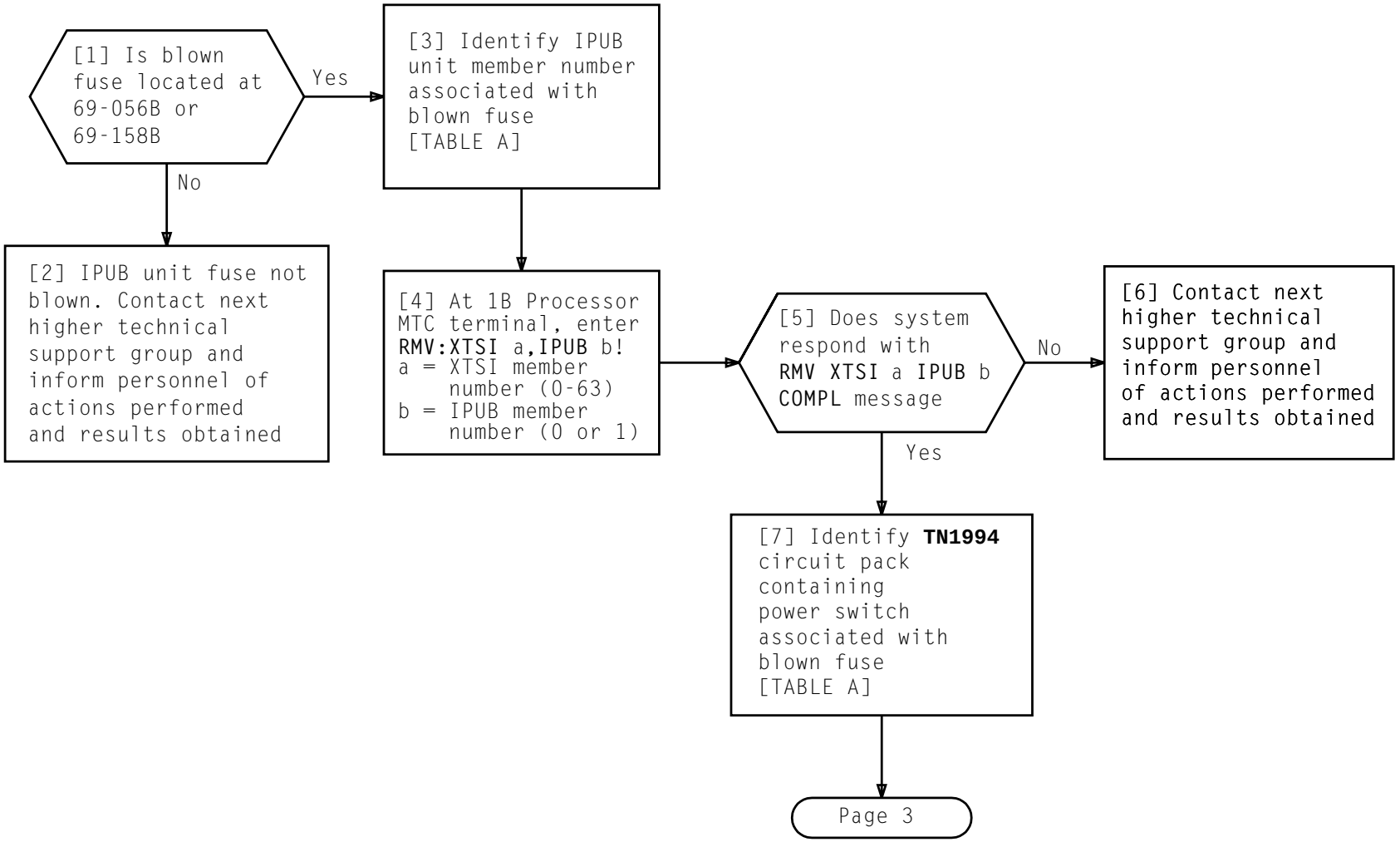








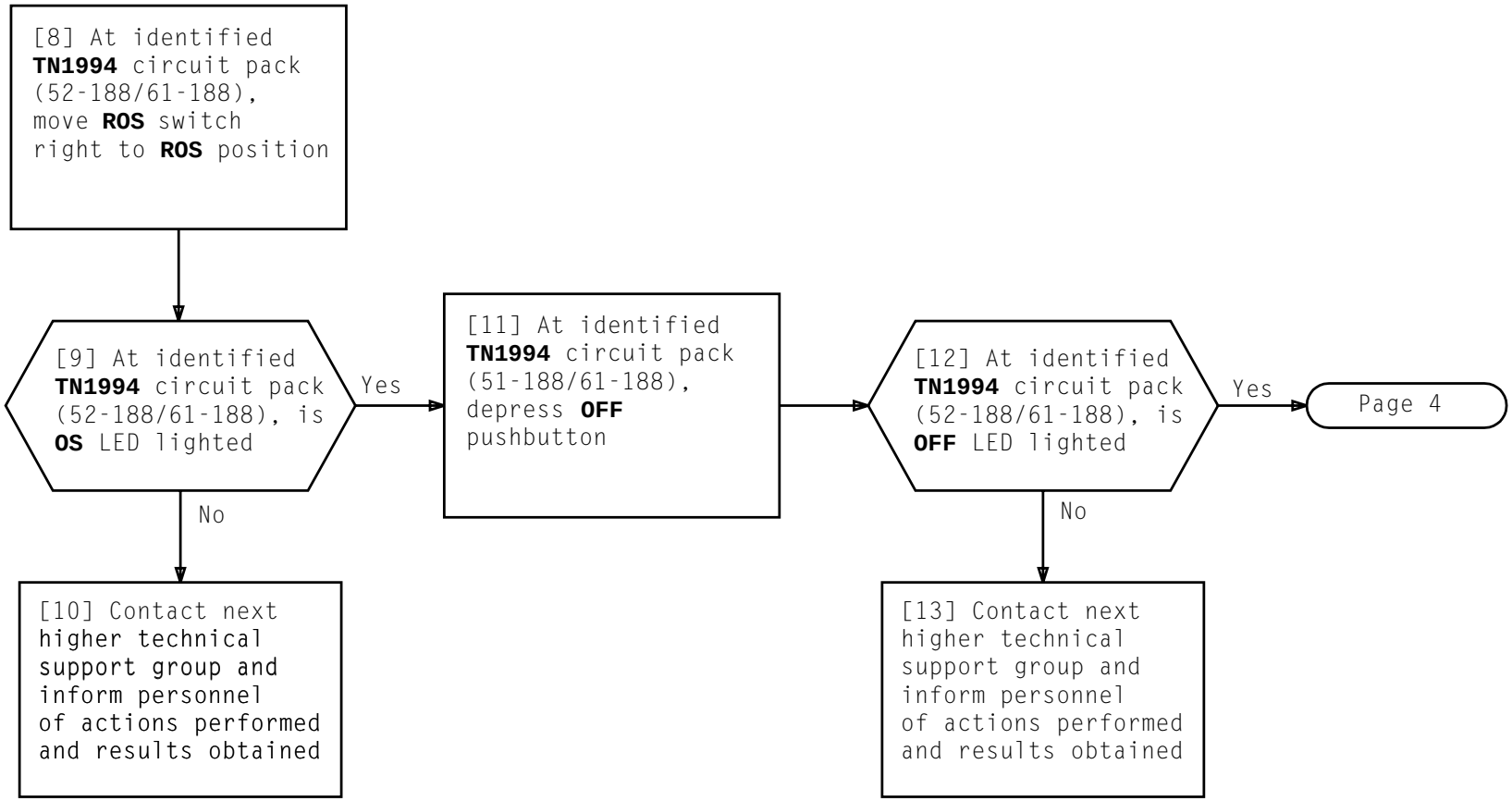
CLEAR A-LINK CONTROLLER (ALC) UNIT BLOWN FUSE

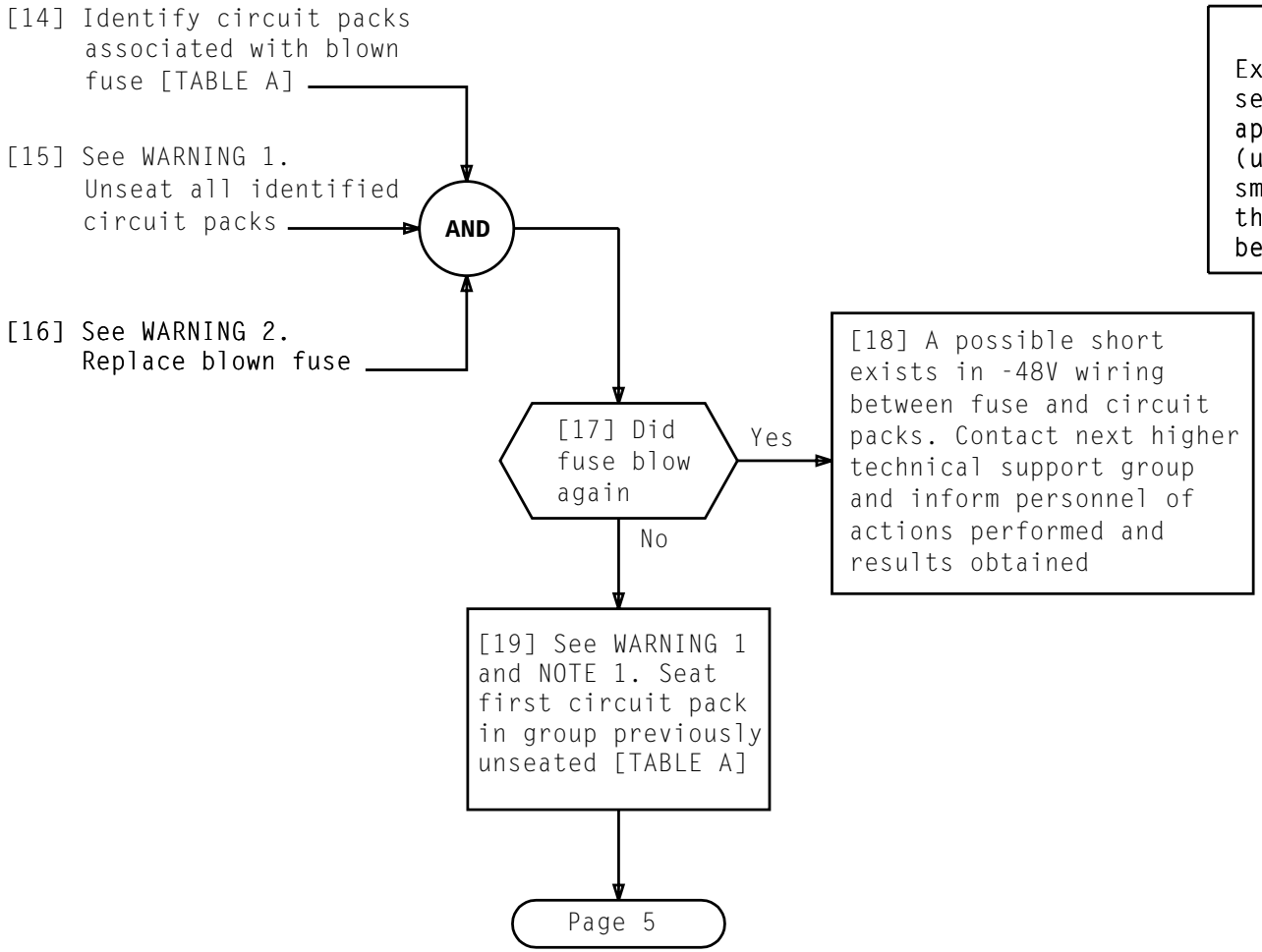


CLEAR INTERFACE PERIPHERAL UNIT BUS (IPUB) UNIT BLOWN FUSE

TABLE A
XTSI CABINET IPUB UNIT FUSES AND ASSOCIATED CIRCUIT PACKS

BLOWN FUSE			ASSOCIATED CIRCUIT PACK		CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED IPUB UNIT
IDENTIFIER	LOCATION	TYPE	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
IPUB0	69-056B	80D (3A, Blue)	**TN1994**	52-188	**TN1994**	52-188	IPUB 0
			UN559	52-180			
			UN559	52-172			
			UN559	52-164			
			UN559	52-156			
IPUB1	69-158B	80D (3A, Blue)	**TN1994**	61-188	**TN1994**	61-188	IPUB 1
			UN559	61-180			
			UN559	61-172			
			UN559	61-164			
			UN559	61-156			


[8] At identified **TN1994** circuit pack (52-188/61-188), move **ROS** switch right to **ROS** position
[9] At identified **TN1994** circuit pack (52-188/61-188), is **OS** LED lighted
Yes
No
[10] Contact next higher technical support group and inform personnel of actions performed and results obtained
[11] At identified **TN1994** circuit pack (51-188/61-188), depress **OFF** pushbutton
[12] At identified **TN1994** circuit pack (52-188/61-188), is **OFF** LED lighted
Yes
No
Page 4
[13] Contact next higher technical support group and inform personnel of actions performed and results obtained



NOTE 1

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WARNINGS

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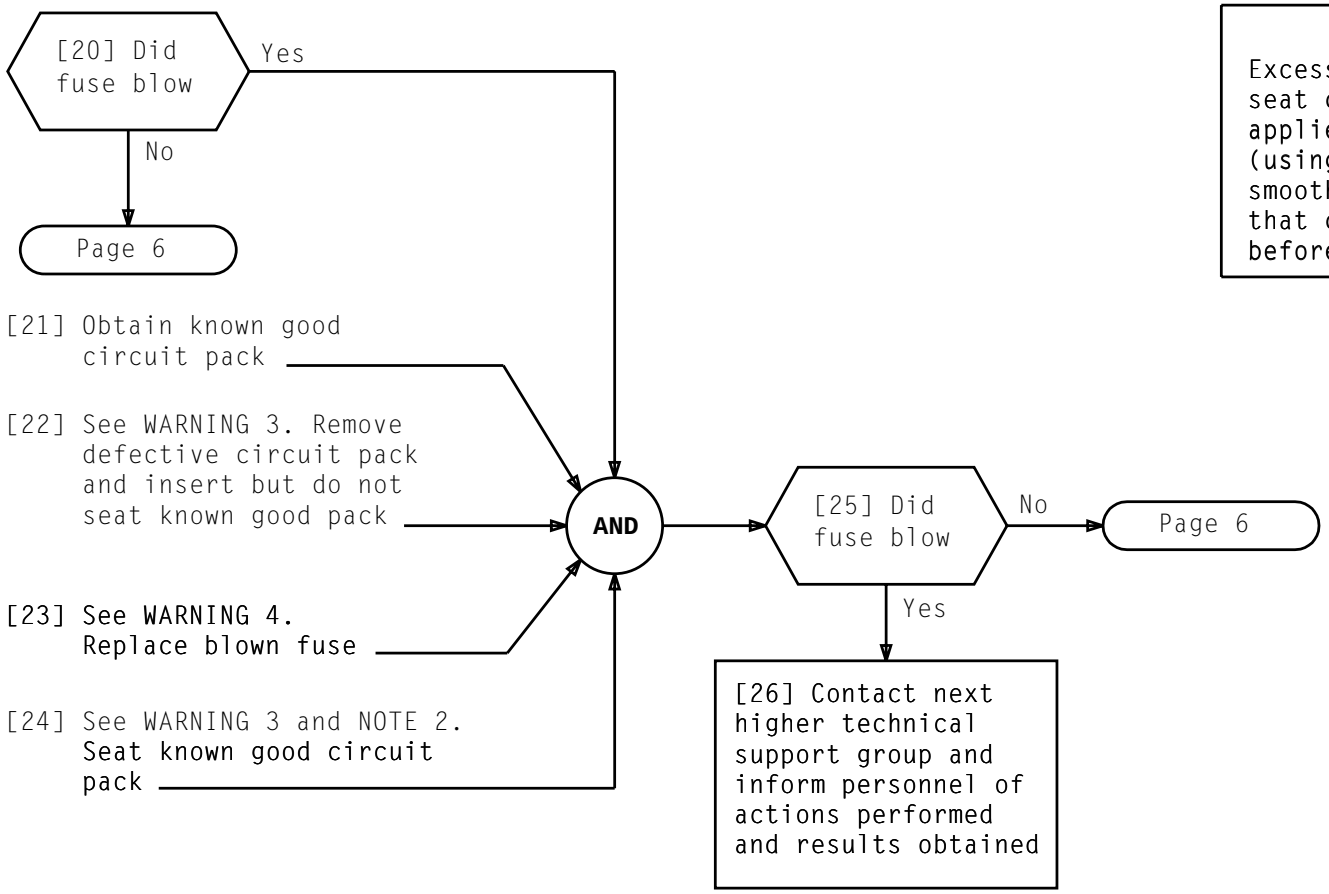

NOTE 2

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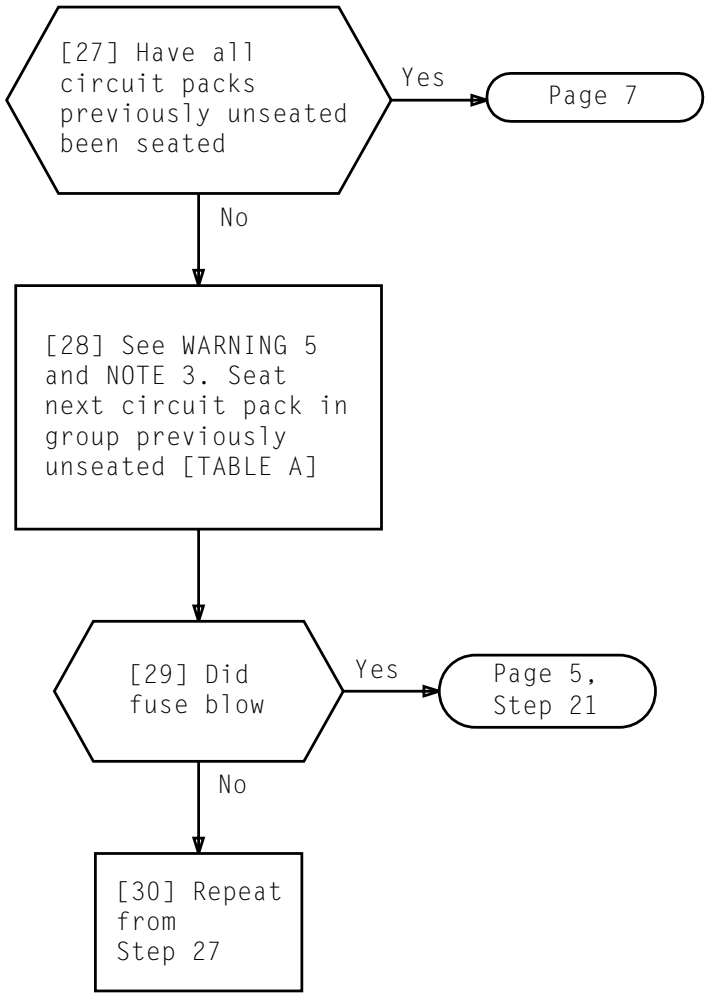

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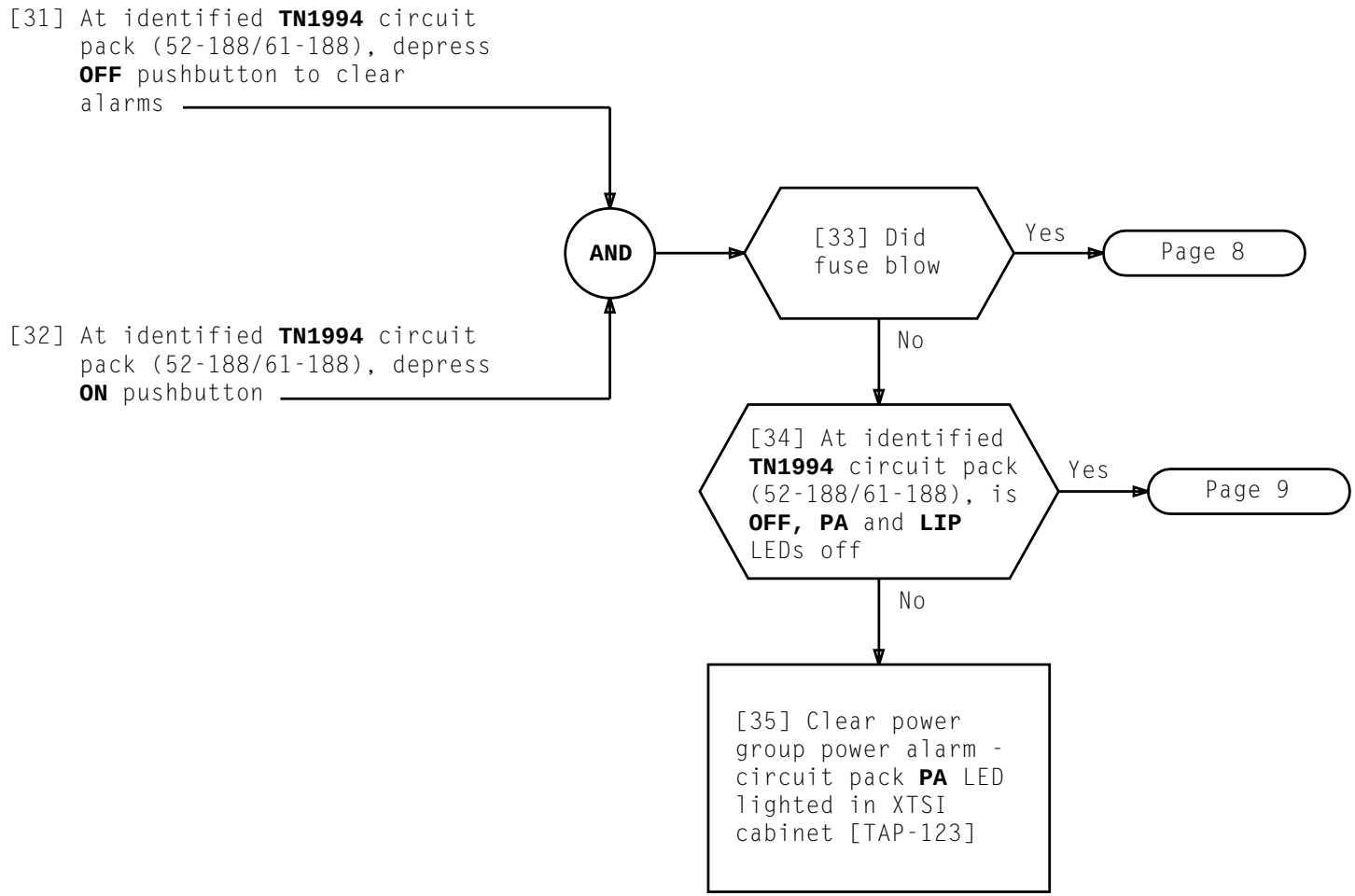
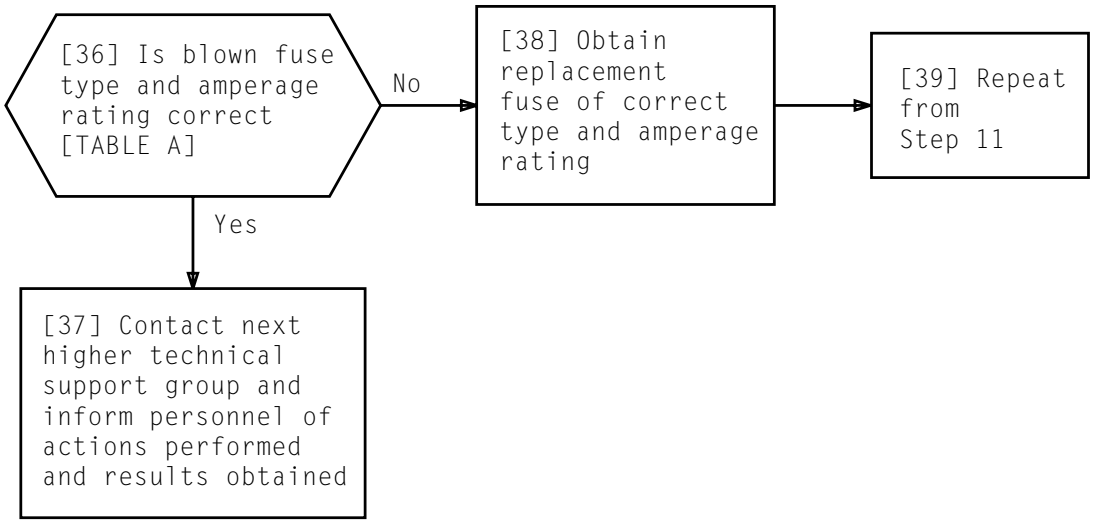
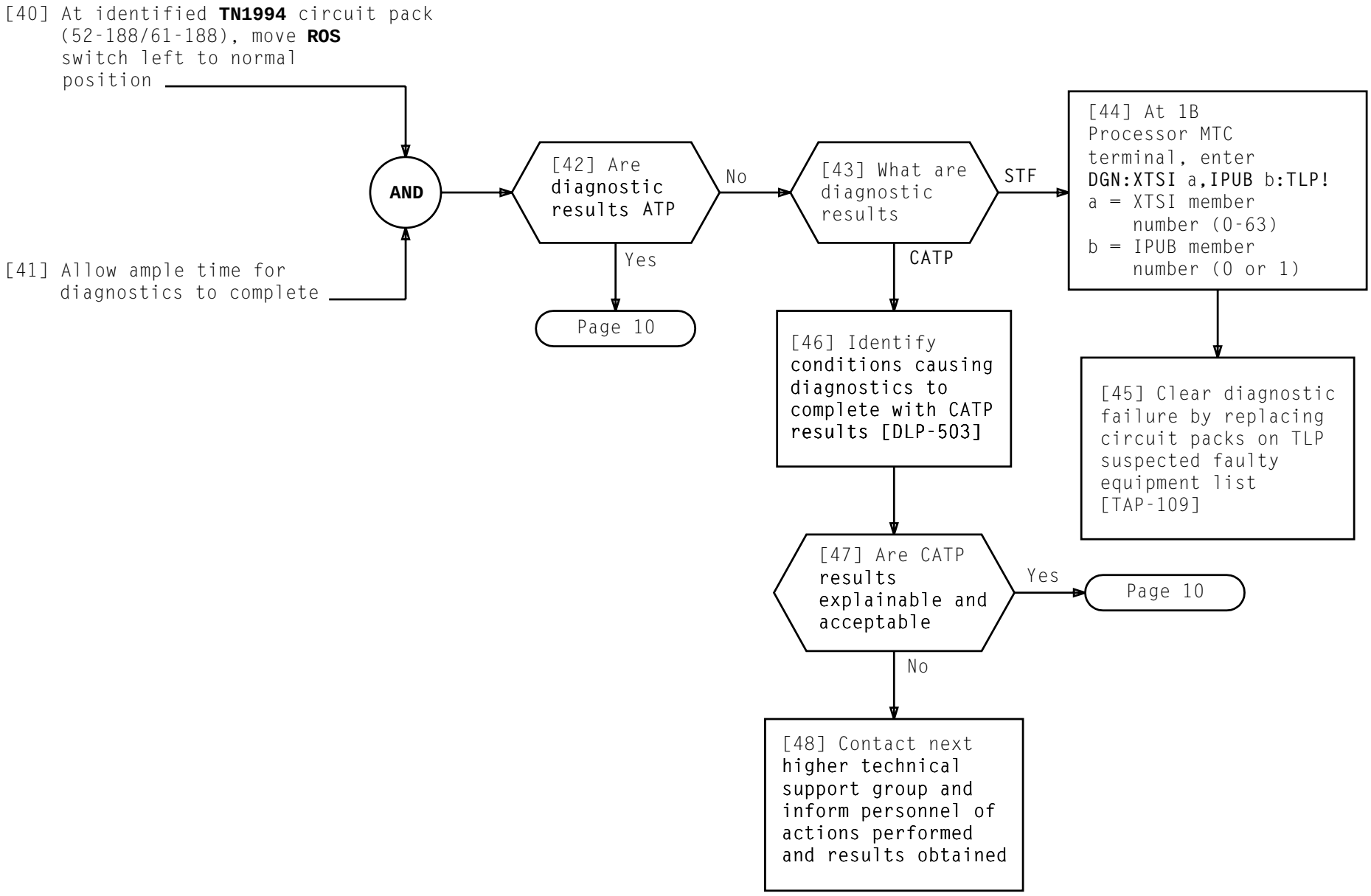
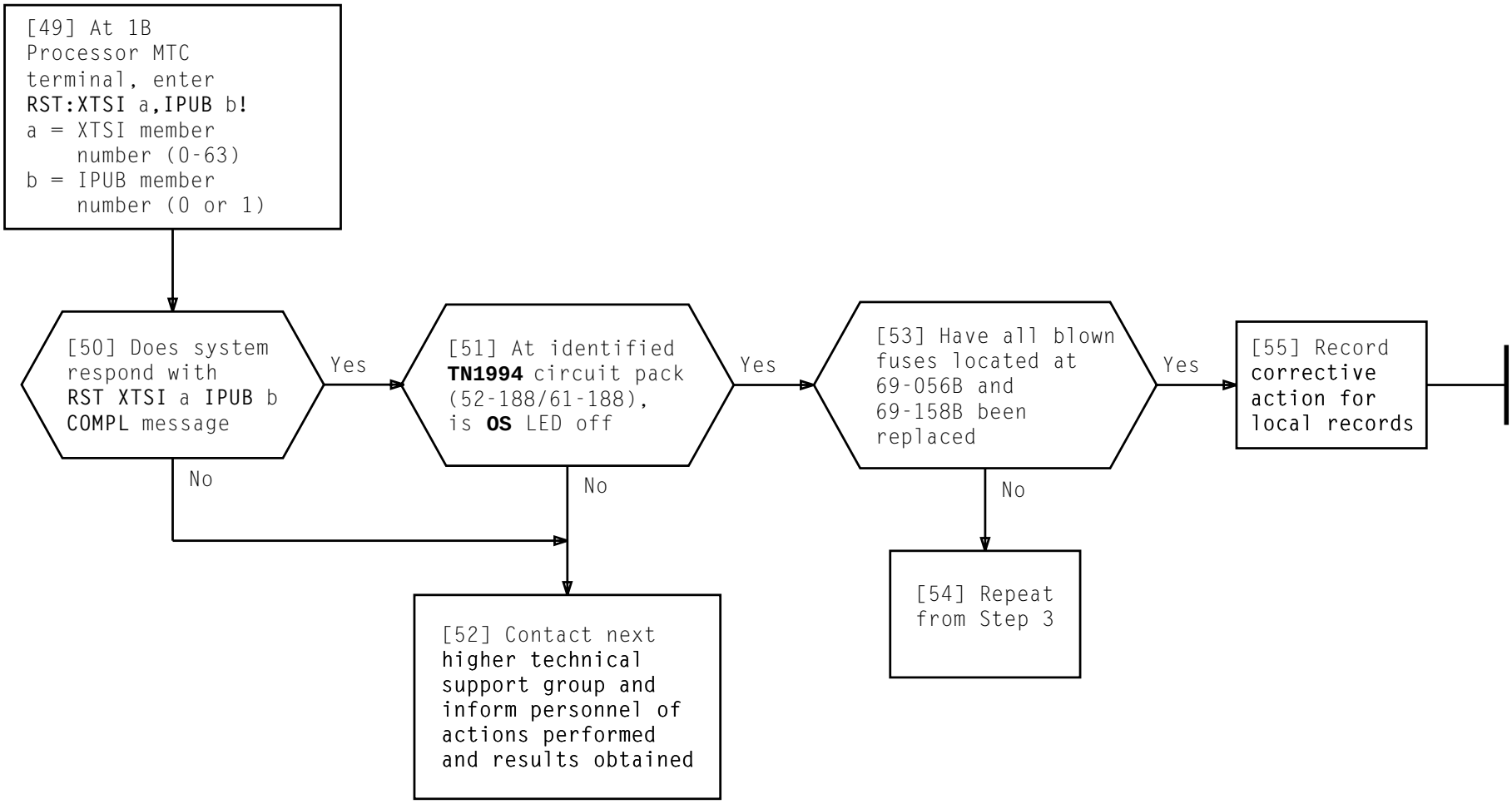
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any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

CLEAR INTERFACE PERIPHERAL UNIT BUS (IPUB) BLOWN FUSE

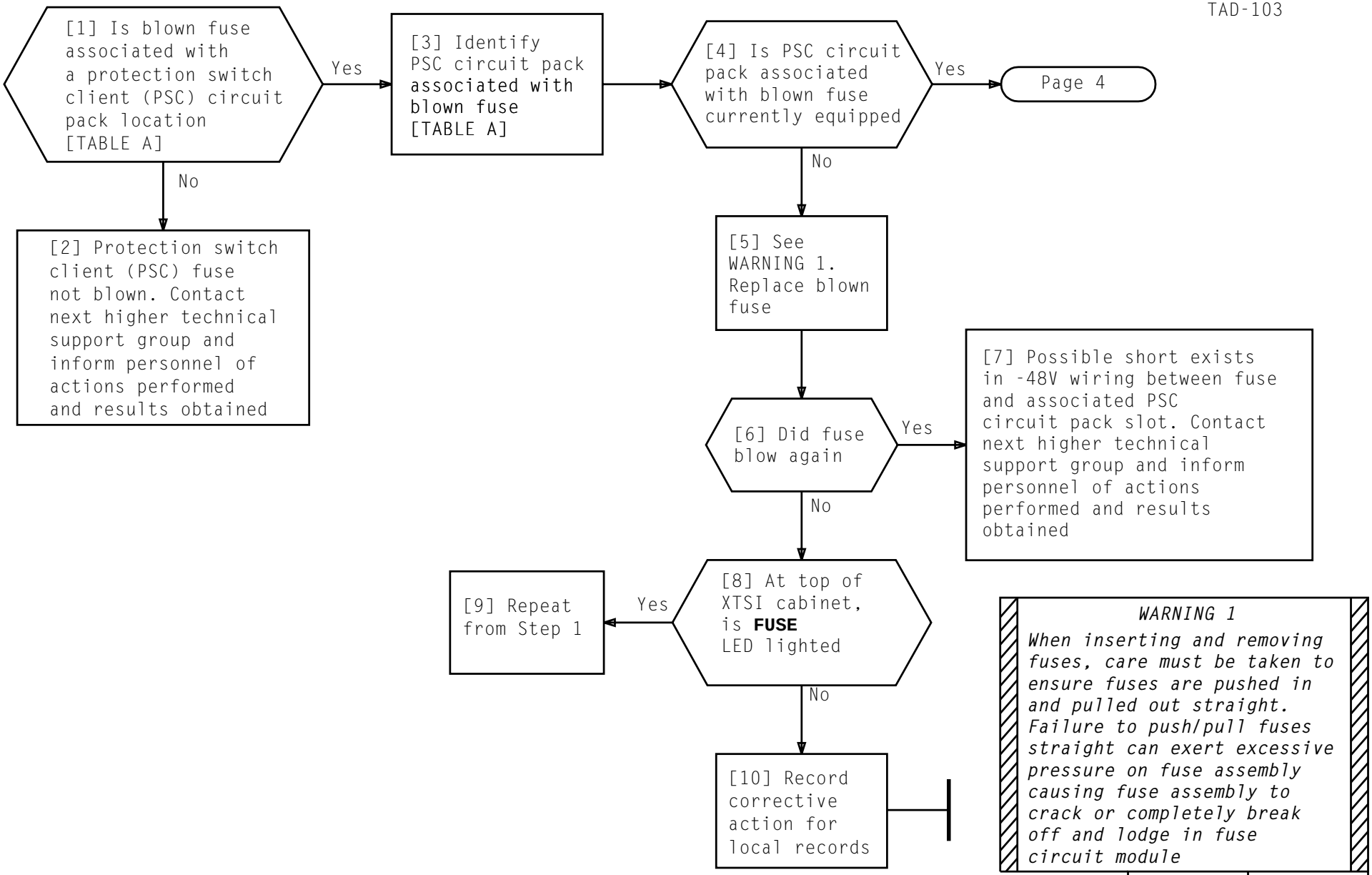



[36] Is blown fuse type and amperage rating correct [TABLE A]
No
[38] Obtain replacement fuse of correct type and amperage rating
[39] Repeat from Step 11
Yes
[37] Contact next higher technical support group and inform personnel of actions performed and results obtained





CLEAR INTERFACE PERIHPERAL UNIT BUS (IPUB) BLOWN FUSE



WARNING 1

When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

CLEAR PROTECTION SWITCH CLIENT (PSC) BLOWN FUSE

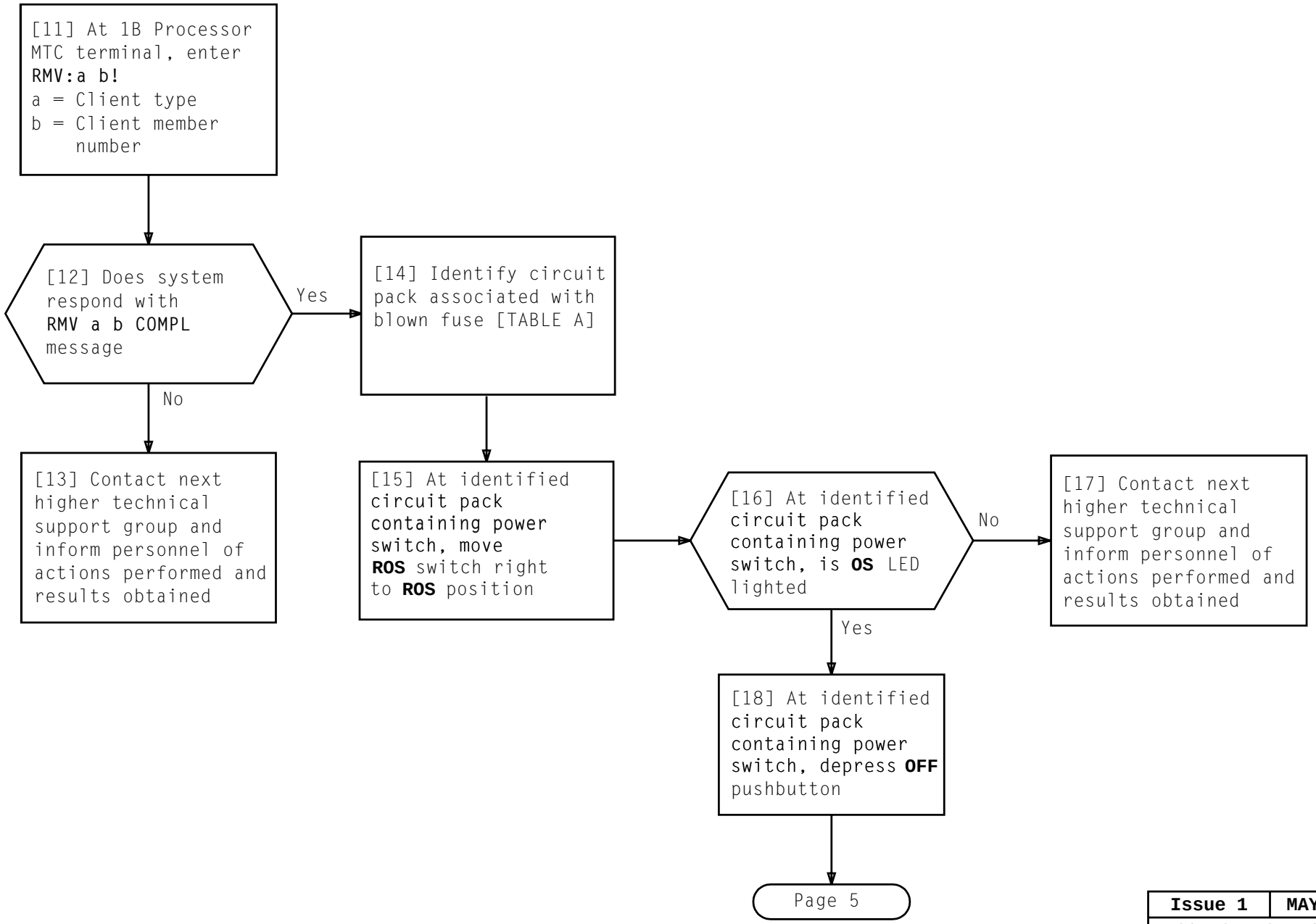
TABLE A
XTSI CABINET PROTECTION SWITCH CLIENT (PSC) FUSES AND ASSOCIATED CIRCUIT PACKS

BLOWN FUSE		CIRCUIT PACK		CLIENT NAME	BLOWN FUSE		CIRCUIT PACK		CLIENT NAME
IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
PSC00-A	69-008D	**4WB3**	14-016	D3U 6	**PSC09-A**	69-024E	**4WB3**	14-164	D3U 3
PSC00-B	69-110D				**PSC09-B**	69-126E			
PSC01-A	69-040E	**4WB3**	14-024	D3U 0	**PSC10-A**	69-064D	**4WB3**	14-172	D3U 4
PSC01-B	69-142E				**PSC10-B**	69-166D			
PSC02-A	69-080D	**4WB3**	14-032	D3U 1	**PSC11-A**	69-072D	**4WB3**	14-180	D3U 5
PSC02-B	69-182D				**PSC11-B**	69-174D			
PSC03-A	69-056E	**4WB3**	14-040	D3U 2	**PSC12-A**	69-080C	**4WB8**	31-016	SPU 10
PSC03-B	69-158E				**PSC12-B**	69-182C			
PSC04-A	69-040D	See NOTE 1	14-048	—	**PSC13-A**	69-016D	**4WB8**	31-024	SPU 0
PSC04-B	69-142D				**PSC13-B**	69-118D			
PSC05-A	69-064E	See NOTE 1	14-056	—	**PSC14-A**	69-048D	**4WB8**	31-032	SPU 1
PSC05-B	69-166E				**PSC14-B**	69-150D			
PSC06-A	69-072E	See NOTE 1	14-140	—	**PSC15-A**	69-056D	**4WB8**	31-040	SPU 2
PSC06-B	69-174E				**PSC15-B**	69-158D			
PSC07-A	69-048E	See NOTE 1	14-148	—	**PSC16-A**	69-064C	**4WB8**	31-048	SPU 3
PSC07-B	69-150E				**PSC16-B**	69-166C			
PSC08-A	69-016E	**4WB3**	14-156	D3U 7	**PSC17-A**	69-080B	**4WB8**	31-056	SPU 4
PSC08-B	69-118E				**PSC17-B**	69-182B			

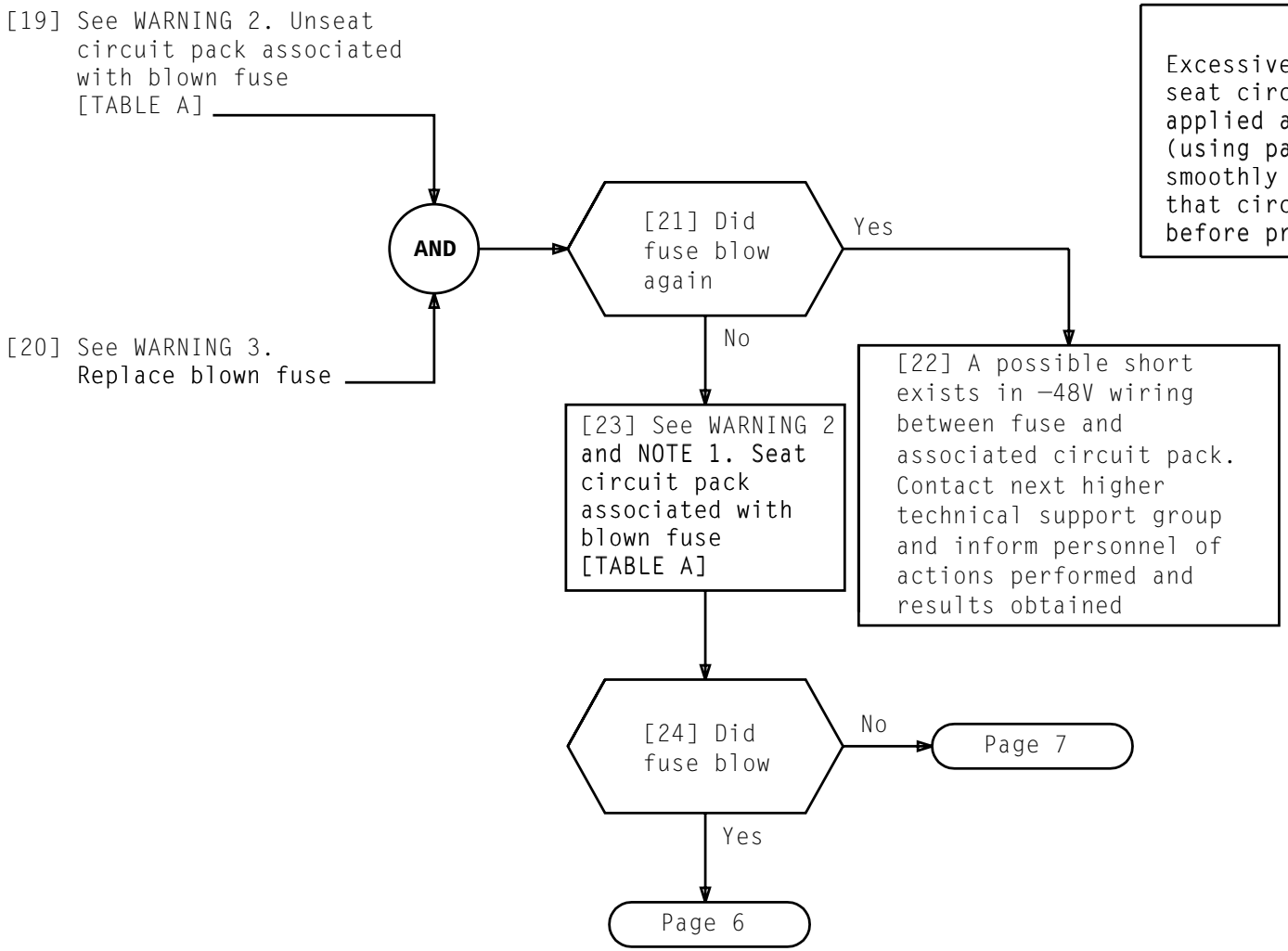
NOTE 1: No client hardware is currently associated with identified fuse. Client fuse is wired and reserved for future applications

TABLE A (Continued)
XTSI CABINET PROTECTION SWITCH CLIENT (PSC) FUSES AND ASSOCIATED CIRCUIT PACKS

BLOWN FUSE		CIRCUIT PACK		CLIENT NAME	BLOWN FUSE		CIRCUIT PACK		CLIENT NAME
IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
PSC18-A	69-048C	**4WB8**	31-140	SPU 11					
PSC18-B	69-150C								
PSC19-A	69-056C	**4WB8**	31-148	SPU 5					
PSC19-B	69-158C								
PSC20-A	69-064B	**4WB8**	31-156	SPU 6					
PSC20-B	69-166B								
PSC21-A	69-072C	**4WB8**	31-164	SPU 7					
PSC21-B	69-174C								
PSC22-A	69-016C	**4WB8**	31-172	SPU 8					
PSC22-B	69-118C								
PSC23-A	69-040C	**4WB8**	31-180	SPU 9					
PSC23-B	69-142C								



CLEAR PROTECTION SWITCH CLIENT (PSC) BLOWN FUSE

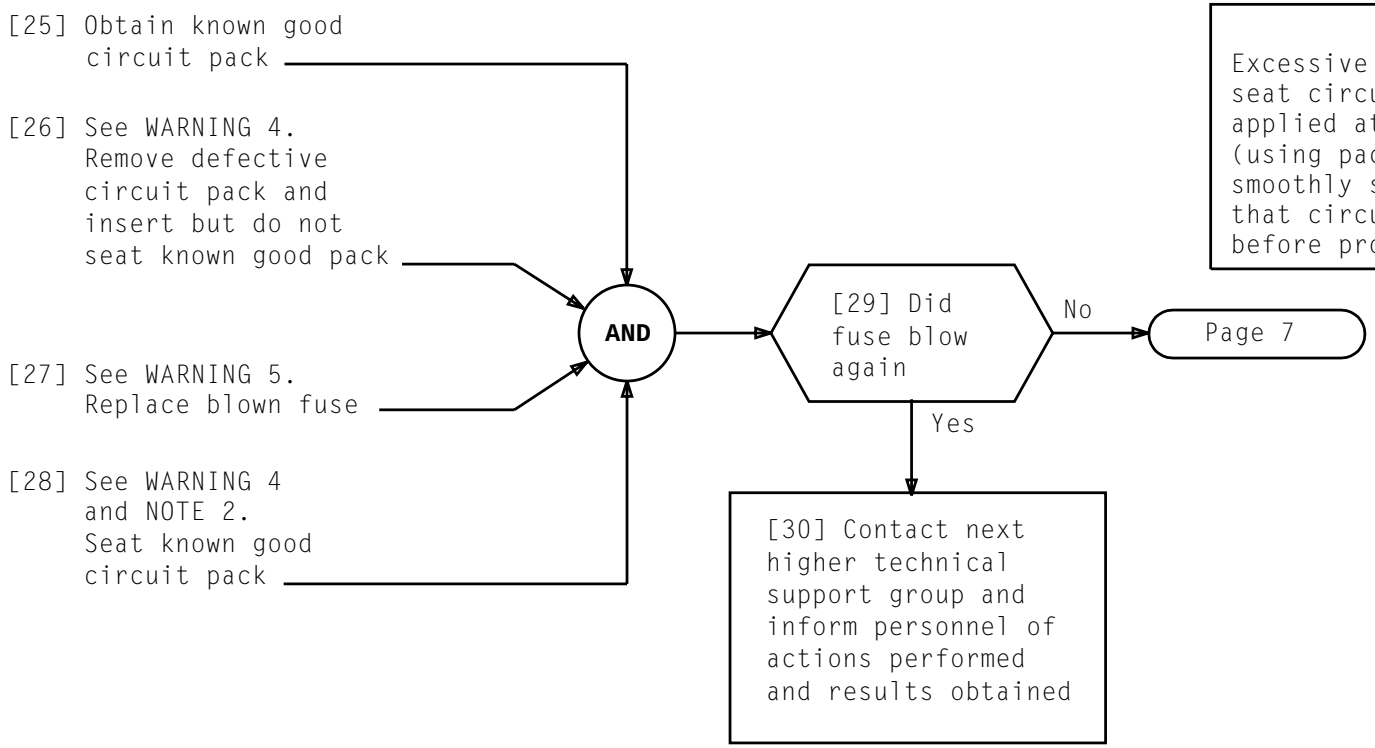


NOTE 1

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

WARNINGS

2. *A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*
3. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*

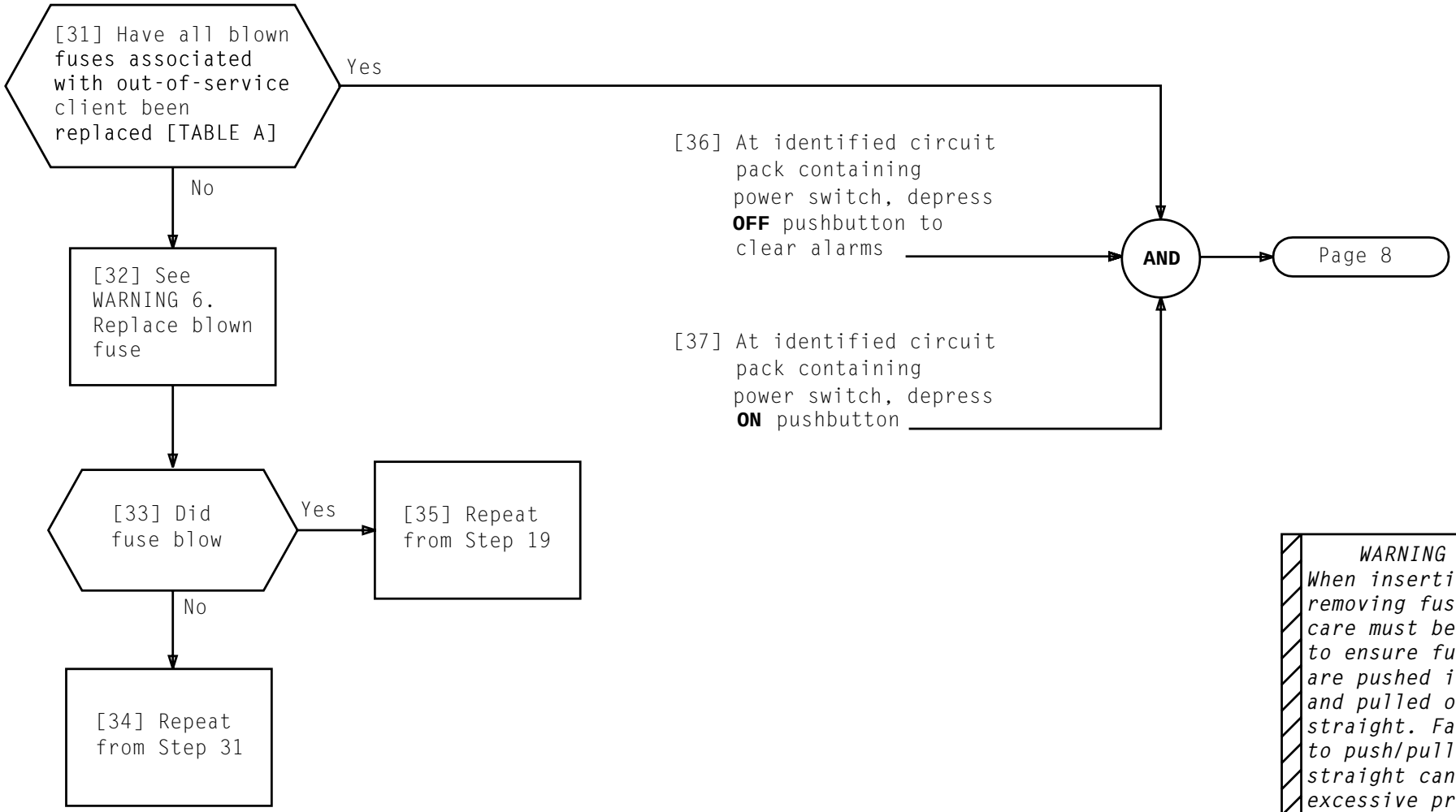


NOTE 2

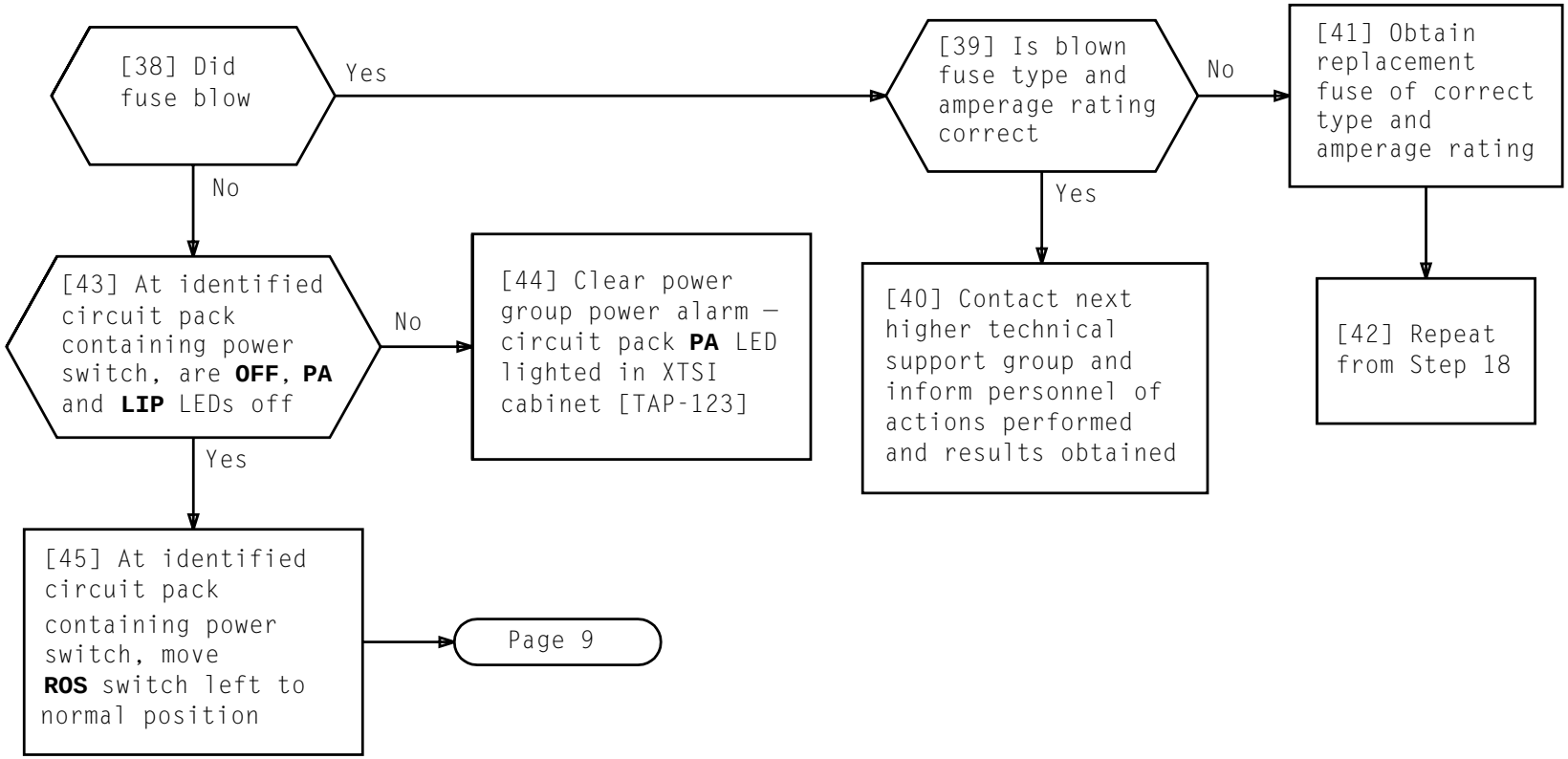
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack (using pack seating mechanism) does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

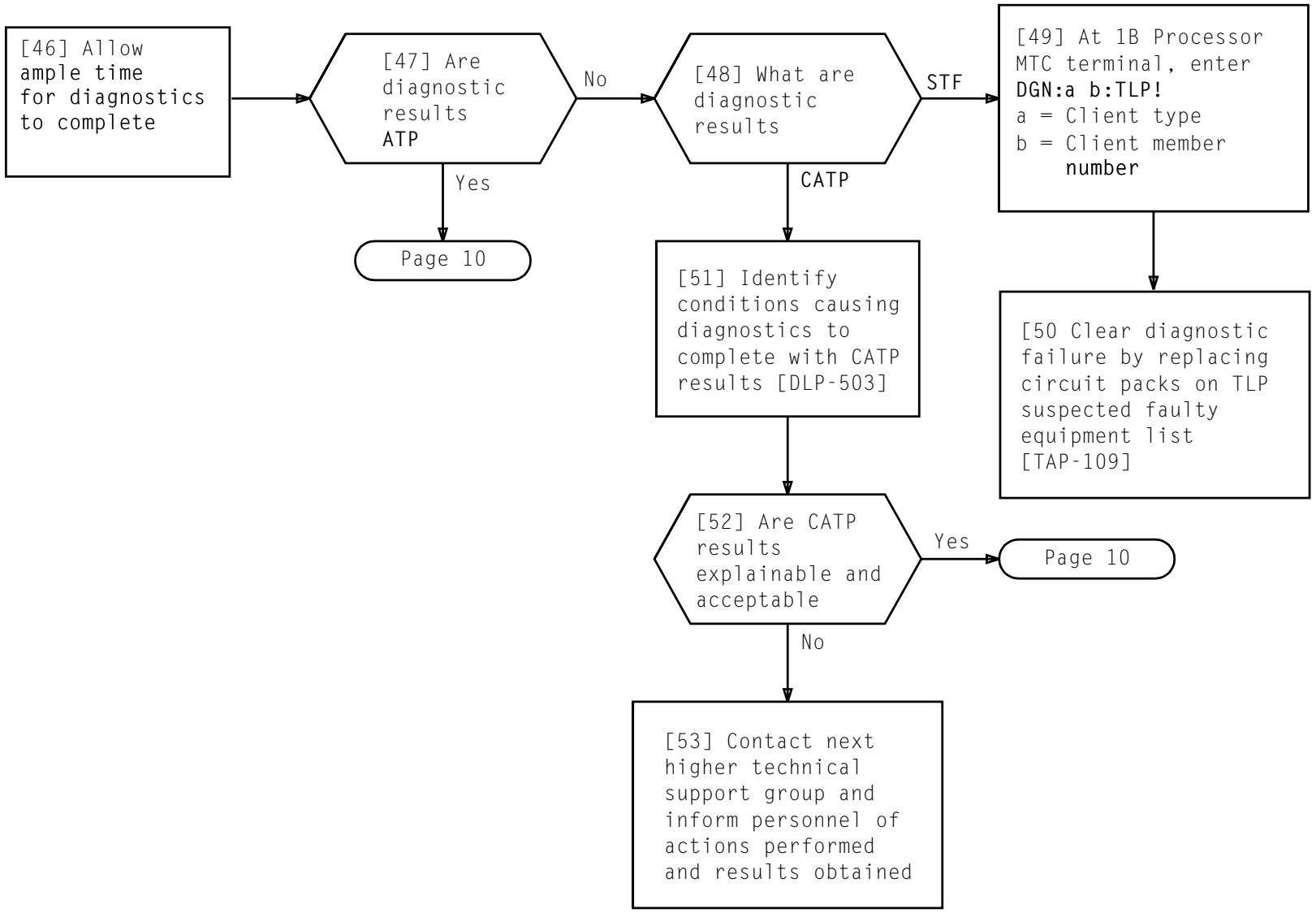
WARNINGS

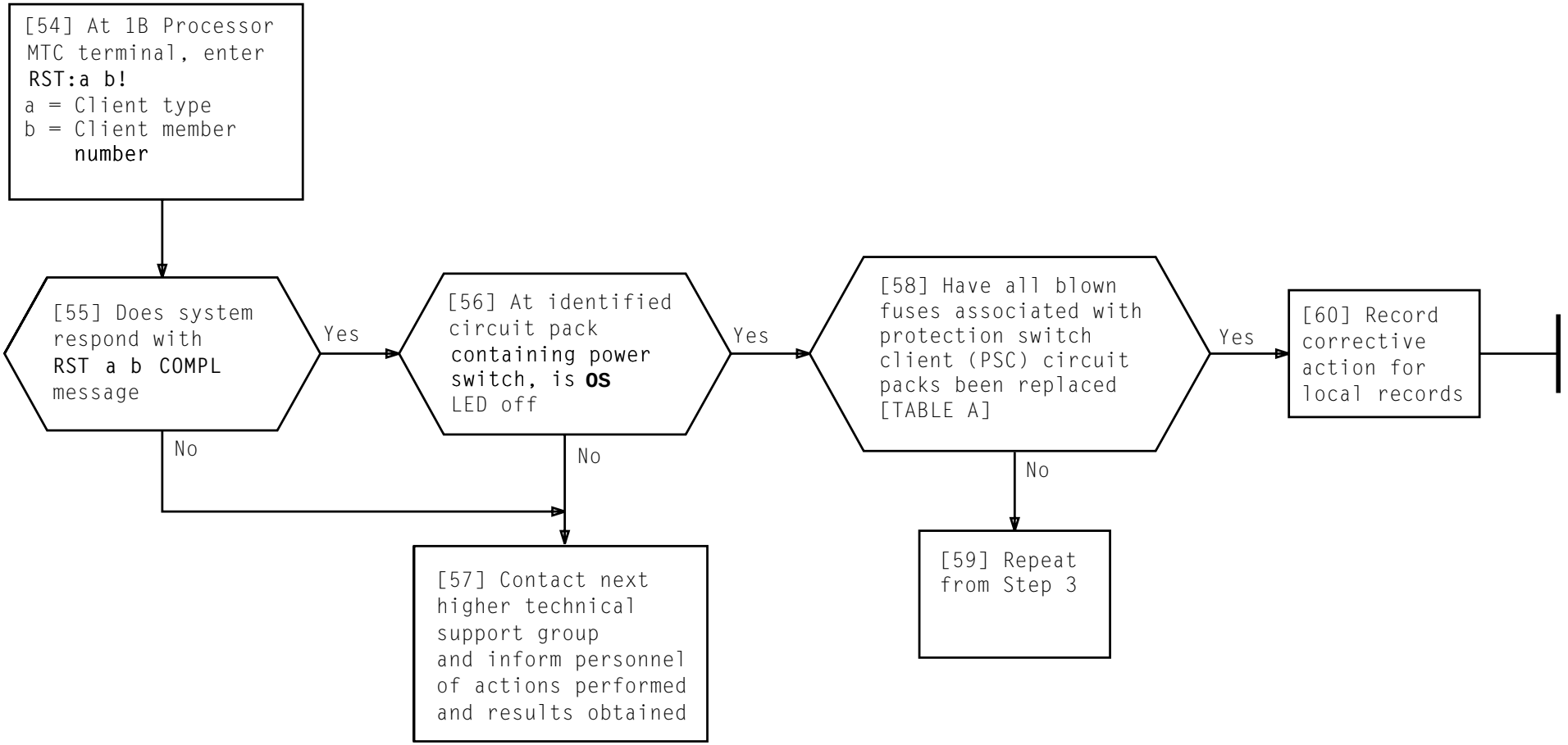
4. *A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins*
5. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*



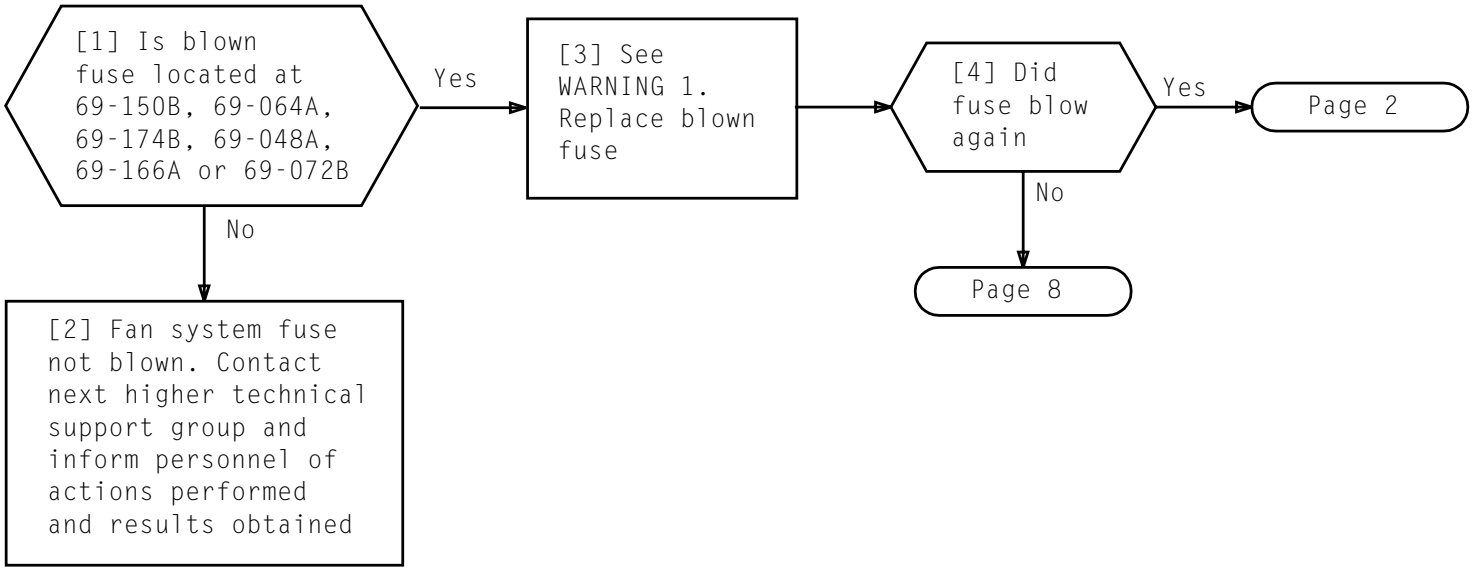
WARNING 6
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module


[38] Did fuse blow
Yes
No
[39] Is blown fuse type and amperage rating correct
No
Yes
[41] Obtain replacement fuse of correct type and amperage rating
[42] Repeat from Step 18
[40] Contact next higher technical support group and inform personnel of actions performed and results obtained
[43] At identified circuit pack containing power switch, are **OFF**, **PA** and **LIP** LEDs off
No
[44] Clear power group power alarm — circuit pack **PA** LED lighted in XTSI cabinet [TAP-123]
Yes
[45] At identified circuit pack containing power switch, move **ROS** switch left to normal position
Page 9


[46] Allow ample time for diagnostics to complete
[47] Are diagnostic results ATP
No
Yes
Page 10
[48] What are diagnostic results
STF
CATP
[49] At 1B Processor MTC terminal, enter DGN:a b:TLP!
a = Client type
b = Client member number
[50 Clear diagnostic failure by replacing circuit packs on TLP suspected faulty equipment list [TAP-109]
[51] Identify conditions causing diagnostics to complete with CATP results [DLP-503]
[52] Are CATP results explainable and acceptable
Yes
Page 10
No
[53] Contact next higher technical support group and inform personnel of actions performed and results obtained

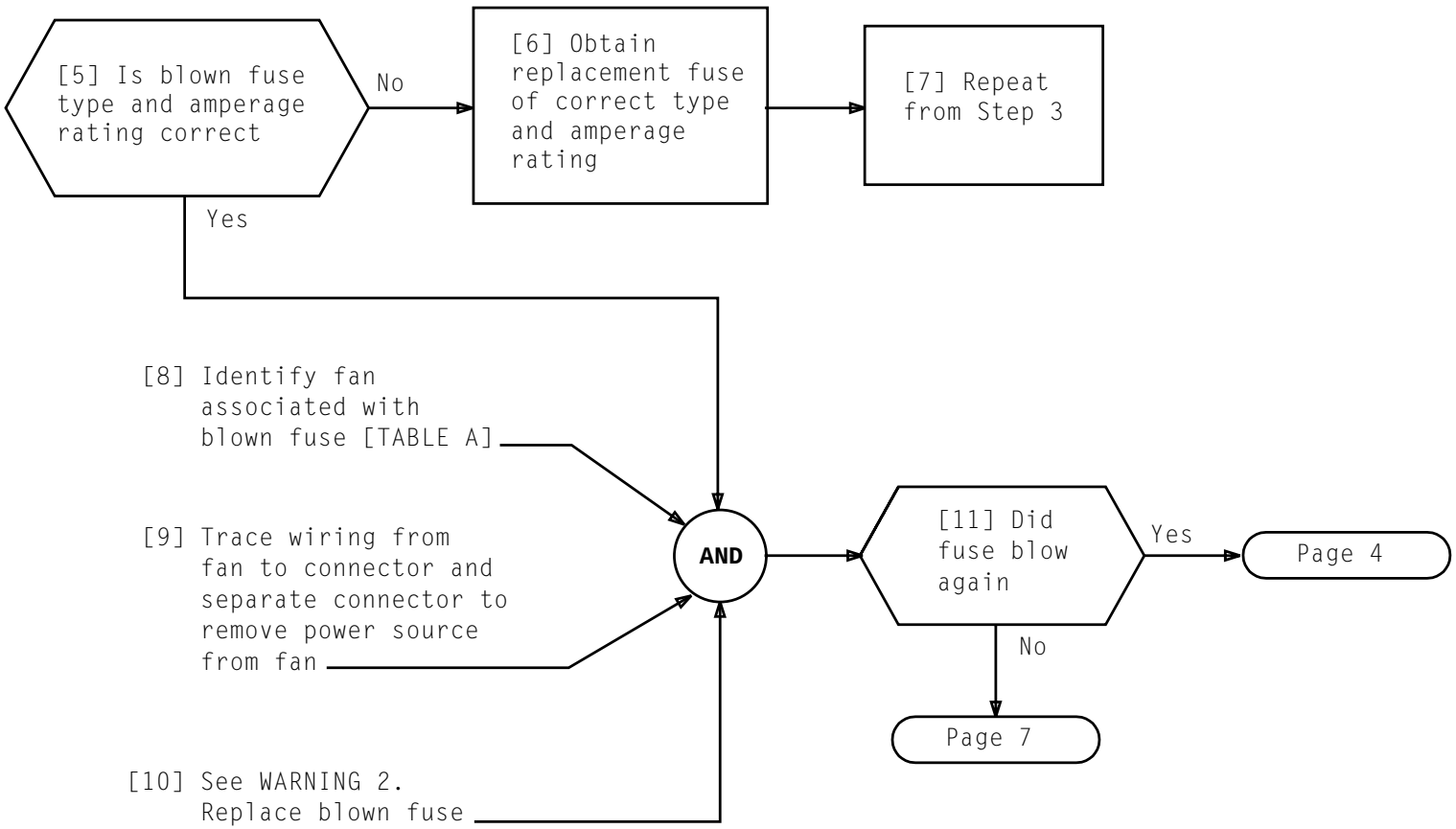


CLEAR PROTECTION SWITCH CLIENT (PSC) BLOWN FUSE



WARNING 1
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

CLEAR FAN SYSTEM BLOWN FUSE



WARNING 2
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

CLEAR FAN SYSTEM BLOWN FUSE

TABLE A

XTSI CABINET FAN SYSTEM FUSES AND ASSOCIATED LOADS

BLOWN FUSE		LOAD	
IDENTIFIER	**LOCATION**	**IDENTIFIER (NOTE 1)**	**LOCATION (NOTE 2)**
FAN A	69-150B	FAN A	44-032R
		FAN SYSTEM CONTROLLER	44-004R
FAN B	69-064A	FAN B	44-098R
FAN C	69-174B	FAN C	44-164R
FAN E	69-048A	FAN E	44-032F
FAN F	69-166A	FAN F	44-098F
FAN G	69-072B	FAN G	44-164F

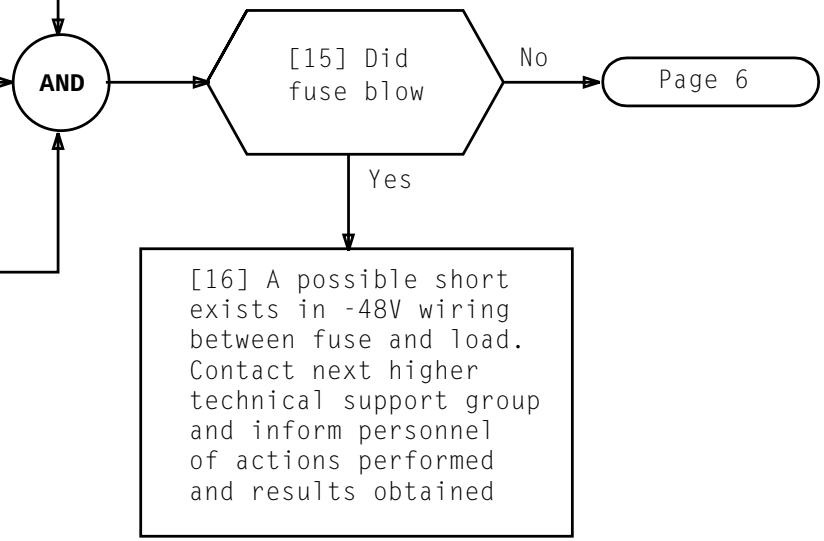
NOTES:

1. Rear fans are identified A, B and C, right to left across rear of fan unit. Front fans are identified E, F and G left to right across front of fan unit
2. F indicates front and R indicates rear

[12] At rear of fan unit, locate fan system controller board (44-004R) and identify location of controller board connectors **J2, J8** and **J9** [FIG. 1]

[13] See NOTE 1. Individually unseat controller board connectors **J2, J8** and **J9,** insulate connector end with electrical tape to avoid shorting and attach working tags for later identification

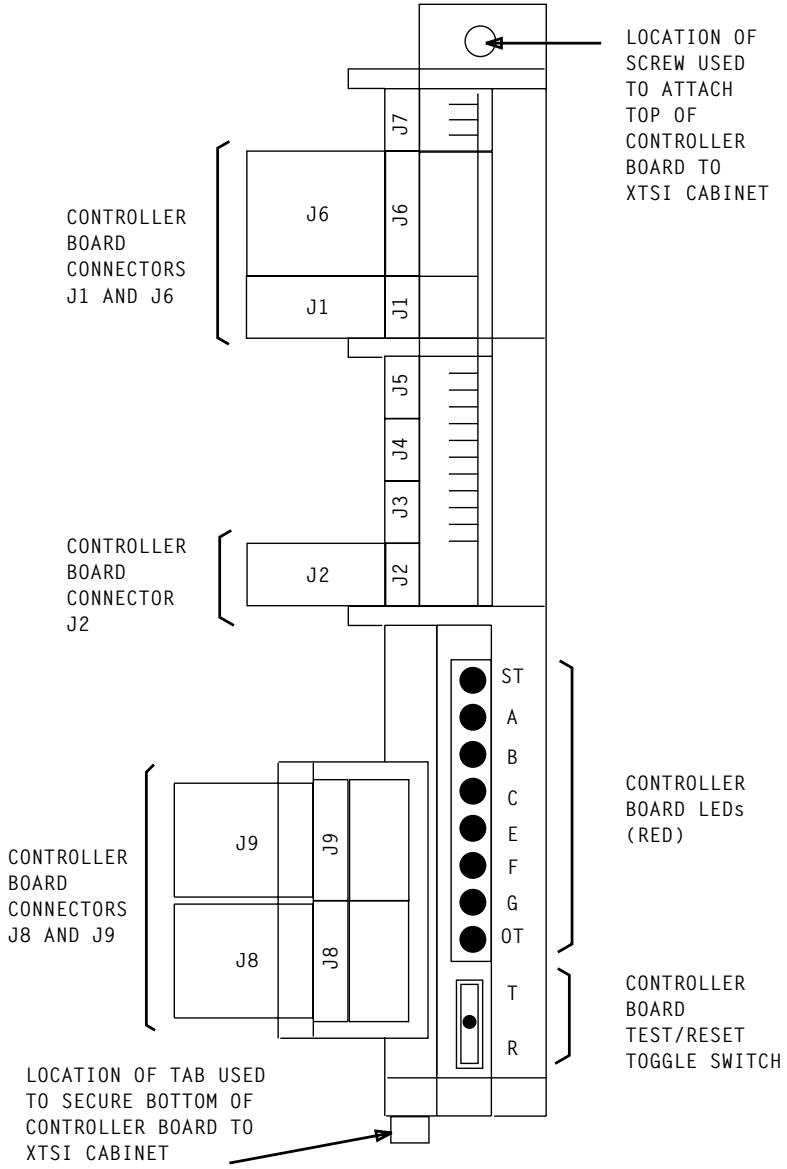
[14] See WARNING 3. Replace blown fuse



WARNING 3
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

NOTE 1

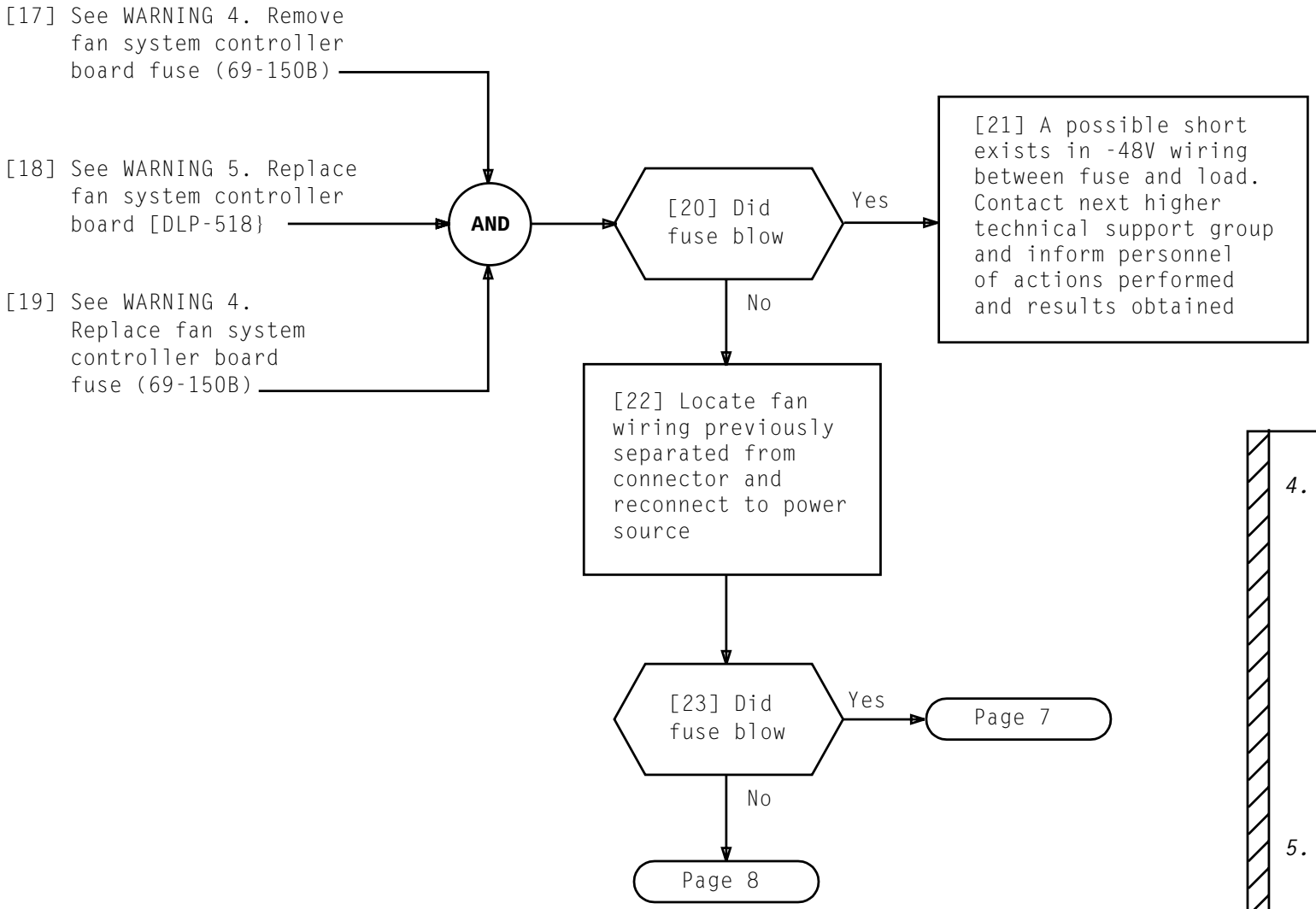
Five of the six fan unit fans will continue to run at full speed when controller board connectors **J2, J8** and **J9** are unseated



FAN SYSTEM CONTROLLER BOARD LEGEND		
CONTROLLER BOARD INDICATOR		**INDICATOR IDENTIFICATION**
ST LED		STATUS LED
A LED		FAN A FAIL LED
B LED		FAN B FAIL LED
C LED		FAN C FAIL LED
E LED		FAN E FAIL LED
F LED		FAN F FAIL LED
G LED		FAN G FAIL LED
OT LED		OVER TEMPERATURE LED
TWO FUNCTION TOGGLE SWITCH	**T**	TEST
	R	RESET

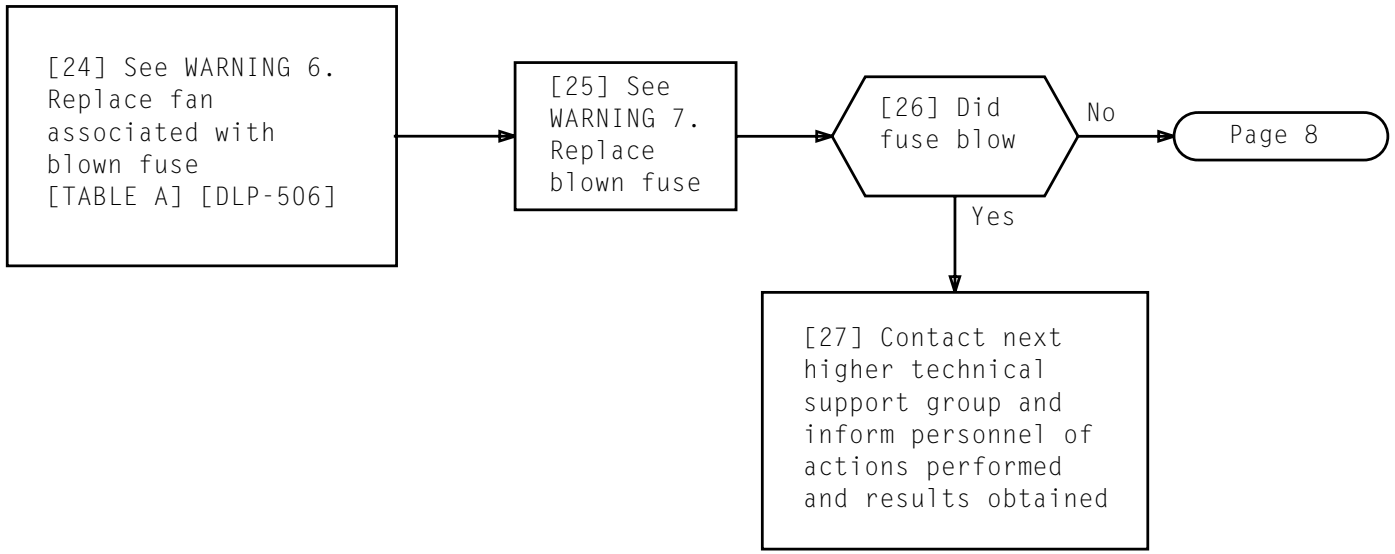
FIG. 1 - Fan System Controller Board (44-004R)

CLEAR FAN SYSTEM BLOWN FUSE



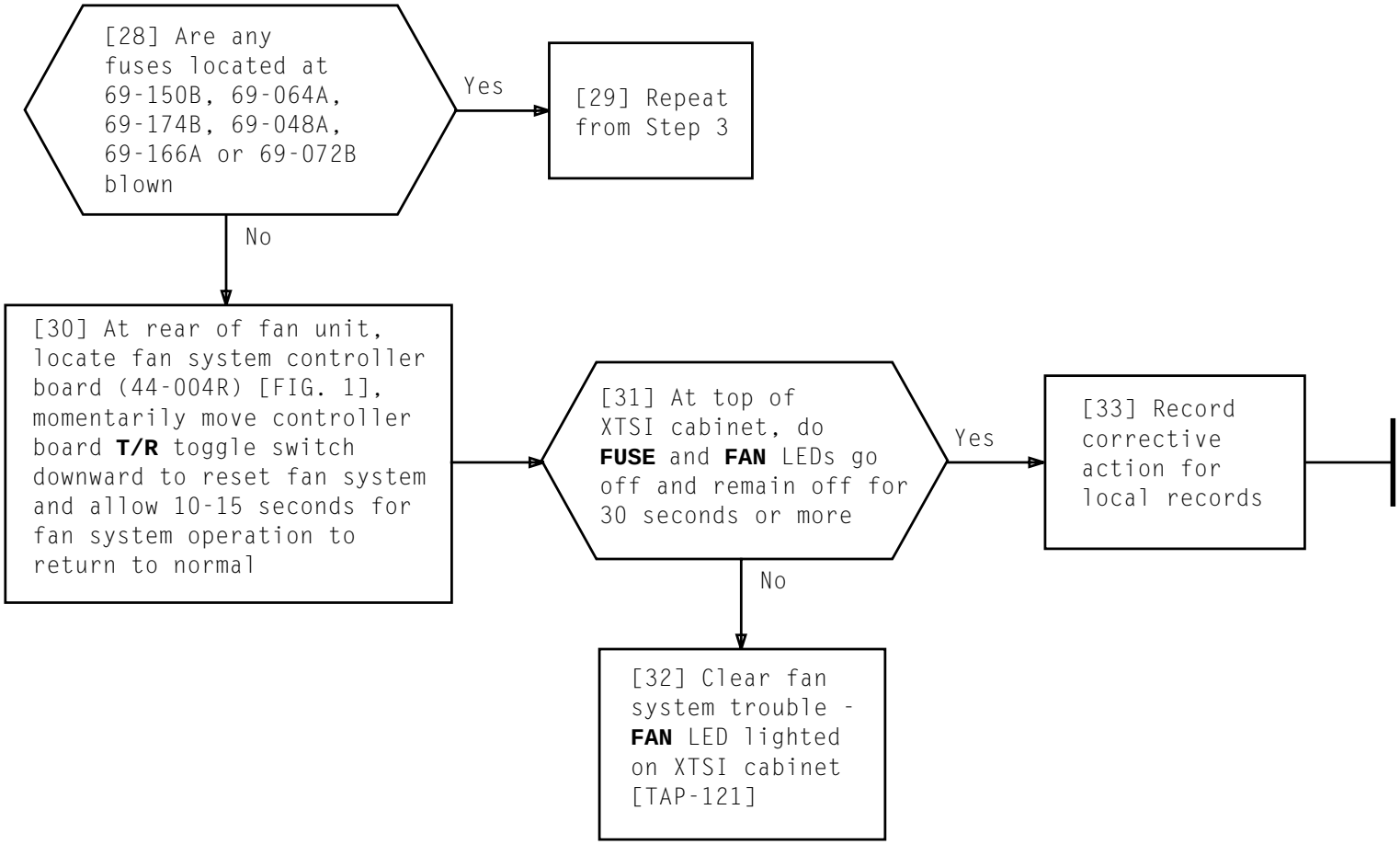
WARNINGS

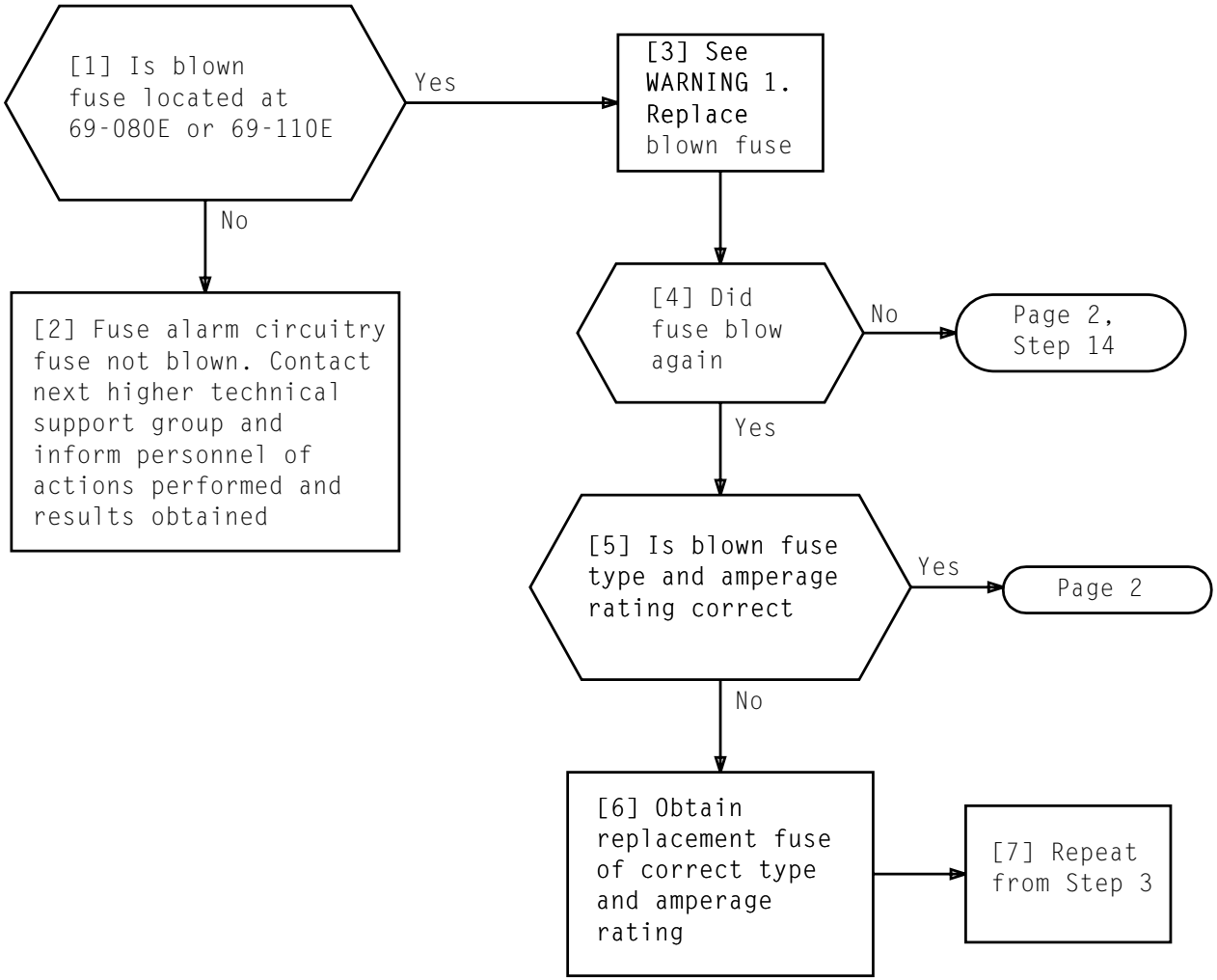
4. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*
5. *When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A*



WARNINGS

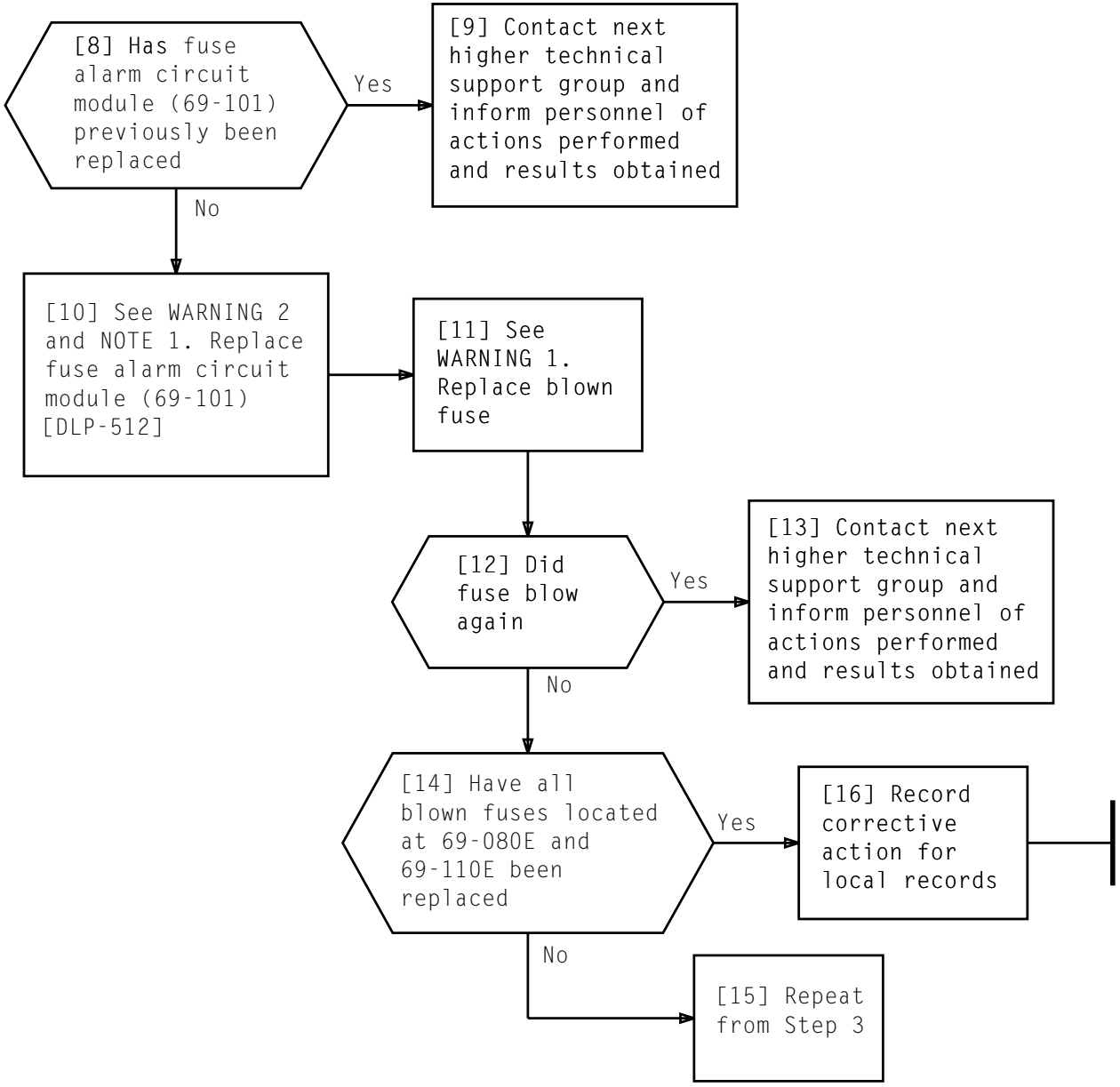
6. *When replacing FAN A, care must be taken to avoid shorting fan to -48V terminal strip lugs located directly above FAN A*
7. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*





WARNING 1
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

CLEAR FUSE ALARM CIRCUITRY BLOWN FUSE



NOTE 1

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

WARNING 2

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

CLEAR FUSE ALARM CIRCUITRY BLOWN FUSE

[1] Using diagnostic output message [FIG. 1], identify power group failing automatic power monitor test (Phase 1)

[2] At 1B Processor MTC terminal, enter
RMV:XTSI a,b c!
a = XTSI member number (0-63)
b = Power group unit type failing power monitor test (IPUB, CONTR, D3U, SPU or ALC)
c = Power group unit member number failing power monitor test

AND

[3] Does system respond with **RMV XTSI a b c COMPL** message

No

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

Yes

[5] Identify designation and location of circuit pack containing power switch for identified power group [TABLE A]

[6] At power group circuit pack containing power switch, move **ROS** switch right to **ROS** position

Page 3

CLEAR AUTOMATIC POWER MONITOR TEST (PHASE 1) FAILURE — XTSI CABINET

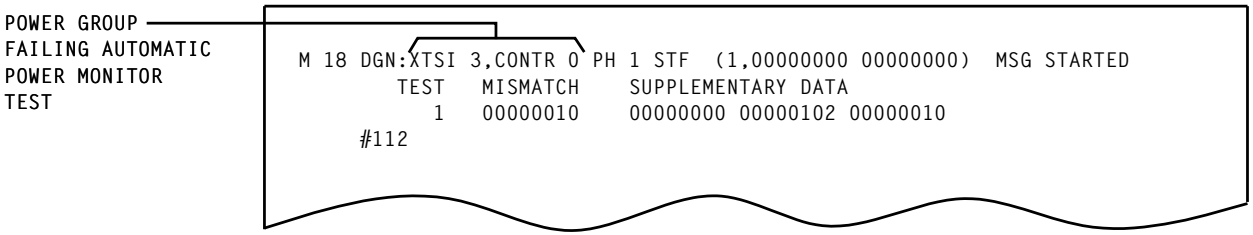
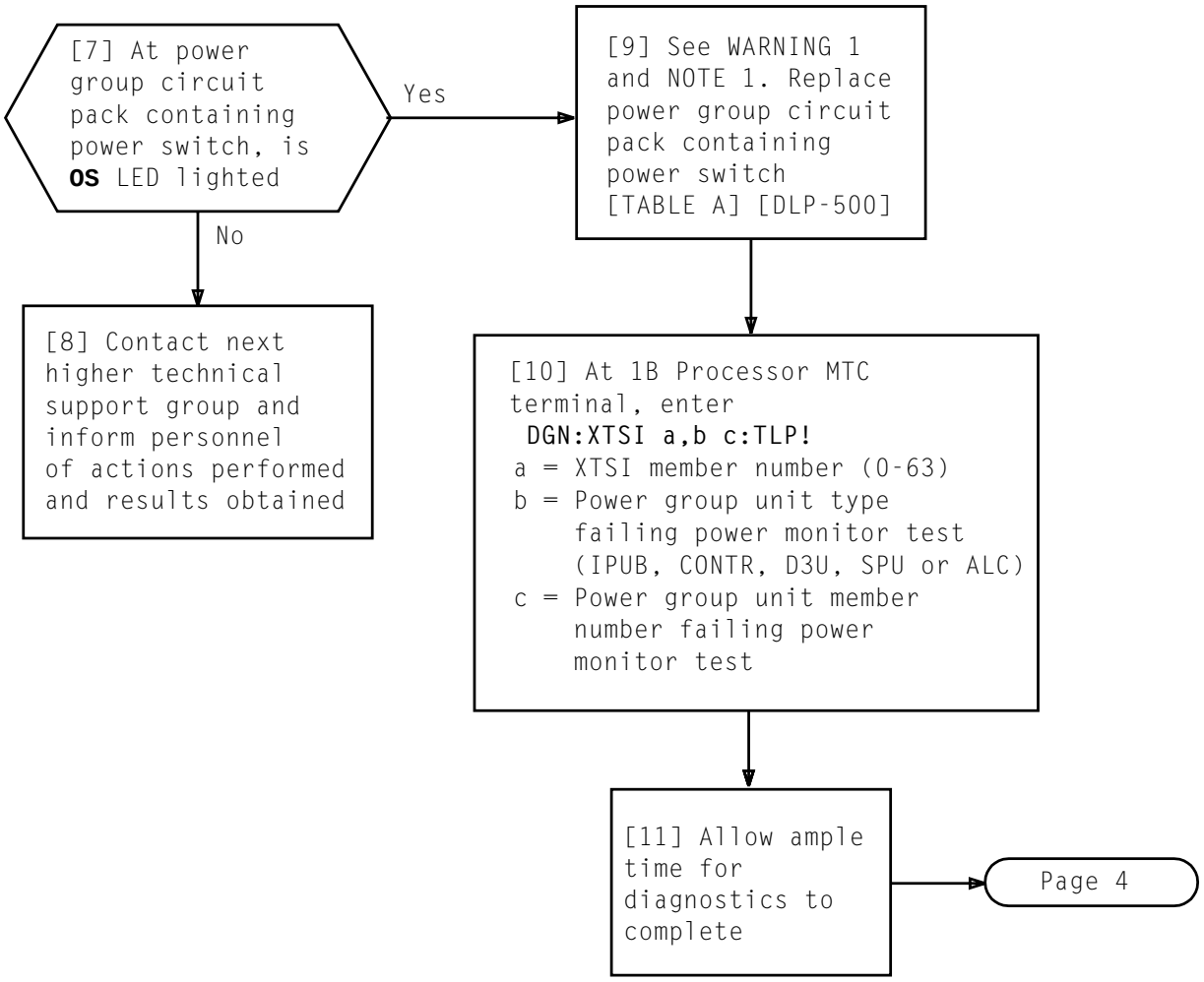


FIG. 1 – Sample Printout of Automatic Power Monitor Test (Phase 1) Failure

TABLE A
POWER GROUP CIRCUIT PACKS CONTAINING POWER SWITCH

POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH		POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION
CONTR 0	**UN558**	52-066	SPU 0	**4WB8**	31-024
CONTR 1	**UN558**	61-066	SPU 1	**4WB8**	31-032
ALC 0	**UN545**	52-014	SPU 2	**4WB8**	31-040
ALC 1	**UN545**	61-014	SPU 3	**4WB8**	31-048
IPUB 0	**TN1994**	61-188	SPU 4	**4WB8**	31-056
IPUB 1	**TN1994**	52-188	SPU 5	**4WB8**	31-148
D3U 0	**4WB3**	14-024	SPU 6	**4WB8**	31-156
D3U 1	**4WB3**	14-032	SPU 7	**4WB8**	31-164
D3U 2	**4WB3**	14-040	SPU 8	**4WB8**	31-172
D3U 3	**4WB3**	14-164	SPU 9	**4WB8**	31-180
D3U 4	**4WB3**	14-172	SPU 10	**4WB8**	31-016
D3U 5	**4WB3**	14-180	SPU 11	**4WB8**	31-140
D3U 6	**4WB3**	14-016			
D3U 7	**4WB3**	14-156			



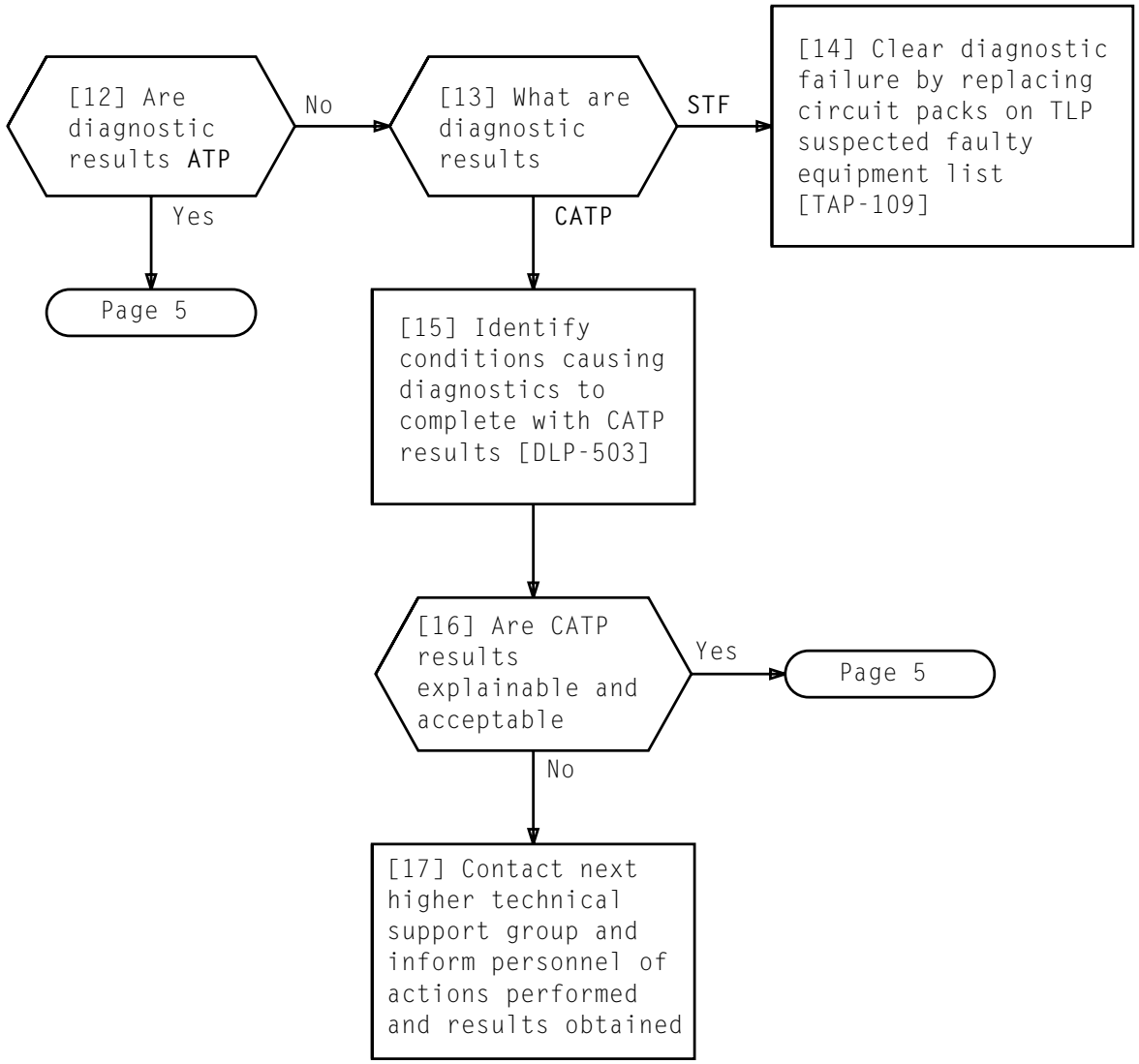
NOTE 1

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

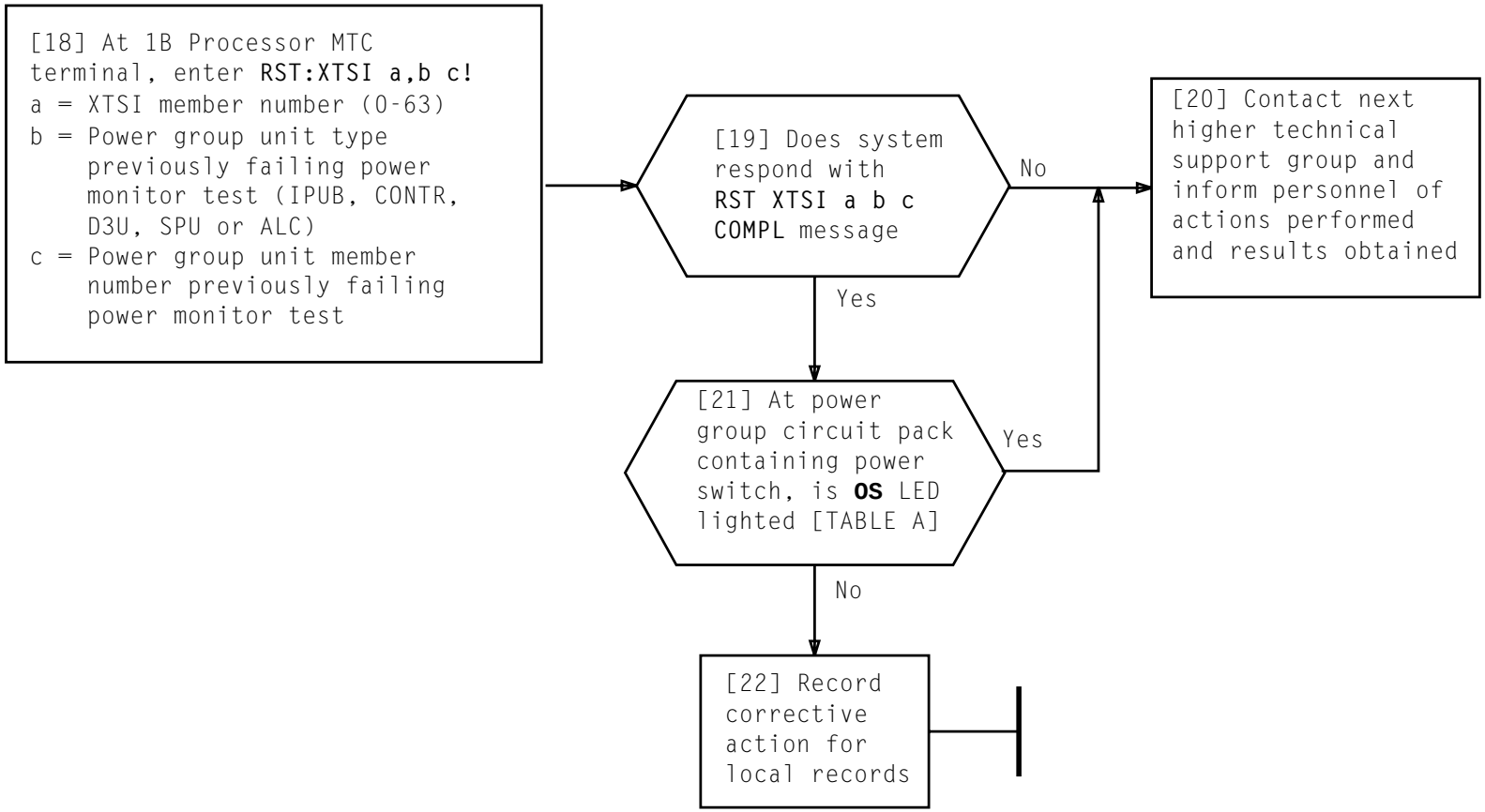
WARNING 1

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

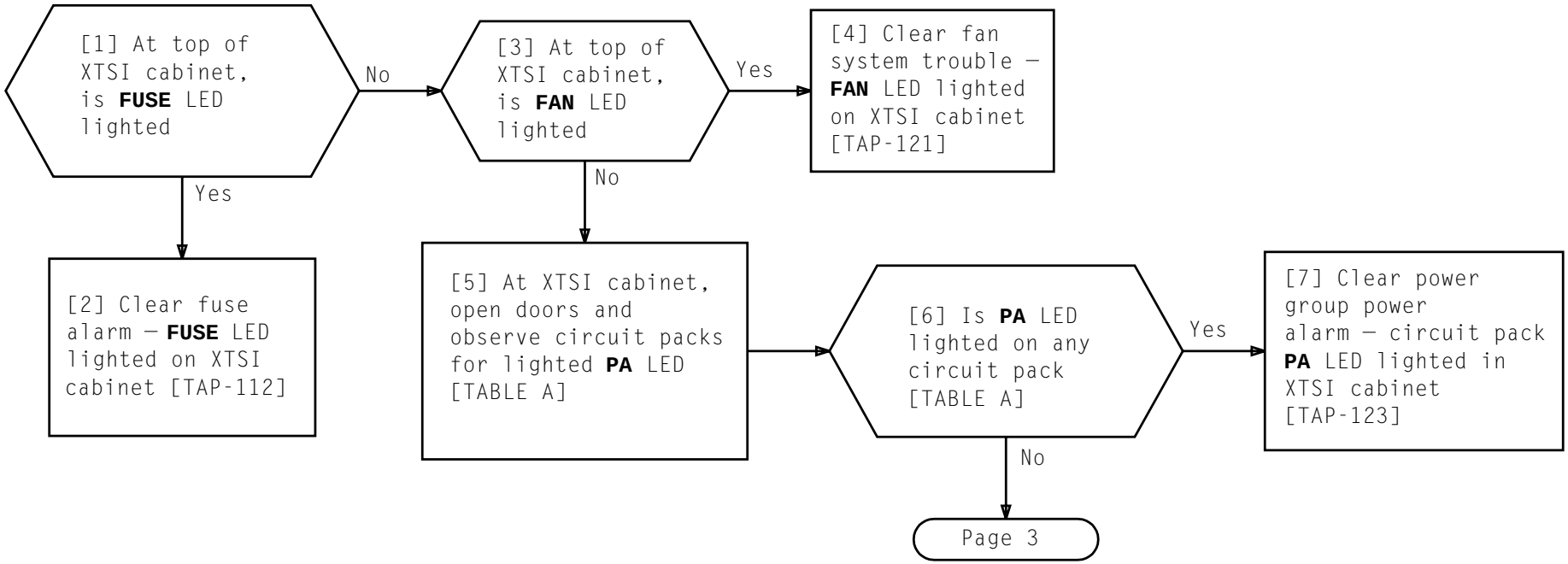
CLEAR AUTOMATIC POWER MONITOR TEST (PHASE 1) FAILURE — XTSI CABINET



CLEAR AUTOMATIC POWER MONITOR TEST (PHASE 1) FAILURE — XTSI CABINET



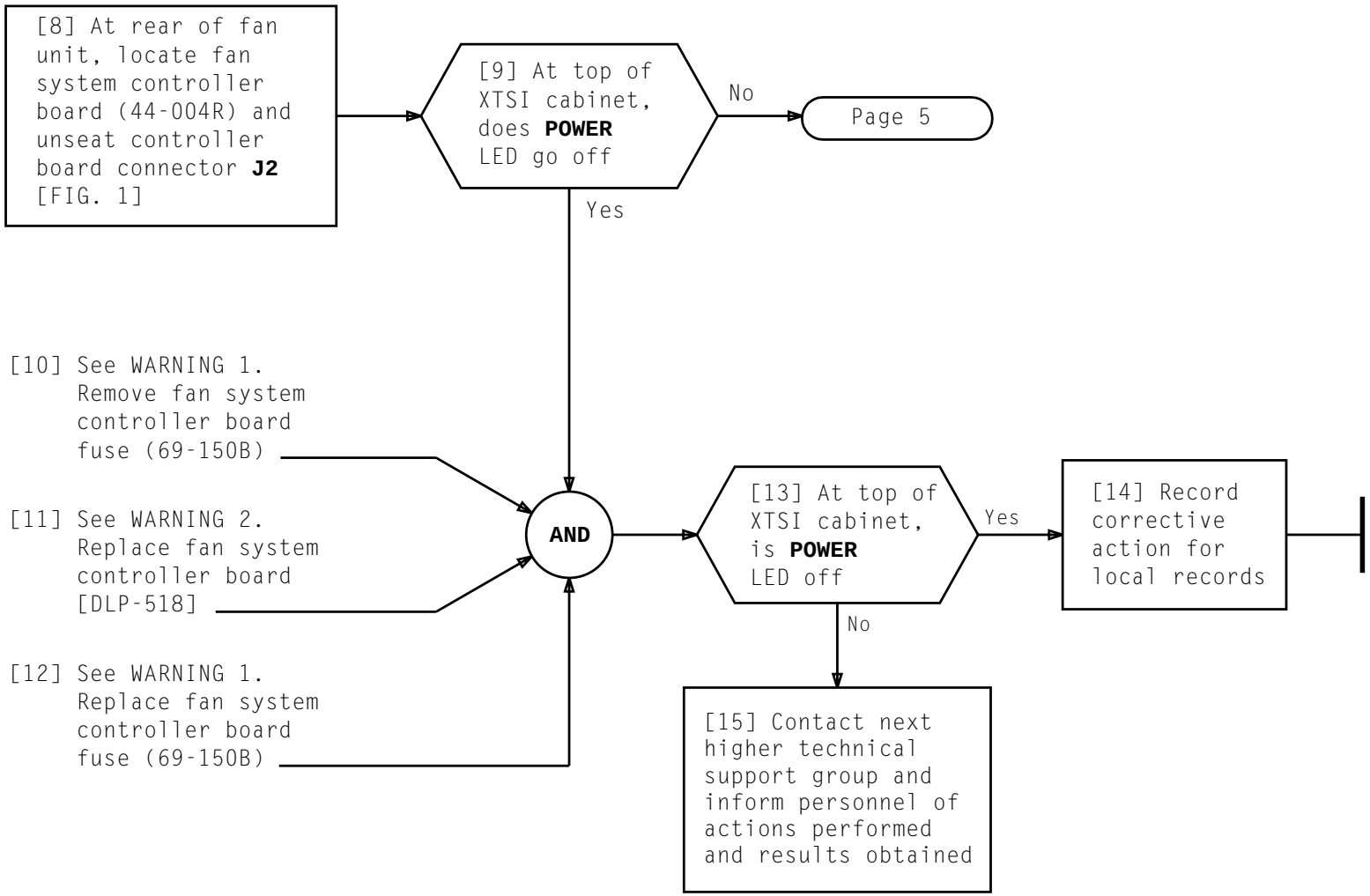
CLEAR AUTOMATIC POWER MONITOR TEST (PHASE 1) FAILURE — XTSI CABINET



CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

TABLE A
POWER GROUP CIRCUIT PACKS CAPABLE OF GENERATING A POWER ALARM

POWER GROUP	CIRCUIT PACK		POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION
CONTR 0	**UN558**	52-066	SPU 0	**4WB8**	31-024
	4WB5	14-130	SPU 1	**4WB8**	31-032
CONTR 1	**UN558**	61-066	SPU 2	**4WB8**	31-040
	4WB5	31-130	SPU 3	**4WB8**	31-048
ALC 0	**UN545**	52-014	SPU 4	**4WB8**	31-056
ALC 1	**UN545**	61-014	SPU 5	**4WB8**	31-148
IPUB 0	**TN1994**	61-188	SPU 6	**4WB8**	31-156
IPUB 1	**TN1994**	52-188	SPU 7	**4WB8**	31-164
D3U 0	**4WB3**	14-024	SPU 8	**4WB8**	31-172
D3U 1	**4WB3**	14-032	SPU 9	**4WB8**	31-180
D3U 2	**4WB3**	14-040	SPU 10	**4WB8**	31-016
D3U 3	**4WB3**	14-164	SPU 11	**4WB8**	31-140
D3U 4	**4WB3**	14-172			
D3U 5	**4WB3**	14-180			
D3U 6	**4WB3**	14-016			
D3U 7	**4WB3**	14-156			



WARNINGS

1. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module.*
2. *When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A*

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

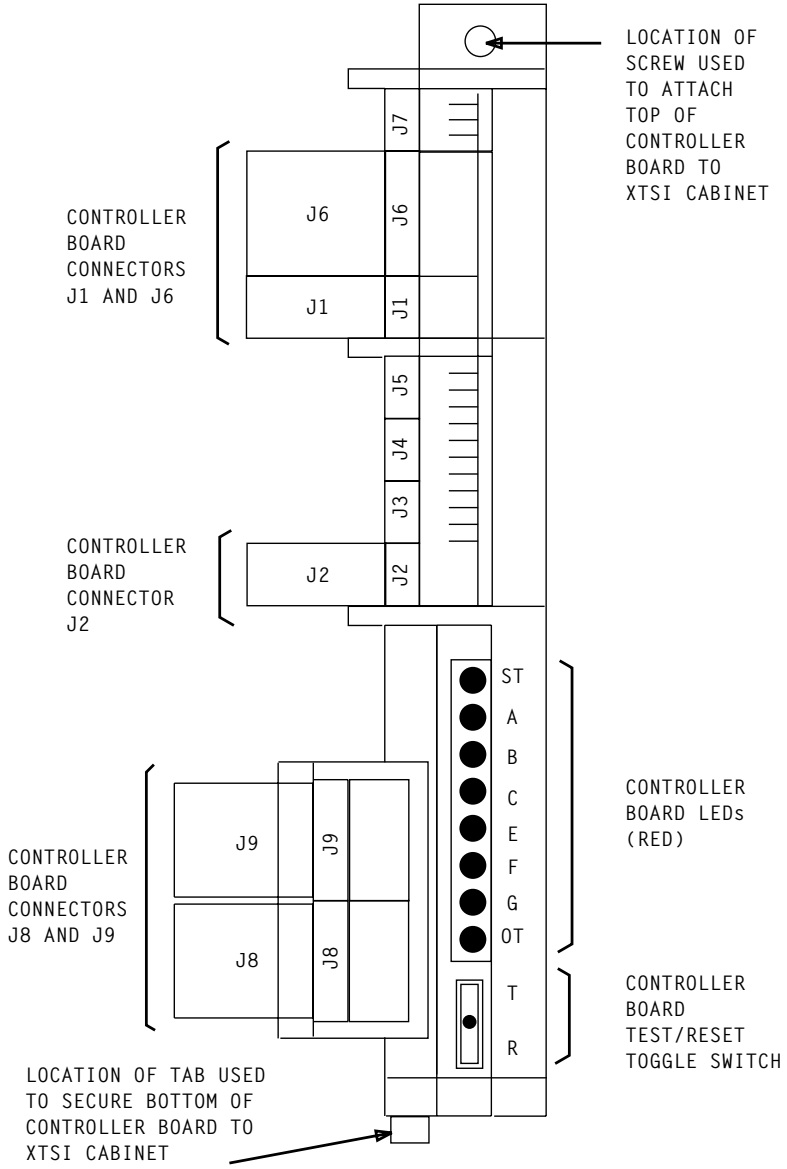
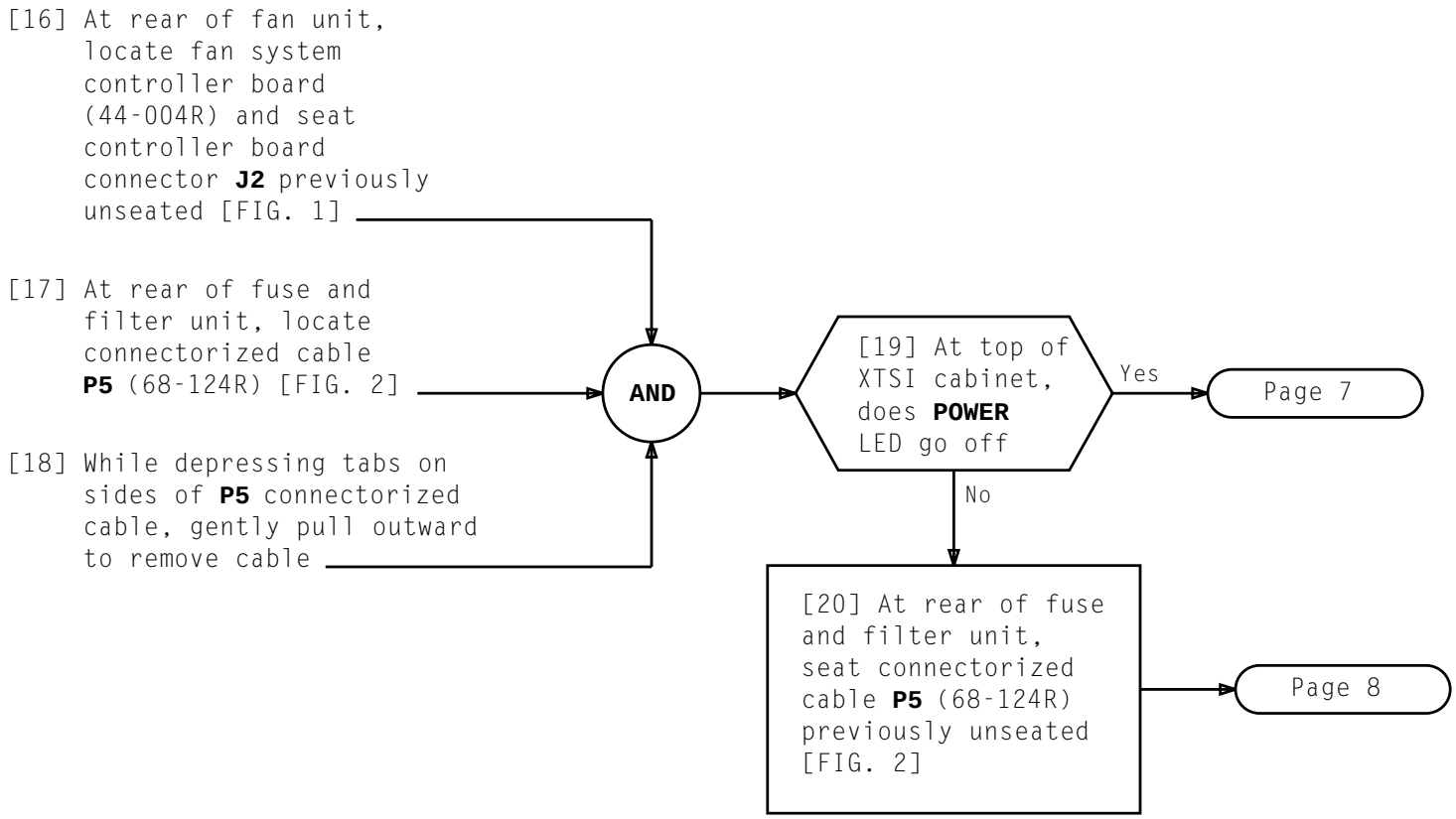


FIG. 1 - Fan System Controller Board (44-004R)

FAN SYSTEM CONTROLLER BOARD LEGEND		
CONTROLLER BOARD INDICATOR		**INDICATOR IDENTIFICATION**
ST LED		STATUS LED
A LED		FAN A FAIL LED
B LED		FAN B FAIL LED
C LED		FAN C FAIL LED
E LED		FAN E FAIL LED
F LED		FAN F FAIL LED
G LED		FAN G FAIL LED
OT LED		OVER TEMPERATURE LED
TWO FUNCTION TOGGLE SWITCH	**T**	TEST
	R	RESET

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET



CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

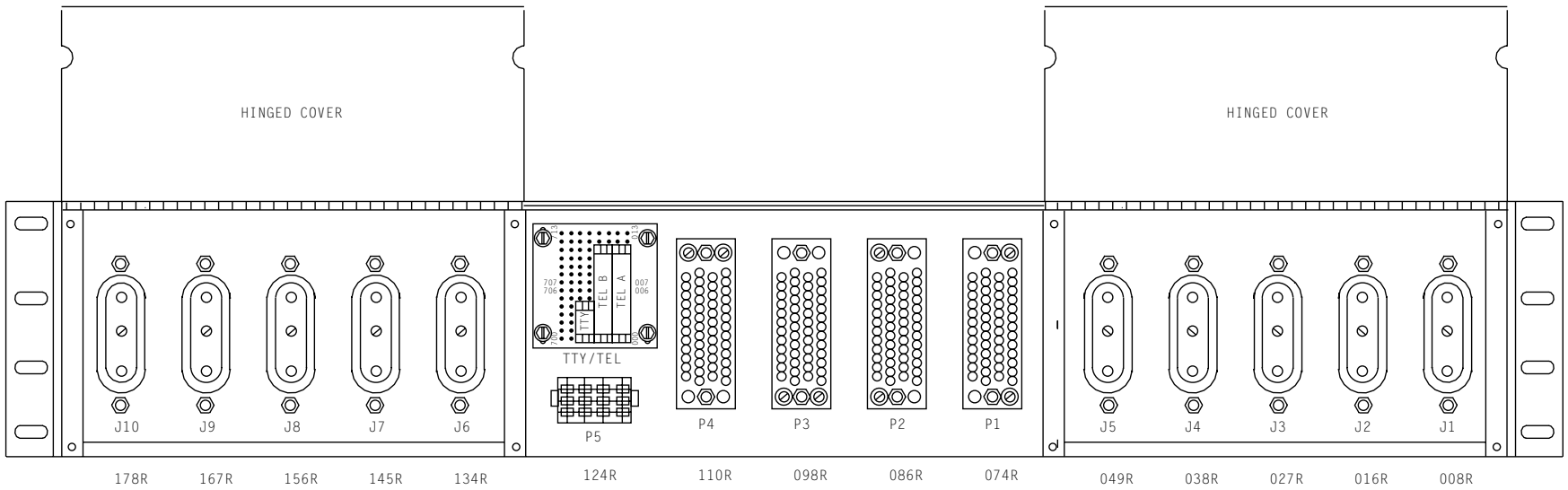


FIG. 2 - Sample Layout of XTSI Cabinet Fuse and Filter Unit (Rear View)

J1 THRU J10 CABLE GROUP IDENTIFIERS		
CONNECTOR		CABLE GROUP IDENTIFIER
IDENTIFIER	LOCATION	
J1	69-008R	A048V
J2	69-016R	A148V
J3	69-027R	A248V
J4	69-038R	A348V
J5	69-049R	A448V
J6	69-134R	B048V
J7	69-145R	B148V
J8	69-156R	B248V
J9	69-167R	B348V
J10	69-178R	B448V

P1 THRU P5 AND TTY CABLE GROUP IDENTIFIERS		
CONNECTOR		CABLE GROUP IDENTIFIER
IDENTIFIER	LOCATION	
P1	69-074R	ED4A348-20, Group 1
P2	69-086R	
P3	69-098R	
P4	69-110R	
P5	68-124R	ED4A348-20, Group 4
TTY	70-124R-501	ED4A348-20, Group 12

PHONE CABLE GROUP IDENTIFIERS		
CONNECTOR		CABLE GROUP IDENTIFIER
IDENTIFIER	LOCATION	
TELA	70-124R-101	ED4A348-25, Group 11,11A,12
TELB	70-124R-301	

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

[21] At rear of fuse and filter unit, seat connectorized cable **P5** (68-124R) previously unseated [FIG. 2]

[22] See WARNING 3 and NOTE 1. Replace fuse alarm circuit module (69-101) [DLP-512]

AND

[23] At top of XTSI cabinet, is **POWER** LED off

Yes

[24] Record corrective action for local records

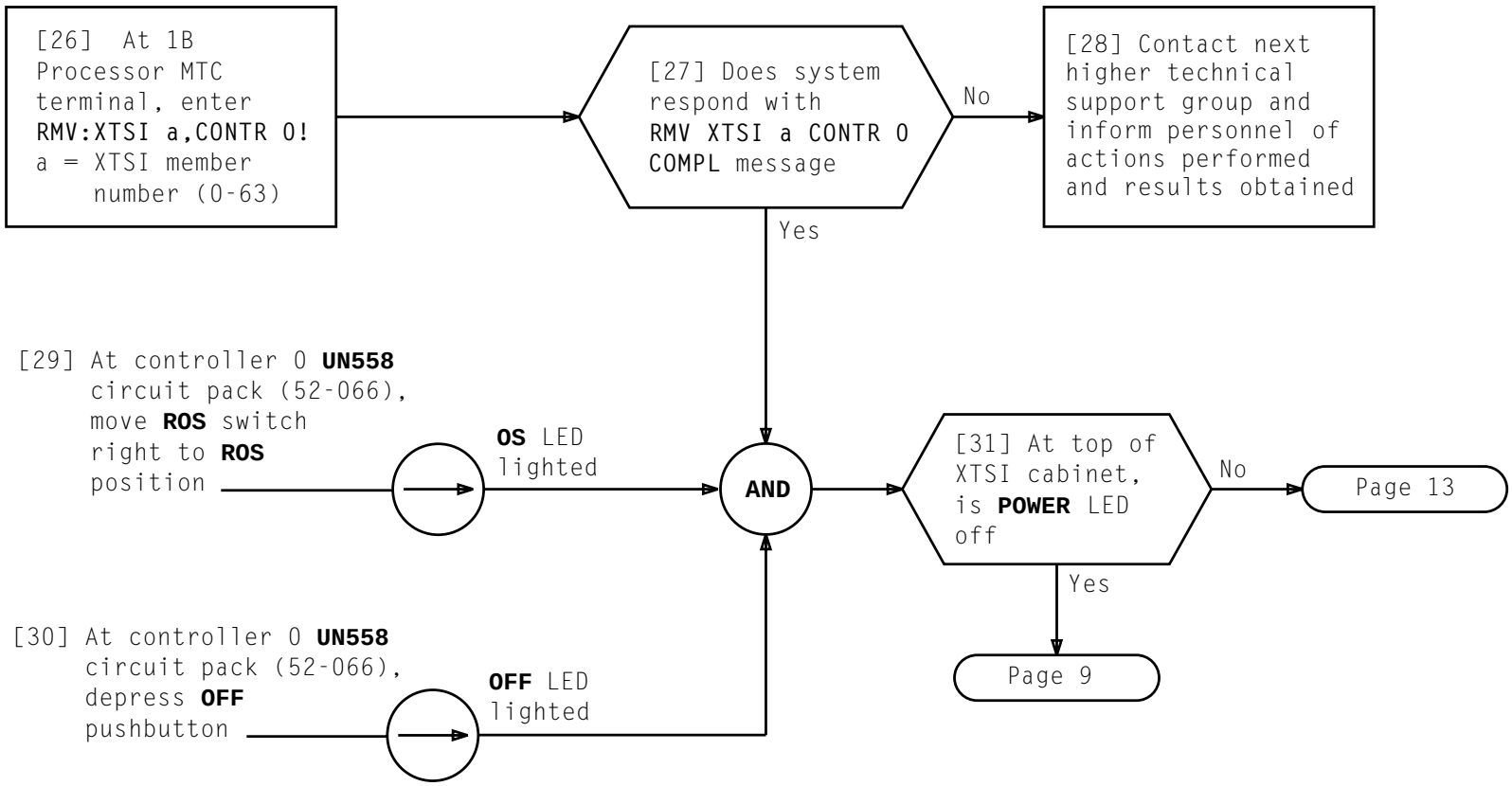
No

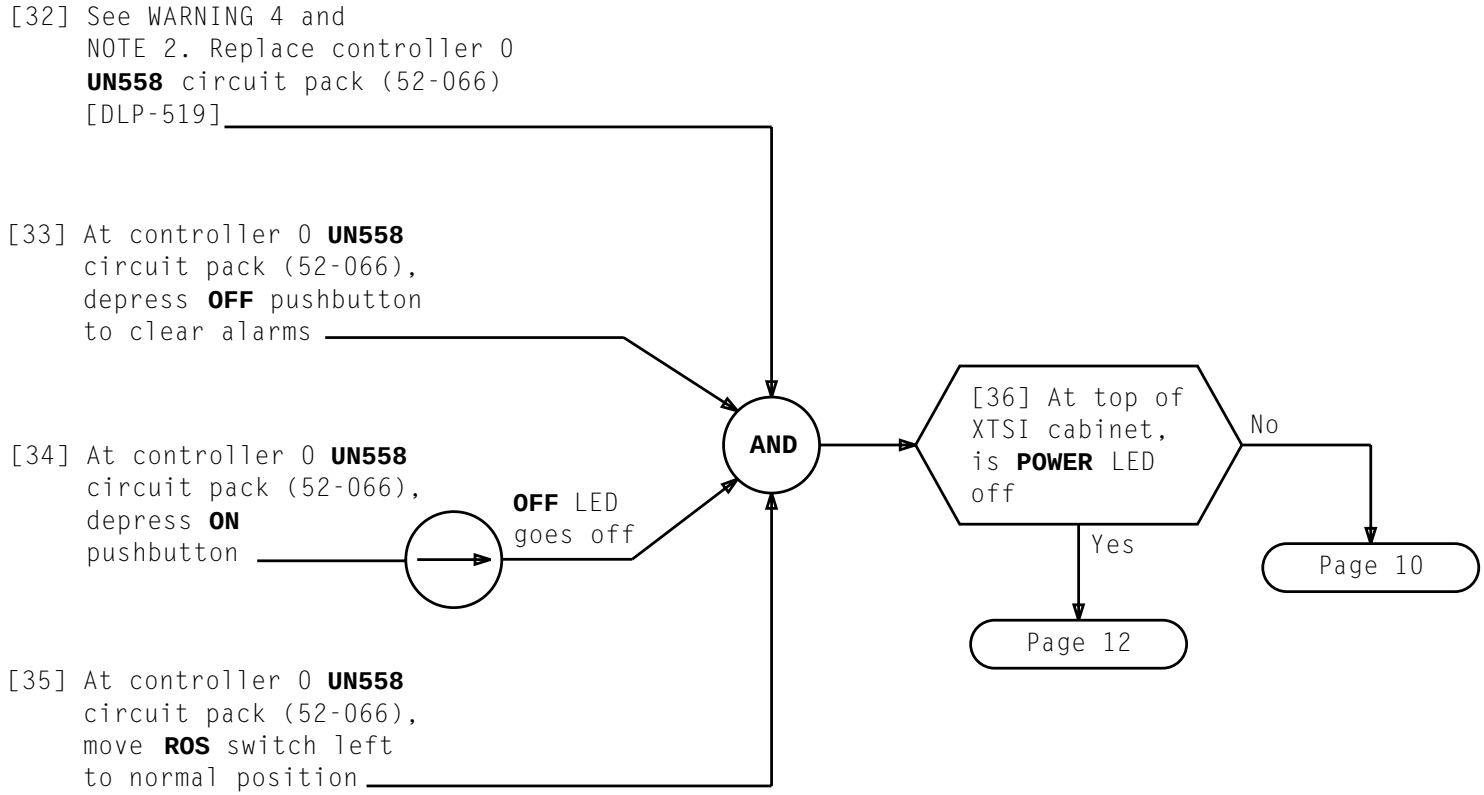
[25] Contact next higher technical support group and inform personnel of actions performed and results obtained

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

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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET


[26] At 1B Processor MTC terminal, enter RMV:XTSI a,CONTR 0! a = XTSI member number (0-63)
[27] Does system respond with RMV XTSI a CONTR 0 COMPL message
No
[28] Contact next higher technical support group and inform personnel of actions performed and results obtained
Yes
[29] At controller 0 UN558 circuit pack (52-066), move ROS switch right to ROS position
OS LED lighted
AND
[31] At top of XTSI cabinet, is POWER LED off
No
Page 13
Yes
Page 9
[30] At controller 0 UN558 circuit pack (52-066), depress OFF pushbutton
OFF LED lighted



NOTE 2

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

WARNING 4

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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

[37] At controller 0 **UN558** circuit pack (52-066), move **ROS** switch left to normal position

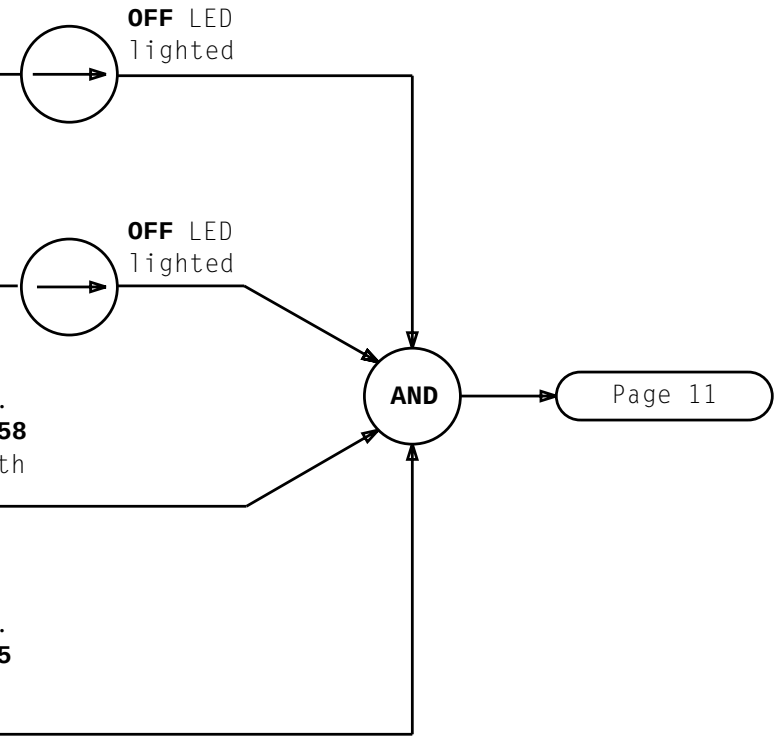
OFF LED lighted

[38] At controller 0 **UN558** circuit pack (52-066), depress **OFF** pushbutton

OFF LED lighted

[39] See WARNING 5 and NOTE 3. Replace controller 0 **UN558** circuit pack (52-066) with original pack [DLP-519]

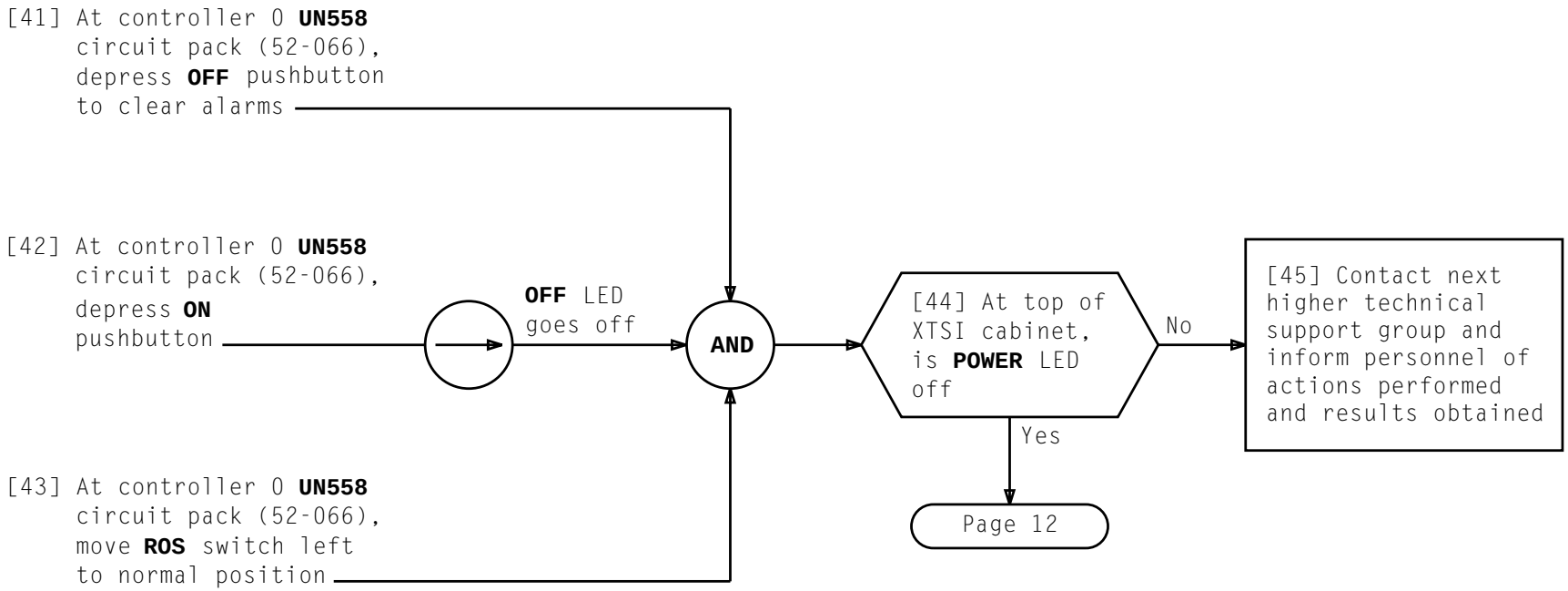
[40] See WARNING 5 and NOTE 3. Replace controller 0 **4WB5** circuit pack (14-130) [DLP-519]

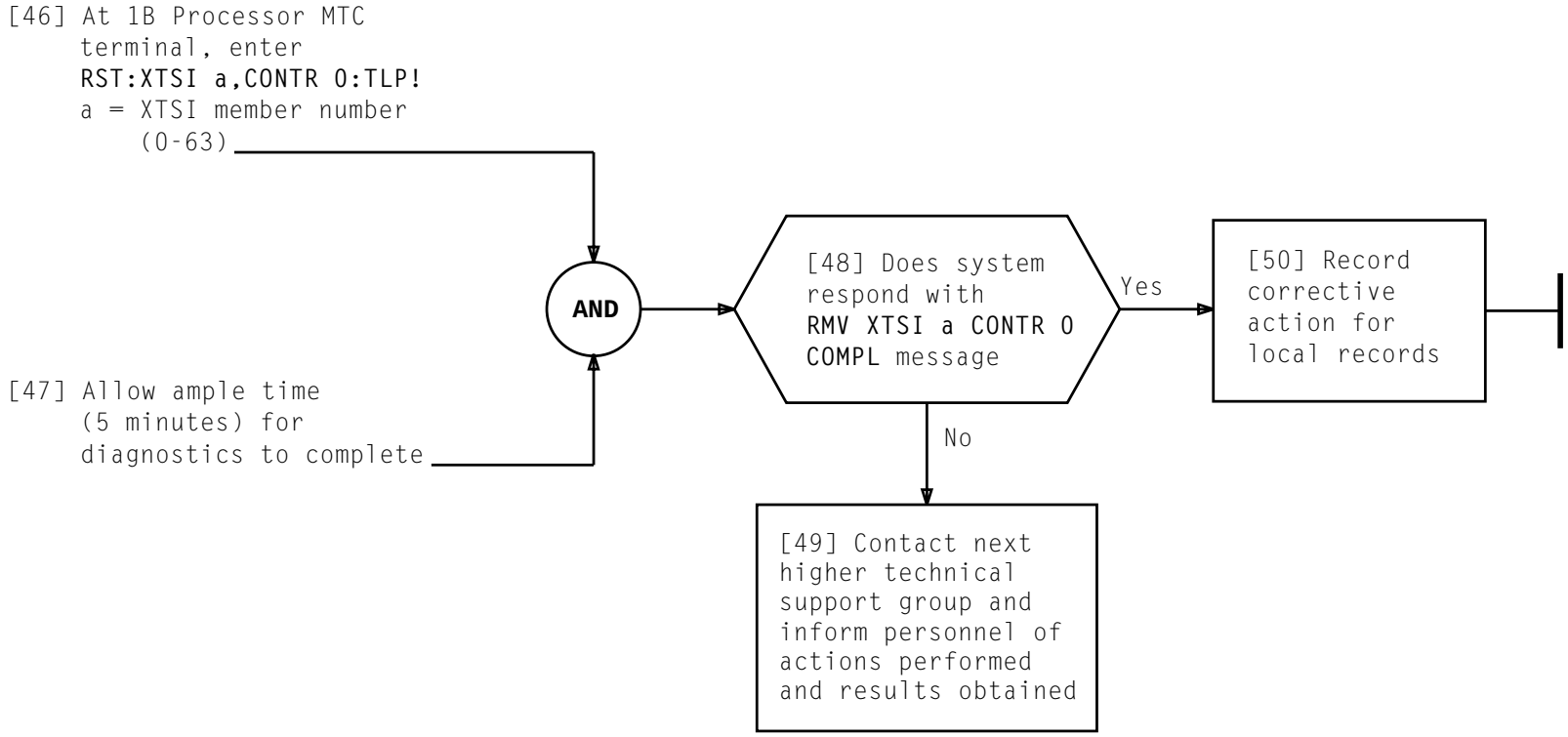


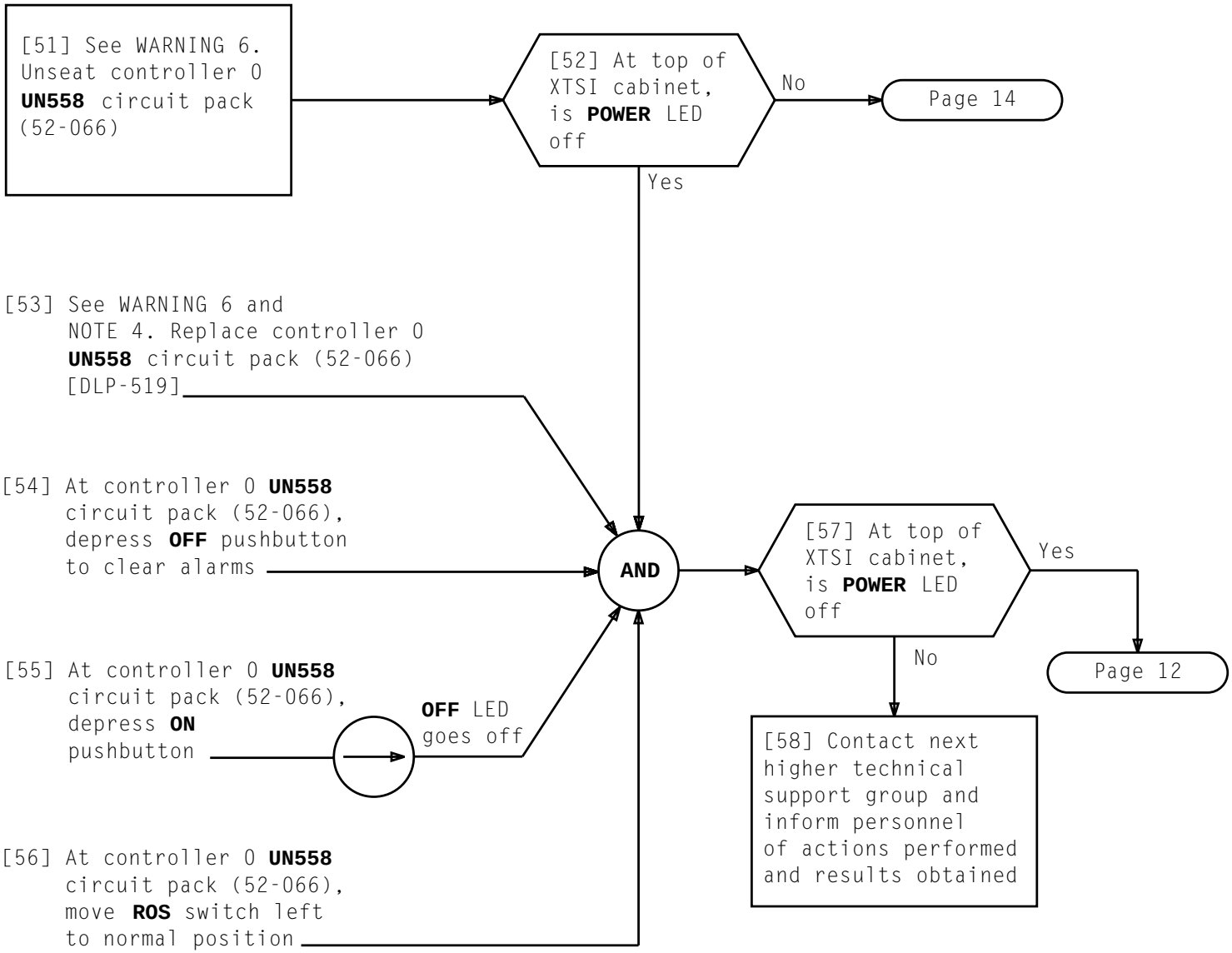
NOTE 3
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 5
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET


[41] At controller 0 **UN558** circuit pack (52-066), depress **OFF** pushbutton to clear alarms
[42] At controller 0 **UN558** circuit pack (52-066), depress **ON** pushbutton
OFF LED goes off
AND
[43] At controller 0 **UN558** circuit pack (52-066), move **ROS** switch left to normal position
[44] At top of XTSI cabinet, is **POWER** LED off
No
[45] Contact next higher technical support group and inform personnel of actions performed and results obtained
Yes
Page 12

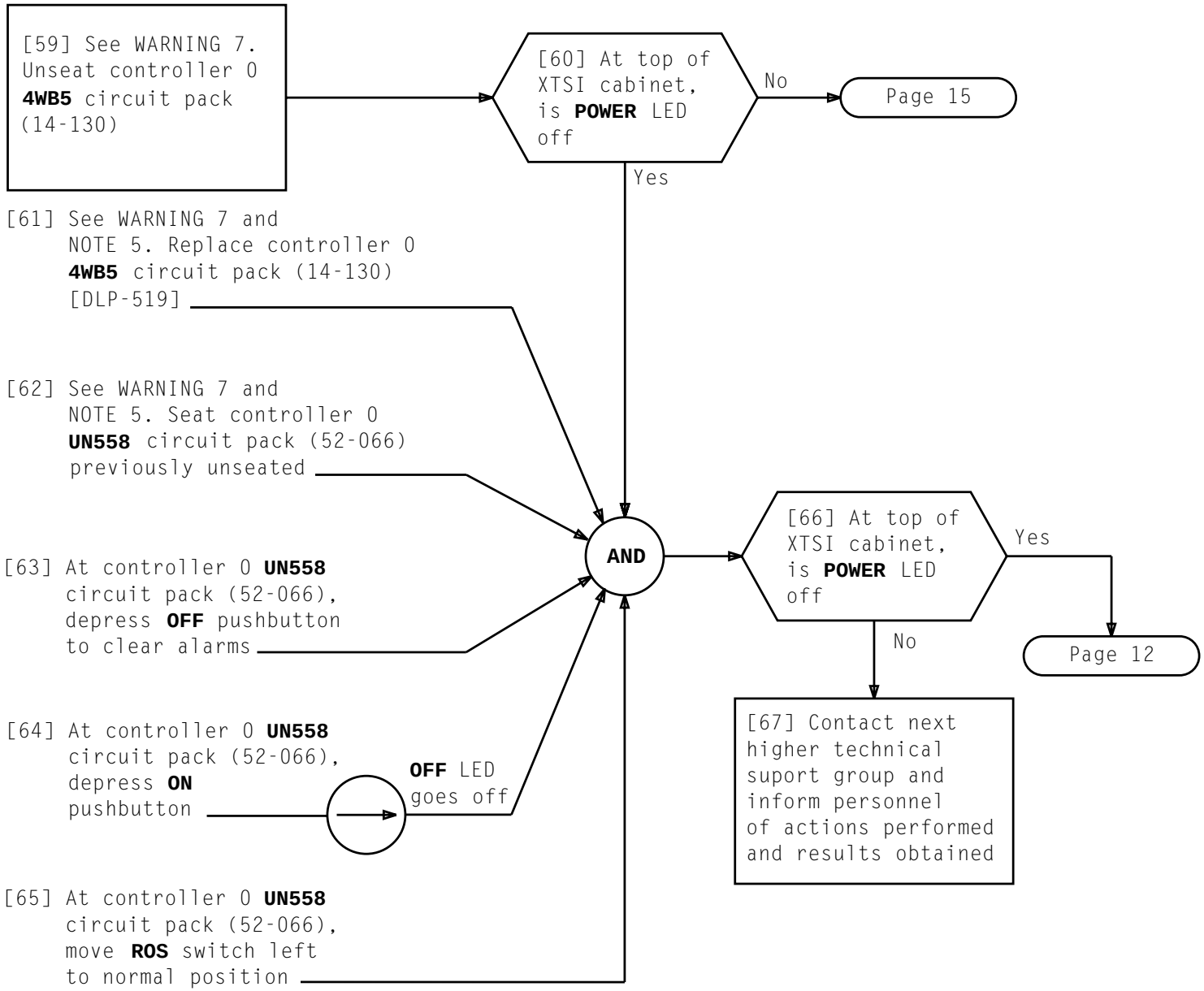

[46] At 1B Processor MTC terminal, enter
RST:XTSI a,CONTR 0:TLP!
a = XTSI member number (0-63)
[47] Allow ample time (5 minutes) for diagnostics to complete
AND
[48] Does system respond with RMV XTSI a CONTR 0 COMPL message
Yes
[50] Record corrective action for local records
No
[49] Contact next higher technical support group and inform personnel of actions performed and results obtained



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

WARNING 6
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

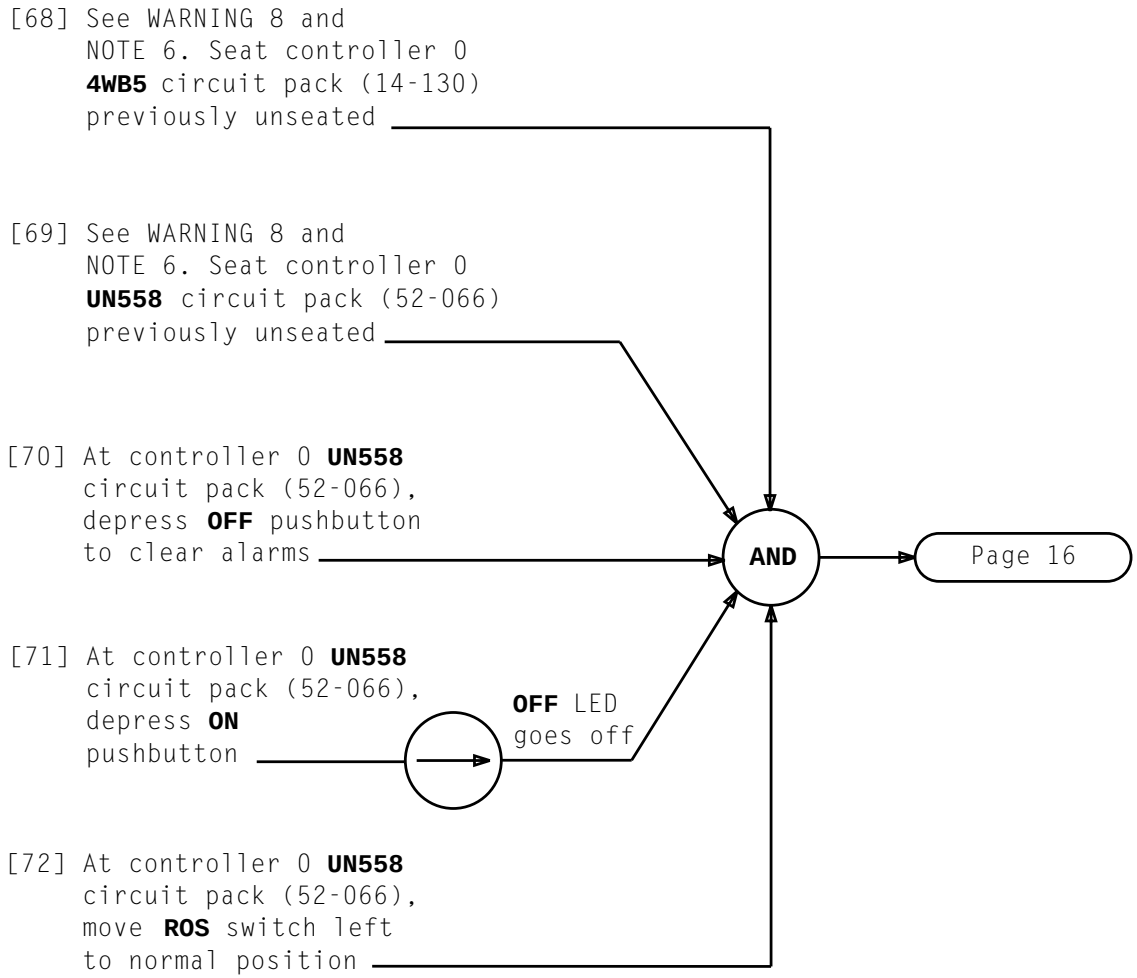
CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET



NOTE 5
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 7
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET



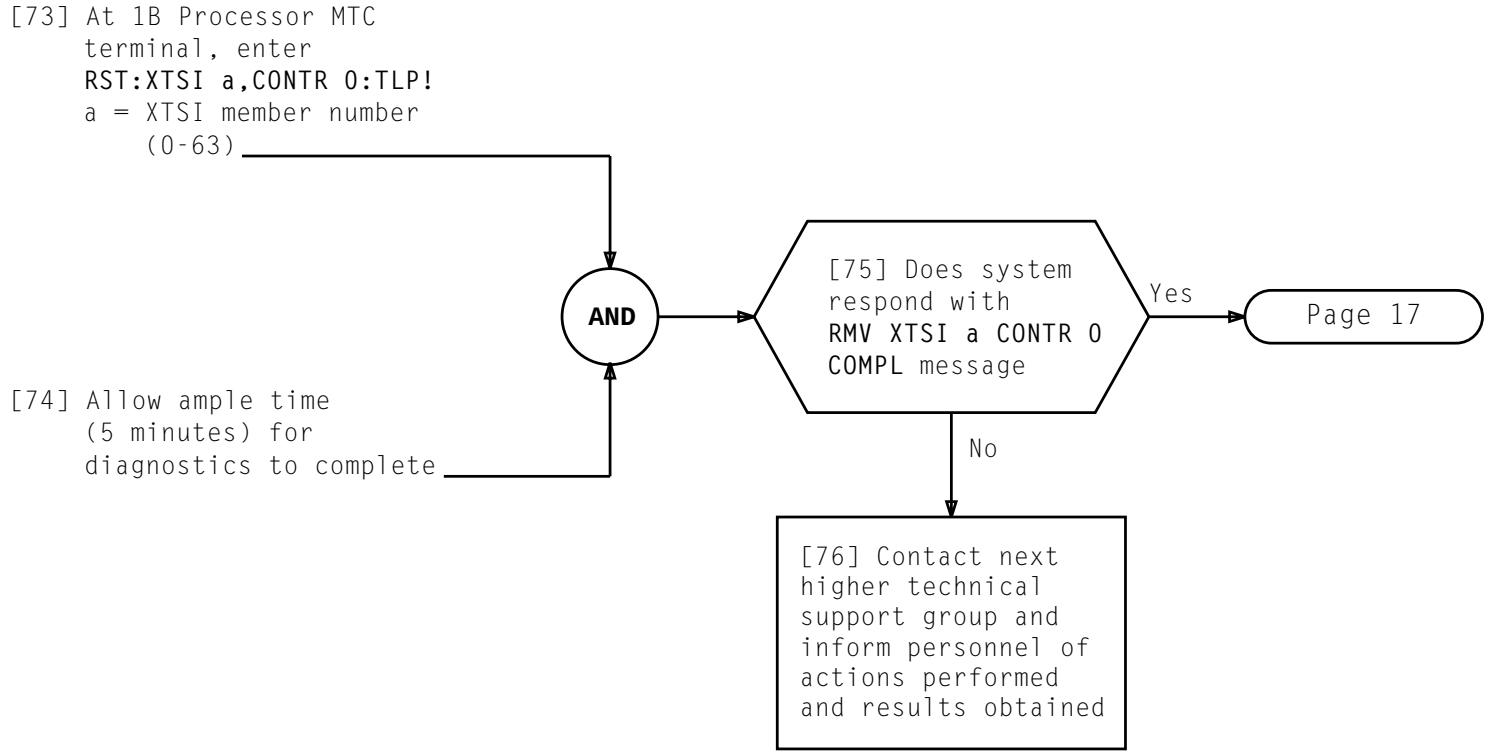
NOTE 6

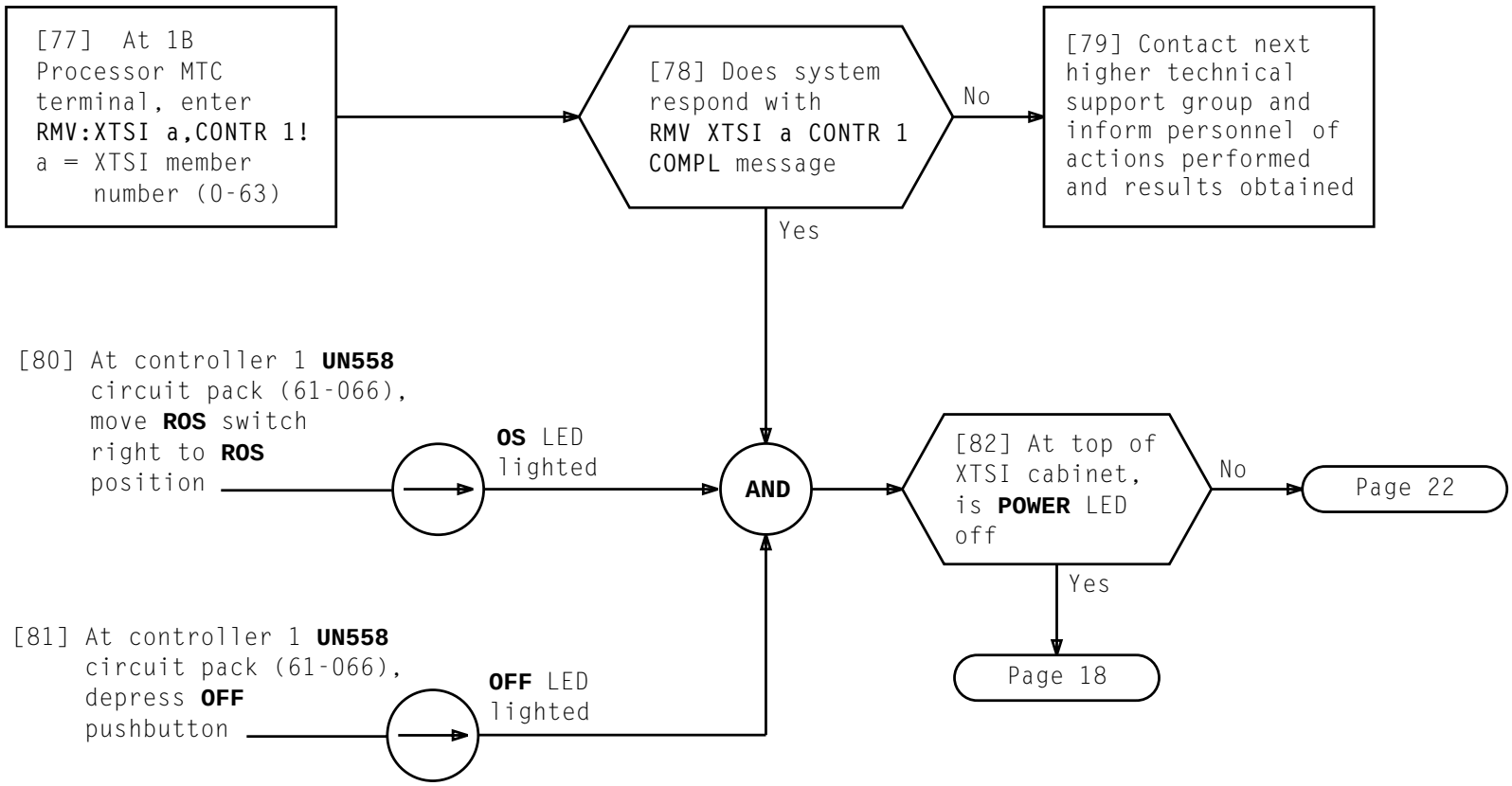
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 8

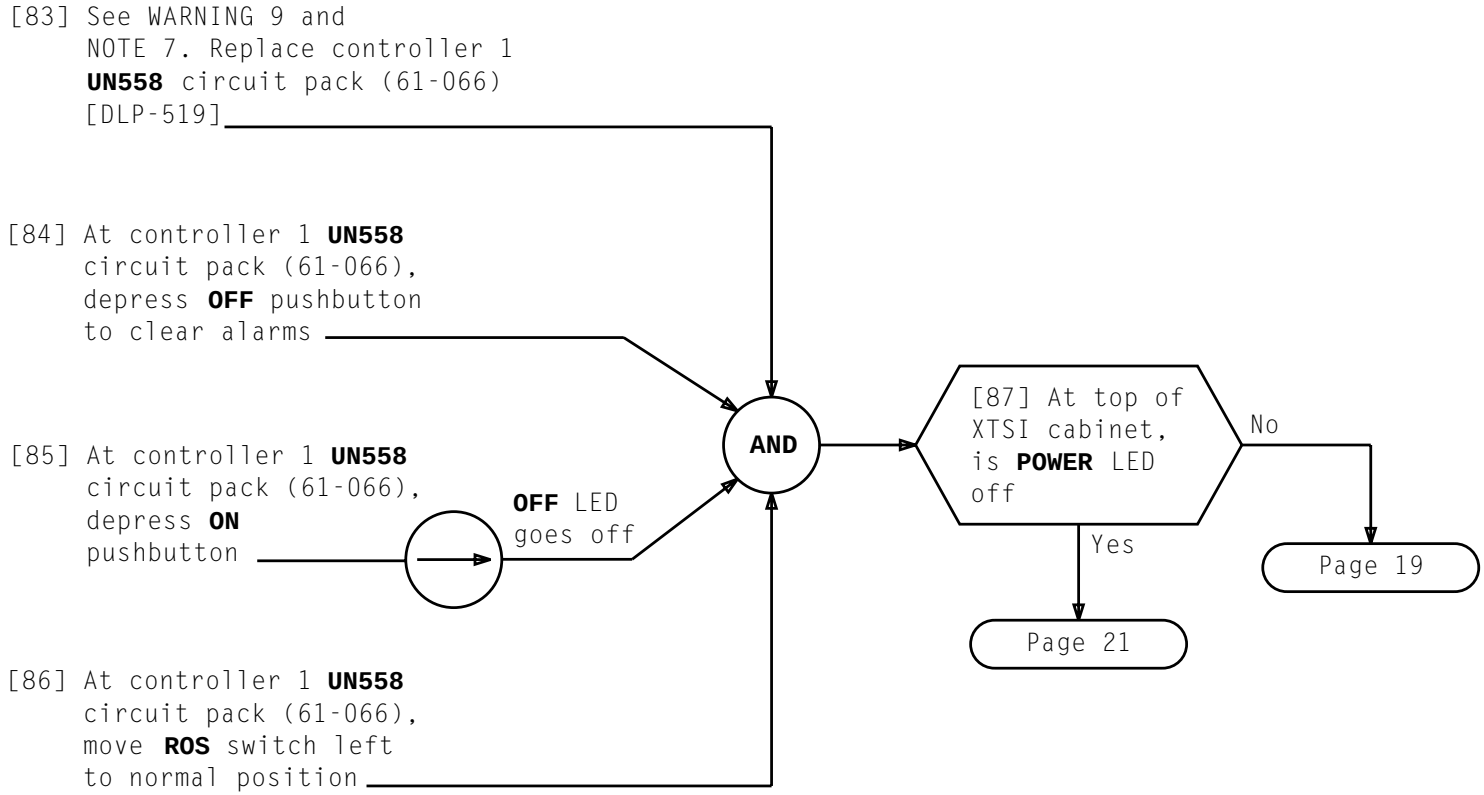
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET


[73] At 1B Processor MTC terminal, enter
RST:XTSI a,CONTR 0:TLP!
a = XTSI member number (0-63)
AND
[74] Allow ample time (5 minutes) for diagnostics to complete
[75] Does system respond with RMV XTSI a CONTR 0 COMPL message
Yes
Page 17
No
[76] Contact next higher technical support group and inform personnel of actions performed and results obtained



CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET



NOTE 7

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

WARNING 9

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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

[88] At controller 1 **UN558** circuit pack (61-066), move **ROS** switch right to **ROS** position

OFF LED lighted

[89] At controller 1 **UN558** circuit pack (61-066), depress **OFF** pushbutton

OFF LED lighted

[90] See WARNING 10 and NOTE 8. Replace controller 1 **UN558** circuit pack (61-066) with original pack [DLP-519]

[91] See WARNING 10 and NOTE 8. Replace controller 1 **4WB5** circuit pack (31-130) [DLP-519]

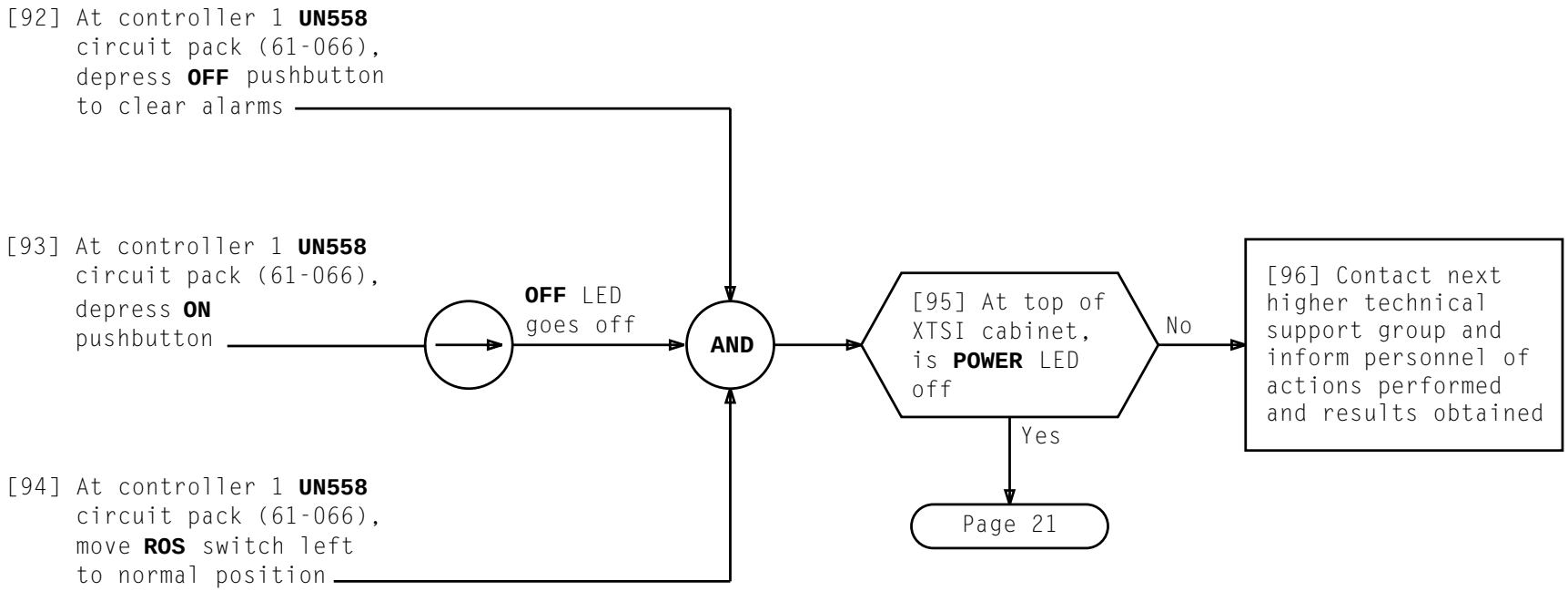
AND

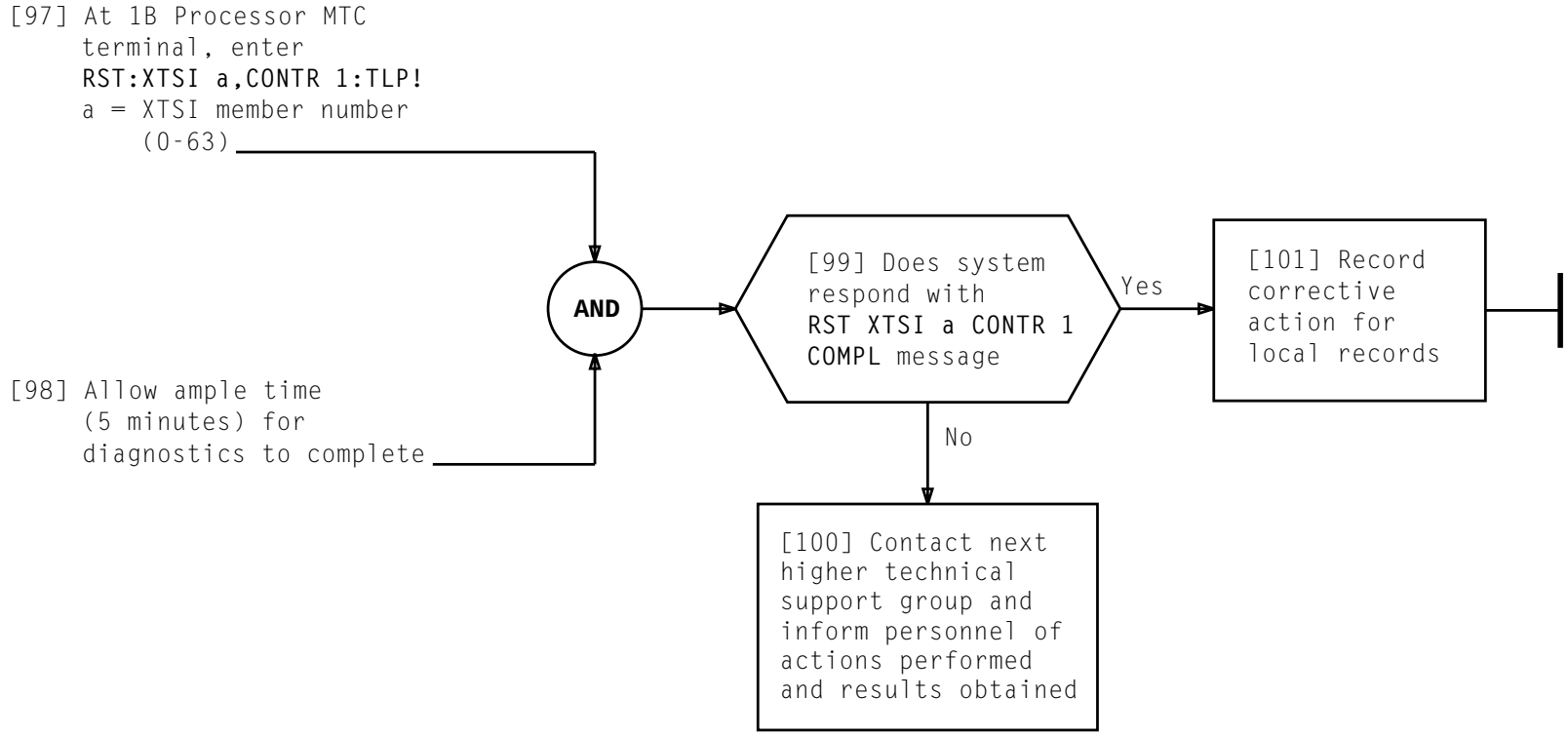
Page 20

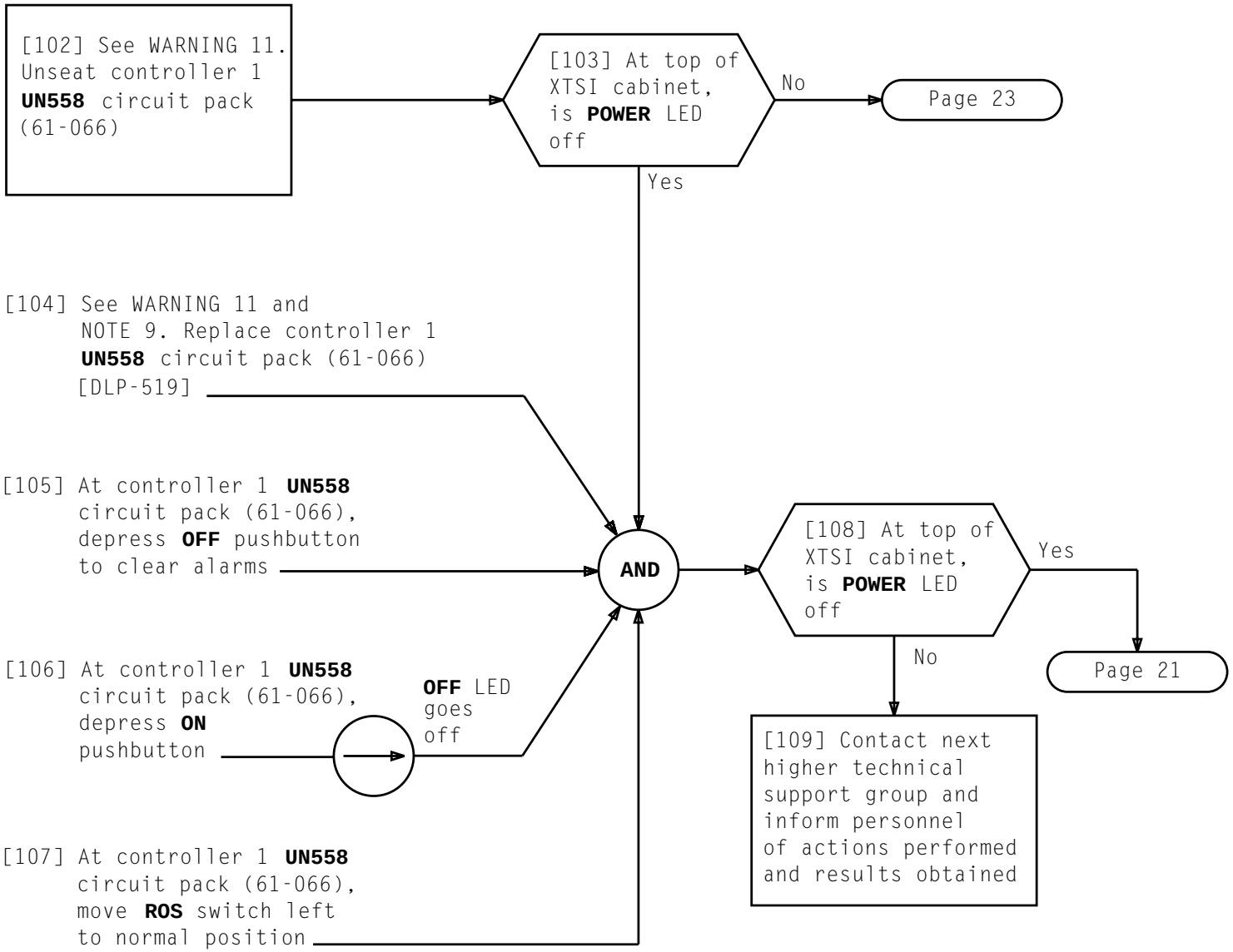
NOTE 8
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 10
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET


[92] At controller 1 **UN558** circuit pack (61-066), depress **OFF** pushbutton to clear alarms
[93] At controller 1 **UN558** circuit pack (61-066), depress **ON** pushbutton
OFF LED goes off
AND
[94] At controller 1 **UN558** circuit pack (61-066), move **ROS** switch left to normal position
[95] At top of XTSI cabinet, is **POWER** LED off
No
[96] Contact next higher technical support group and inform personnel of actions performed and results obtained
Yes
Page 21


[97] At 1B Processor MTC terminal, enter
RST:XTSI a,CONTR 1:TLP!
a = XTSI member number (0-63)
[98] Allow ample time (5 minutes) for diagnostics to complete
AND
[99] Does system respond with RST XTSI a CONTR 1 COMPL message
Yes
No
[101] Record corrective action for local records
[100] Contact next higher technical support group and inform personnel of actions performed and results obtained



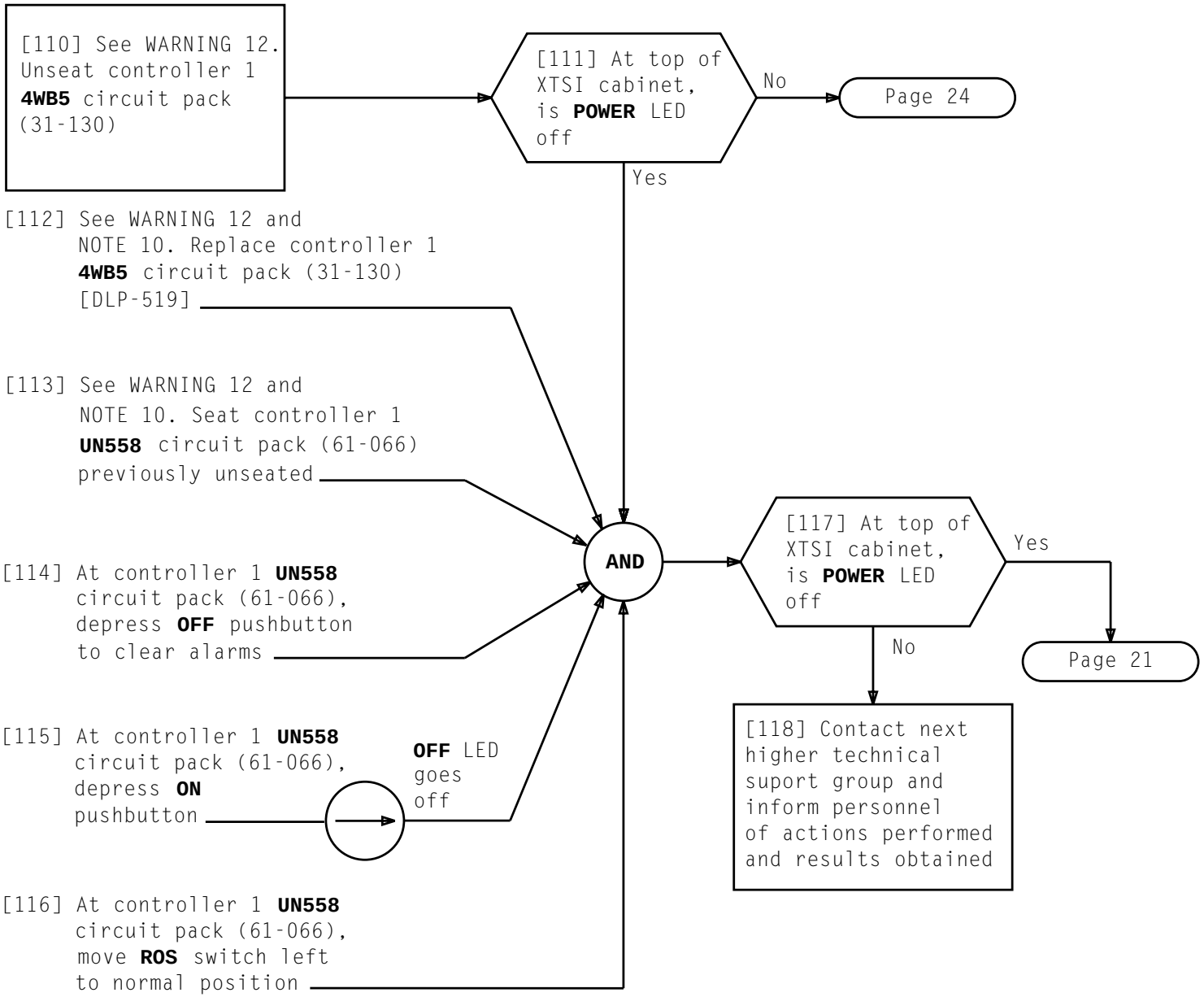
NOTE 9

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

WARNING 11

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

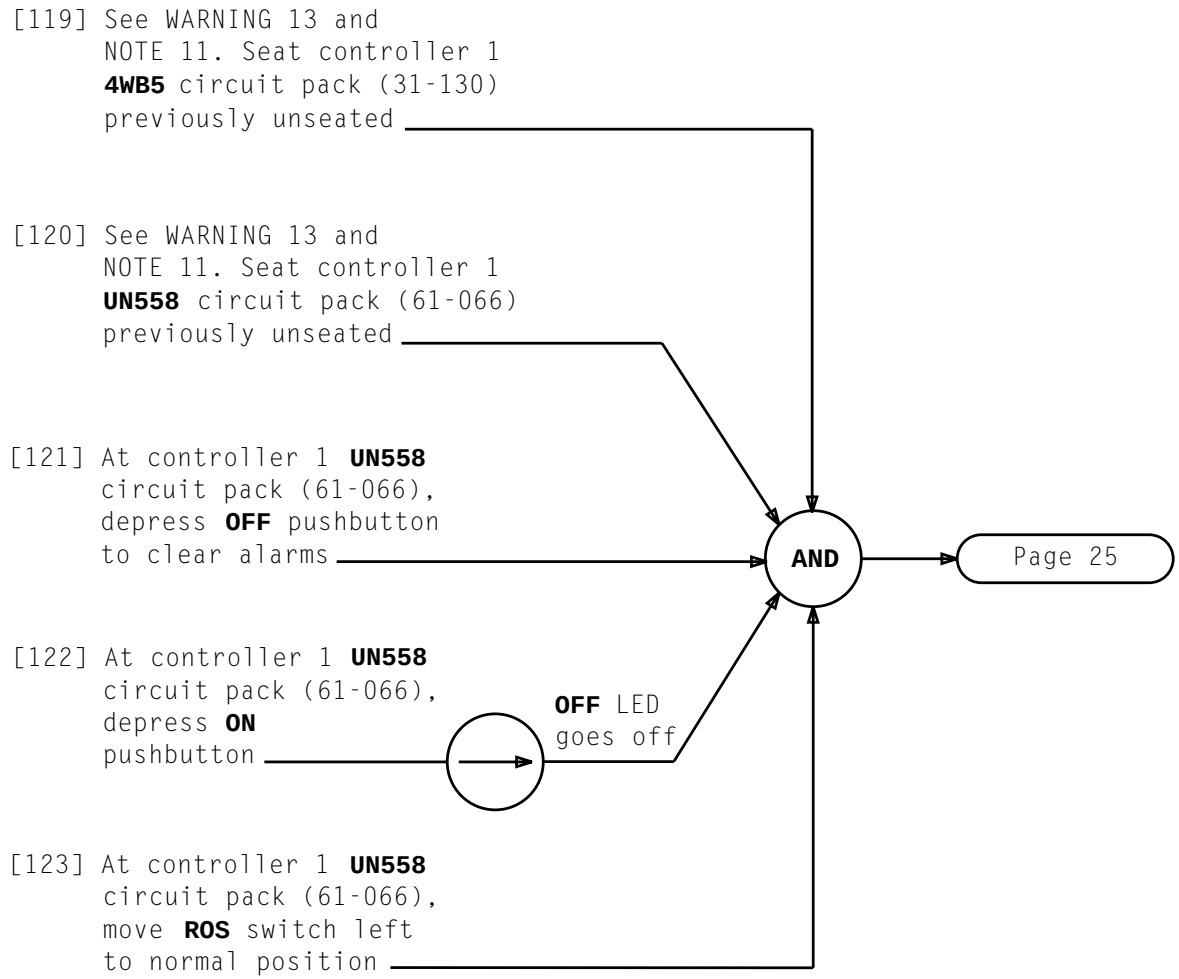
CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET



NOTE 10
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 12
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET



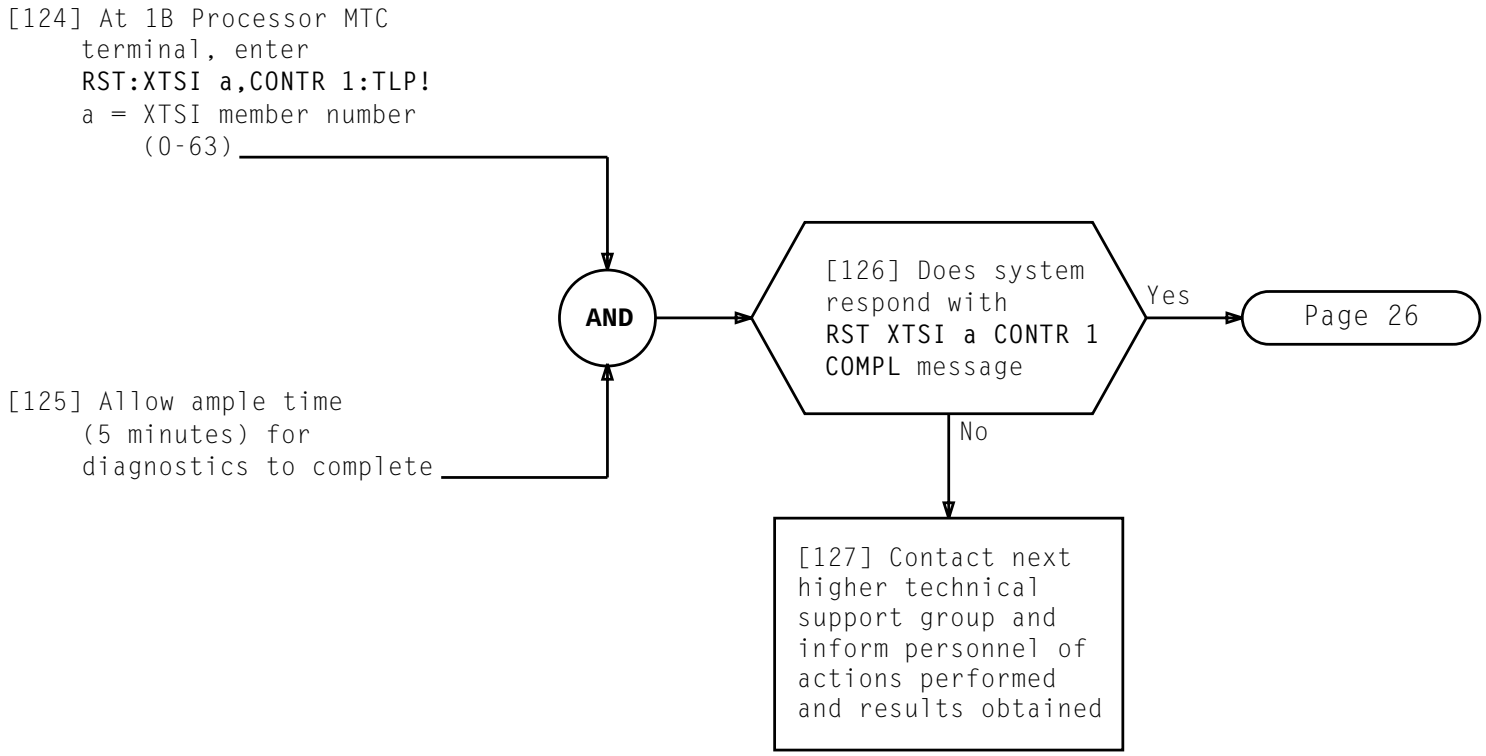
NOTE 11

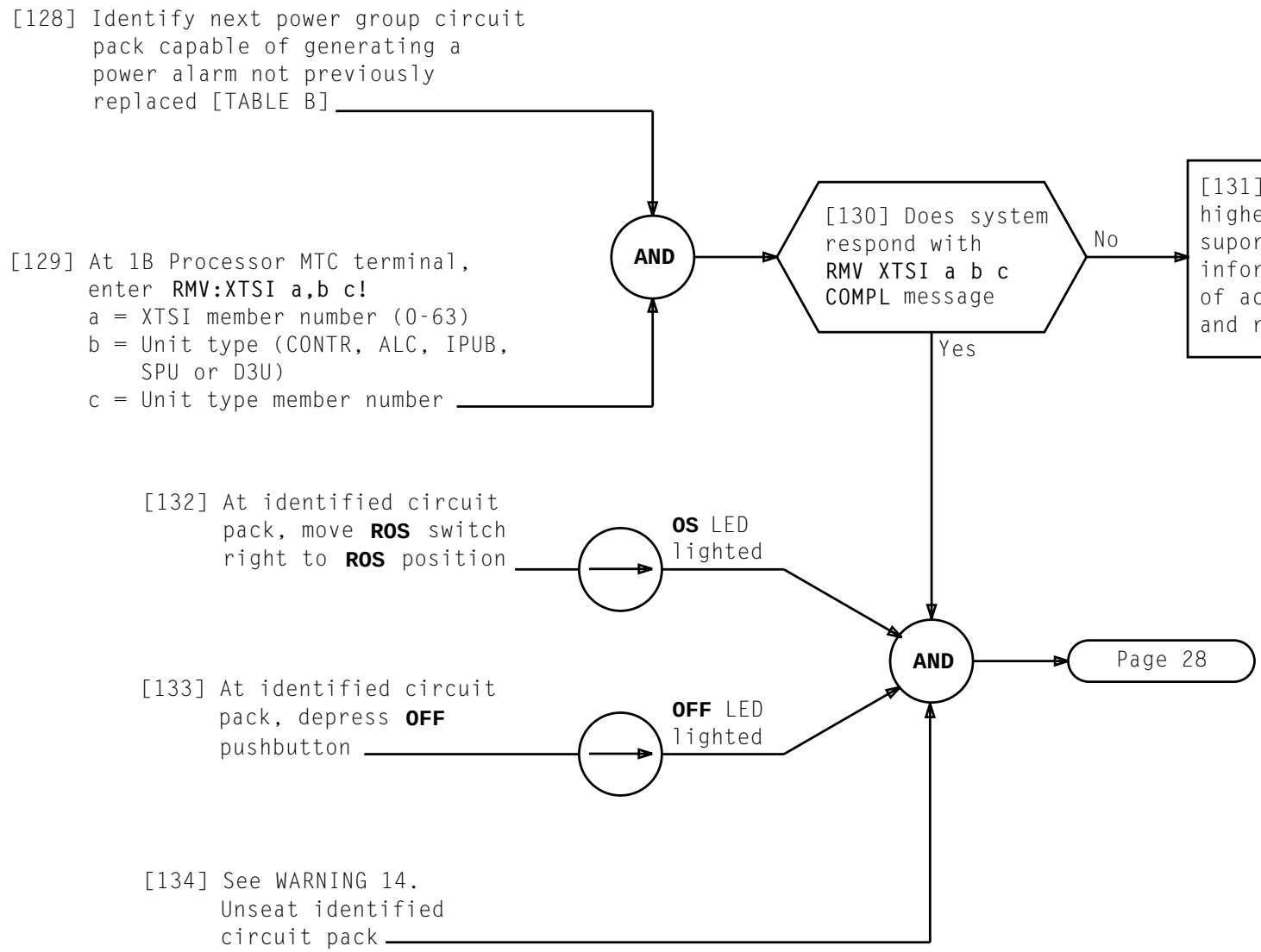
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 13

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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET


[124] At 1B Processor MTC terminal, enter
RST:XTSI a,CONTR 1:TLP!
a = XTSI member number (0-63)
[125] Allow ample time (5 minutes) for diagnostics to complete
AND
[126] Does system respond with RST XTSI a CONTR 1 COMPL message
Yes
Page 26
No
[127] Contact next higher technical support group and inform personnel of actions performed and results obtained



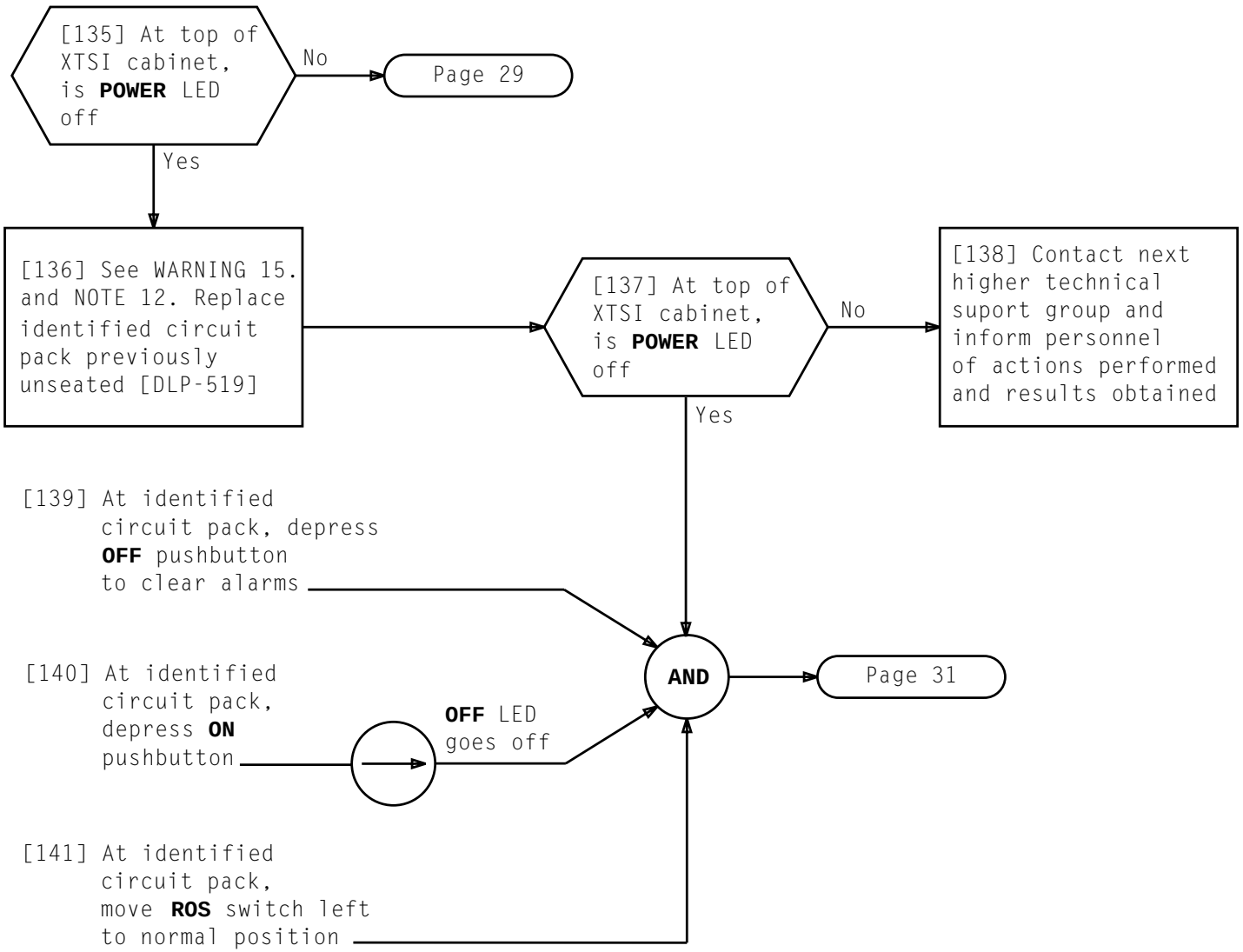
WARNING 14

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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

TABLE B
POWER GROUP CIRCUIT PACKS CAPABLE OF GENERATING A POWER ALARM

POWER GROUP	CIRCUIT PACK		POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION
CONTR 0	**UN558**	52-066	SPU 0	**4WB8**	31-024
	4WB5	14-130	SPU 1	**4WB8**	31-032
CONTR 1	**UN558**	61-066	SPU 2	**4WB8**	31-040
	4WB5	31-130	SPU 3	**4WB8**	31-048
ALC 0	**UN545**	52-014	SPU 4	**4WB8**	31-056
ALC 1	**UN545**	61-014	SPU 5	**4WB8**	31-148
IPUB 0	**TN1994**	61-188	SPU 6	**4WB8**	31-156
IPUB 1	**TN1994**	52-188	SPU 7	**4WB8**	31-164
D3U 0	**4WB3**	14-024	SPU 8	**4WB8**	31-172
D3U 1	**4WB3**	14-032	SPU 9	**4WB8**	31-180
D3U 2	**4WB3**	14-040	SPU 10	**4WB8**	31-016
D3U 3	**4WB3**	14-164	SPU 11	**4WB8**	31-140
D3U 4	**4WB3**	14-172			
D3U 5	**4WB3**	14-180			
D3U 6	**4WB3**	14-016			
D3U 7	**4WB3**	14-156			



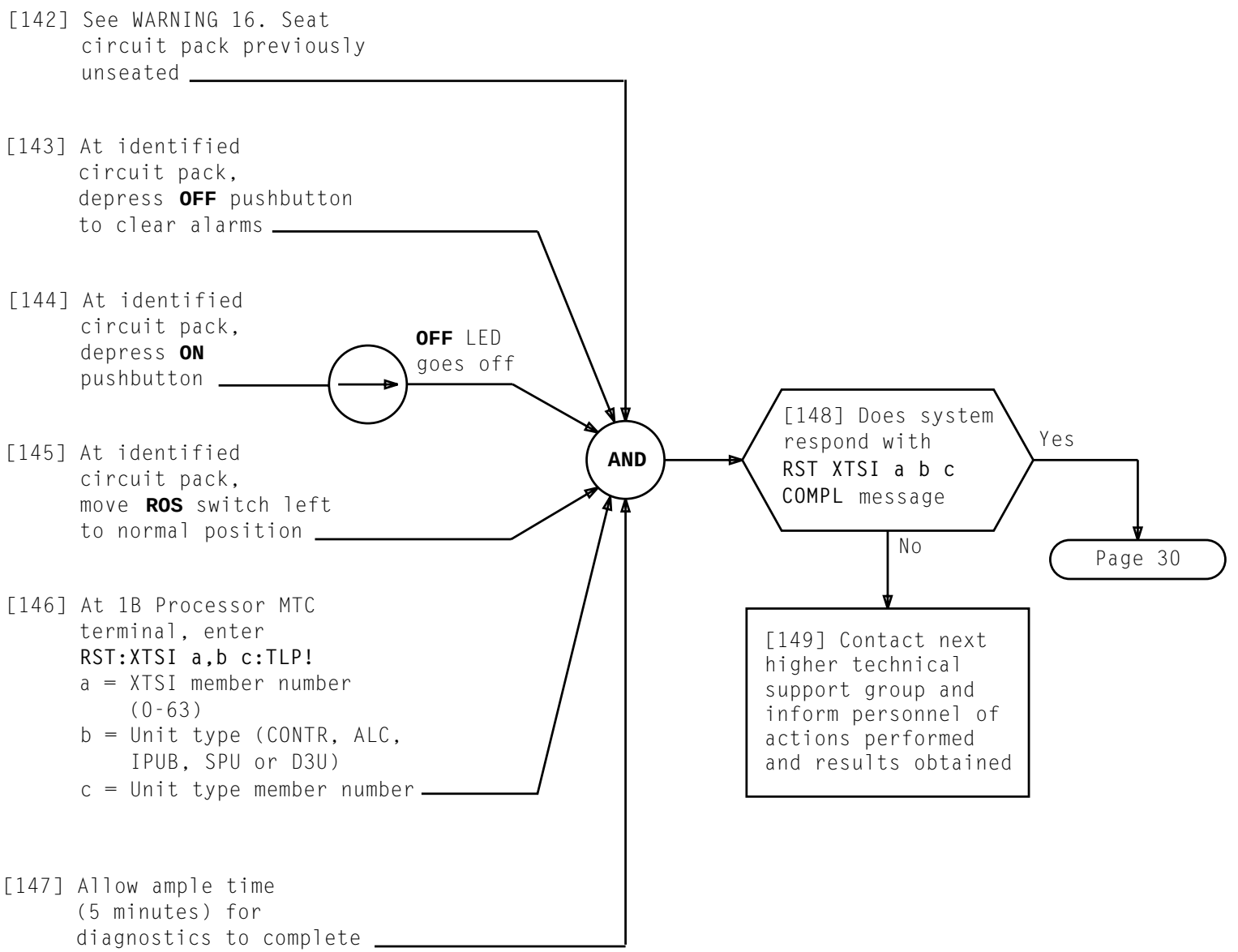
NOTE 12

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

WARNING 15

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

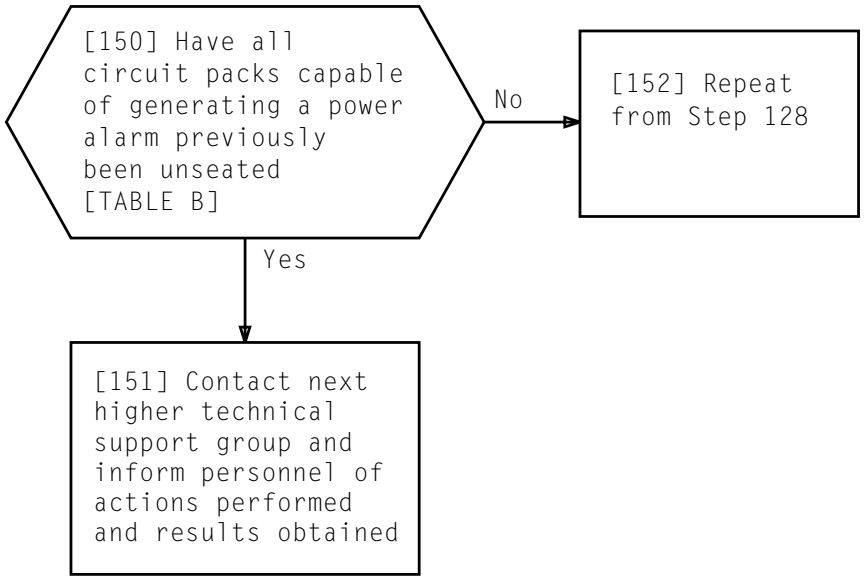
CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET

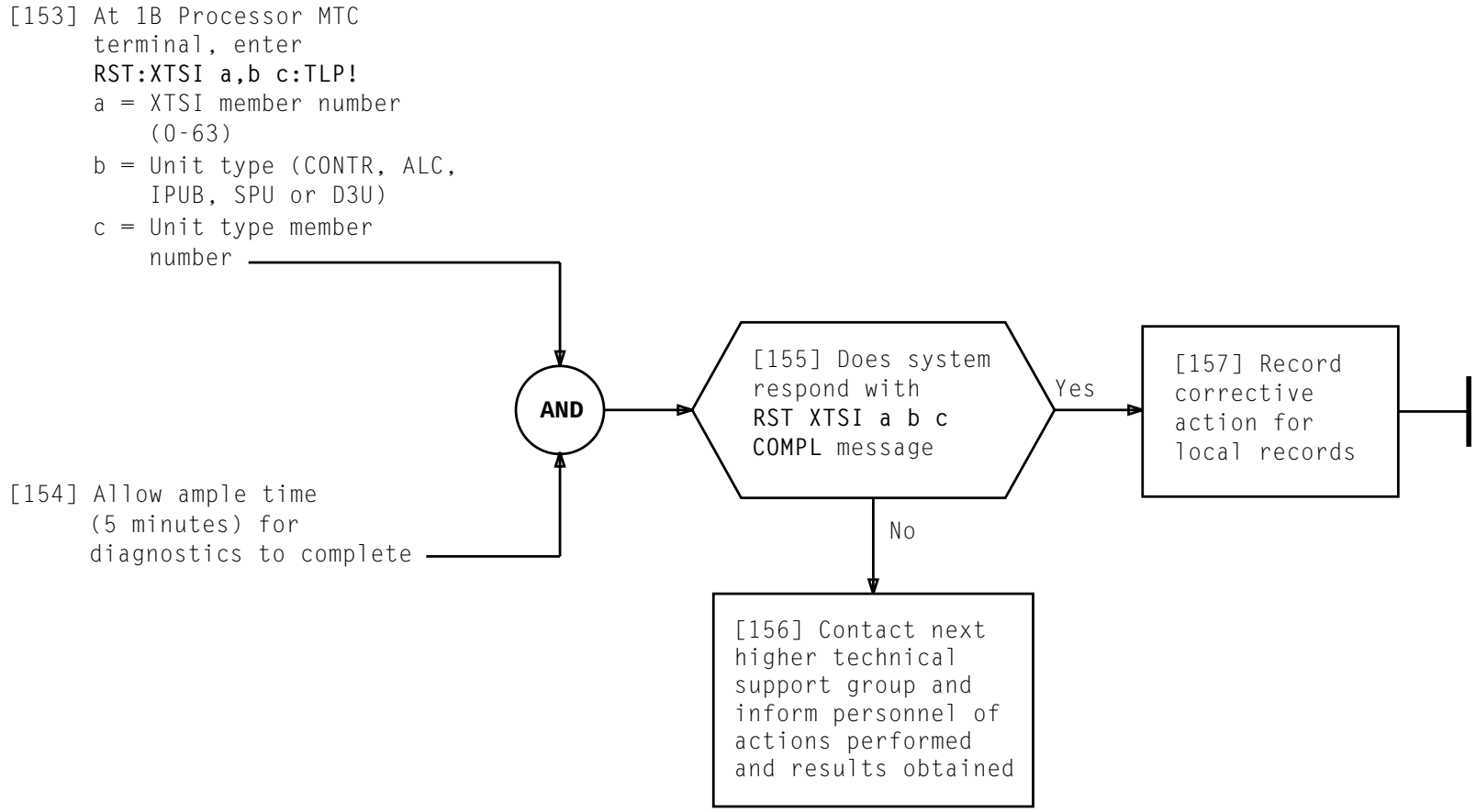


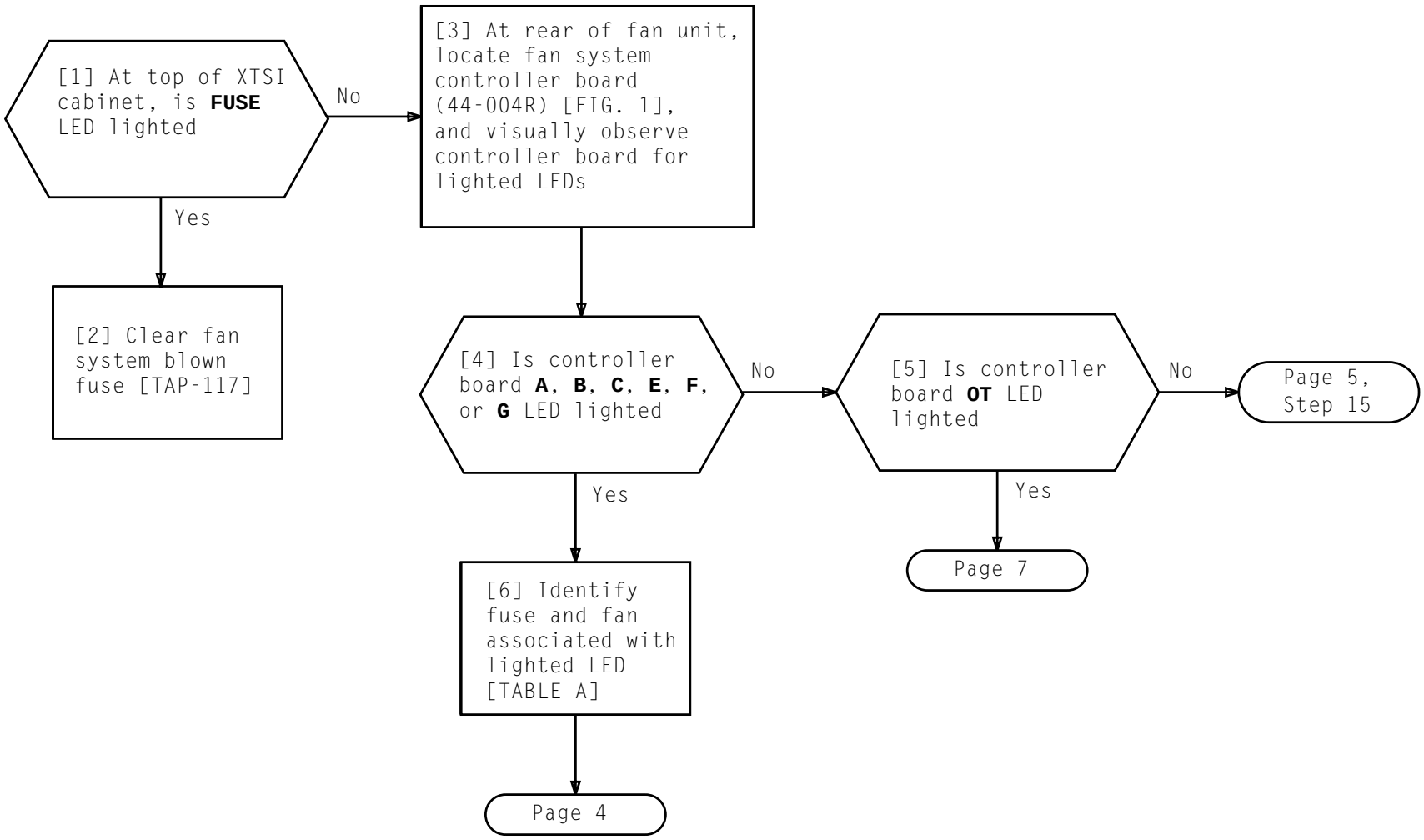
WARNING 16

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

CLEAR POWER ALARM — POWER LED LIGHTED ON XTSI CABINET


[150] Have all circuit packs capable of generating a power alarm previously been unseated [TABLE B]
No
[152] Repeat from Step 128
Yes
[151] Contact next higher technical support group and inform personnel of actions performed and results obtained


[153] At 1B Processor MTC terminal, enter
RST:XTSI a,b c:TLP!
a = XTSI member number (0-63)
b = Unit type (CONTR, ALC, IPUB, SPU or D3U)
c = Unit type member number
[154] Allow ample time (5 minutes) for diagnostics to complete
AND
[155] Does system respond with RST XTSI a b c COMPL message
Yes
No
[157] Record corrective action for local records
[156] Contact next higher technical support group and inform personnel of actions performed and results obtained



CLEAR FAN SYSTEM TROUBLE — FAN LED LIGHTED ON XTSI CABINET

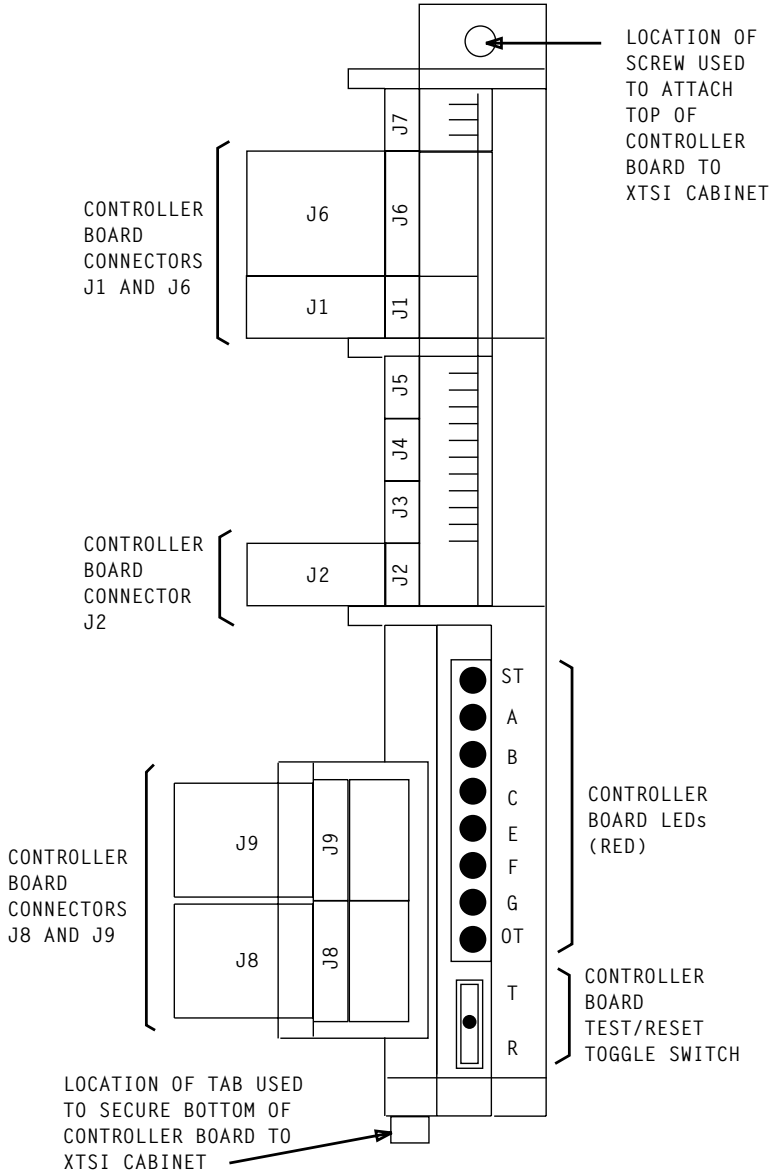


FIG. 1 - Fan System Controller Board (44-004R)

FAN SYSTEM CONTROLLER BOARD LEGEND		
CONTROLLER BOARD INDICATOR		**INDICATOR IDENTIFICATION**
ST LED		STATUS LED
A LED		FAN A FAIL LED
B LED		FAN B FAIL LED
C LED		FAN C FAIL LED
E LED		FAN E FAIL LED
F LED		FAN F FAIL LED
G LED		FAN G FAIL LED
OT LED		OVER TEMPERATURE LED
TWO FUNCTION TOGGLE SWITCH	**T**	TEST
	R	RESET

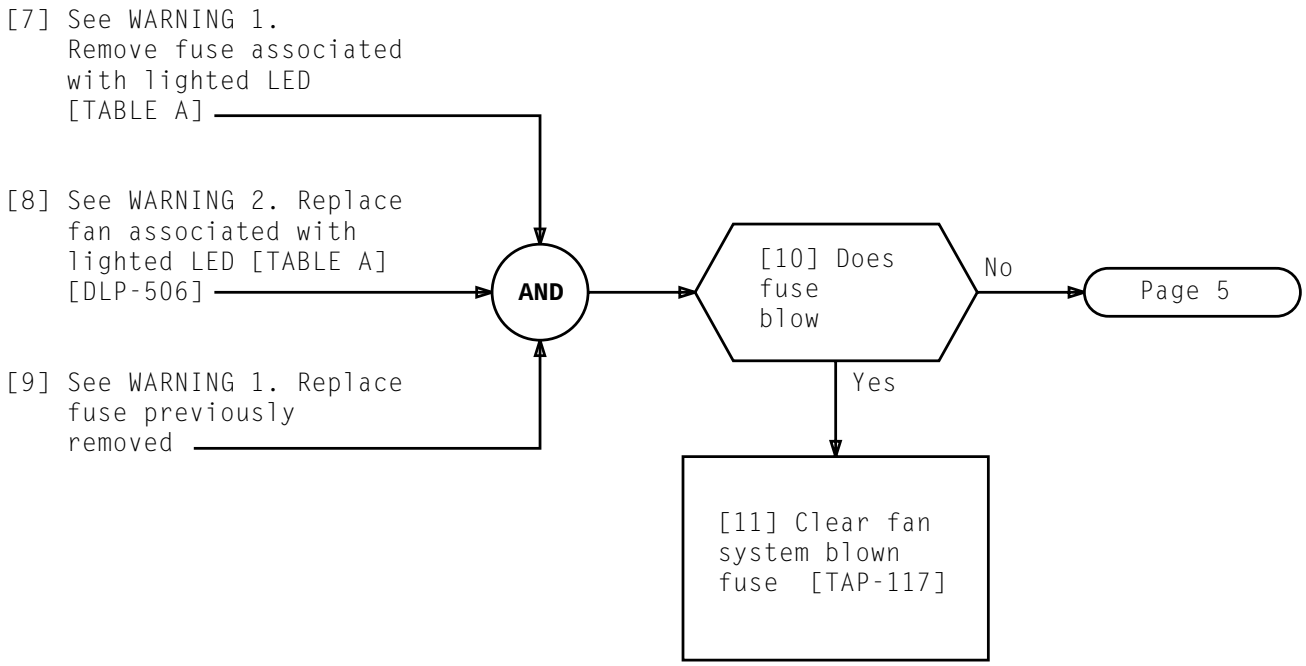
CLEAR FAN SYSTEM TROUBLE — FAN LED LIGHTED ON XTSI CABINET

TABLE A

XTSI CABINET FAN SYSTEM CONTROLLER BOARD FAN LEDs AND ASSOCIATED FUSES/LOADS

CONTROLLER BOARD FAN LED	ASSOCIATED FUSE		ASSOCIATED LOAD	
	IDENTIFIER	LOCATION	IDENTIFIER (NOTE 1)	LOCATION (NOTE 2)
A	**FAN A**	69-150B	**FAN A**	44-032R
			FAN SYSTEM CONTROLLER	44-004R
B	**FAN B**	69-064A	**FAN B**	44-098R
C	**FAN C**	69-174B	**FAN C**	44-164R
E	**FAN E**	69-048A	**FAN E**	44-032F
F	**FAN F**	69-166A	**FAN F**	44-098F
G	**FAN G**	69-072B	**FAN G**	44-164F

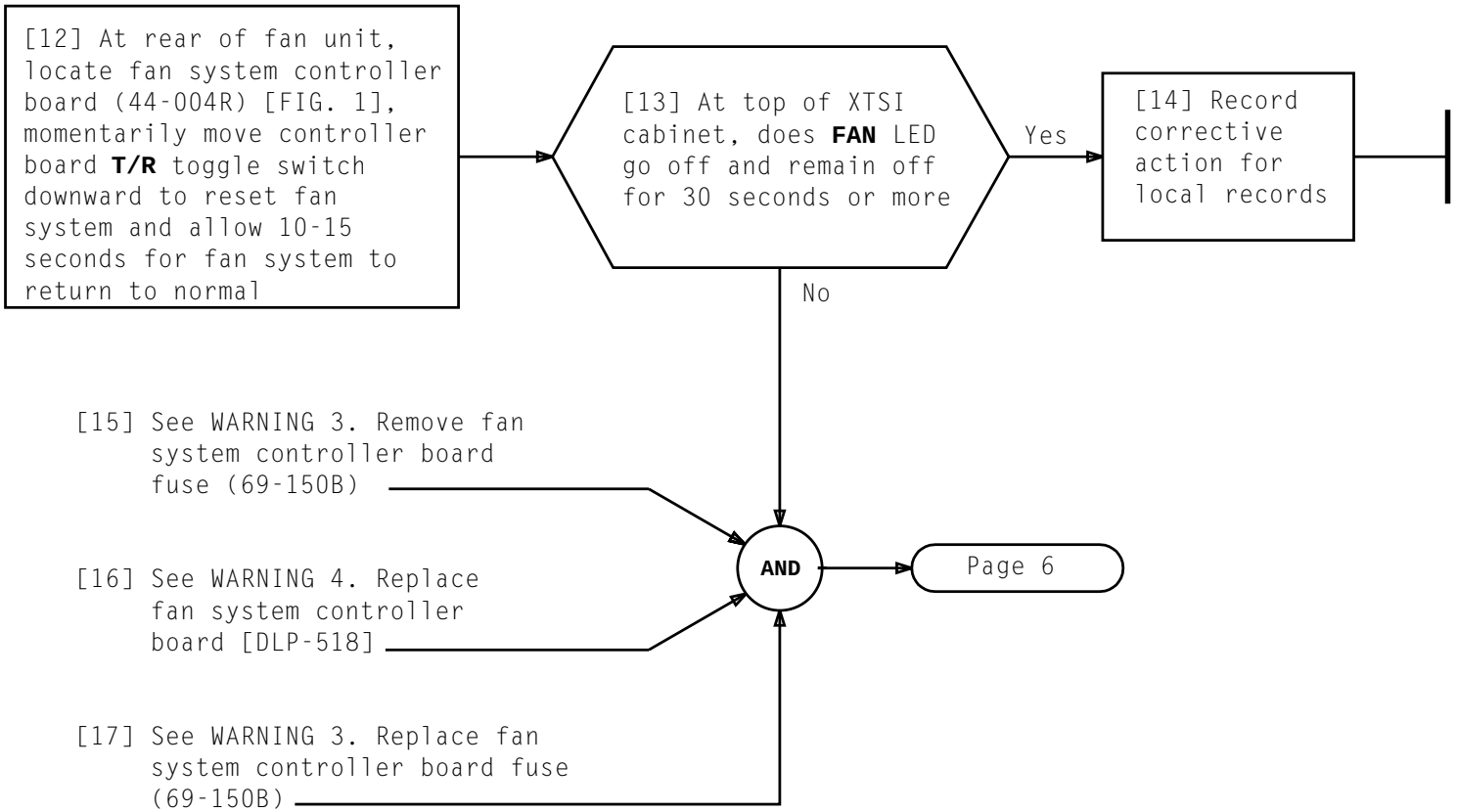
NOTES:
1. Rear fans are identified A, B and C, right to left across rear of fan unit. Front fans are identified E, F and G left to right across front of fan unit
2. F indicates front and R indicates rear



WARNINGS

1. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*
2. *When replacing FAN A, care must be taken to avoid shorting fan to -48V terminal strip lugs located directly above FAN A*

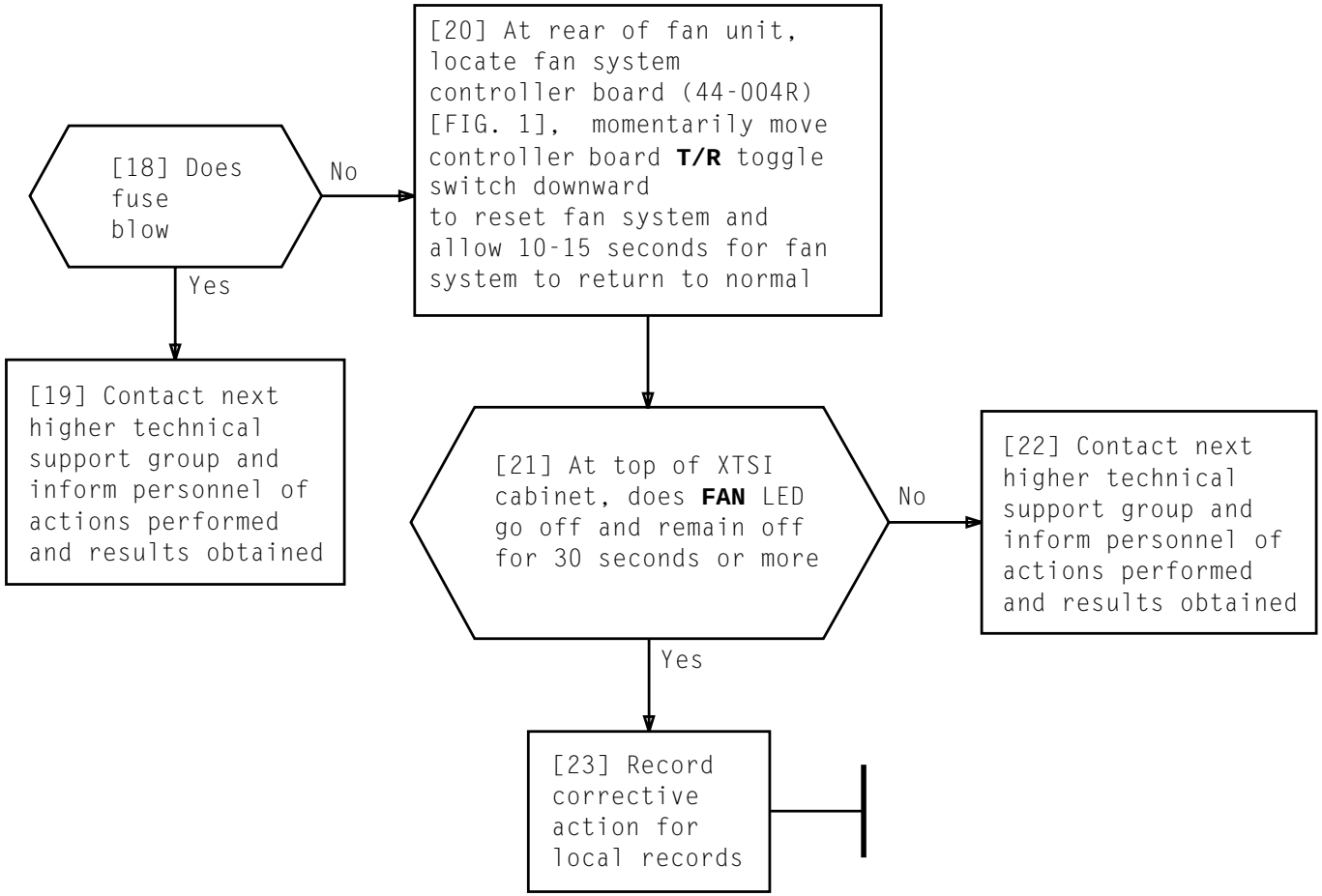
CLEAR FAN SYSTEM TROUBLE — FAN LED LIGHTED ON XTSI CABINET

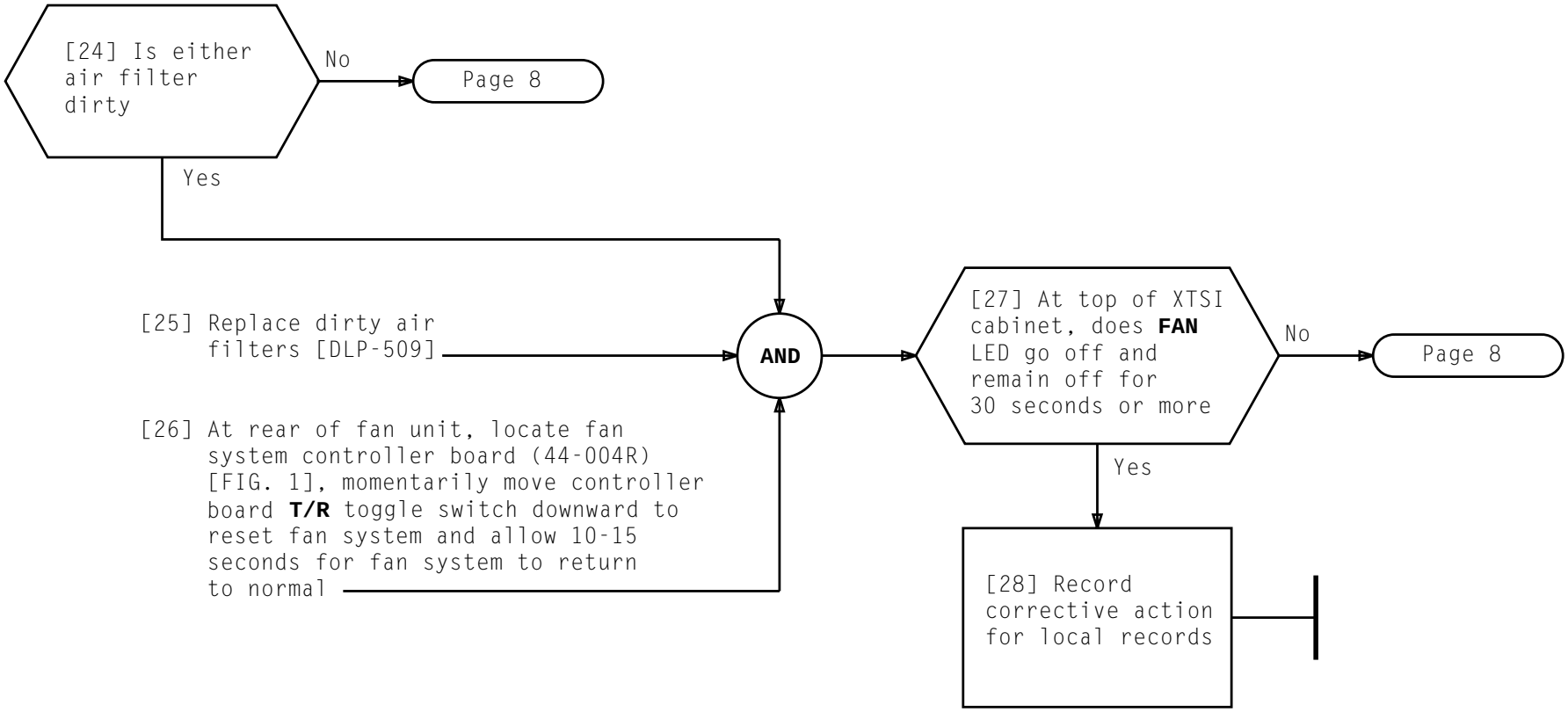


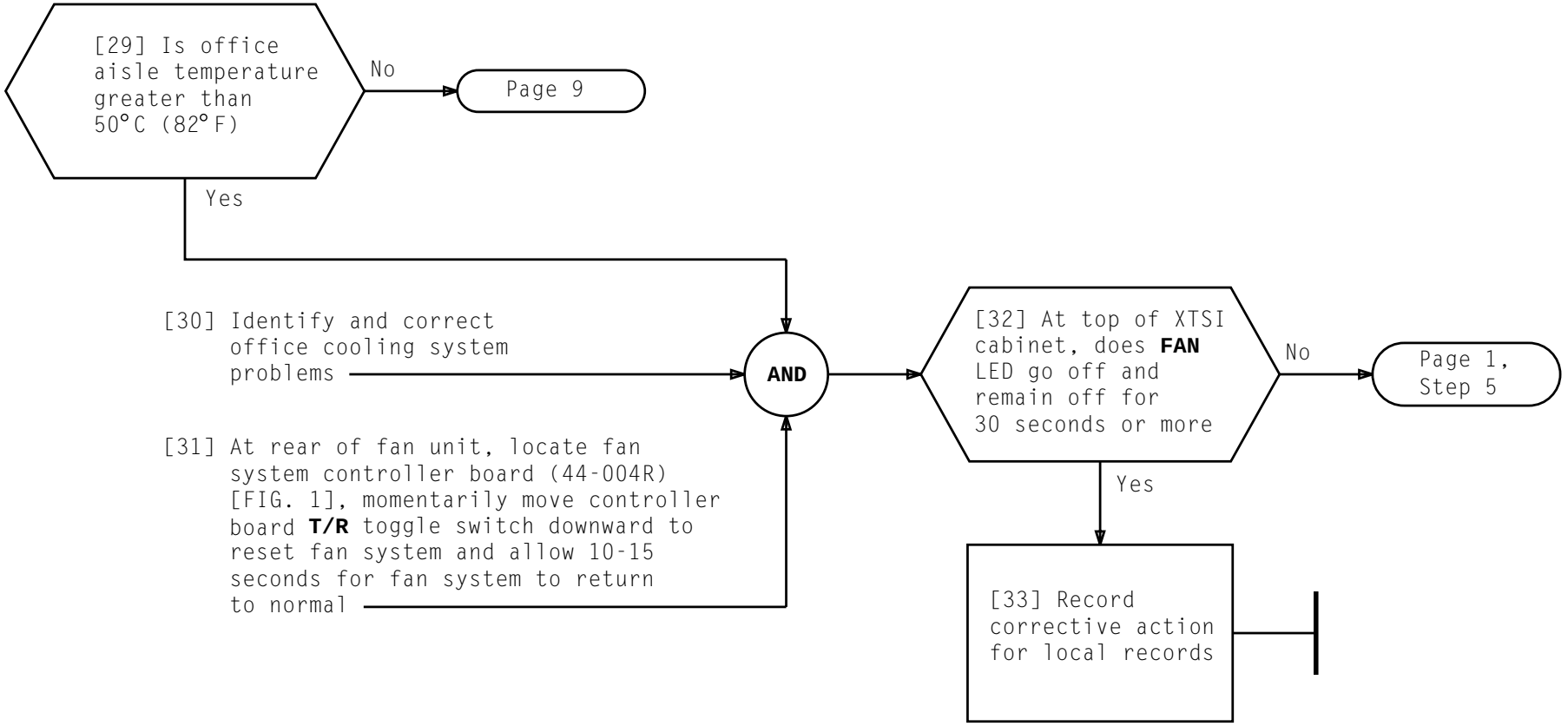
WARNINGS

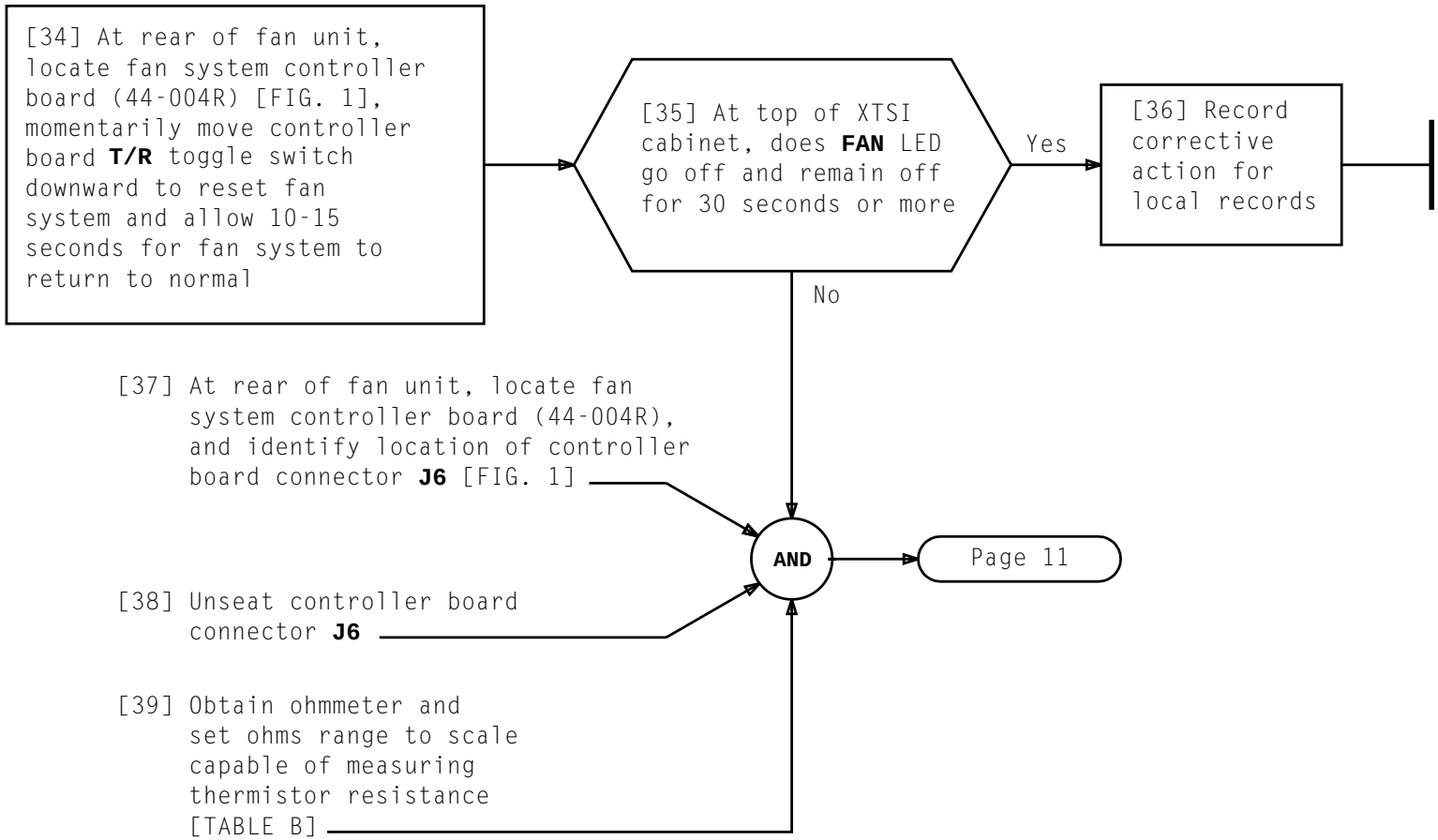
3. *When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module*
4. *When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A*

CLEAR FAN SYSTEM TROUBLE — FAN LED LIGHTED ON XTSI CABINET


[18] Does fuse blow
No
Yes
[20] At rear of fan unit, locate fan system controller board (44-004R) [FIG. 1], momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10-15 seconds for fan system to return to normal
[19] Contact next higher technical support group and inform personnel of actions performed and results obtained
[21] At top of XTSI cabinet, does **FAN** LED go off and remain off for 30 seconds or more
No
[22] Contact next higher technical support group and inform personnel of actions performed and results obtained
Yes
[23] Record corrective action for local records


[24] Is either air filter dirty
No
Page 8
Yes
[25] Replace dirty air filters [DLP-509]
[26] At rear of fan unit, locate fan system controller board (44-004R) [FIG. 1], momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10-15 seconds for fan system to return to normal
AND
[27] At top of XTSI cabinet, does **FAN** LED go off and remain off for 30 seconds or more
No
Page 8
Yes
[28] Record corrective action for local records




[34] At rear of fan unit, locate fan system controller board (44-004R) [FIG. 1], momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10-15 seconds for fan system to return to normal
[35] At top of XTSI cabinet, does **FAN** LED go off and remain off for 30 seconds or more
Yes
[36] Record corrective action for local records
No
[37] At rear of fan unit, locate fan system controller board (44-004R), and identify location of controller board connector **J6** [FIG. 1]
AND
Page 11
[38] Unseat controller board connector **J6**
[39] Obtain ohmmeter and set ohms range to scale capable of measuring thermistor resistance [TABLE B]

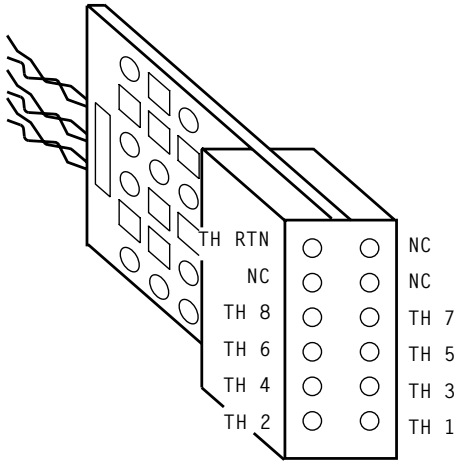
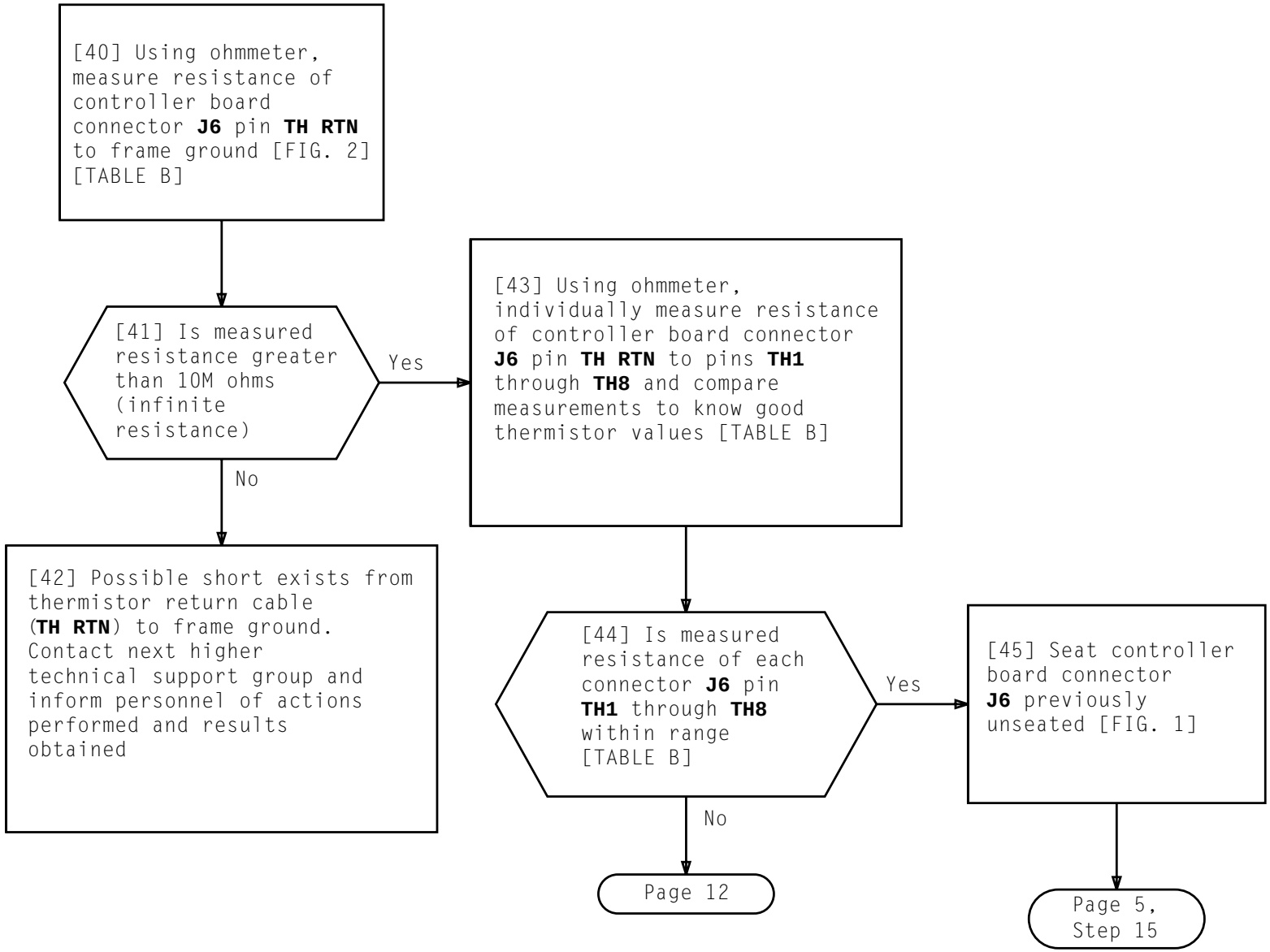
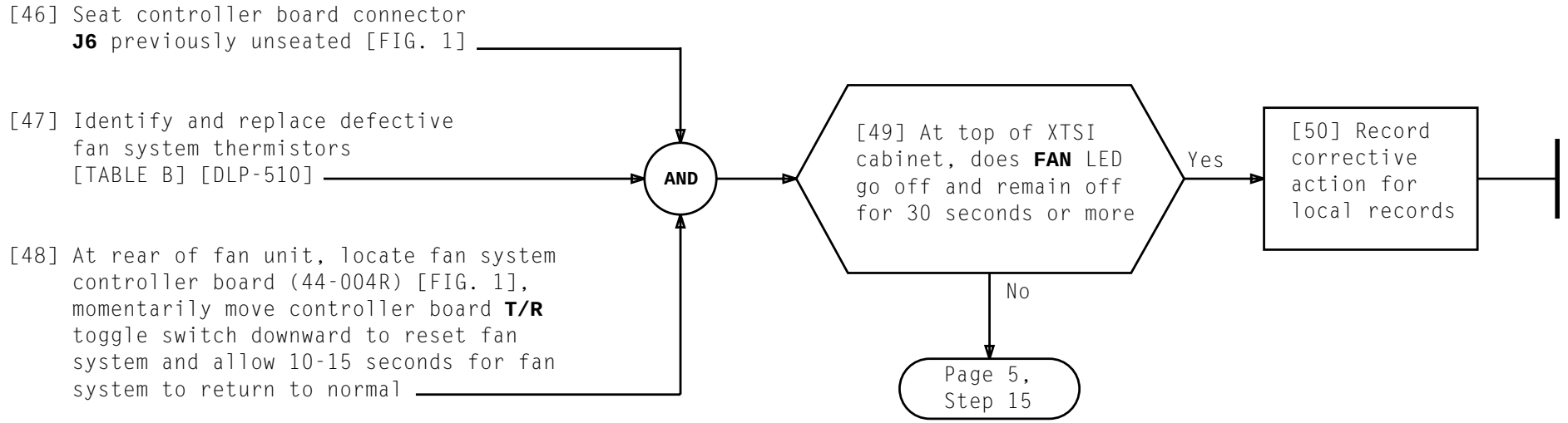


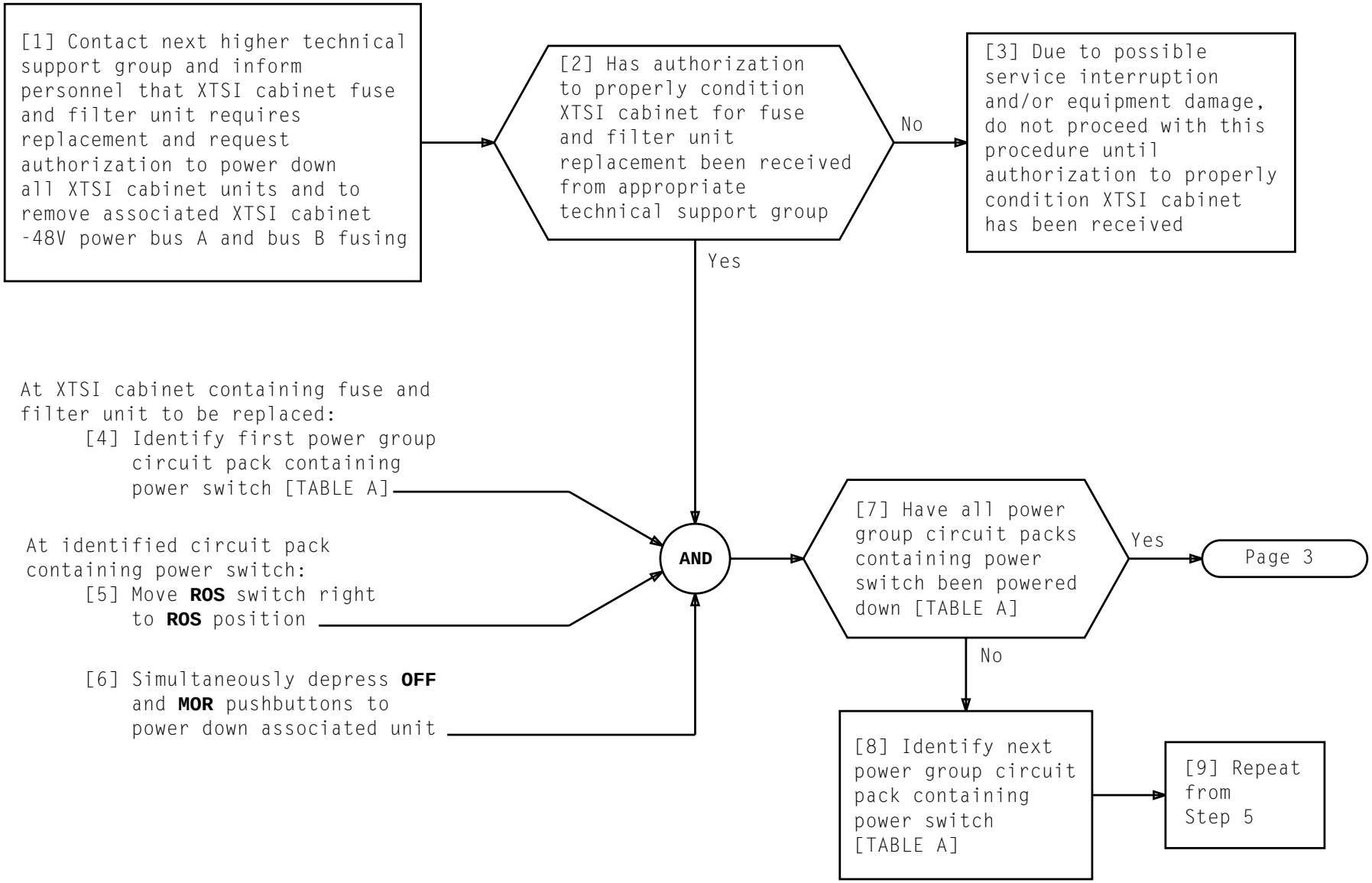
FIG. 2 – Controller Board Connector J6 Pin Layout

TABLE B
CONTROLLER BOARD CONNECTOR J6 PINS AND ASSOCIATED THERMISTORS/FANS

CONNECTOR J6 PIN IDENTIFICATION	THERMISTOR			ASSOCIATED FANS
	RESISTANCE RANGE	LOCATION	FUNCTION	
TH RTN	Greater than 10M ohms to Frame Ground (Infinite Resistance)	N/A	Common Return Pin	N/A
TH1	3K-10K ohms to TH RTN	46-064R (Fan Unit Rear)	Downward Air Inlet Temperature	Fans A, B, and C (Downward Air Movement)
TH2	1K-7K ohms to TH RTN	05-168 (Cabinet Base)	Bottom Right Air Exit Temperature	
TH3	1K-7K ohms to TH RTN	05-112 (Cabinet Base)	Bottom Center Air Exit Temperature	
TH4	1K-7K ohms to TH RTN	05-056 (Cabinet Base)	Bottom Left Air Exit Temperature	
TH5	3K-10K ohms to TH RTN	42-132F (Fan Unit Front)	Upward Air Inlet Temperature	Fans E, F, and G (Upward Air Movement)
TH6	1K-7K ohms to TH RTN	69-158F (Fuse Ckt Card)	Top Right Air Exit Temperature	
TH7	1K-7K ohms to TH RTN	69-110F (Fuse Ckt Card)	Top Center Air Exit Temperature	
TH8	1K-7K ohms to TH RTN	69-032F (Fuse Ckt Card)	Top Left Air Exit Temperature	
NC	N/A	N/A	No Connection	N/A




[46] Seat controller board connector **J6** previously unseated [FIG. 1]
[47] Identify and replace defective fan system thermistors [TABLE B] [DLP-510]
[48] At rear of fan unit, locate fan system controller board (44-004R) [FIG. 1], momentarily move controller board **T/R** toggle switch downward to reset fan system and allow 10-15 seconds for fan system to return to normal
AND
[49] At top of XTSI cabinet, does **FAN** LED go off and remain off for 30 seconds or more
Yes
No
[50] Record corrective action for local records
Page 5, Step 15



REPLACE FUSE AND FILTER UNIT – XTSI CABINET

TABLE A

POWER GROUP CIRCUIT PACKS CONTAINING POWER SWITCH

CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED POWER GROUP
IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	
UN558	52-066	CONTR 0	**4WB8**	31-024	SPU 0
UN558	61-066	CONTR 1	**4WB8**	31-032	SPU 1
UN545	52-014	ALC 0	**4WB8**	31-040	SPU 2
UN545	61-014	ALC 1	**4WB8**	31-048	SPU 3
TN1994	61-188	IPUB 0	**4WB8**	31-056	SPU 4
TN1994	52-188	IPUB 1	**4WB8**	31-148	SPU 5
4WB3	14-024	D3U 0	**4WB8**	31-156	SPU 6
4WB3	14-032	D3U 1	**4WB8**	31-164	SPU 7
4WB3	14-040	D3U 2	**4WB8**	31-172	SPU 8
4WB3	14-164	D3U 3	**4WB8**	31-180	SPU 9
4WB3	14-172	D3U 4	**4WB8**	31-016	SPU 10
4WB3	14-180	D3U 5	**4WB8**	31-140	SPU 11
4WB3	14-016	D3U 6			
4WB3	14-156	D3U 7			

[10] Using office records, identify location of 10 power distribution frame (PDF) fuses powering associated XTSI cabinet -48V bus A and bus B feeders

[11] Remove 10 PDF fuses and associated pilot fuses powering associated XTSI cabinet -48V bus A and bus B feeders

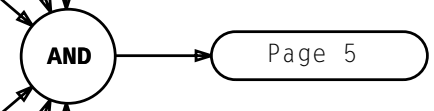
At front of XTSI cabinet [FIG. 1]:

[12] Release door hinges; remove cabinet doors and store in area away from equipment work area

[13] Grasp each side of **FUSE/FAN/POWER** LED terminal board cover and pull outward to remove cover

[14] Unseat **FUSE/FAN/POWER** LED terminal board connector and insulate connector with electrical tape to avoid shorting

[15] Remove screws securing cabinet door top hinge plate to frame and store in area away from equipment work area



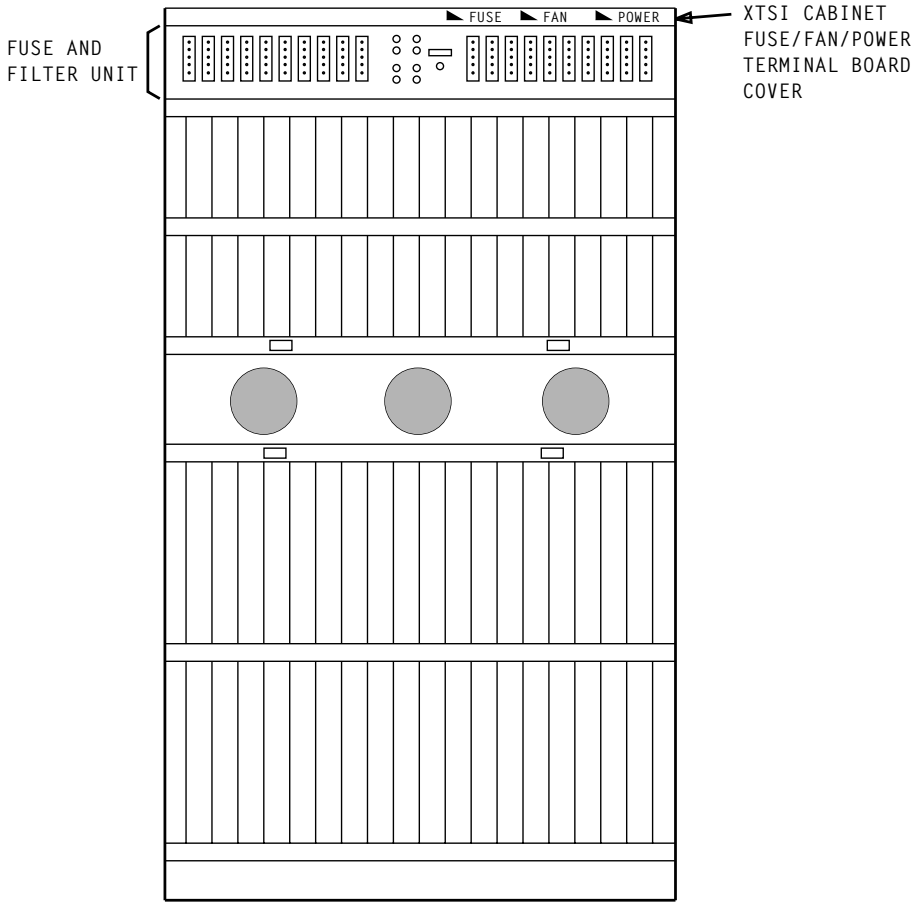


FIG. 1 – XTSI Cabinet With Doors Removed (Front View)

At rear of fuse and filter unit (69-000) [FIG. 2]:

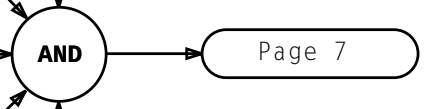
[16] Remove screws securing doors covering -48V input cables (**J1** through **J10**)

[17] Locate connectorized cables **J1** through **J10** and tag for later use when connecting to replacement unit

[18] Unseat **J1** through **J10** connectorized cables; insulate connectors with electrical tape to avoid shorting and remove from fuse and filter unit

[19] Locate connectorized cables **P1** through **P4** and tag for later use when connecting to replacement unit

[20] Using screwdriver, rotate captive screws, at top and bottom of **P1** through **P4** conncectors, counterclockwise one full turn alternating between top and bottom screw until connectorized cables **P1** through **P4** can be removed



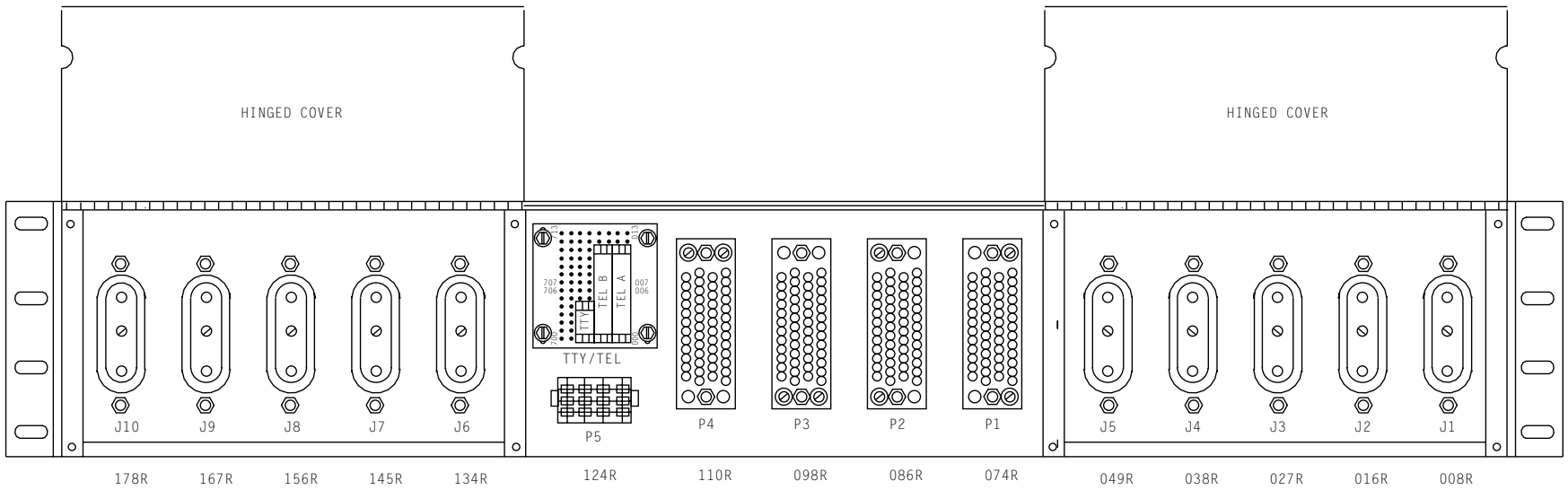


FIG. 2 - Sample Layout of XTSI Cabinet Fuse and Filter Unit (Rear View)

J1 THRU J10 CABLE GROUP IDENTIFIERS		
CONNECTOR		CABLE GROUP IDENTIFIER
IDENTIFIER	LOCATION	
J1	69-008R	A048V
J2	69-016R	A148V
J3	69-027R	A248V
J4	69-038R	A348V
J5	69-049R	A448V
J6	69-134R	B048V
J7	69-145R	B148V
J8	69-156R	B248V
J9	69-167R	B348V
J10	69-178R	B448V

P1 THRU P5 AND TTY CABLE GROUP IDENTIFIERS		
CONNECTOR		CABLE GROUP IDENTIFIER
IDENTIFIER	LOCATION	
P1	69-074R	ED4A348-20, Group 1
P2	69-086R	
P3	69-098R	
P4	69-110R	
P5	68-124R	ED4A348-20, Group 4
TTY	70-124R-501	ED4A348-20, Group 12

PHONE CABLE GROUP IDENTIFIERS		
CONNECTOR		CABLE GROUP IDENTIFIER
IDENTIFIER	LOCATION	
TELA	70-124R-101	ED4A348-25, Group 11,11A,12
TELB	70-124R-301	

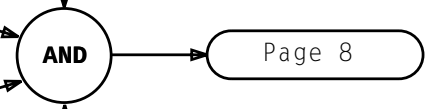
At rear of fuse and filter unit (69-000) [FIG. 2]:

[21] Locate connectorized cable **P5** and tag for later use when connecting to replacement unit

[22] While depressing tabs on sides of **P5** connectorized cable, gently pull outward to remove cable

[23] Locate 3 connectorized cables at **TTY/TEL** terminal field and tag for later use when connecting to replacement unit

[24] Using orange stick or equivalent non-metallic tool, release cable retainers and gently pull outward to remove 3 connectorized cables at **TTY/TEL** terminal field



[25] Obtain piece of cloth or antistatic plastic and cover area below fuse and filter unit to prevent debris from falling into circuit packs below work area

At front of XTSI cabinet containing fuse and filter unit (69-000) to be replaced:

[26] Remove screws securing fuse and filter unit to cabinet

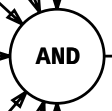
[27] See NOTES 1 and 2. Carefully slide fuse and filter unit forward and remove unit from front of cabinet

[28] Safely store defective fuse and filter unit for shipment back to factory for repair

[29] Check fuse and filter unit mounting area in cabinet and ensure no cabinet wiring is in path of fuse unit to be installed

[30] See NOTES 1 and 2. Lift replacement fuse and filter unit, insert unit in cabinet mounting area and slide unit into cabinet until unit is completely seated against cabinet mounting supports

[31] Using screws previously removed, secure fuse and filter unit to cabinet mounting supports



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NOTES

1. It is recommended that two people be used to remove/install fuse and filter unit. The unit will have to be moved to both the left and right while being removed/installed
2. Care must be used to ensure that no cabinet wiring is is in the path of the fuse and filter unit as the unit is being removed/ installed

REPLACE FUSE AND FILTER UNIT — XTSI CABINET

[32] Carefully remove cloth or antistatic plastic placed below work area to keep debris from falling into circuit packs

At rear of XTSI cabinet containing fuse and filter unit (69-000) previously replaced:

[33] Locate 3 connectorized cables previously removed from **TTY/TEL** terminal field and using orange stick or equivalent non-metallic tool (if necessary) secure cable connectors to retainers at **TTY/TEL** terminal field locations [FIG. 2]

[34] Locate **P5** connectorized cable, mate with **P5** connector and push inward to secure connector tabs [FIG. 2]

[35] Locate **P1** through **P4** connectorized cables, mate with **P1** through **P4** connectors and secure connections by rotating captive screws at top and bottom of cable connectors clockwise one full turn alternating between top and bottom screw until cable connectors are firmly seated [FIG. 2]

AND

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[36] At rear of XTSI cabinet containing fuse and filter unit (69-000) previously replaced, locate **J1** through **J10** connectorized cables; route into replacement fuse and filter unit, mate with **J1** through **J10** connectors and push inward until cable connectors are firmly seated [FIG. 2]

[37] Remove all working tags from cables that were used for identification purposes during fuse and filter unit replacement [FIG. 2]

[38] Using screws previously removed, close and secure doors covering -48V input cables (**J1** through **J10**) [FIG. 2]

[39] At front of XTSI cabinet, secure cabinet door top hinge plate to cabinet frame using screws previously removed

AND

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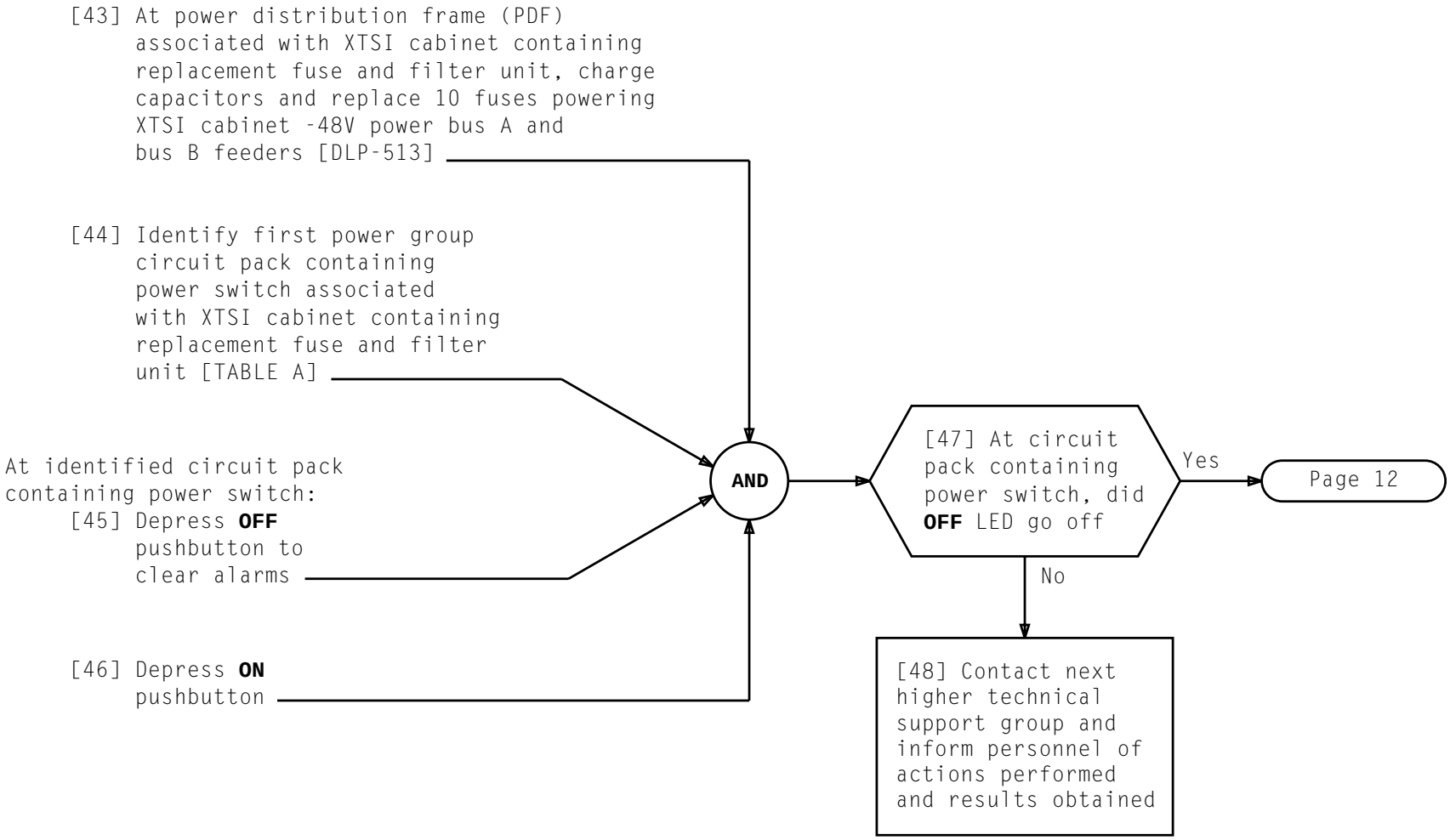
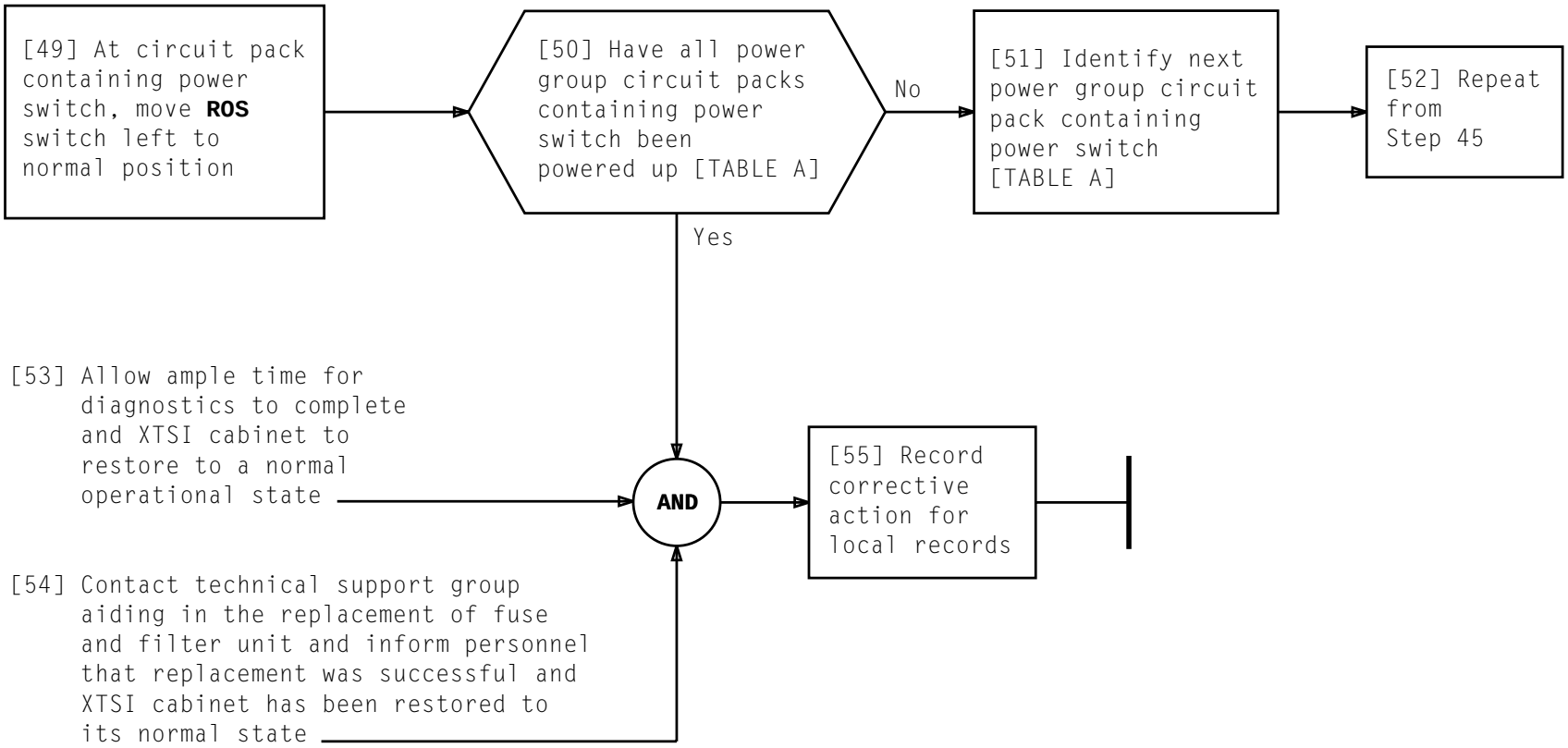
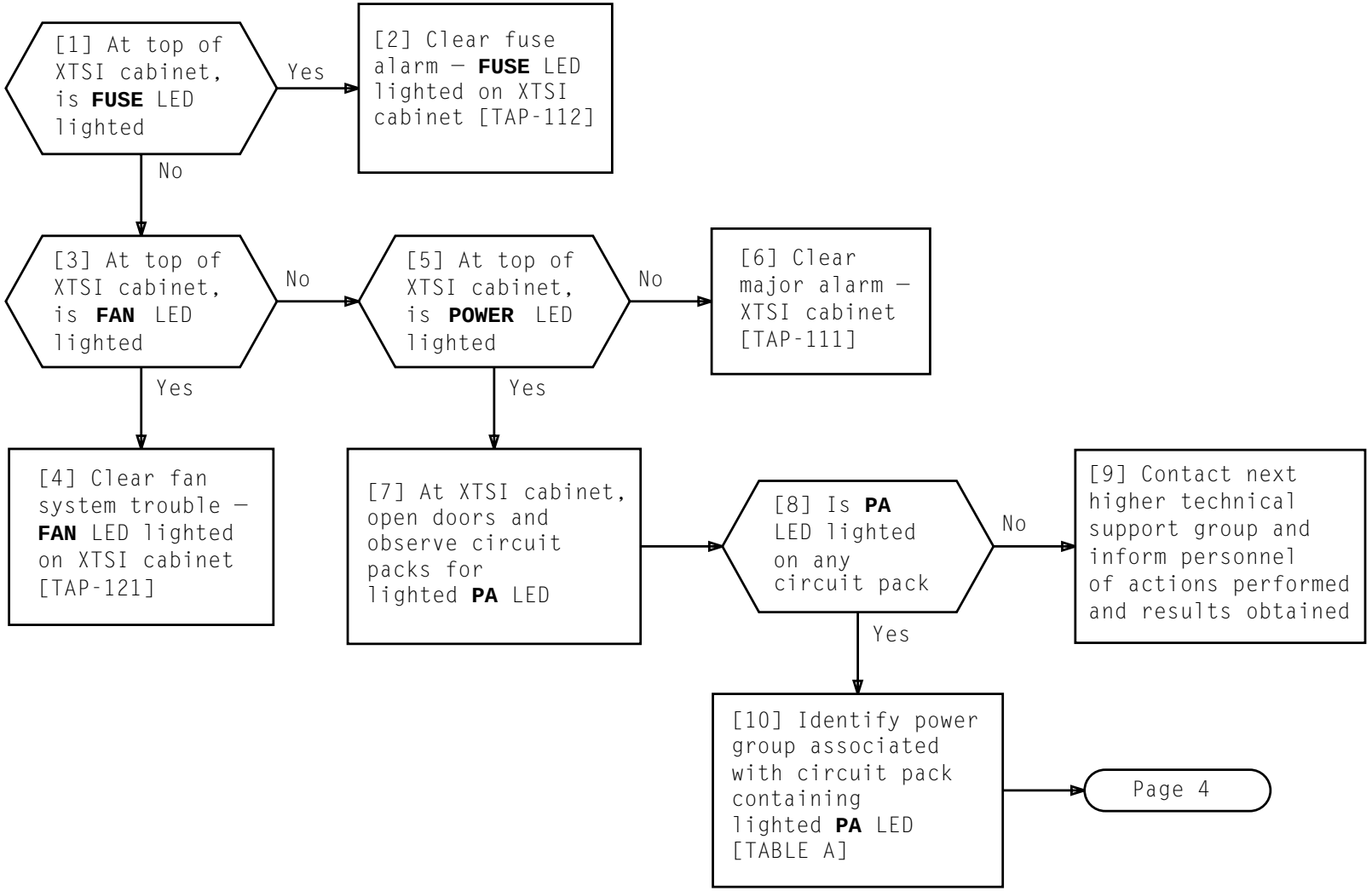
[40] Seat **FUSE/FAN/POWER** LED terminal board connector previously removed

[41] Obtain and align **FUSE/FAN/POWER** LED terminal board cover onto cabinet studs and push inward to seat cover

[42] Obtain and install cabinet doors previously removed







IDENTIFY AND CLEAR POWER GROUP POWER ALARM — CIRCUIT PACK PA LED LIGHTED IN XTSI CABINET

TABLE A
XTSI CABINET POWER GROUP LEDs

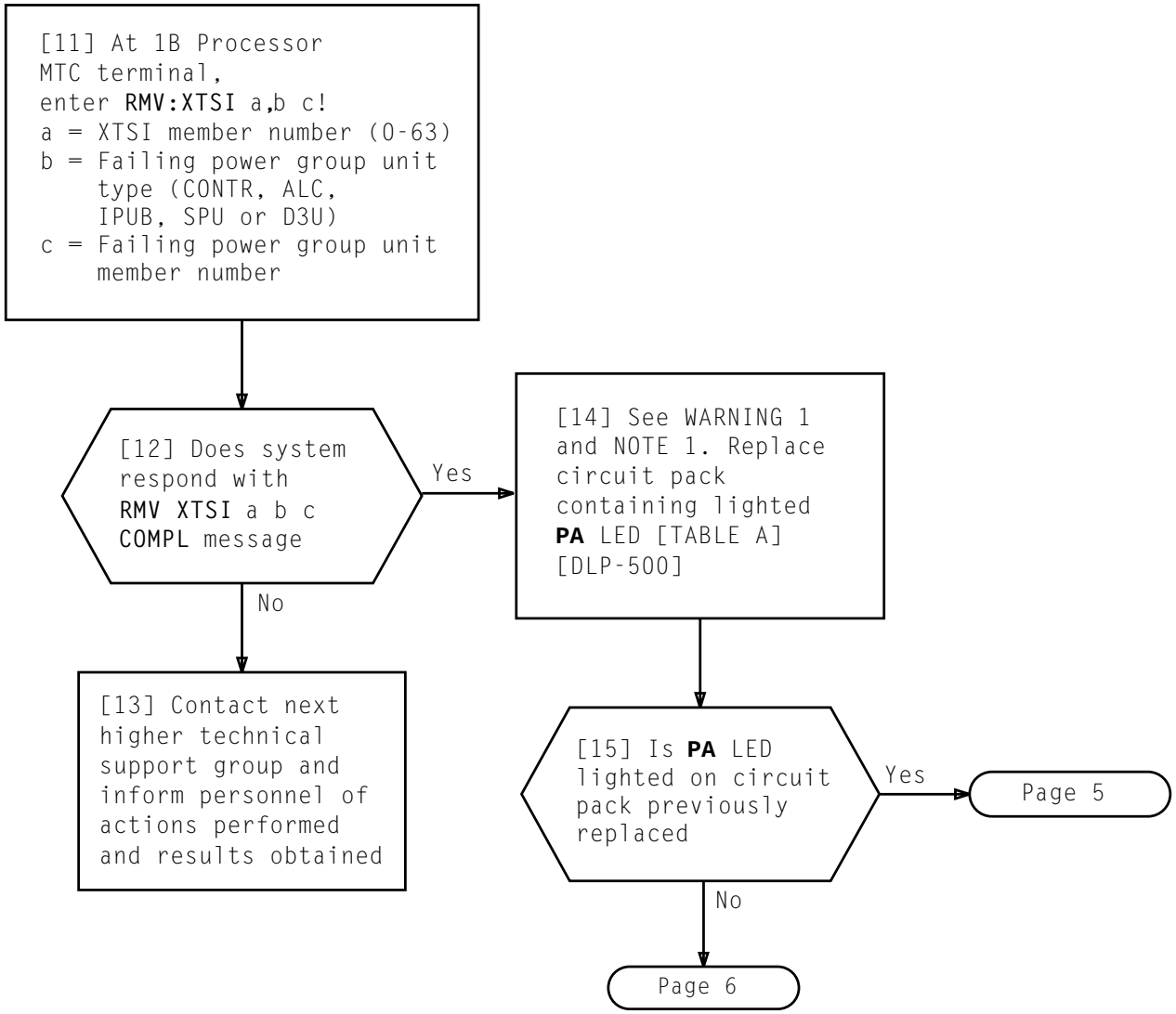
CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		ASSOCIATED POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		ASSOCIATED POWER GROUP
IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
UN558	52-066	**UN558**	52-066	CONTROLLER 0	**UN545**	52-014	**UN545**	52-014	ALC 0
		UN556	52-074				**UN546**	52-026	
		UN556	52-148		**UN545**	61-014	**UN545**	61-014	ALC 1
		UN547	52-082				**UN546**	61-026	
		UN557	52-106		**TN1994**	52-188	**UN559**	52-156	IPUB 0
		UN548	52-114				**UN559**	52-164	
		KBN16	52-137				**UN559**	52-172	
		4WB6	14-082				**UN559**	52-180	
		4WB2	14-090				**TN1994**	52-188	
		4WB4	14-098		**TN1994**	61-188	**UN559**	61-156	IPUB 1
		4WB6	14-106				**UN559**	61-164	
		4WB5	14-130				**UN559**	61-172	
		4WB7	14-008				**UN559**	61-180	
		4WB7	14-188				**TN1994**	61-188	
UN558	61-066	**UN558**	61-066	CONTROLLER 1	**4WB3**	14-024	NONE	NONE	D3U 0
		UN556	61-074		**4WB3**	14-032			D3U 1
		UN556	61-148		**4WB3**	14-040			D3U 2
		UN547	61-082		**4WB3**	14-164			D3U 3
		UN557	61-106		**4WB3**	14-172			D3U 4
		UN548	61-114		**4WB3**	14-180			D3U 5
		KBN16	61-137		**4WB3**	14-016			D3U 6
		4WB6	31-082		**4WB3**	14-156			D3U 7
		4WB6	31-106		**4WB8**	31-024	NONE	NONE	SPU 0
		4WB2	31-090		**4WB8**	31-032			SPU 1
		4WB4	31-098		**4WB8**	31-040			SPU 2
		4WB5	31-130		**4WB8**	31-048			SPU 3
		4WB7	31-008		**4WB8**	31-056			SPU 4
		4WB7	31-188		**4WB8**	31-148			SPU 5

(Continued on Next Page)

TABLE A (Continued)
XTSI CABINET POWER GROUP LEDs

CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		ASSOCIATED POWER GROUP	CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		ASSOCIATED POWER GROUP
IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	
4WB8	31-156	NONE	NONE	SPU 6					
4WB8	31-164			SPU 7					
4WB8	31-172			SPU 8					
4WB8	31-180			SPU 9					
4WB8	31-016			SPU 10					
4WB8	31-140			SPU 11					

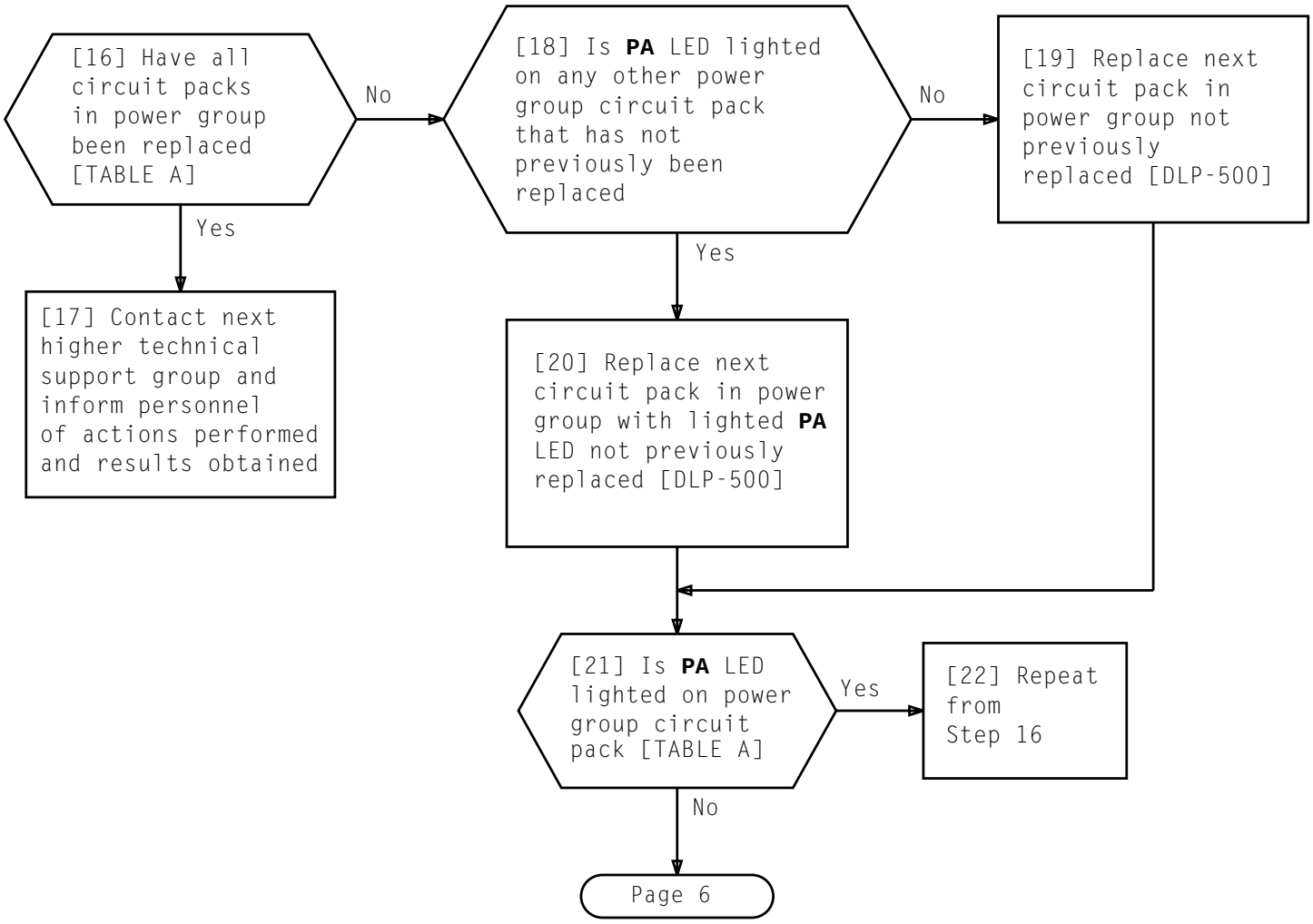
IDENTIFY AND CLEAR POWER GROUP POWER ALARM — CIRCUIT PACK PA LED LIGHTED IN XTSI CABINET



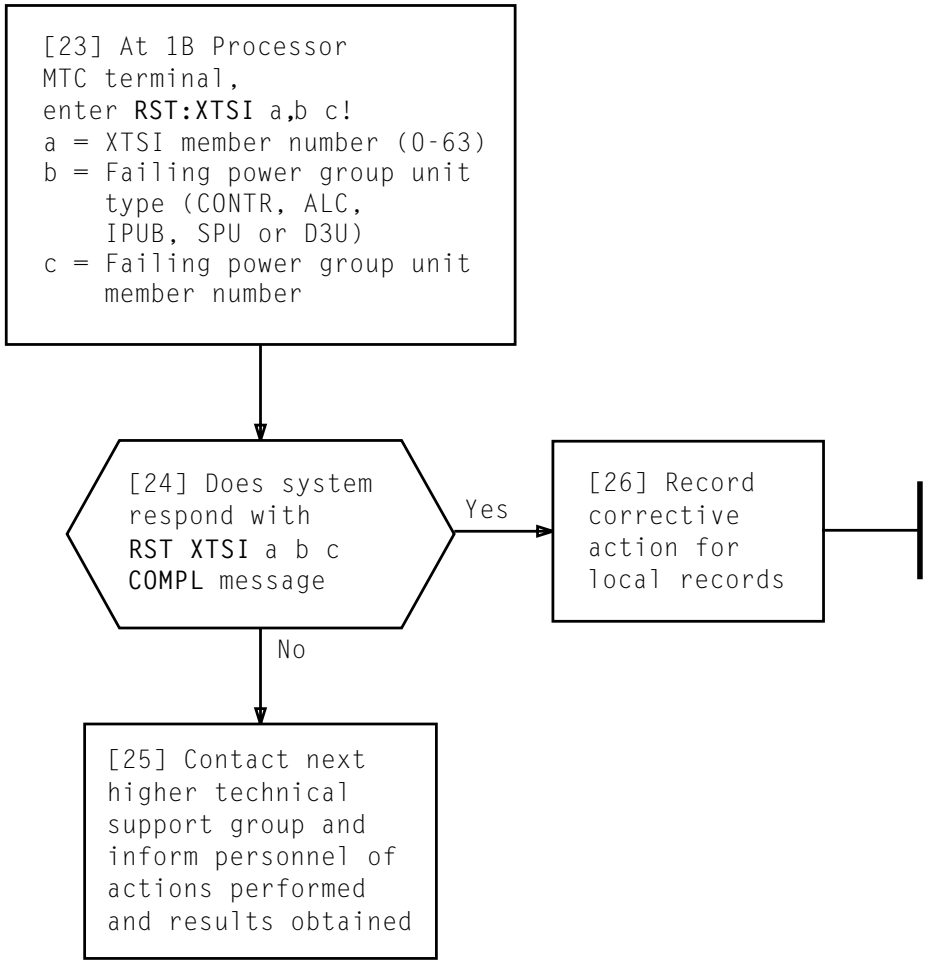
NOTE 1
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding.

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

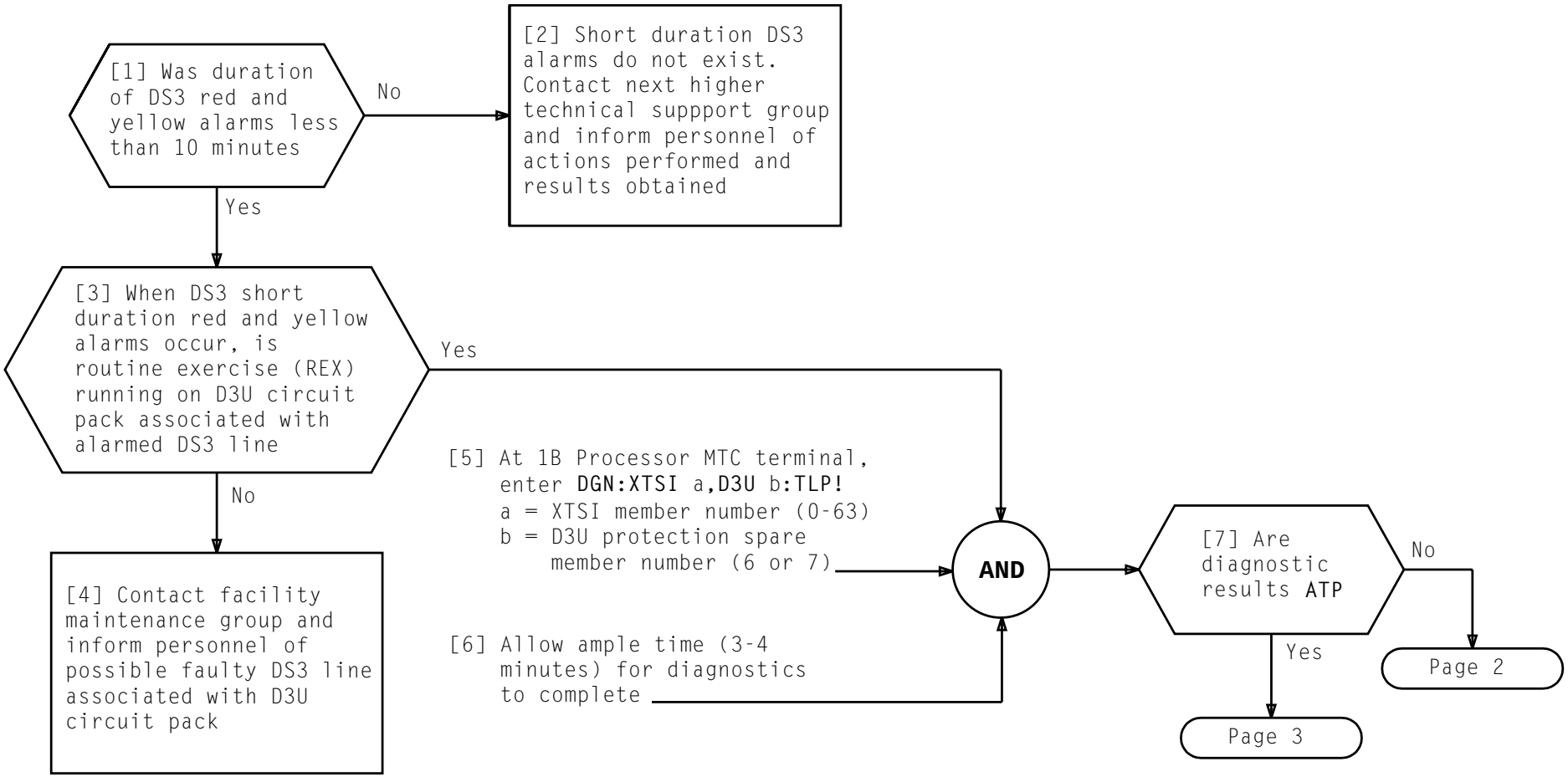
IDENTIFY AND CLEAR POWER GROUP POWER ALARM — CIRCUIT PACK PA LED LIGHTED IN XTSI CABINET



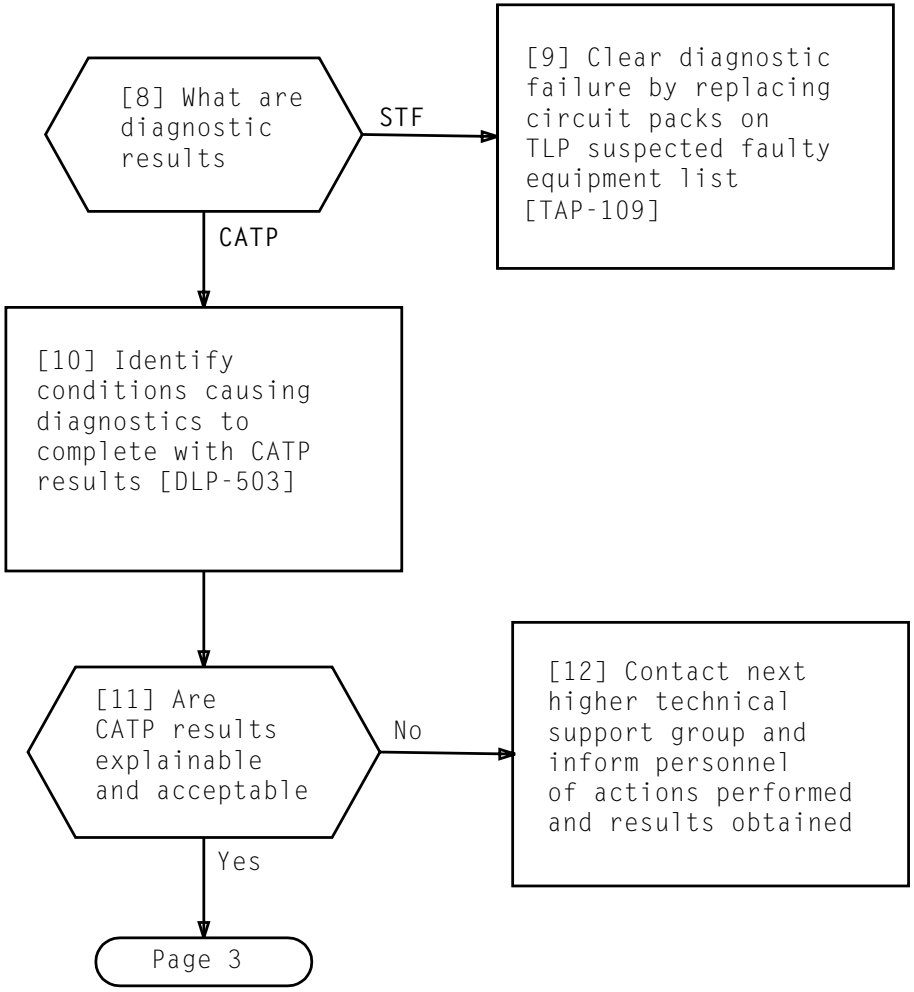
IDENTIFY AND CLEAR POWER GROUP POWER ALARM — CIRCUIT PACK PA LED LIGHTED IN XTSI CABINET



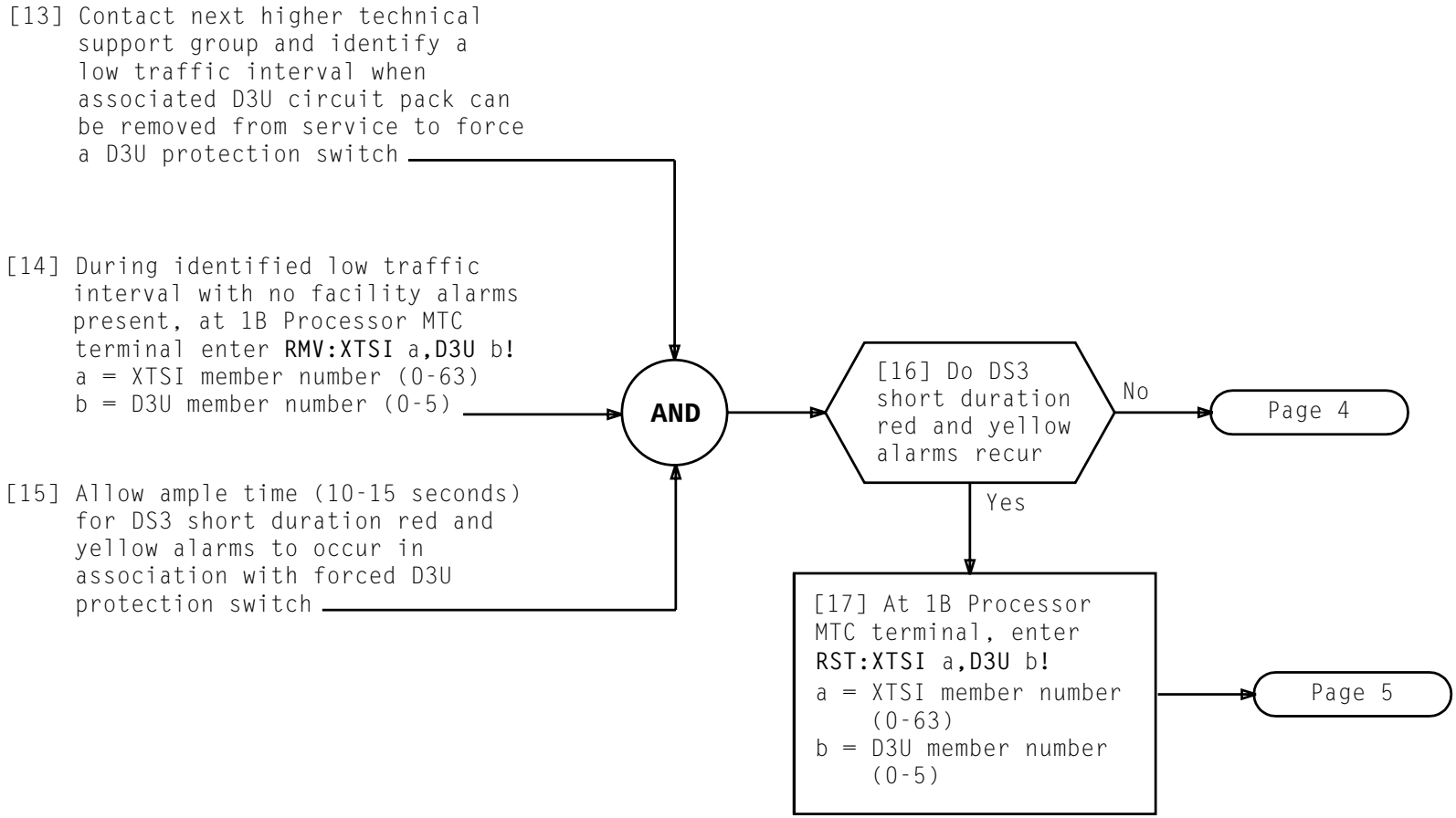
IDENTIFY AND CLEAR POWER GROUP POWER ALARM — CIRCUIT PACK PA LED LIGHTED IN XTSI CABINET



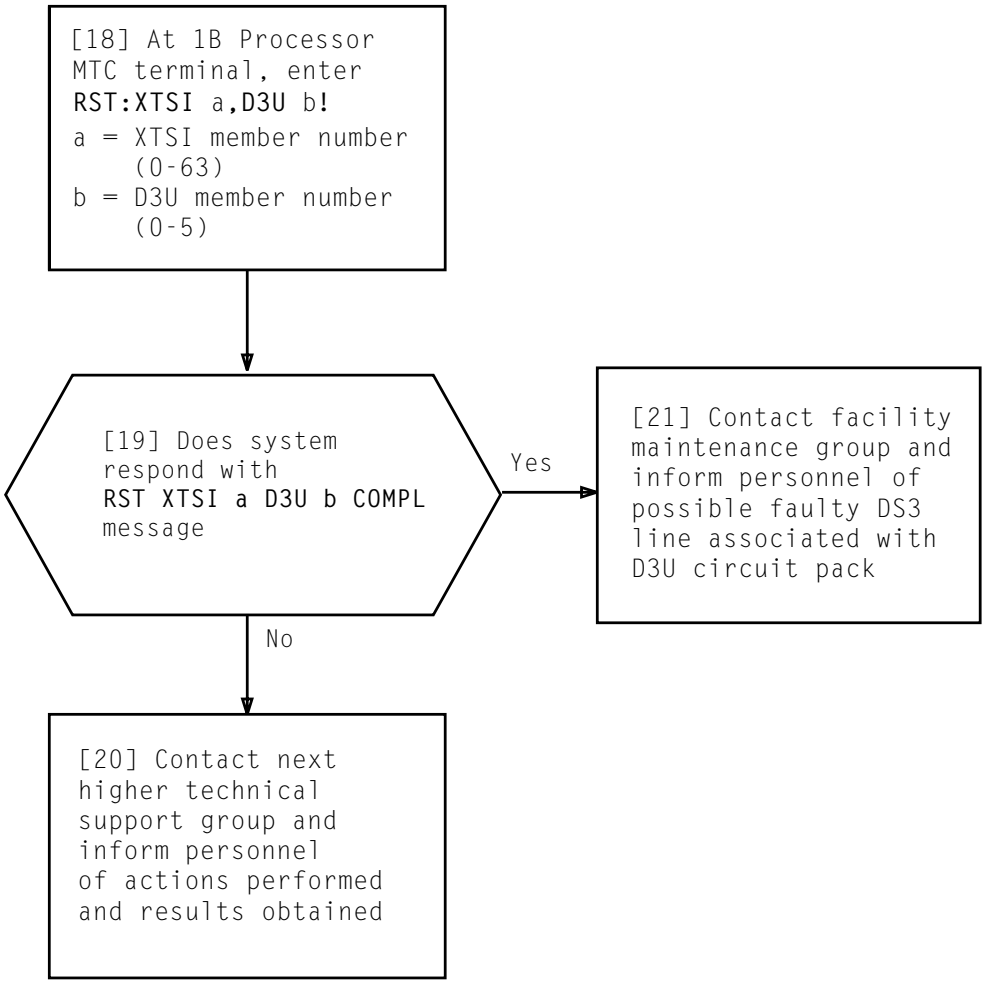
CLEAR DS3 SHORT DURATION (10 MINUTES OR LESS) RED AND YELLOW ALARMS GENERATED DURING A PROTECTION SWITCH

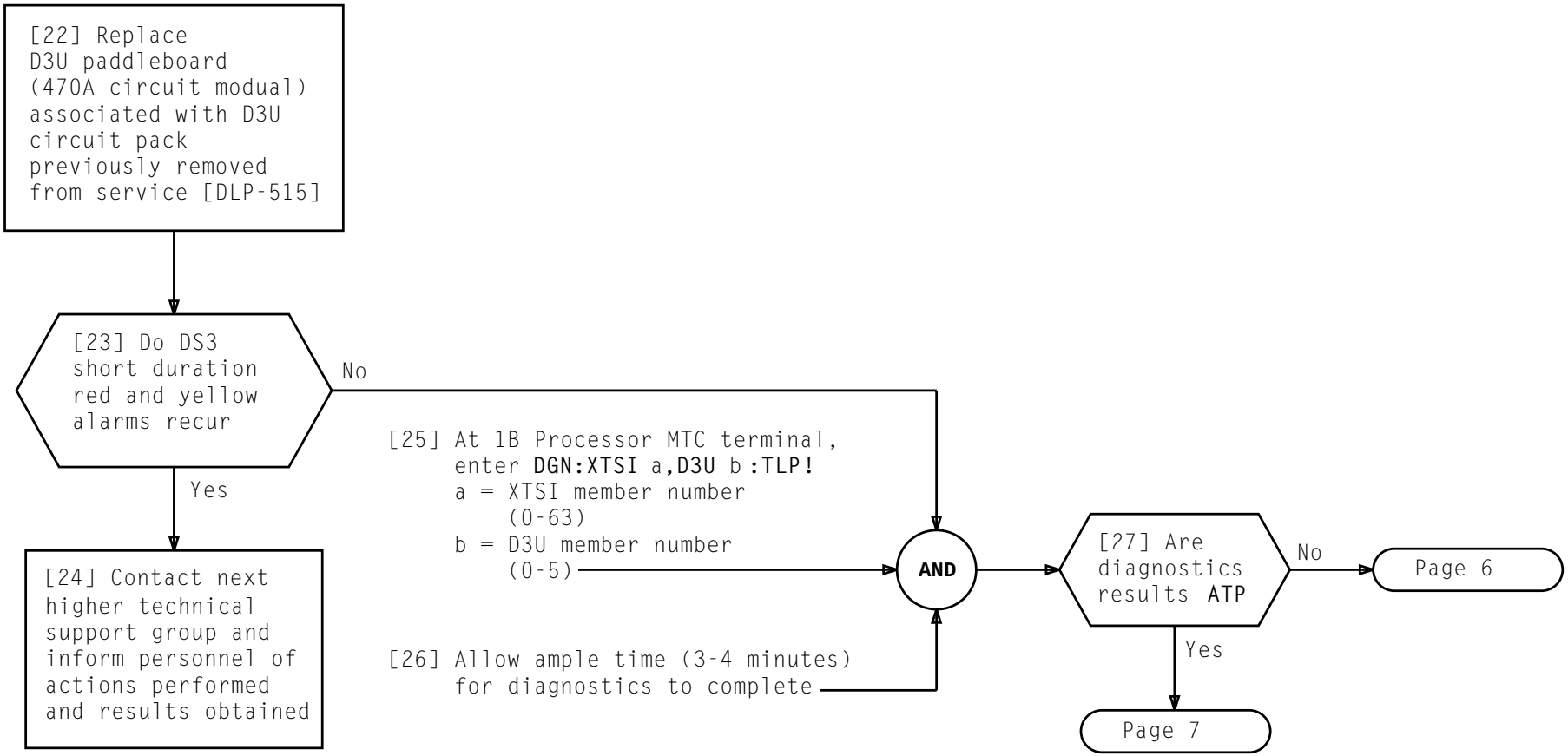


CLEAR DS3 SHORT DURATION (10 MINUTES OR LESS) RED AND YELLOW ALARMS GENERATED DURING A PROTECTION SWITCH

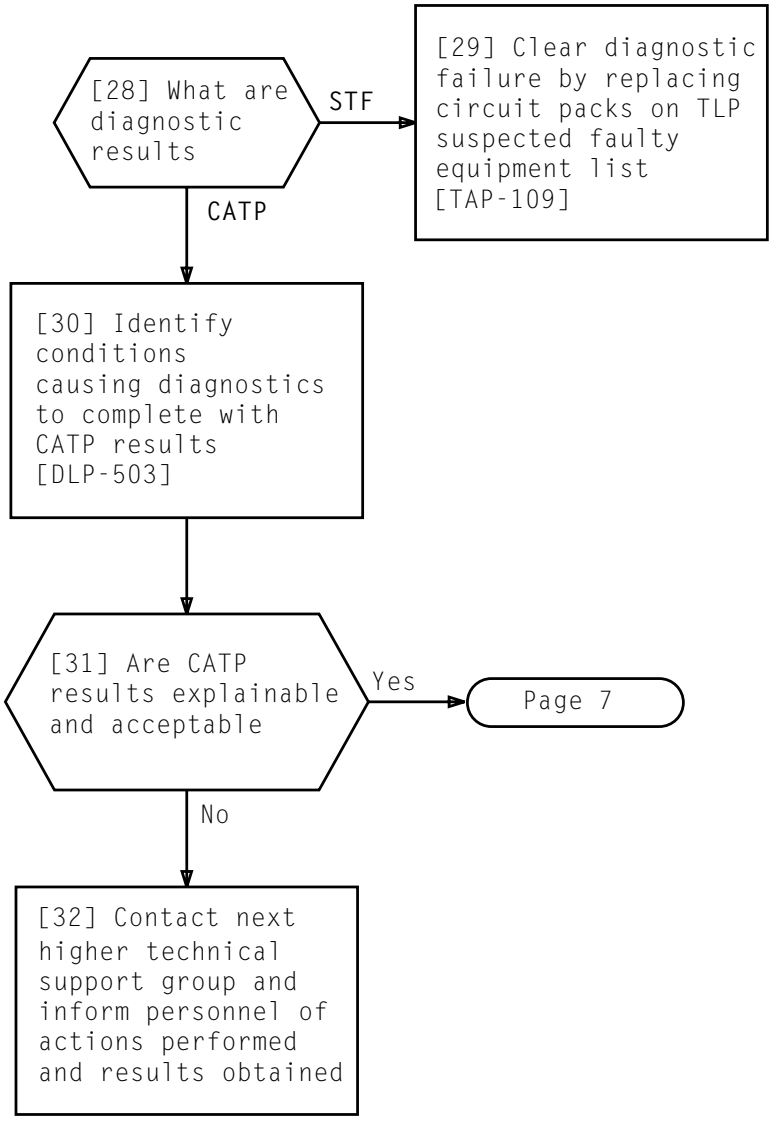


CLEAR DS3 SHORT DURATION (10 MINUTES OR LESS) RED AND YELLOW ALARMS GENERATED DURING A PROTECTION SWITCH

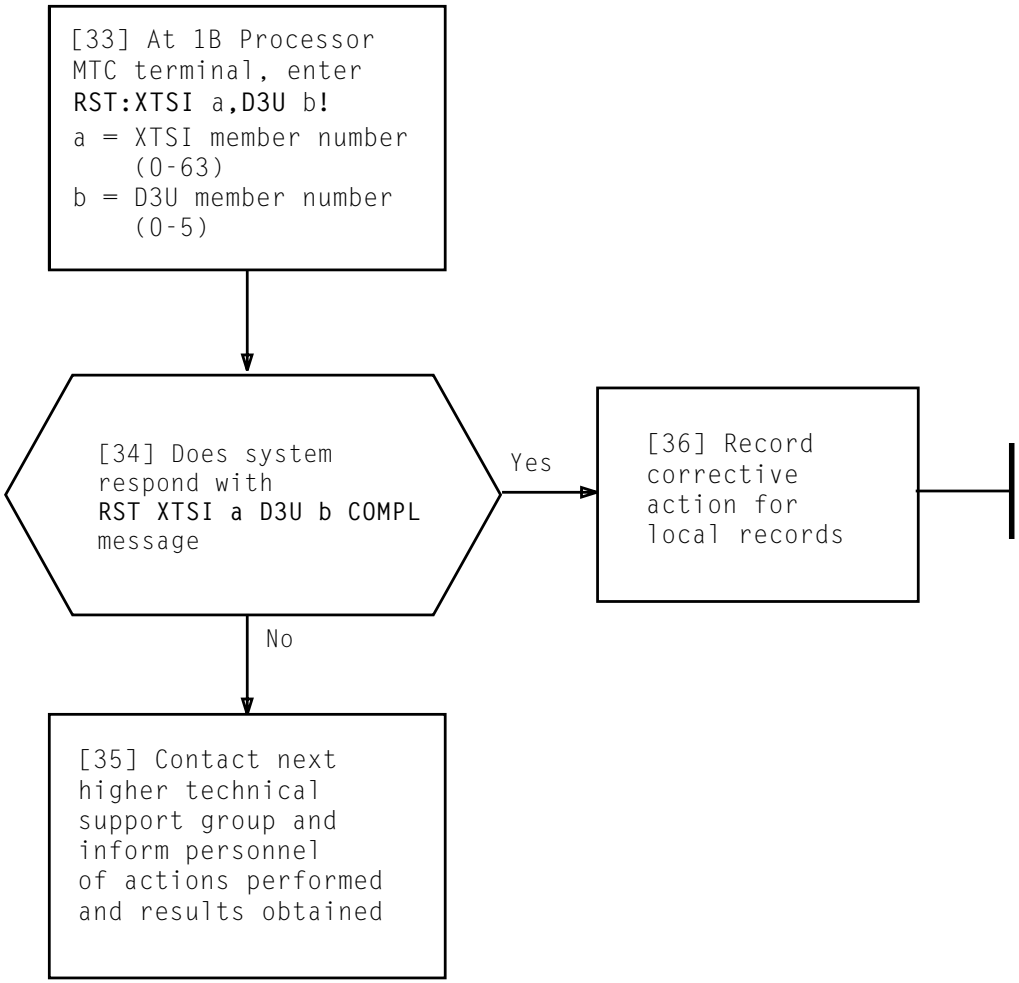

[18] At 1B Processor MTC terminal, enter
RST:XTSI a,D3U b!
a = XTSI member number (0-63)
b = D3U member number (0-5)
[19] Does system respond with
RST XTSI a D3U b COMPL
message
Yes
[21] Contact facility maintenance group and inform personnel of possible faulty DS3 line associated with D3U circuit pack
No
[20] Contact next higher technical support group and inform personnel of actions performed and results obtained



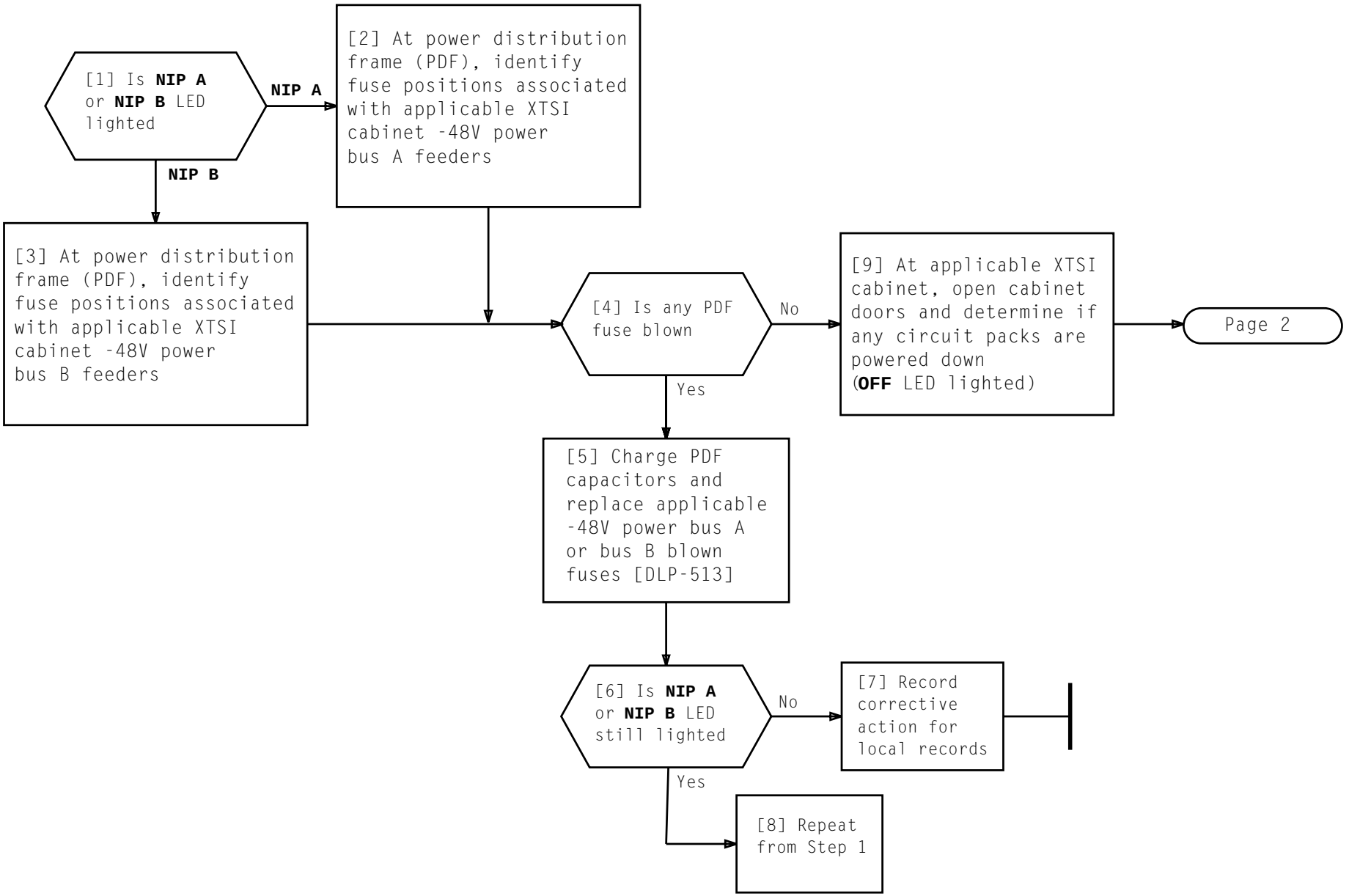
CLEAR DS3 SHORT DURATION (10 MINUTES OR LESS) RED AND YELLOW ALARMS GENERATED DURING A PROTECTION SWITCH



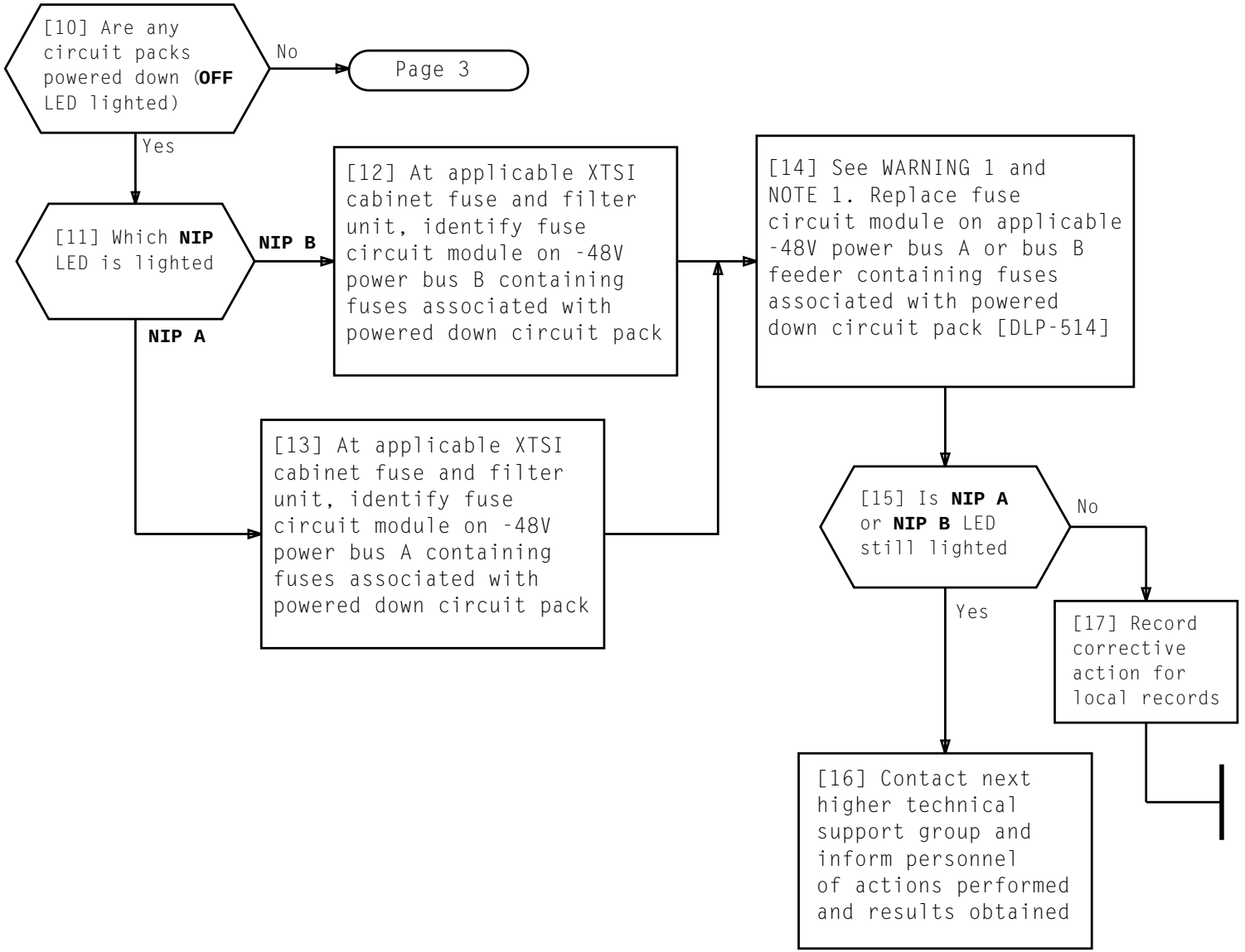
CLEAR DS3 SHORT DURATION (10 MINUTES OR LESS) RED AND YELLOW ALARMS GENERATED DURING A PROTECTION SWITCH



CLEAR DS3 SHORT DURATION (10 MINUTES OR LESS) RED AND YELLOW ALARMS GENERATED DURING A PROTECTION SWITCH



CLEAR NO INPUT POWER ALARM — NIP A/B LED LIGHTED ON XTSI CABINET FUSE UNIT



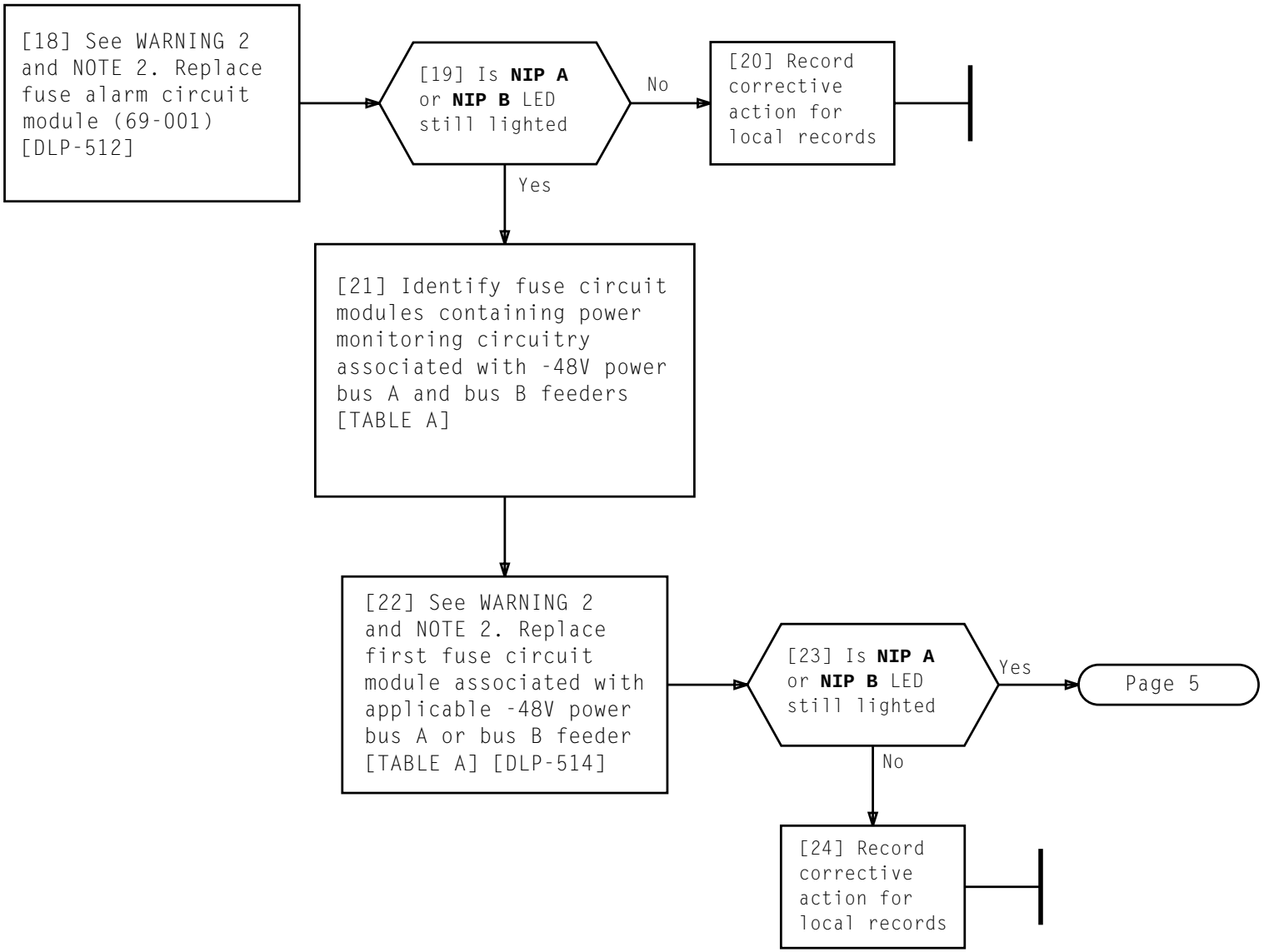
NOTE 1

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

WARNING 1

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

CLEAR NO INPUT POWER ALARM — NIP A/B LED LIGHTED ON XTSI CABINET FUSE UNIT



NOTE 2

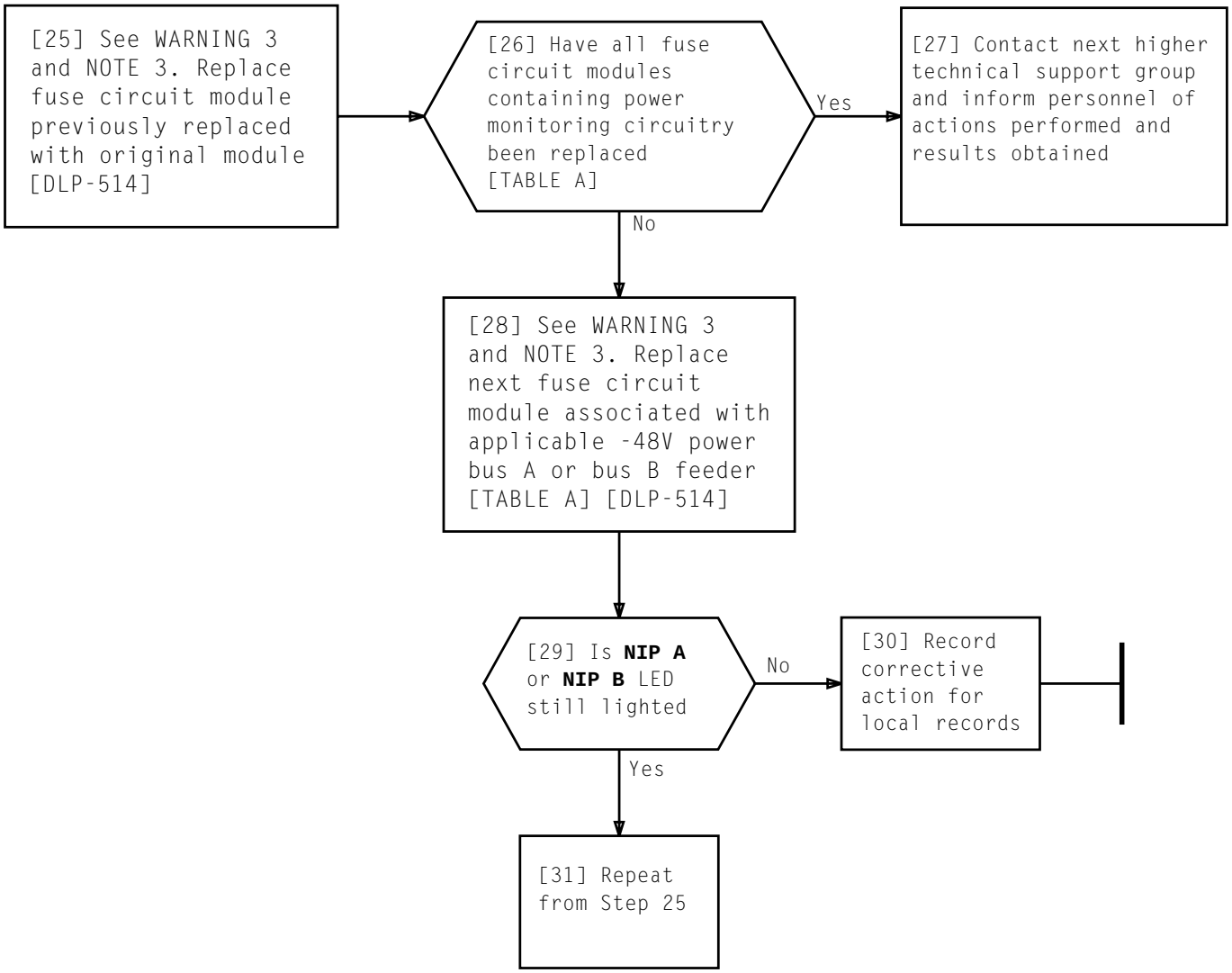
Excessive force is not required to properly seat circuit packs. If equal pressure applied at top and bottom of circuit pack does not smoothly seat circuit pack, identify reason that circuit pack cannot be properly seated before proceeding

WARNING 2

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

CLEAR NO INPUT POWER ALARM — NIP A/B LED LIGHTED ON XTSI CABINET FUSE UNIT

TABLE A FUSE CIRCUIT MODULES CONTAINING ACTIVE -48V POWER BUS A AND BUS B MONITORING CIRCUITRY	
-48V POWER BUS FEEDER	FUSE CIRCUIT MODULE CONTAINING MONITOR CIRCUITRY LOCATION
A0	69-016
A1	69-032
A2	69-048
A3	69-064
A4	69-080
B0	69-110
B1	69-126
B2	69-142
B3	69-158
B4	69-174



NOTE 3

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

WARNING 3

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

CLEAR NO INPUT POWER ALARM — NIP A/B LED LIGHTED ON XTSI CABINET FUSE UNIT

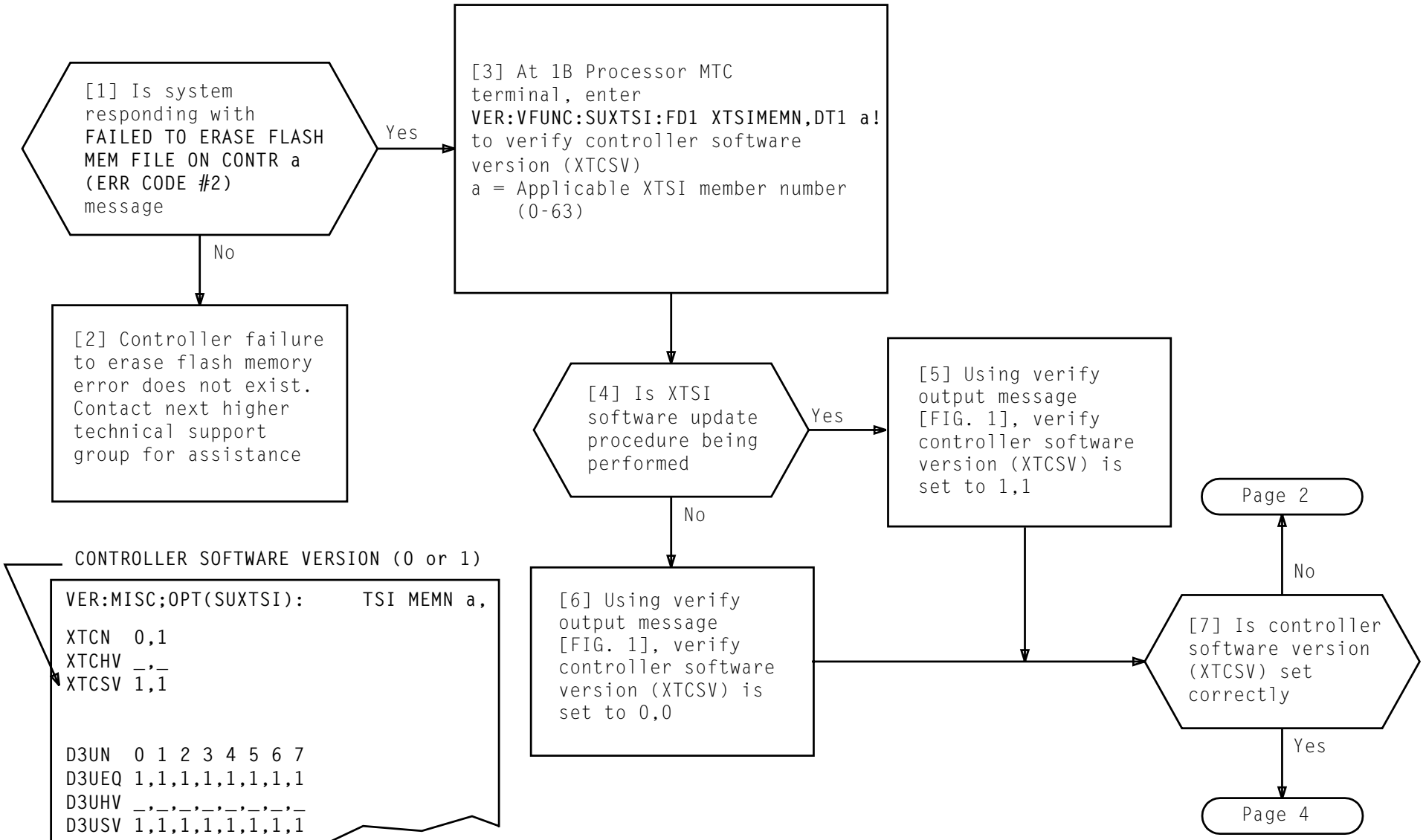
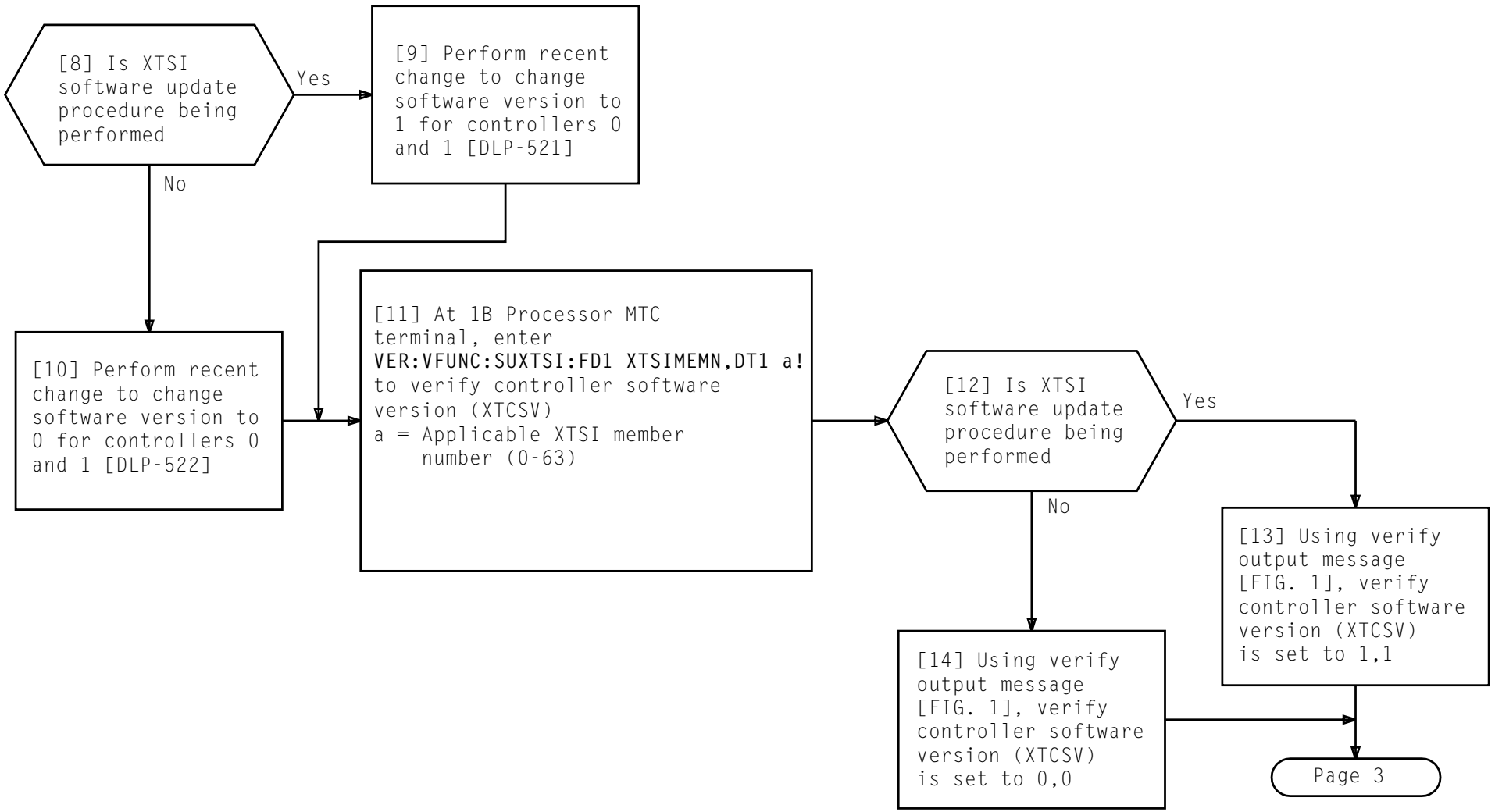
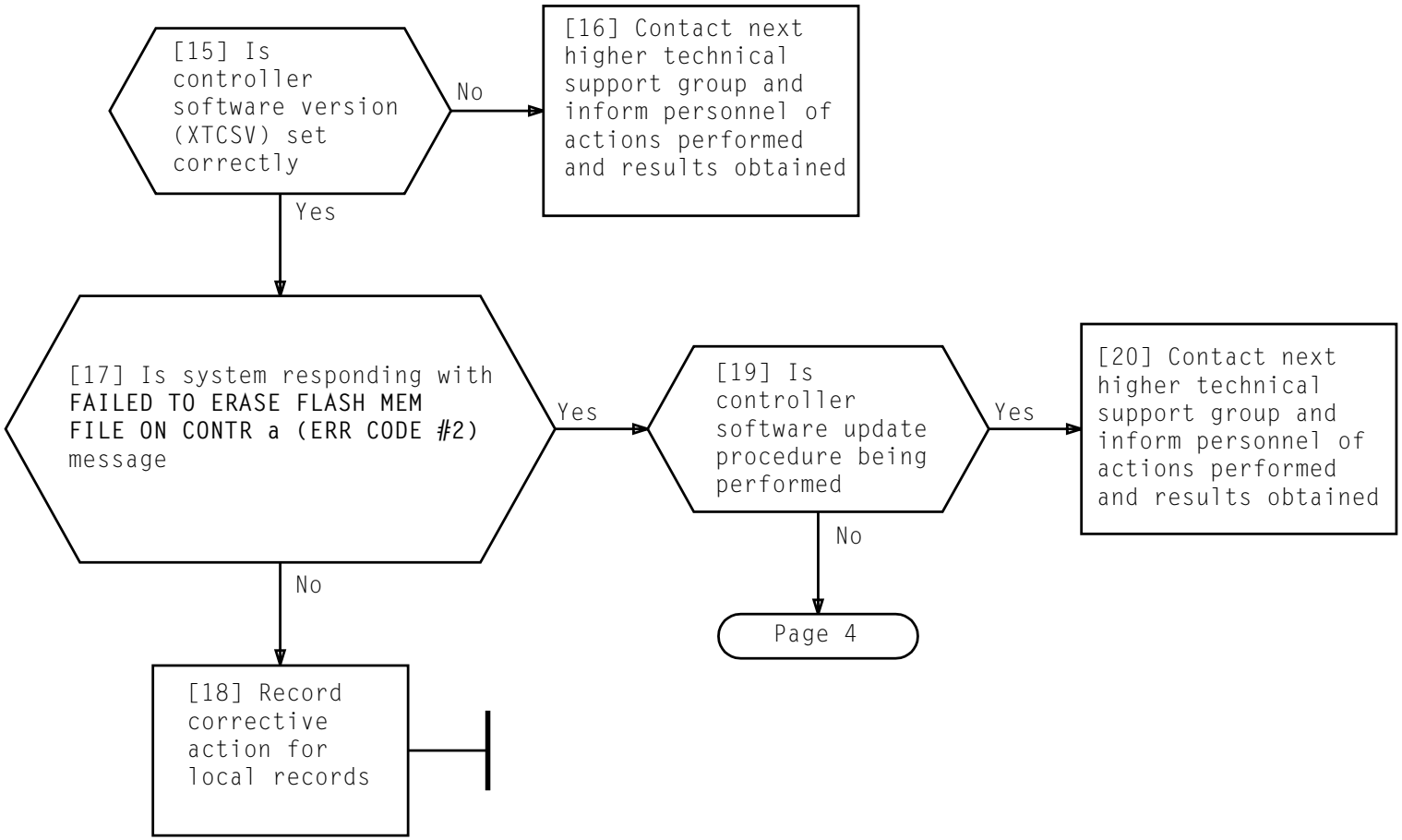


FIG. 1 — Sample Printout of Verify Output Message

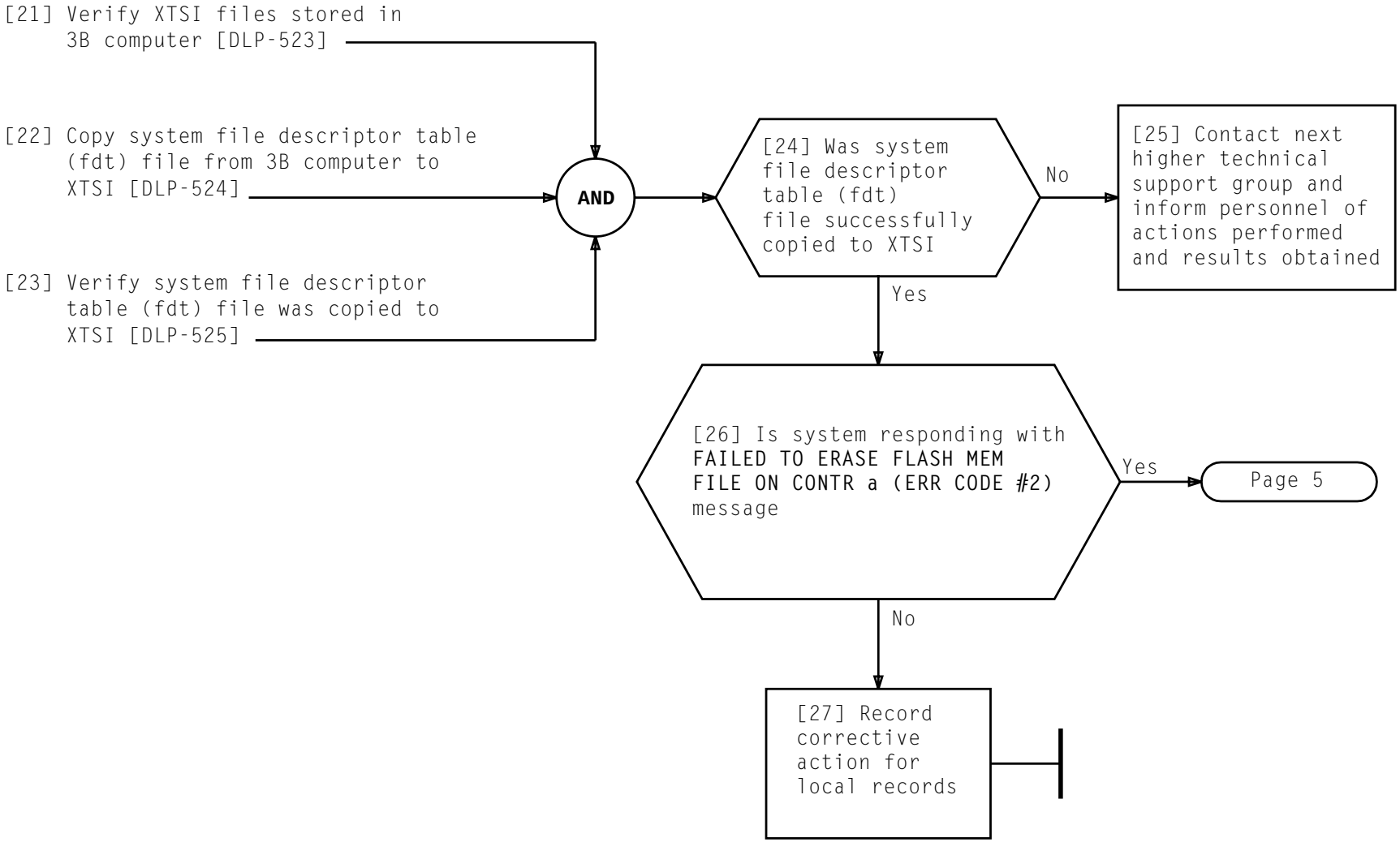
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



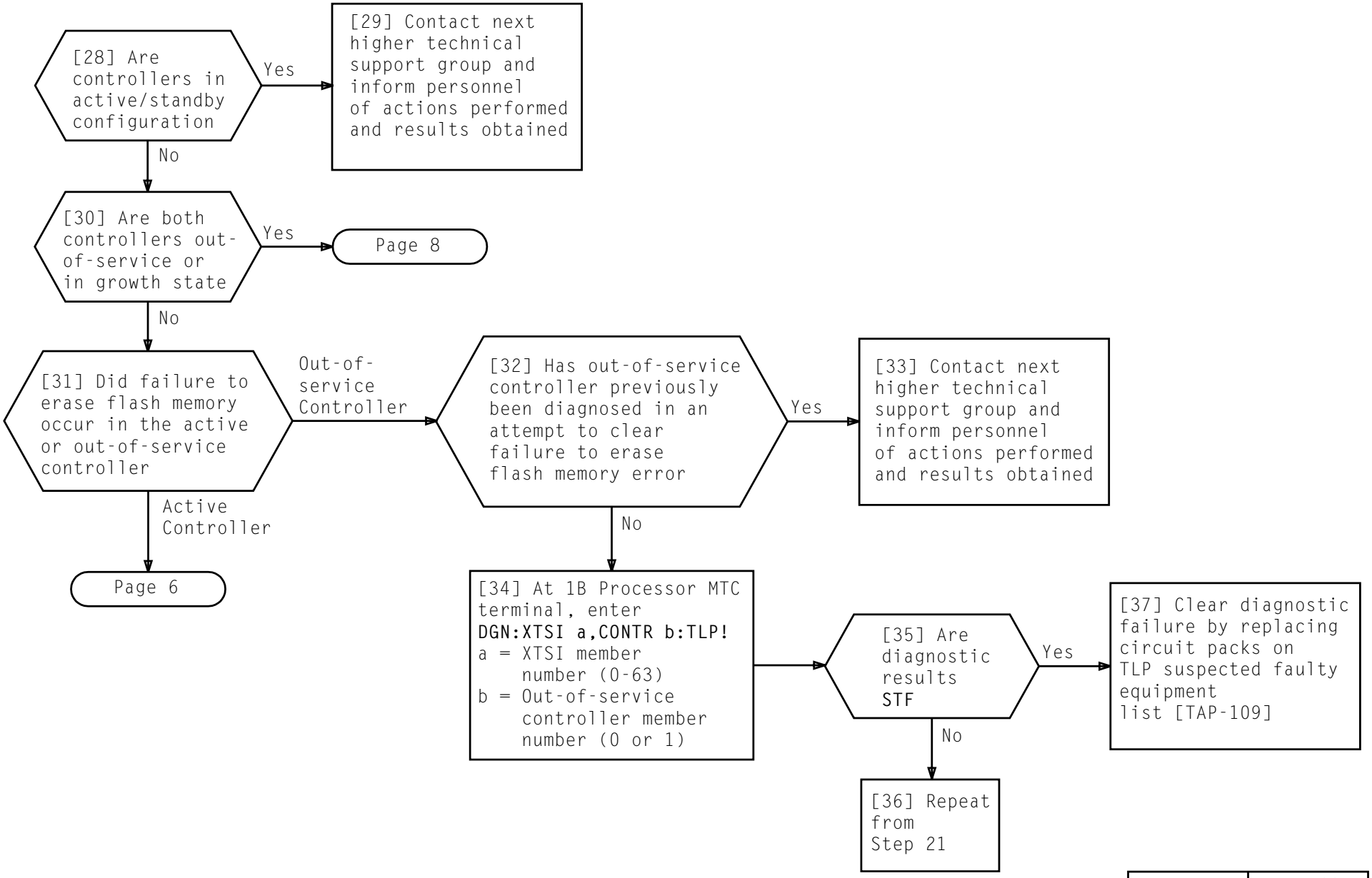
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



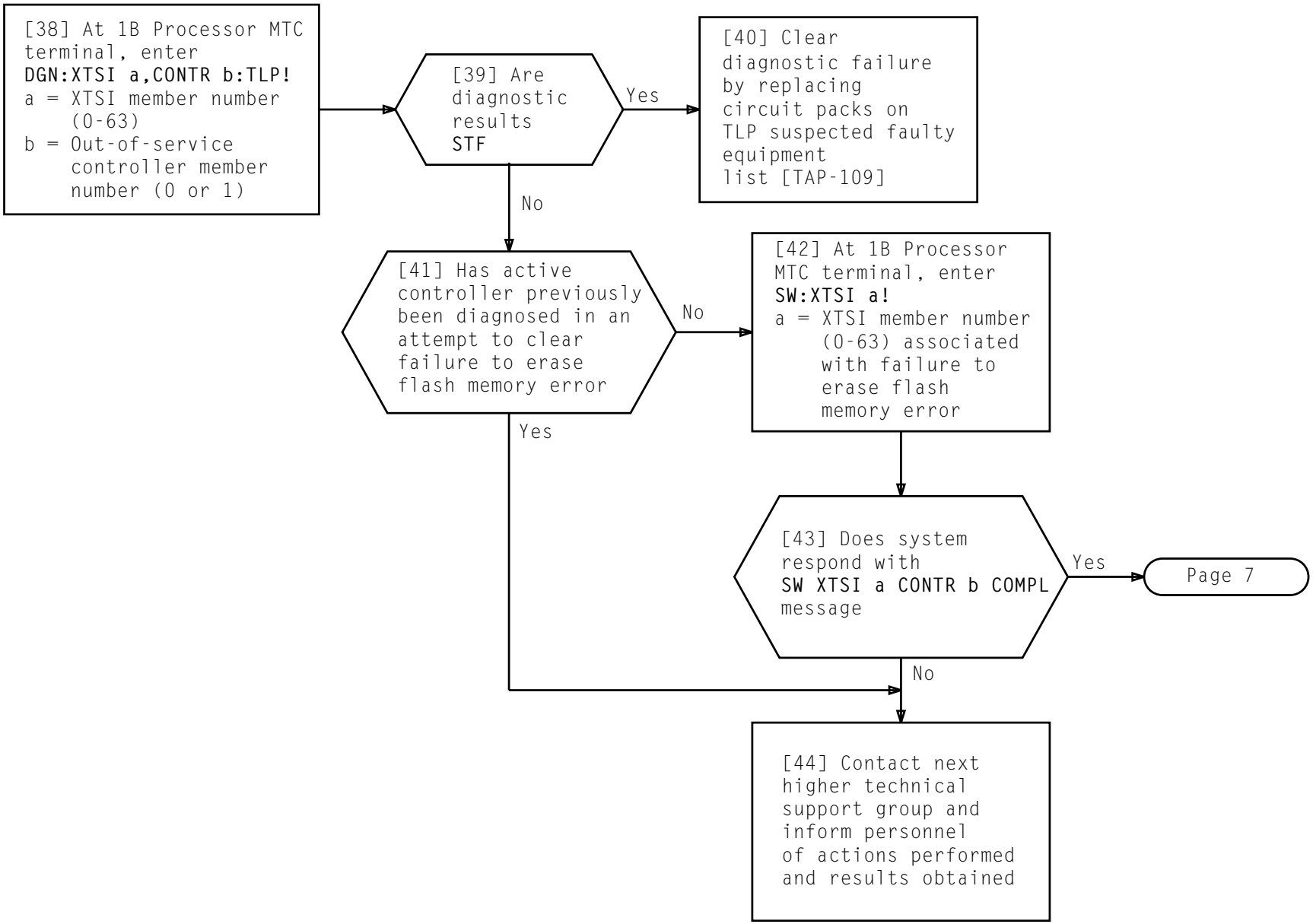
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



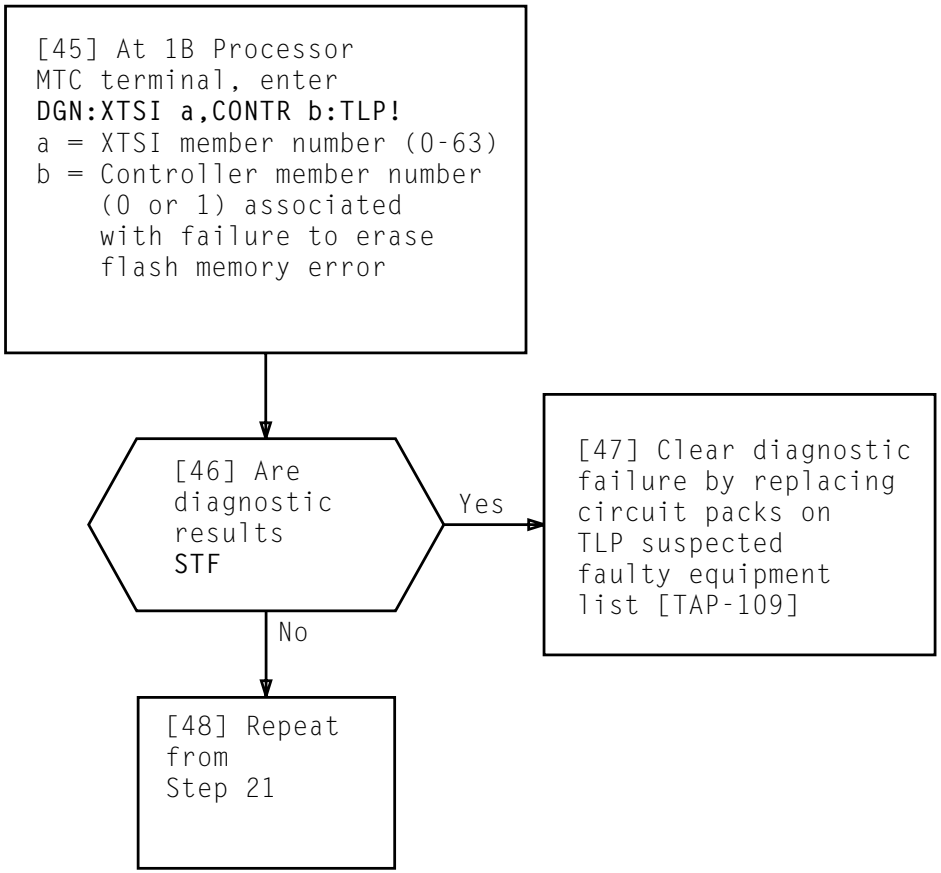
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



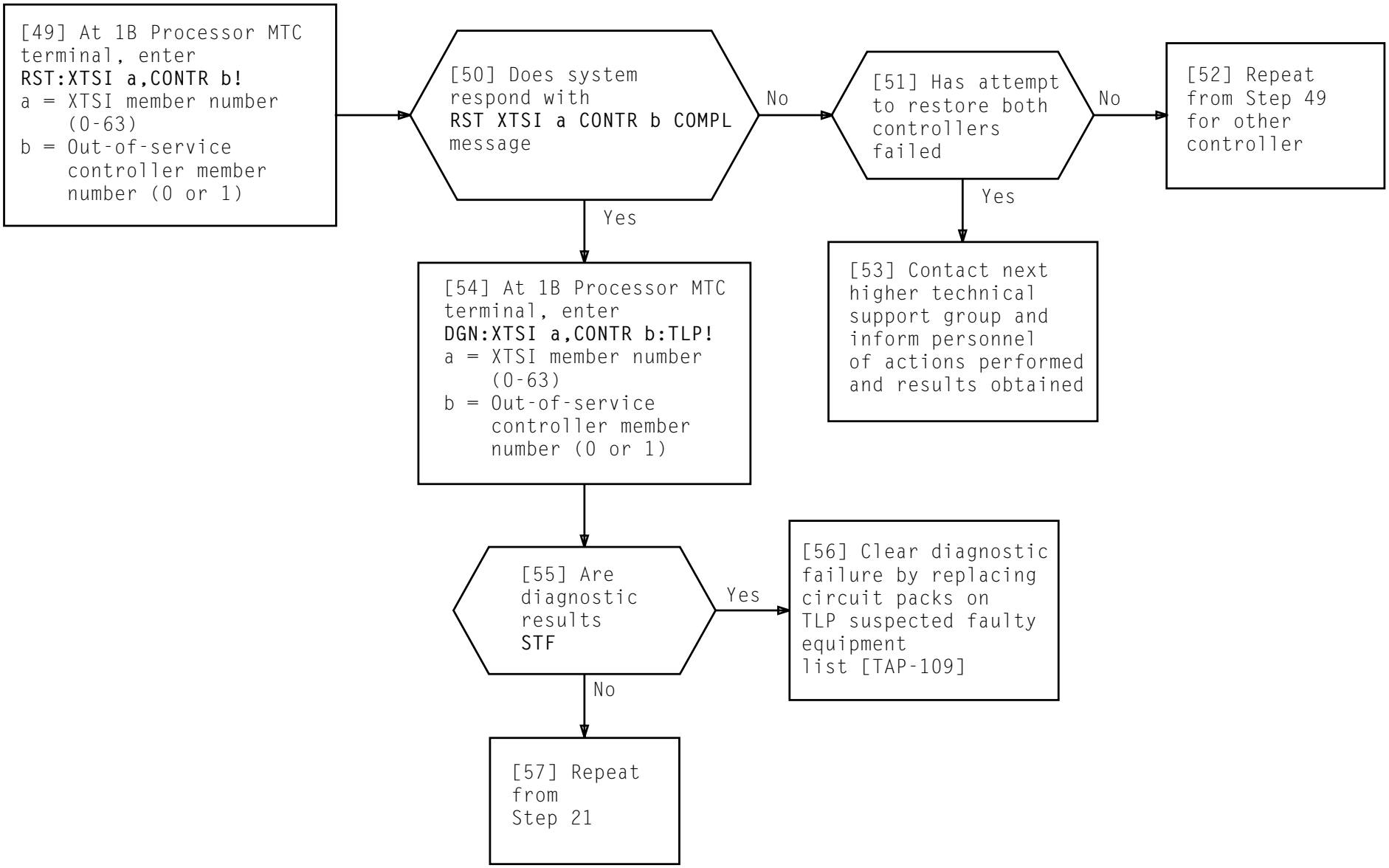
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



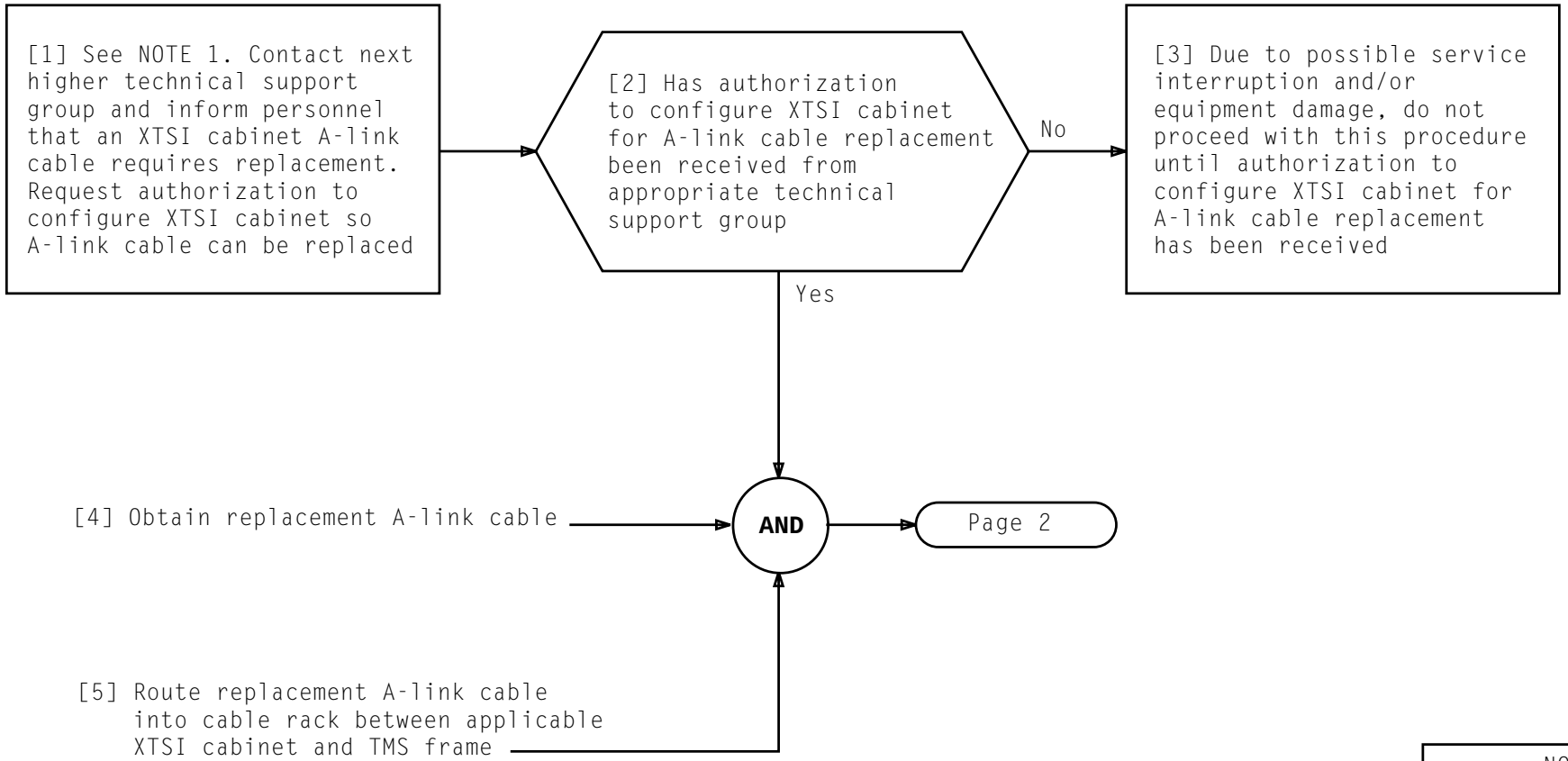
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



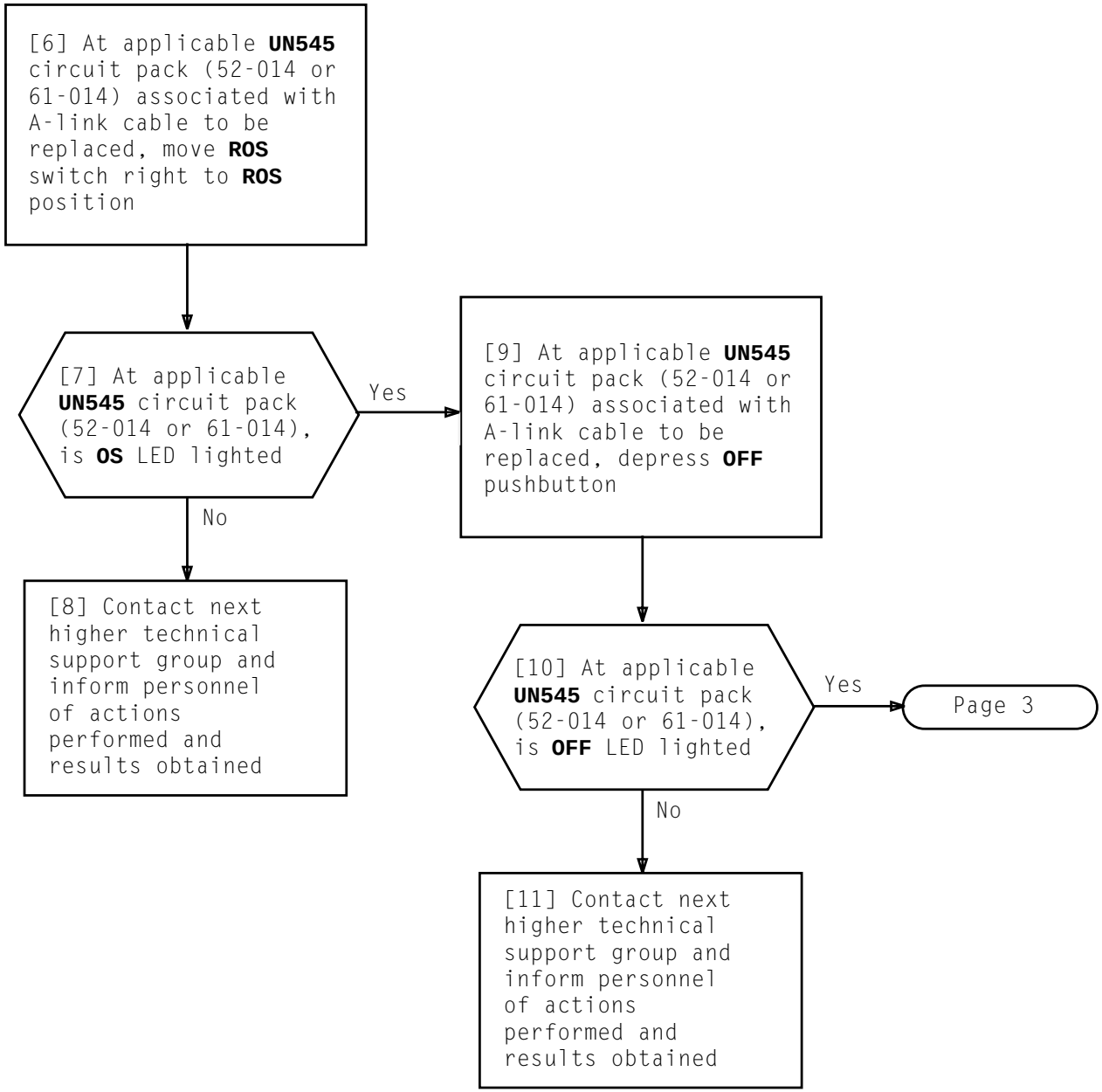
CLEAR CONTROLLER FAILED TO ERASE FLASH MEMORY ERROR - XTSI CABINET



NOTE 1

Due to possible service interruption and/or equipment damage, authorization must be obtained from technical support group to properly condition XTSI cabinet for A-link cable replacement

REPLACE A-LINK CABLE — XTSI CABINET



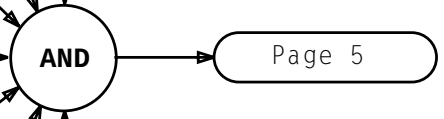
REPLACE A-LINK CABLE — XTSI CABINET

[12] At rear of applicable XTSI cabinet, identify A-link cable group connector containing individual A-link cable to be replaced

[13] Firmly grasp applicable A-link cable group connector and pull outward to remove grouped A-link cables from XTSI cabinet

[14] On A-link cable group connector [FIG. 1], remove strain relief mechanism

[15] Using A-link cable removal tool (W.L. Gore Part# 2MMT2014), depress silver retainer tabs on individual A-link cable connector and pull outward to remove individual A-link cable from group connector [FIG. 1]



[16] See NOTE 2. Remove defective A-link cable from XTSI cabinet, coil excess cable, tag as defective and secure cable in cable rack

[17] At applicable TMS frame, identify location of individual A-link cable to be replaced and disconnect associated coax connector

[18] See NOTE 2. Remove defective A-link cable from TMS frame, coil excess cable, tag as defective and secure cable in cable rack

NOTE 2

Defective A-link cables will not be mined from cable rack. Excess cable from XTSI cabinet and TMS frame to cable rack should be coiled, tagged as defective and secured in cable rack

REPLACE A-LINK CABLE — XTSI CABINET

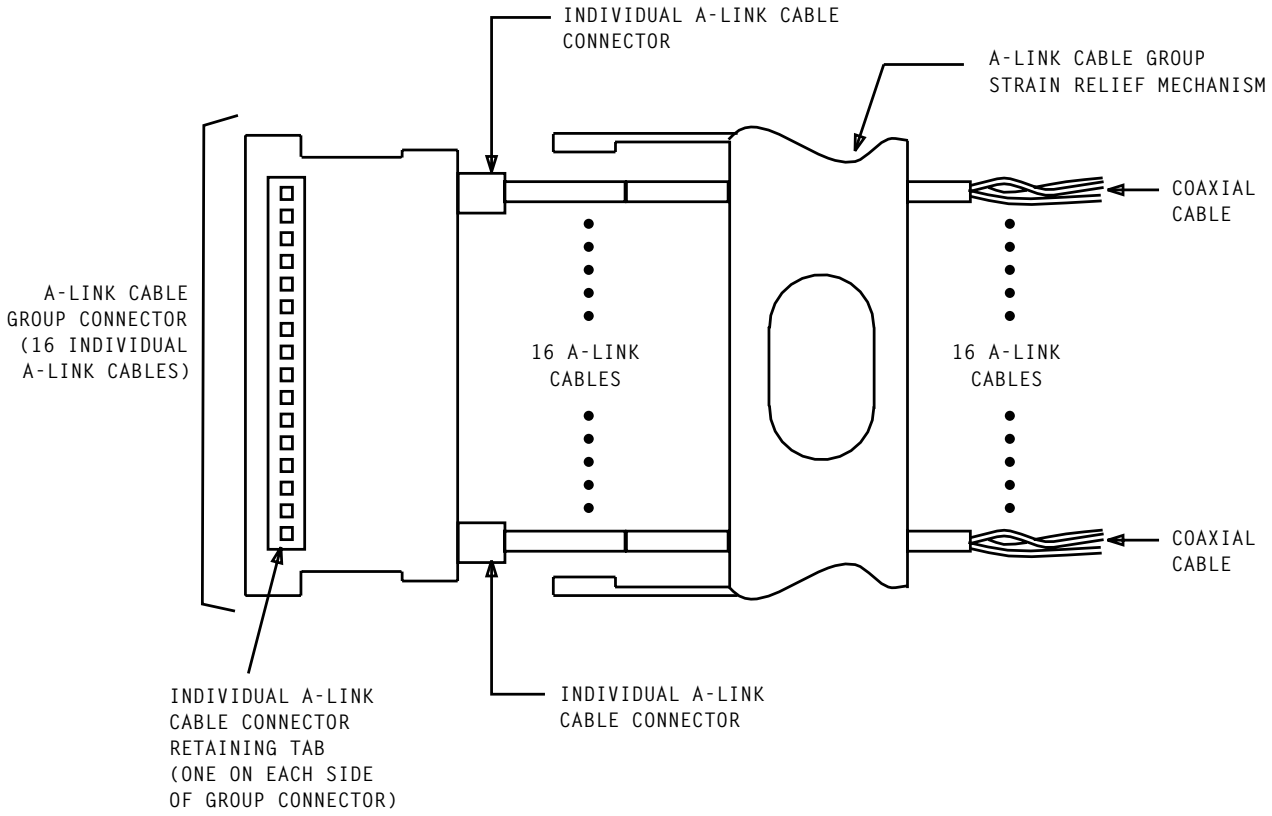


FIG. 1 - Sample Layout of A-Link Group Connector

[19] Route replacement A-link cable from cable rack into TMS frame, secure and connect A-link cable coax connector at TMS frame location from which defective A-link cable was previously removed

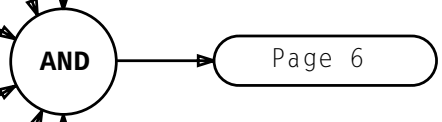
[20] Route replacement A-link cable from cable rack into XTSI cabinet

[21] At XTSI cabinet A-link cable group connector [FIG. 1], orient replacement A-link cable connector and gently push inward to seat individual cable connector into A-link cable group connector

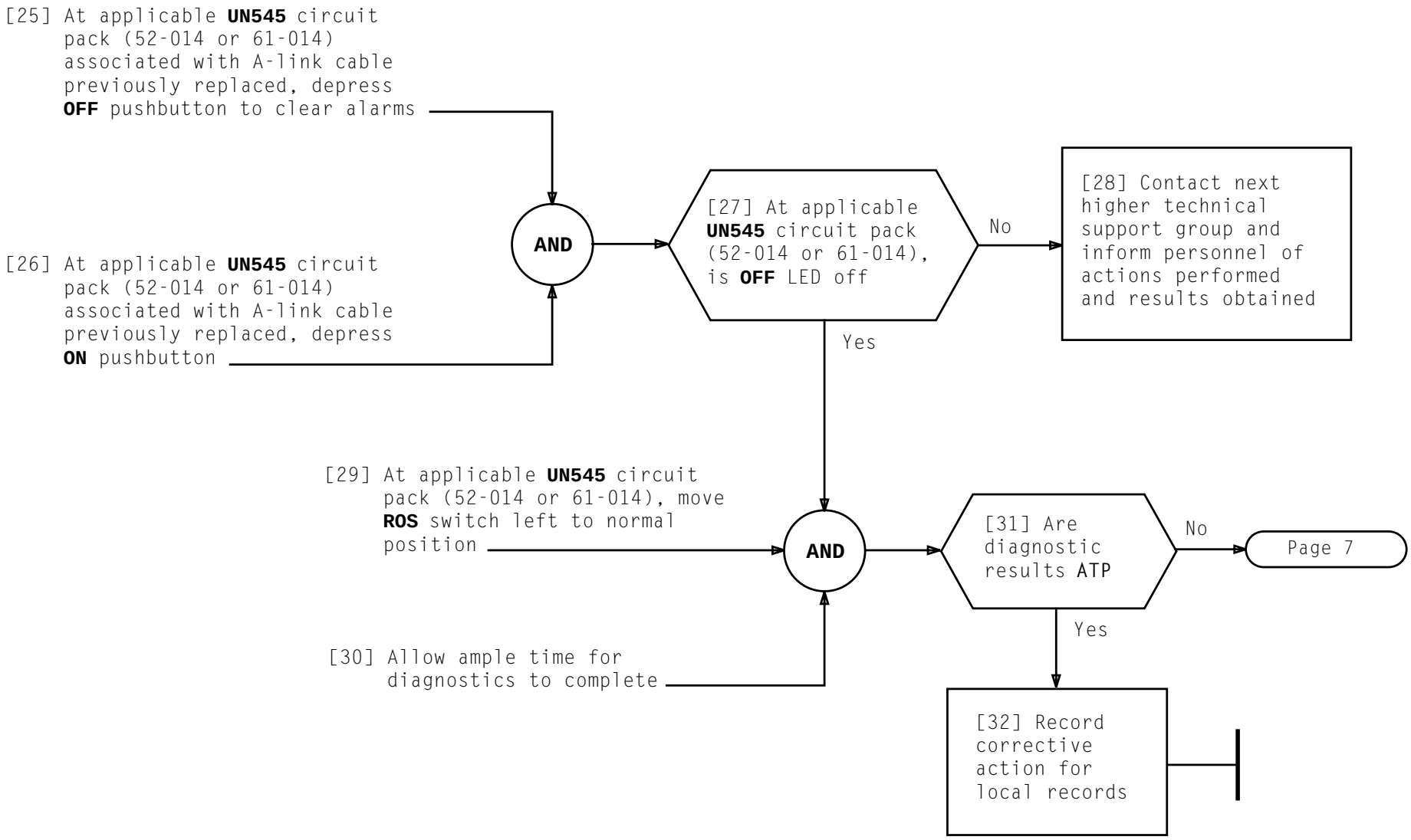
[22] Orient and connect strain relief mechanism previously removed onto A-link cable group connector and secure individual A-link cables to group connector strain relief mechanism

[23] Orient and connect A-link cable group connector at XTSI cabinet location from which connector was previously removed

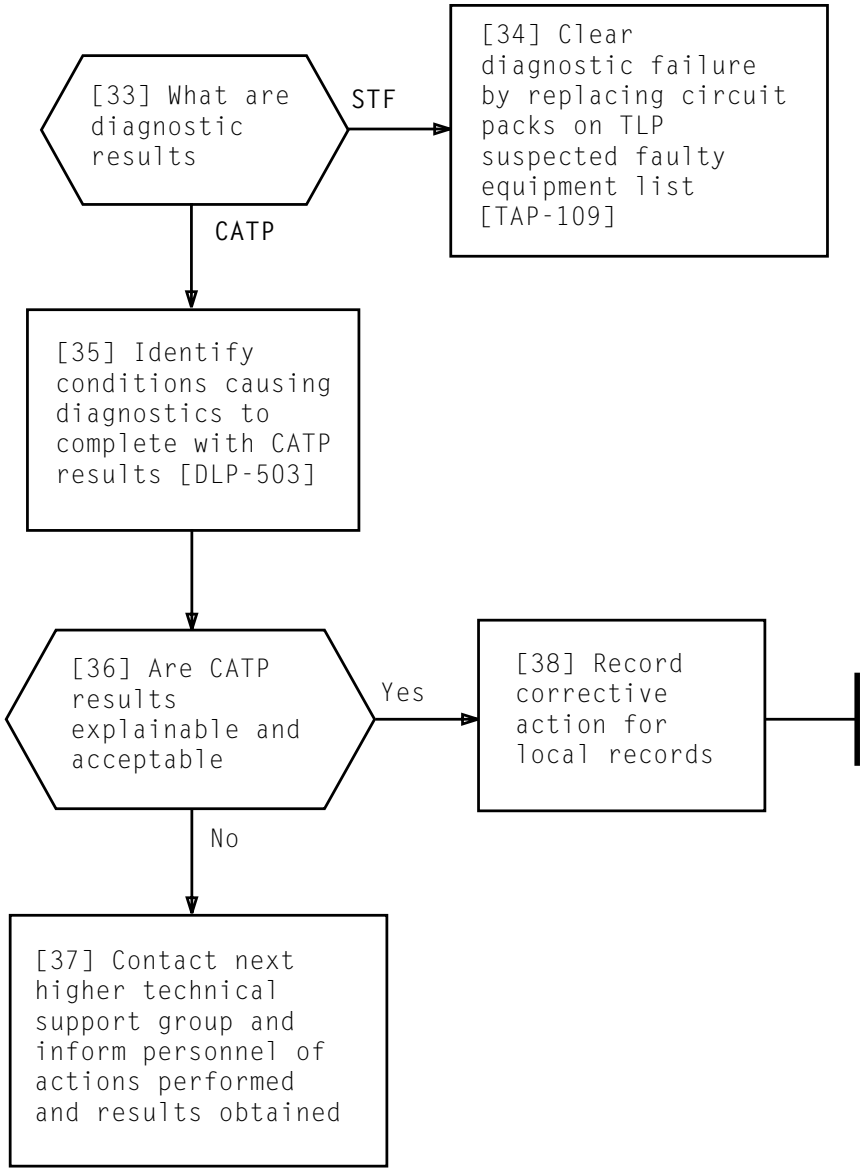
[24] Route and secure A-link cables from XTSI cabinet to cable rack, coil excess cable, tag and secure cables in cable rack



REPLACE A-LINK CABLE — XTSI CABINET



REPLACE A-LINK CABLE — XTSI CABINET



REPLACE A-LINK CABLE — XTSI CABINET

GENERAL INFORMATION

This Trouble Analysis Data (TAD) describes the diagnostic failures for XTSI Phase 41, Program Units 3 and 6, which may occur during diagnostic testing.
The principle function of the XTSI controller Phase 41 diagnostic program is to verify that the XTSI Controller is capable of sending and receiving signals to and from both sides of the TMS network. Because the tests use both XTSI controllers, the frame must be in the duplex configuration for Phase 41 Program Unit 3 and Program Unit 6 tests to run.

Program Unit 3

The function of Program Unit 3 is to set up paths in the network frames so that test call data is present for tests in the following units:

- Time Slot Interchange (TSI) circuits of the Expanded Time Slot Interchange (XTSI) Frame
- Their Switching & Permuting Circuits (SPCs) or Pulse Code Modulated (PCM) Buses (0-3)
- Timed Multiplexed Switching (TMS) Frames
- A-Link Controllers (ALCs) drivers and receivers
- A-Link Formatters (ALFs).

During Program Unit 3 path setup, it is possible to encounter path failures including TRPF failures. These failures are indicated by the 3 doloop failures, examples will be shown later in this TAD.

Program Unit 6

The function of Program Unit 6 is to test the Network to XTSI select logic. Multiple test paths are set up through the Network that use all 32 A-Links to send data patterns from the ALF test registers. The mate (active) and subject (DGN or under test) controller are set up to send different data patterns to verify that the correct Network is selected. In Program Unit 6, the failure raw data will consist of 5 doloop failures accompanied, in some cases, by 3 doloop failures. Examples of the 5 doloop failures are shown later in this TAD.

Analysis Philosophy

Analysis procedures are illustrated for both the three and five doloop cases later in this TAD, but first it should be noted that:

- normally, when a network path fails in Program Unit 3, the three doloop failures are all that will be in the raw data printouts
- the five doloop failures of Program Unit 6 provide a much broader base to help isolate the defective hardware.

A Link Assumption

The coaxial cables between the XTSI and the TMS are considered as helper units and are assumed to be non-faulty. These cables are very fragile. Use of any force to twist, wiggle or re-seat the cables may cause further unnecessary damage. If faults are suspected in these areas, run phase 8 or 9 of the TMS diagnostics to attempt to isolate these types of problems.

Program Unit 3 Raw Data Analysis

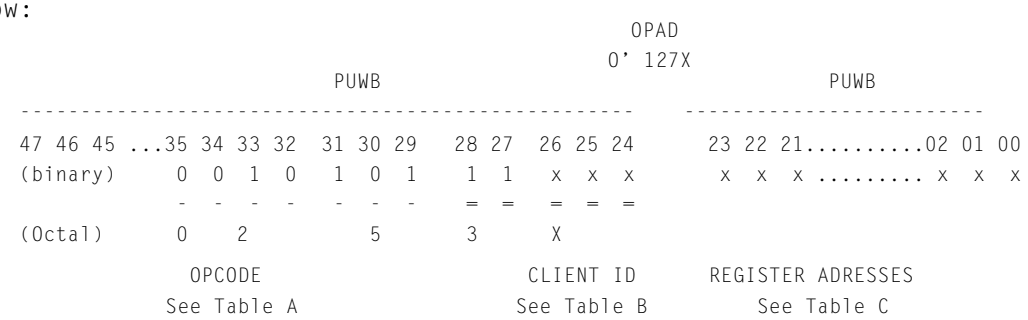
Introduction

The analysis of the three doloop raw data of Program Unit 3 requires the use of several look-up tables and the 4ESS(tm) Maintenance Reference Handbook. We will provide the following look up tables at the end of this document:

- Table B - a Client ID look-up table
- Table C - a register address look-up table for each Client ID

The 4ESS Maintenance Reference Handbook 234-310-221 Volume II should be used to identify the meaning of the bits in the various XTSI registers.

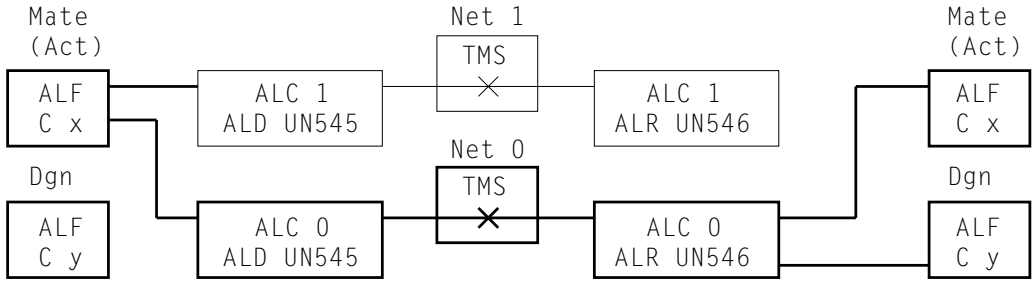
The OPAD in the three do-loop failures is of the form 127X. This equates to an OPCODE of O'025 which is an XTSI OPCODE that performs a read of either a register or a memory address. In the three doloop case, the read is of an XTSI register whose address is in bits 00-23 of the Peripheral Unit Write Bus (PUWB). The Client ID is given in bits 24 - 28 of the PUWB. See the graphic below:



Program Unit 3 Test Philosophy

The following are standard for Program Unit 3 of XTSI diagnostic Phase 41:

- The mate (active) controller sends test data to both networks 0 & 1.
- The controller under test (inactive/Dgn) receives on the same network as the active (mate) controller. The figure below is an illustration of the program unit 3 test using network 0.



Program Unit 3 Raw Data Analysis, Continued

Program Unit 3 Diagnostic Failure

The raw data printout below is an example of a Program Unit 3 diagnostic failure. Numbers have been located beneath each word of the first failing test in the printout as a reference number that can be associated with each word.

```
M 16 DGN: XTSI 38, CONTR 0 PH 41 STF   (3.00000000 00000000)   MSG IP

      Test    Mismatch        SUPPLEMENTARY DATA
      362     00000200        00000200   13141270   77777000   00002570   13000000
      (1)       (2)             (3)        (4)        (5)        (6)        (7)

                                70353014    00000000   00000000   00000001
                                  (8)         (9)        (10)       (11)

      366     00400000        00400000   13141272   77777000   00002614   13000000
                              70353014   00000000   00000000   00000001
      370     00000400        00000400   13141272   77777004   00002641   13000000
                              70353014   00000000   00000000   00000001
```

Raw Data Words 1-11

An explanation of each of the fields, as identified by the numbers 1-11, follows:

1. **TEST** - This is the failing test number in Program Unit 3.
2. **MISMATCH** - This word indicates which data bits failed to match the EXPR. In our example bit(bits) 7 failed to match the expected results. By comparing this with Raw Data word 3 (PURB) we can see what bit 7 test data was, state what bit 7 test data was, and state what it should have been.
3. **1st Supplementary Data Word** - This word contains the actual PURB test data reply.
4. **2nd Supplementary Data Word** - This is a two part word. The four most significant octal digits contains the XTSI KCODE (enable address bits 0-11). The four least significant octal digits contains the OPAD (PUWB bits 24-35). These bits actually identify the OPCODE (Bits 29-36) and Client ID (Bits 24-28). Refer to tables A & B at the end of this document.
5. **3rd Supplementary Data Word** - This word contains the PUWB bits 00-23. This word contains the register address to be read.
6. **4th Supplementary Data Word** - This is the relocatable address of the failing Expected Results word (EXPR) in the diagnostic Program Record (PR).
7. **5th Supplementary Data Word** - The most significant 3 octal digits of this word (130) identify the following:
   - the most significant (1) indicates how many Utility Data Words will follow (1)
   - the second most significant (3) indicates how many doloop words will follow (3)
   - the third most significant (0) indicates how many subroutine data words will follow (0).

Program Unit 3 Raw Data Analysis, Continued

Raw Data Words 1-11

8. **6th Supplementary Data Word** - This is the Utility Data word (XTSI Controller Status). Bits 9-11 of this word identify the following network information:
   - bit 9 (TN0RO) specifies which controller (0 or 1) sends to Network 0
   - bit 10 (TN1RO) specifies which controller (0 or 1) sends to Network 1
   - bit 11 (NT0RO) specifies which Network both controllers are listening to (0 or 1)

NOTE: The controller under test is made to listen to the same Network that the active controller is listening to.

9. **7th Supplementary Data Word** - This is the innermost Doloop Word, it identifies (using bits 0, 1, and 2) the SPC/PCM Bus level (0-7).
10. **8th Supplementary Data Word** - This is the second innermost Doloop word. It identifies the frame member numbers' SPC/PCM Bus (0, 1). If the least significant bit in raw data word #11 is a 0, then the SPC/PCM Bus is identified in Raw Data word #10. If the least significant bit in raw data word #11 is a 1, then you have to add 2 to the least significant bit in raw data word #10 to get the SPC/PCM Bus. The possible combinations are shown in the following table:

If raw data word #11 equals...	And, raw data word #10 equals...	Then, SPC/PCM Bus is
0	0	0
0	1	1
1	0	2
1	1	3

11. **9th Supplementary Data Word** - This is the outermost Doloop Word. It identifies the XTSI Frame Member number (0/even or 1/odd)

Program Unit 3 Raw Data Analysis, Continued

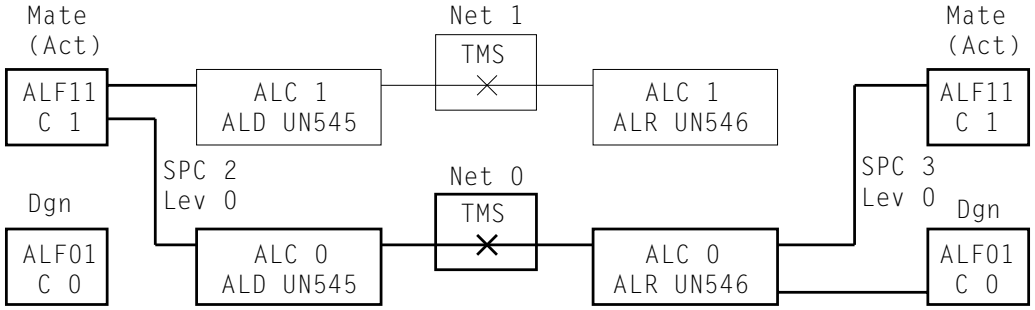
Test 362 Analysis

Using our Program Unit 3 example and the meaning of the 11 fields as stated above, we can see:

- the OPAD (PUWB bits 24-35) for this test is O' 1270. This equates to an OPCODE (PUWB bits 29-35) of O'025 our Read register or memory OPCODE (see Table A).
- the Client ID (PUWB bits 24-28) for this test is O'30. This equates to the XTSI FBI circuit pack (see Table B).

Continuing with our Program Unit 3 example and the meaning of the 11 fields as stated above, we can also see that:

- the address being read (PUWB bits 00-23) is O' 77777000. This equates to the XTF Fabric Error Summary Register XTFERSUM (see Table C -Register Addresses); be sure to use the correct Client ID when looking up register addresses.
- bit 7 of our mismatch data equates to bit 7 of XTFERSUM. This is an XTSI Critical Register and can be found in the 4ESS Maintenance Reference Handbook. Looking up this bit we see that a PCM related error on ALF1 is indicated.
- examining bits 9, 10 and 11 of the Utility Data word, we can see that controller 1 was sending to both networks (bits 9 & 10 = 1) and that both controllers are listening to network 0 (bit 11 = 0). Since controller 0 is the controller under test, we see that the mate controller is sending to both networks and that both controllers are listening to network 0. Graphically the network path is pictured as follows:



In the graphic presentation above, we have gotten a little ahead of ourselves by naming the ALF packs. To see if this is correct, we must look at the three doloop words. The 9th Supplementary Data word tells us which member number is being tested. We see that this equates to 1 in our example.

Test 362 Analysis, Continued

- The 8th Supplementary Data word defines the SPC/PCM Bus being used. In our example this value is a zero, but since we are in the odd member number we must add two. Our SPC/PCM Bus is 2. Since ALF 00 or ALF 10 serves SPCs/PCM Buses 0 & 1 and ALF 01 or ALF11 serves SPCs/PCM Buses 2 & 3, we can see that ALF 11 and ALF 01 in our graphic is correct (see Table D -A-Link Cable Connections).
- The 7th Supplementary Data word defines the level being tested. This value, in our example, is 0, thus our level is 0. From this value we know that our TMSP member number is 0, (see Table E -TMSP to TSI Level Relationship).
- One more item that we can define comes from the fact that the Utility Data word and the three doloop words (7th, 8th and 9th Supplementary Data words) belong to the XTSI that is sending the test data. This means that they belong to the mate controller. In our example, Controller 1 is the mate controller. When we say SPC/PCM Bus 2 is being tested, it is in the mate controller sending the data. In the receiving part of the test path on both the mate controller and the controller under test, the SPC/PCM Bus is the other SPC/PCM Bus of the pair, namely SPC/PCM Bus 3. The level is 0 in both cases.

Test 366 Analysis

Using the same procedures for test 366, we come to the following conclusions:

- The OPAD in Test 366 is 0' 1272. We again have the OPCODE of 0'025 our register or memory read. This time, however, we have a Client ID of 0'32 which per Table B equates to the ALF 1 circuit pack (ALF 01 or ALF 11).
- Our address is again 0' 77777000 but this time its an ALF1 register, not the FBI circuit pack register. Per Table C, this address and Client ID tells us that the register being read is the ALF Error Register (ALFESR 1).
- The failing bit of this register is bit 17 (from the mismatch data) and this bit indicates that we have had a Transmission Parity error (TRPF) on the A' side and to see register TRPFER1 for the circuit.
- The Utility Data word and the three doloop words (7th, 8th and 9th Supplementary Data words) for Test 366 is the same as they were for Test 362, thus the path circuitry shown is the same.

Program Unit 3 Raw Data Analysis, Continued

Test 370 Analysis

The analysis of Test 370 provides us with additional data:

- The OPAD of O' 1272 again gives us an OPCODE of O'025 our register read OPCODE, and again our Client ID is O'32, but the register address, this time, is O' 77777004. Using Table C we see that this register is the TRPFER1 register mentioned in the previous test analysis.
- The register TRPFER1 bit 8 is at fault (mismatch bit 8.). This equates to level 0 on SPC 3 which goes along with the path data we have already defined. Note that the mate controller was sending on SPC 2, and the controller under test was receiving on SPC 3, level 0.
- Again the Utility data word and the three doloop words (7th, 8th and 9th Supplementary Data words) are the same as they were for Tests 362 and 366.

Conclusion
We have had a failure in program unit 3 indicating that the path...

a) from the mate controller (controller 1) ALF 11, SPC/PCM Bus 2, Level 0
b) to ALC 0 (Network 0) A-Link Drivers
c) through Network 0 (TMSP 0, Controller 0)
d) to ALC 0 (Network 0) A-Link receivers
e) to the controller under test (controller 0) ALF01, SPC/PCM Bus 3, Level 0

...is faulty (in fact, we have had a TRPF). We could suspect the ALFs in both the mate and subject controllers. We could suspect ALC 0. both the driver or the receiver.

If we had cause to suspect the A-Links we could run the TMS diagnostic phases 8 & 9 on TMSP 0 Controller 0 (See Table E) and XTSI 38.

Our input message for Phase 8 would be:

DGN:TMSP 0,CONTR 0:PH 8, TLP! (Using the optional defaults.)

For Phase 9, we would input:

DGN:TMSP 0,CONTR 0:PH 9,TTSI 38,TCONTR 0,RTSI 38,RCONTR 1,OPTION 10!

NOTE: The TTSI and TCONTR are the units receiving the test data, XTSI 38, controller 0 in our test case (they transmit to the outside world, thus the TTSI, and TCONTR designations). The RTSI and RCONTR are the units sending the test data, XTSI 38, controller 1 in our test case (they receive from the outside world, thus the RTSI and RCONTR designations). It is easy to confuse these two and their functions during the Phase 41 tests..

Program Unit 6 Raw Data Analysis

Introduction
The function of XTSI Phase 41, Program Unit 6 is to test the Network to XTSI select logic. Test paths are set up through the Network that use all 32 A-Links to send data patterns from the ALF test registers. The mate and the subject controllers are set up to send different data patterns to verify that the correct Network is selected (the mate sends a PCM data pattern of 333, while the controller under test sends a 222 pattern).

In Program Unit 6, a failing path produces a series of five doloop raw data printouts. There is no Utility Data word, but the additional doloop words define the network configuration at the time of the failure.

All of the five doloop raw data printouts have an OPAD of O' 1271/1272, indicating our O'025 read OPCODE, but this time the address in PUWB bits 00-23 is an address of a **memory location.** The Client ID should always be O'31 or 32 indicating the ALF circuit pack. The memory locations are associated with the levels of the PCM data similar to the TSI-B buffer memory D.

Program Unit Test Philosophy
Program Unit 6 sets up the paths through the networks (0 and 1) using various configurations such as:

- the mate sending to the controller under test on Network 0
- the mate sending to the controller under test on Network 1
- the controller under test sending to itself and the mate on Network 0
- the controller under test sending to itself and the mate on Network 1

Note here that the analysis of the series of five doloop failures include all of the failures. The failures indicate the paths that failed and you should consider the configuration changes and the parts of the path that are common to all failures.

You should ***also*** consider the paths that ***did not fail.*** It is just as important to realize what components of the failing path were present in the paths that did not fail as it is to realize what components were in the failing paths.

Program Unit 6 Diagnostic Failures
The diagnostic raw data shown below is an example of the five doloop failures that may be encountered as a result of an XTSI Phase 41, Program Unit 6 test failure. Again we have placed a reference number (1-12) below each field of the 5 doloop failure printout so that we can associate that number with each word as we talk about it.

Program Unit 6 Raw Data Analysis, Continued

Program Unit 6 Sample Printout

```
M 07 DGN: XTSI 38, CONTR 0 PH 41 STF-BOF (18.00000000 00000000) MSG STARTED
TEST    MISMATCH        SUPPLEMENTARY DATA
941     00000244        00001177   13141272   00007750   00003023   05000000
(1)       (2)             (3)        (4)        (5)        (6)        (7)

                        00007750   00000000   00000001   00000001   00000001
                          (8)        (9)        (10)       (11)       (12)
```

Raw Data Words 1-12

An explanation of each of the fields as identified by the numbers 1-12 follows:

1. **TEST** - This is the failing test number in Program Unit 3.
2. **MISMATCH** - This word indicates which data bits failed to match the EXPR. In our example bit(bits) 7 failed to match the expected results. By comparing this with Supplementary Data word 3 (PURB) we can see what bit 7 test data was, state what bit 7 test data was, and state what it should have been.
3. **1st Supplementary Data Word** - This word contains the actual PURB test data reply.
4. **2nd Supplementary Data Word** - This is a two part word. The four most significant octal digits contains the XTSI KCODE (enable address bits 0-11). The four least significant octal digits contains the OPAD (PUWB bits 24-35). These bits actually identify the OPCODE (Bits 29-36) and Client ID (Bits 24-28). Refer to Tables A & B at the end of this document.
5. **3rd Supplementary Data Word** - This word contains the PUWB bits 00-23. This word contains the register address to be read.
6. **4th Supplementary Data Word -** This is the relocatable address of the failing Expected Results word (EXPR) in the diagnostic Program Record (PR).
7. **5th Supplementary Data Word** - The most significant 3 octal digits of this word (130) identify the following:
   - the most significant (1) indicates how many Utility Data Words will follow (1)
   - the second most significant (3) indicates how many doloop words will follow (3)
   - the third most significant (0) indicates how many subroutine data words will follow (0).
8. **6th Supplementary Data Word -** This is the innermost Doloop word. It identifies (using bits 0, 1, and 2) the SPC/PCM level (0-7)

Program Unit 6 Raw Data Analysis, Continued

Raw Data Words 1-12, Continued

9. 7th Supplementary Data Word - This is the second innermost Doloop word. It identifies the frame member numbers' SPC/PCM bus (0, 1). If the least significant bit in Raw Data word 10 is 0, then the SPC/PCM Bus is identified in Raw Data word 9. If the least significant bit in Raw Data word 10 is a 1, then you have to add 2 to the least significant bit in Raw Data word 9 to get the SPC/PCM Bus. The possible combinations are shown in the following table:

If Raw Data word 10 equals...	And, Raw Data word 9 equals...	Then, SPC/PCM Bus is
0	0	0
0	1	1
1	0	2
1	1	3

10. 8th Supplementary Data word - This is the third innermost Doloop word. It identifies the frame member number (0 for even or 1 for odd).

11. and 12. 9th and 10th Supplementary Data words - These are the fourth innermost and outermost Doloop words. These words define the XTSI Controller's relationship with the TMS Network. See Table below for the various combinations of Network configurations.

Raw Data Word 11	Raw Data Word 12	Controller Under Test		Mate Controller	
		Rec. On	Send On	Rec. On	Send On
0	0	ALC1	ALC0	ALC1	ALC1
1	0	ALC0	ALC0	ALC0	ALC1
0	1	ALC1	ALC1	ALC1	ALC0
1	1	ALC0	ALC1	ALC0	ALC0

Test 941 Analysis

Test 941 is the test that we used in our example above. This test was actually the first of a series of 5 doloop failures printed for the hardware failure used in this presentation. Using our Program Unit 6 example and the meaning of the 12 fields as stated, we can see that:

- the OPAD of O' 1272 equates to our OPCODE of O'025 our read register or memory OPCODE. The Client ID in this example is O'32 the ALF1 circuit pack.
- the address found in PUWB 00-23 is not to be found in our look up table because it is *not* a register address. The memory locations found here are associated with the levels of the PCM data, similar to the TSI-B buffer memory D memory locations. In fact, if you compare the address found in PUWB 00-23 you see that it is the same O' number as that found in the innermost doloop (Supplementary Data word 6) from which we get the level of the path being tested.

Program Unit 6 Raw Data Analysis, Continued

Test 941 Analysis (Continued)

Continuing with the analysis of test 941, we also see that:

- we do not have a Utility Data word to extract the path data from, but we have the 9th and 10th Supplementary Data words and the table in the above example numbered (11 and 12) to use them with. We fit the values found in the least significant bits of these two words (9th and 10th Supplemental Data words) which are a 1 and a 1. This value and the table provided above in the example numbered 11 and 12 (for the 9th and 10th Supplemental Data words), tells us that both controllers are receiving on Network 0 (ALC 0). If you look at the table in the example, you see that the controller under test and the mate (active) controller always receive from the same network.
- using the same Table, the mate (active) controller is sending on network 0. From our test philosophy statements, we know that the mate is sending a PCM data pattern of 333.
- the 6th, 7th and 8th Supplemental Data words belong to the XTSI controller that is *receiving* the test data this time (unlike in the three doloop case where the three doloop words belonged to the XTSI controller that was *sending* the test data). These three words tell us the following three things: ***(1st)*** - that the XTSI controller receiving the test data (the XTSI controller under test) is using member number 1 (8th Supplemental Data word = 1), ***(2nd)*** - that the SPC/PCM Bus = 2 (because the 7th Supplemental Data word = 0 but the 8th Supplemental Data word = 1, so we must add the number 2 to the contents of the 7th Supplemental Data word) and ***(3rd)*** - is that the level = 0 (6th Supplemental Data word).
- the mate controller must be sending on the other SPC of the pair, namely SPC 3, level 0. ***(An XTSI cannot send and receive on the same SPC/PCM Bus while using the external network.)*** The fact that we are using level 0 tells us that we are employing TMSP 0, controller 0 (see Table E)).
- the ALF packs used in each controller must be ALF x1 since we are using SPC/PCM Bus 2 & 3 in the test path. Thus we are using ALF 11 in the mate controller (Controller 1) and ALF 01 in the controller under test, (Controller 0).

Program Unit 6 Raw Data Analysis, Continued

Test 941 Analysis, Continued

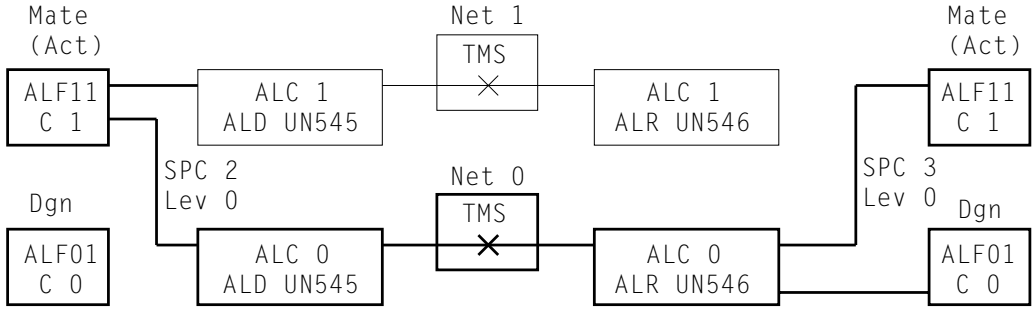
Continuing with the analysis of test 941, we also see that:

- The test data returned on the reply bus is O'1177. The mismatch data is O'244. If we change the actual data on the reply bus so that it would agree with the expected data ....
  Below is an example of changing the reply bus data to the opposite value wherever the mismatch value =1. Doing this in binary, we see the following. **(NOTE: The values underlined in *italics* are the ones that changed).**

PURB data returned	0 0 1	0 *0* 1	*1* 1 1	*1* 1 1
mismatch bits		0 1 0	1 0 0	1 0 0
result		0 *1* 1	*0* 1 1	*0* 1 1
expected data		**3**	**3**	**3**

Changing this back to octal we get O' 333 which is the test pattern that the mate controller was sending. The fact that the reply bus data was all ones indicates that no data was returned. This might indicate an entire cable being open. (The upper bit that we ignored in this example is a busy/idle bit and not PCM data.)

- Graphically, the test path is pictured as follows:



- We have a path almost the same as our three doloop path, only the SPC/PCM Buses are switched. We are not any better off than just having the three doloop failure. We have, however, several more printouts to look at.

Program Unit 6 Raw Data Analysis, Continued

The other failures

The diagnostic raw data printout shown below is the entire printout that was received. Our example only looked at the first failure, test 941.

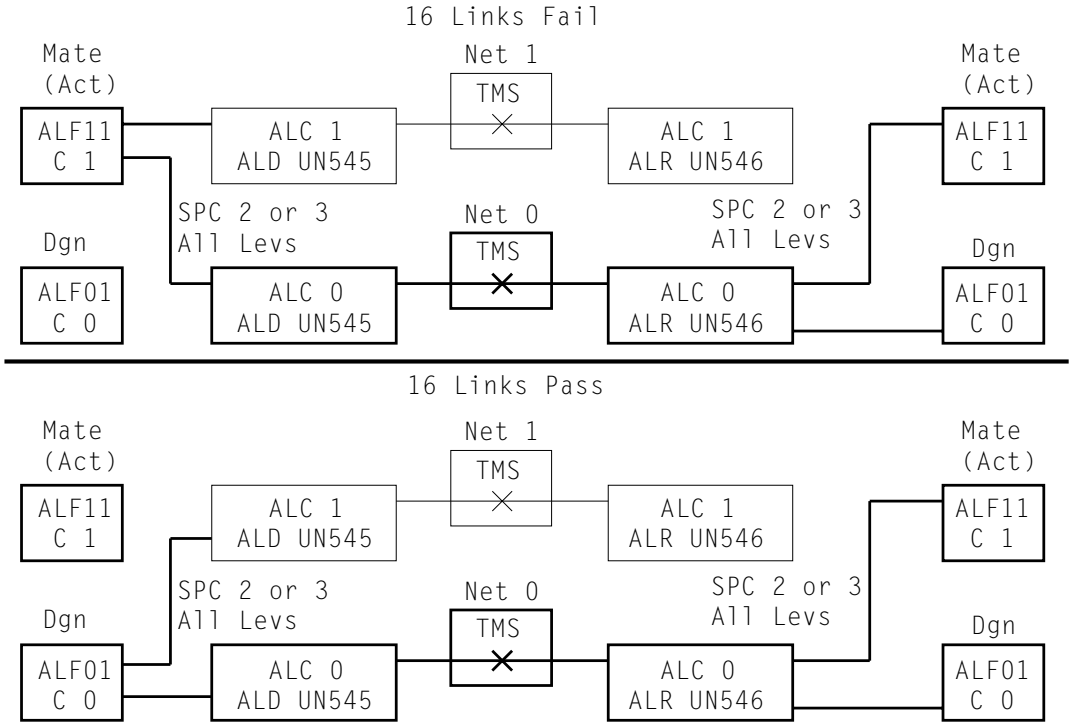
```
M 07 DGN: XTSI 38, CONTR 0 PH 41 STF-BOF (18.00000000 00000000) MSG STARTED
TEST      MISMATCH        SUPPLEMENTARY DATA
941       00000244        00001177   13141272   00007750   00003023   05000000
                          00007750   00000000   00000001   00000001   00000001
942       00000244        00001177    13141272  00007751   00003023   05000000
                          00007751    00000000  00000001   00000001   00000001
943       00000244        00001177    13141272  00007752   00003023   05000000
                          00007752    00000000  00000001   00000001   00000001
944       00000244        00001177    13141272  00007753   00003023   05000000
                          00007753    00000000  00000001   00000001   00000001
945       00000244        00001177    13141272  00007754   00003023   05000000
                          00007754    00000000  00000001   00000001   00000001
946       00000244        00001177    13141272  00007755   00003023   05000000
                          00007755    00000000  00000001   00000001   00000001
947       00000244        00001177    13141272  00007756   00003023   05000000
                          00007756    00000000  00000001   00000001   00000001
948       00000244        00001177    13141272  00007757   00003023   05000000
                          00007757    00000000  00000001   00000001   00000001
949       00000244        00001177    13141272  00017750   00003023   05000000
                          00007750    00000001  00000001   00000001   00000001
950       00000244        00001177    13141272  00017751   00003023   05000000
                          00007751    00000001  00000001   00000001   00000001
951       00000244        00001177    13141272  00017752   00003023   05000000
                          00007752    00000001  00000001   00000001   00000001
952       00000244        00001177    13141272  00017753   00003023   05000000
                          00007753    00000001  00000001   00000001   00000001
953       00000244        00001177    13141272  00017754   00003023   05000000
                          00007754    00000001  00000001   00000001   00000001
954       00000244        00001177    13141272  00017755   00003023   05000000
                          00007755    00000001  00000001   00000001   00000001
955       00000244        00001177    13141272  00017756   00003023   05000000
                          00007756    00000001  00000001   00000001   00000001
956       00000244        00001177    13141272  00017757   00003023   05000000
                          00007757    00000001  00000001   00000001   00000001
```

The other failures Analysis

Now we want to look at the remaining 16 failures to see if a pattern can be detected. By looking at the other failures we can see that:

- the first eight failures, tests 941 through 948, are identical except for the address in PUWB bits 00-23 and in the 6th Supplementary Data word (the innermost doloop). These addresses increment by 1 in each failure. This indicates that all levels 0-7 have failed in the same way. The path is the same as for test 941 except for the level.
- the next eight failures, tests 949 through 956, are almost identical to the first eight failures, only the SPC/PCM Bus has been switched between the sending controller (controller 1) and the receiving controller (controller 0). The path is the same except the SPCs are switched.
- Now let's look at what **didn't** fail. First of all Network 1 does not appear at all. This is noted by the absence of any failures with the 9th and 10th Supplemental Data words equaling 0, 0 or 0, 1 respectively (which would indicate ALC 1 is the "*Rec. On*" ALC).
- Now note that there are also no failures with the 9th and 10th Supplementary Data words equaling 1, 0 respectively. This means that we did not fail when Controller 0 (the controller under test) was sending on network 0 and receiving on network 0. This means that the receive side of controller 0 passed in this configuration and is not causing the problem.

To summarize the failures **and non-failures** on network 0 graphically:



Conclusion

We have had 16 failures in program unit 6 indicating that the paths...

A. from the mate controller (controller 1) ALF 11, SPC/PCM Buses 2 and 3, all levels (16 links)
B. to ALC 0 (Network 0) A-Link Drivers
C. through Network 0 (controller 0 of all TMSPs)
D. to ALC 0 (Network 0) A-Link Receivers
E. to ALF 11 in the mate (controller 1) and ALF 01 in the controller under test (controller 0)

...are faulty.

In fact, none of the PCM data that was sent was received on any of these 16 links.

An analysis of the test paths that we know were used, *but did not fail* (see test philosophy and the table associated with raw data words 11 and 12) indicates that the paths...

A. from the controller under test (controller 0) ALF 01, SPC/PCM Buses 2 and 3, all levels (16 links)
B. to ALC 0 (Network 0) A-Link Drivers
C. through Network 0 (controller 0 of all TMSPs)
D. to ALC 0 (Network 0) A-Link Receivers
E. to ALF 11 in the mate (controller 1) and ALF 01 in the controller under test (controller 0)

...are not faulty.

Furthermore, we also know that all of the 32 paths utilized in Network 1 are also not faulty. They were tested, but no failure printouts were received.

By eliminating the common equipment in the 64 paths tested, and considering these hardware items as reliable, we can isolate the problem to an apparent cable problem between AFL 11 in C1 and ALC 0.

In general, we can say that an analysis of all of the 5 doloop failures along with considering what configurations are tested but do not show up as failures should help us to isolate XTSI Phase 41 failures to a minimum of hardware that would have to be changed or inspected.

Again, use of any force to twist, wiggle or reseat the A-Link cables may cause further unnecessary damage. If the A links or the TMSPs are suspect, we can utilize TMSP diagnostic phases 8 and 9 to attempt to isolate these types of problems.

Our input message for Phase 8 would be:

DGN:TMSP 0,CONTR 0:PH 8, TLP! (Using the optional defaults.)

For Phase 9, we would input:

DGN:TMSP 0,CONTR 0:PH 9,TTSI 38,TCONTR 0,RTSI 38,RCONTR 1,OPTION 10!

NOTE: The TTSI and TCONTR are the units receiving the test data, XTSI 38, controller 0 in our test case (they transmit to the outside world, thus the TTSI, and TCONTR designations). The RTSI and RCONTR are the units sending the test data, XTSI 38, controller 1 in our test case (they receive from the outside world, thus the RTSI and RCONTR designations). It is easy to confuse these two and their functions during the Phase 41) tests..

Table A
OPCODE 025 BREAKDOWN

OPAD = 127X

OPCODE 025 is a ***READ OF THE LOW 24 BITS of an XTSI register*** located in an XTSI circuit pack or a memory address. The memory or register address is given in PUWB bits 00-23..

Table B
Client Ids

PUWB bits 24-28 equal Client ID equal XTSI circuit pack where:

- O'30 = XTSI FBI circuit pack
- O'31 = ALF0 circuit pack
- O'32 = ALF1 circuit pack
- O'35 = TSI circuit pack

NOTE: See the Control Bus layout in the Maintenance Reference Handbook 234-312-221 Volume II.

Table C
Register Addresses

PUWB bits 00-23 equals the register address read by OPCODE 025 where:

- **For Client ID O'30 (FBI pack)**
  - O' 77776000 equals FABRIC BUS INTERFACE CONTROL
  - O' 77776001 equals PSC ERROR PEST REGISTER
  - O' 77776002 equals SERVICE GROUP ACK/OUT OF SERVICE
  - O' 77776003 equals SERVICE GROUP ACK/OUT OF SERVICE
  - O' 77776004 equals PSC PROTECTION SWITCH ENABLE
  - O' 77776005 equals PSC PCM CUTOFF REGISTER
  - O' 77776006 equals PSC CB CUTOFF REGISTER
  - O' 77776400 equals SERVICE GROUP SCAN REGISTER
  - O' 77776401 equals PROTECTION SWITCH SENSE REGISTER
  - O' 77777000 equals XTF FABRIC ERROR SUMMARY (XTFERSUM)
  - O' 77777001 equals PSC ERROR SUMMARY REGISTER
  - O' 77777400 equals EXERCISE REGISTER
  - O' 77777777 equals TEST DATA REGISTER

Table C (Contd)
Register Addresses

- **For Client Ids O'31 (ALF0 pack) and O'32 (ALF1 pack)**
  - O' 77776000 equals ALF CONTROL REGISTER
  - O' 77776001 equals ALF STATUS REGISTER
  - O' 77776400 equals ALF PCM TESTREGISTER 0
  - O' 77776401 equals ALF PCM TEST REGISTER 1
  - O' 77776402 equals ALF IDLE CODE REGISTER 0
  - O' 77776403 equals ALF IDLE CODE REGISTER 1
  - O' 77777000 equals ALF ERROR REGISTER
  - O' 77777001 equals ALF PRIMARY A-LINK ERROR REGISTER
  - O' 77777002 equals ALF SECONDARY TRPF ERROR REGISTER BUSY
  - O' 77777003 equals ALF DELAYED BUSY/IDLE CIRCUIT ERROR REGISTER

- **For Client Ids O'31 (ALF0 pack) and O'32 (ALF1 pack) Continued**
  - O' 77777004 equals ALF PRIMARY TRPF ERROR REGISTER
  - O' 77777005 equals ALF SECONDARY A-LINK ERROR REGISTER
  - O' 77777400 equals ALF EXERCISE REGISTER
  - O' 77777777 equals ALF CONTROL BUS TEST REGISTER

- **For Client ID O'35 (TSI pack)**
  - O' 77776000 equals TSI CONTROL REGUSTERS
  - O' 77776001 equals TSI TIME SLOT COUNTER
  - O' 77776002 equals TSI SEARCH COUNTER
  - O' 77776003 equals TSI SEARCH WORD
  - O' 77776400 equals TSI STATUS REGISTER
  - O' 77776401 equals TSI SEARCH REPLY REGISTER
  - O' 77776402 equals TSI PCM INPUT STAT LOW
  - O' 77776403 equals TSI PCM INPUT STAT HIGH
  - O' 77776404 equals TSI PCM OUTPUT STAT LOW
  - O' 77776405 equals TSI PCM OUTPUT STAT HIGH
  - O' 77777000 equals TSI ERROR SOURCE REGISTER 0
  - O' 77777001 equals TSI ERROR SOURCE REGISTER 1
  - O' 77777002 equals TSI TS ERROR LATCH
  - O' 77777003 equals TSI CROSS-CONTROLLER SYNDROME BITS
  - O' 77777400 equals TSI EXERCISE REGISTER 0
  - O' 77777401 equals TSI EXERCISE REGISTER 1
  - O' 77777777 equals TSI CB TEST DATA REGISTER

Table D
XTSI A-Link Cable Connections

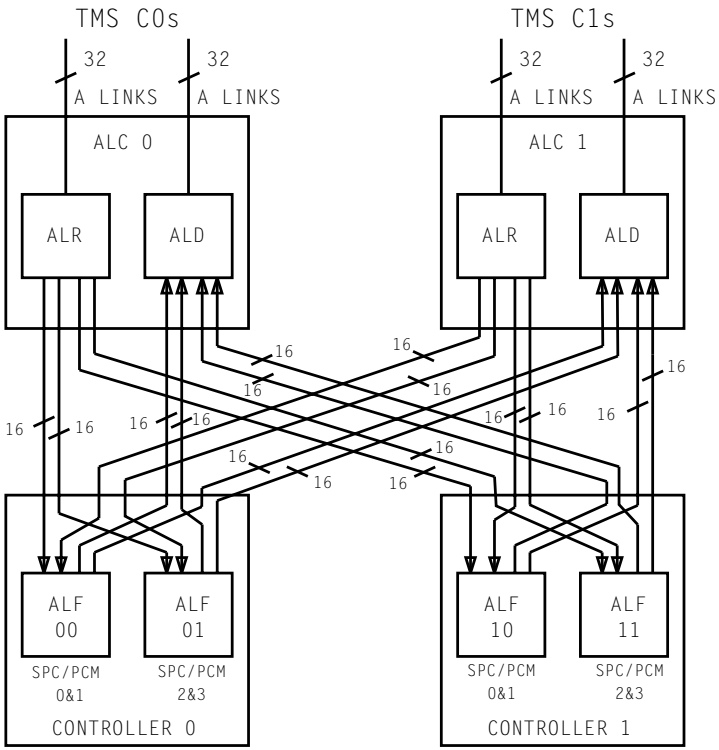


Table E
TMSP to TSI Level Relationship

TSI LEVEL	TMSP
4, 0	0
5, 1	1
6, 2	2
7, 3	3

Note:
A-Link Controller 0 communicates with TMS Controller 0 (Network 0).
A-Link Controller 1 communicates with TMS Controller 1 (Network 1).

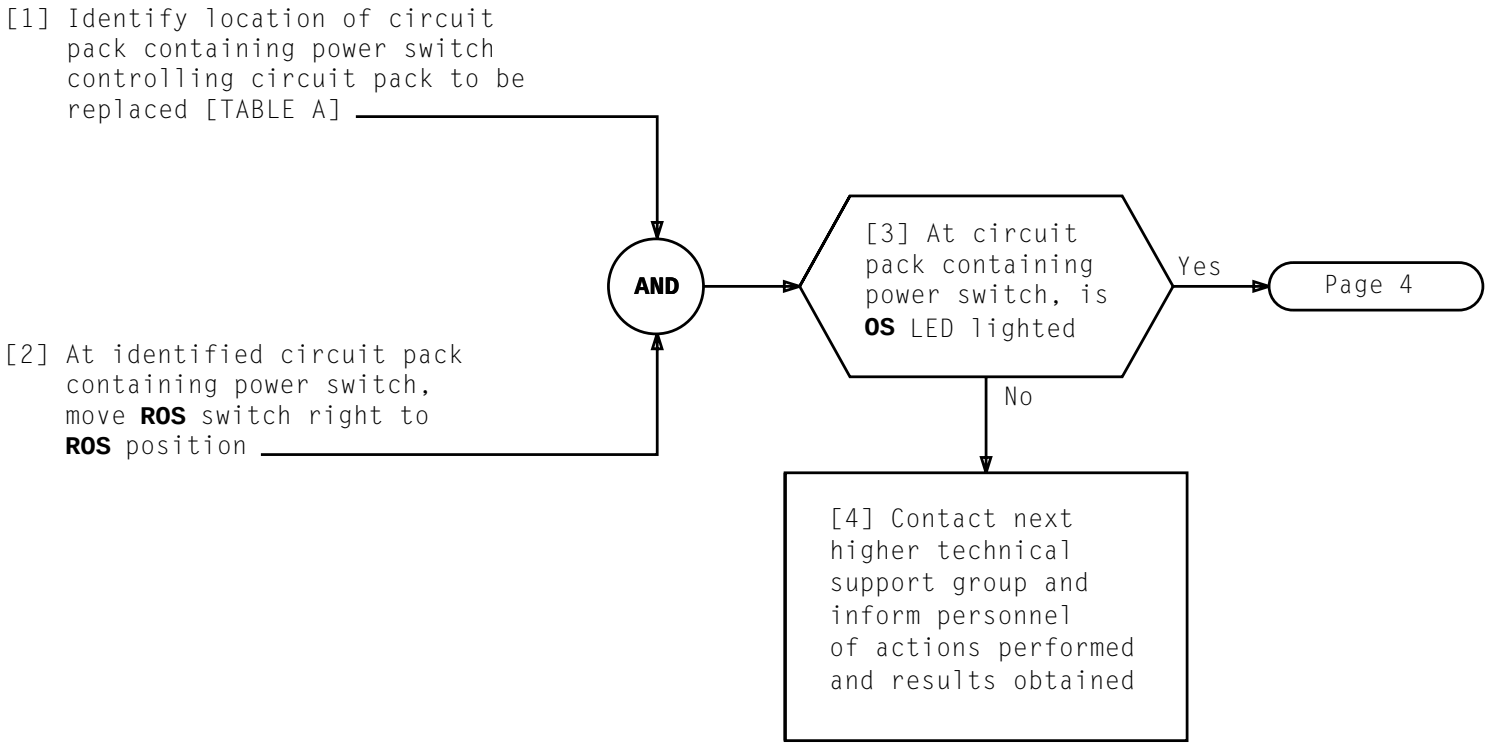

[1] Identify location of circuit pack containing power switch controlling circuit pack to be replaced [TABLE A]
[2] At identified circuit pack containing power switch, move **ROS** switch right to **ROS** position
AND
[3] At circuit pack containing power switch, is **OS** LED lighted
Yes
Page 4
No
[4] Contact next higher technical support group and inform personnel of actions performed and results obtained

TABLE A
XTSI CABINET UNIT POWER SWITCH IDENTIFIERS AND LOCATIONS

UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH		UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
Controller 0	**UN558**	52-066	**UN558**	52-066	ALC0	**UN545**	52-014	**UN545**	52-014
	UN556	52-074				**UN546**	52-026		
	UN556	52-148			ALC1	**UN545**	61-014	**UN545**	61-014
	UN547	52-082				**UN546**	61-026		
	UN557	52-106			IPUB0	**UN559**	52-156	**TN1994**	52-188
	UN548	52-114				**UN559**	52-164		
	KBN16	52-137				**UN559**	52-172		
	4WB6	14-082				**UN559**	52-180		
	4WB2	14-090				**TN1994**	52-188		
	4WB4	14-098			IPUB1	**UN559**	61-156	**TN1994**	61-188
	4WB6	14-106				**UN559**	61-164		
	4WB5	14-130				**UN559**	61-172		
	4WB7	14-008				**UN559**	61-180		
	4WB7	14-188				**TN1994**	61-188		
Controller 1	**UN558**	61-066	**UN558**	61-066	D3U0	**4WB3**	14-024	Self-Powered	Same Location
	UN556	61-074			D3U1	**4WB3**	14-032		
	UN556	61-148			D3U2	**4WB3**	14-040		
	UN547	61-082			D3U3	**4WB3**	14-164		
	UN557	61-106			D3U4	**4WB3**	14-172		
	UN548	61-114			D3U5	**4WB3**	14-180		
	KBN16	61-137			D3U6	**4WB3**	14-016		
	4WB6	31-082			D3U7	**4WB3**	14-156		
	4WB2	31-090			SPU0	**4WB8**	31-024	Self-Powered	Same Location
	4WB4	31-098			SPU1	**4WB8**	31-032		
	4WB6	31-106			SPU2	**4WB8**	31-040		
	4WB5	31-130			SPU3	**4WB8**	31-048		
	4WB7	31-008			SPU4	**4WB8**	31-056		
	4WB7	31-188			SPU5	**4WB8**	31-148		

(Continued on Next Page)

TABLE A (Continued)
XTSI CABINET UNIT POWER SWITCH IDENTIFIERS AND LOCATIONS

UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH		UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
SPU6	**4WB8**	31-156	Self-Powered	Same Location					
SPU7	**4WB8**	31-164							
SPU8	**4WB8**	31-172							
SPU9	**4WB8**	31-180							
SPU10	**4WB8**	31-016							
SPU11	**4WB8**	31-140							

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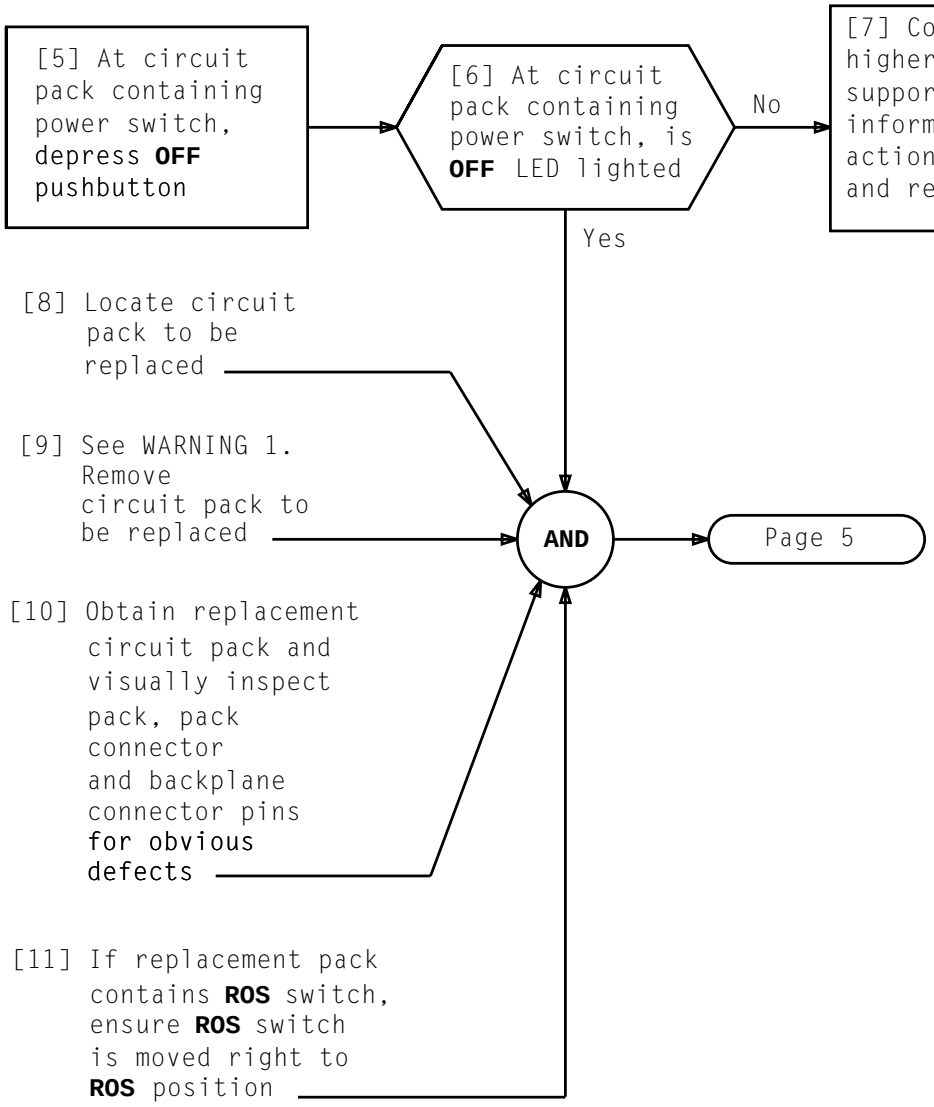
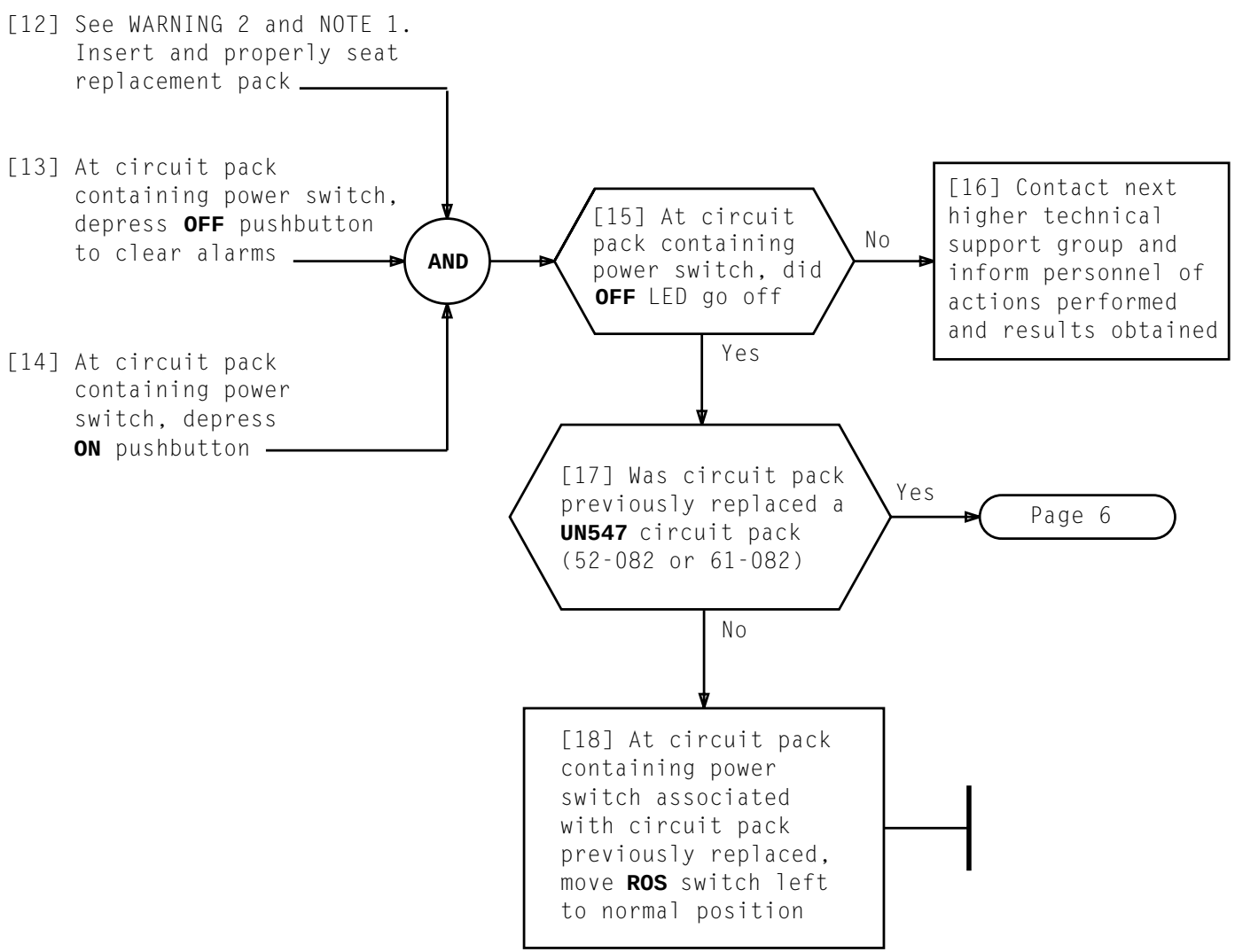


WARNING 1

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

REPLACE CIRCUIT PACK — XTSI CABINET

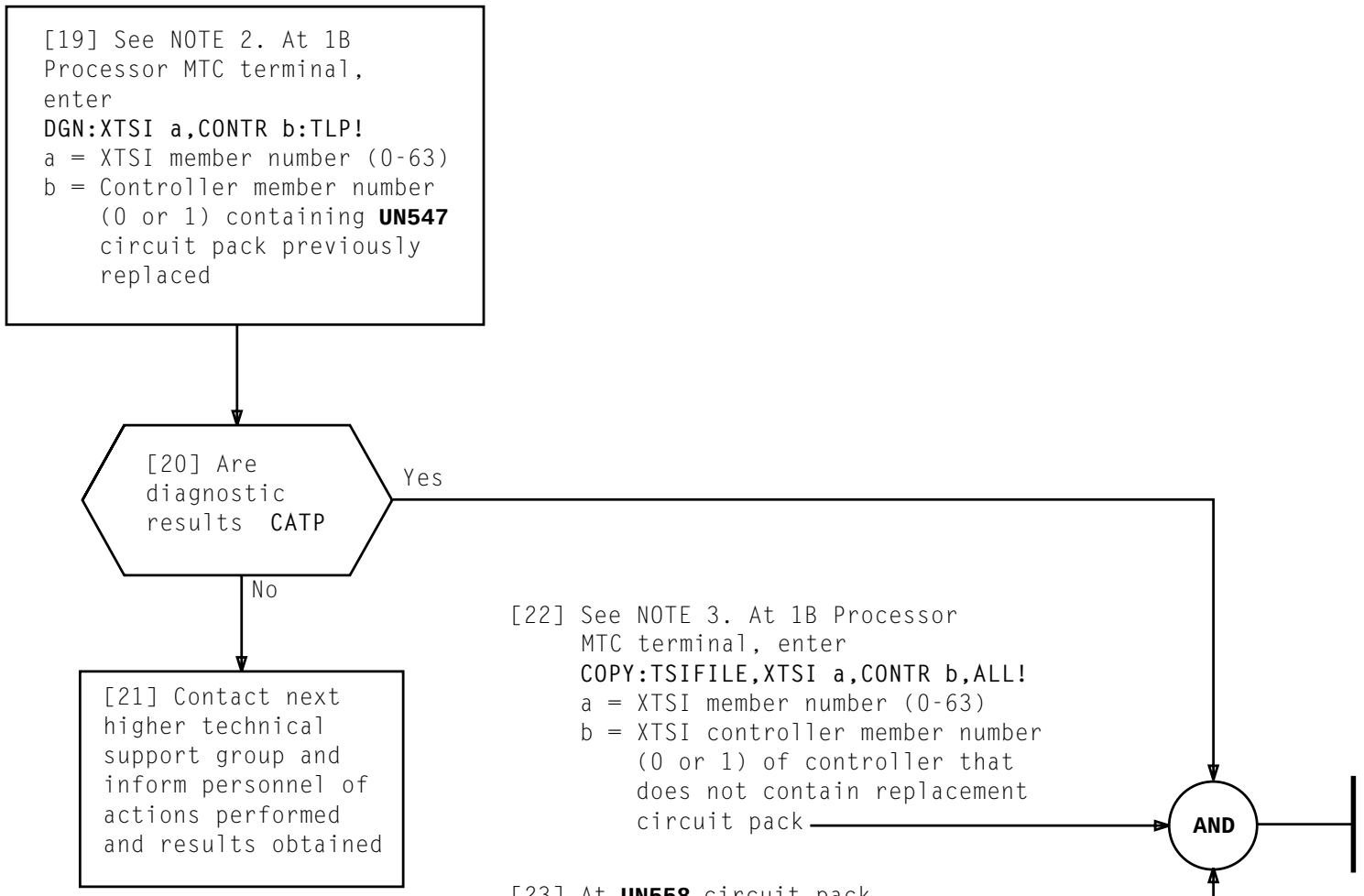


NOTE 1

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

WARNING 2

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

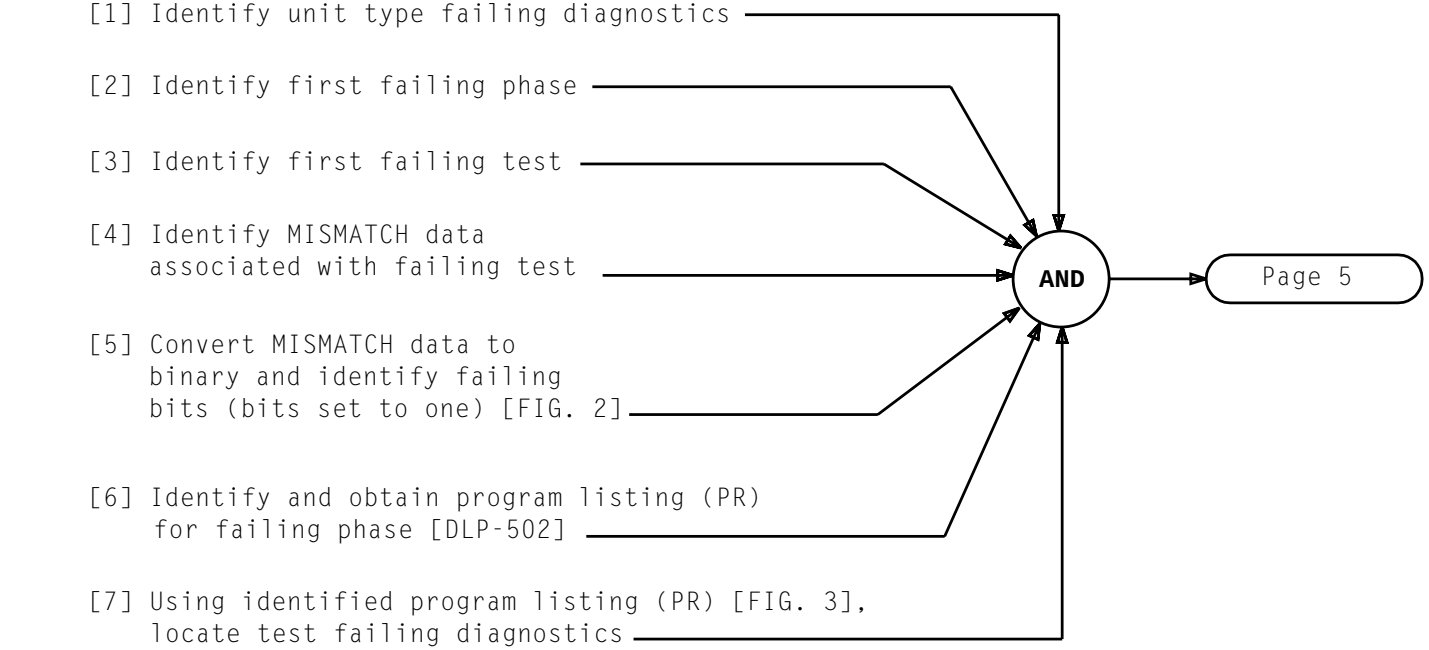


NOTES

2. Diagnostics ***MUST NOT*** be requested by moving **ROS** switch left to normal position. Doing so will cause an F-level to occur
3. The execution of COPY:TSIFILE message will require 10-15 minutes to complete. The system response to the COPY:TSIFILE message is a list of files copied. XTSI release 1 will copy and report files 0-19.

REPLACE CIRCUIT PACK — XTSI CABINET

Using failing diagnostic raw data [FIG. 1]:



IDENTIFY ADDITIONAL SUSPECT CIRCUIT PACKS USING FAILING DIAGNOSTIC RAW DATA

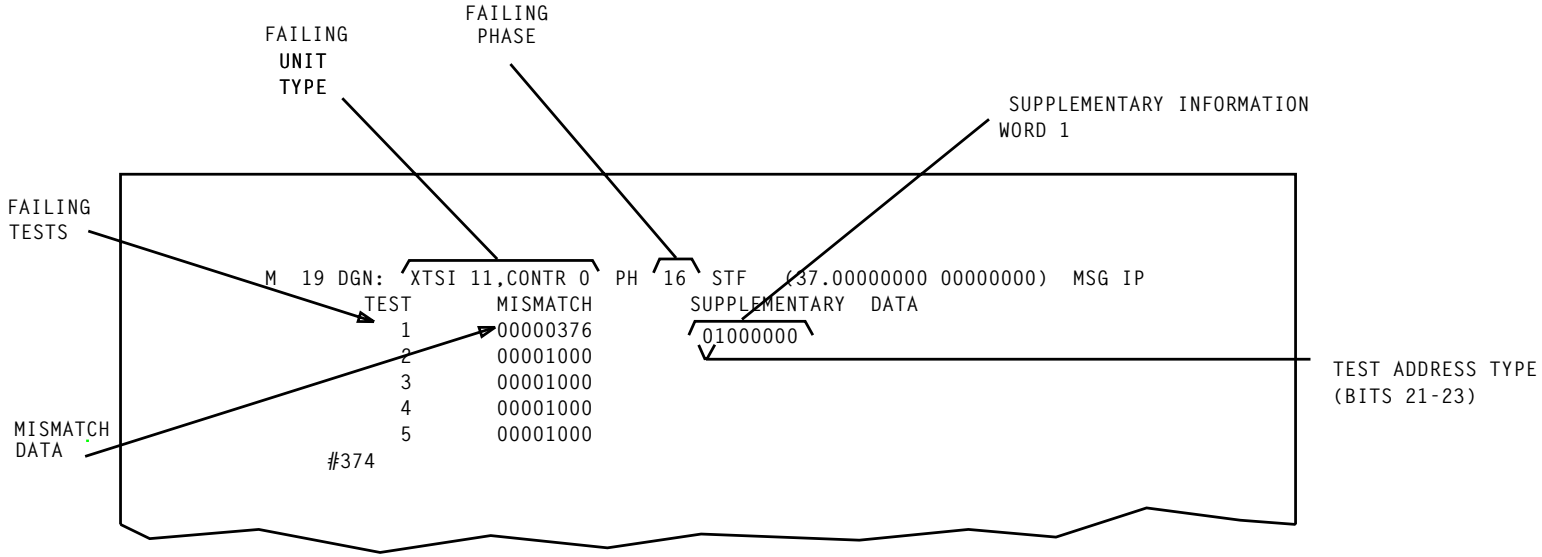


FIG. 1 – Sample Printout of Failing Diagnostic Raw Data

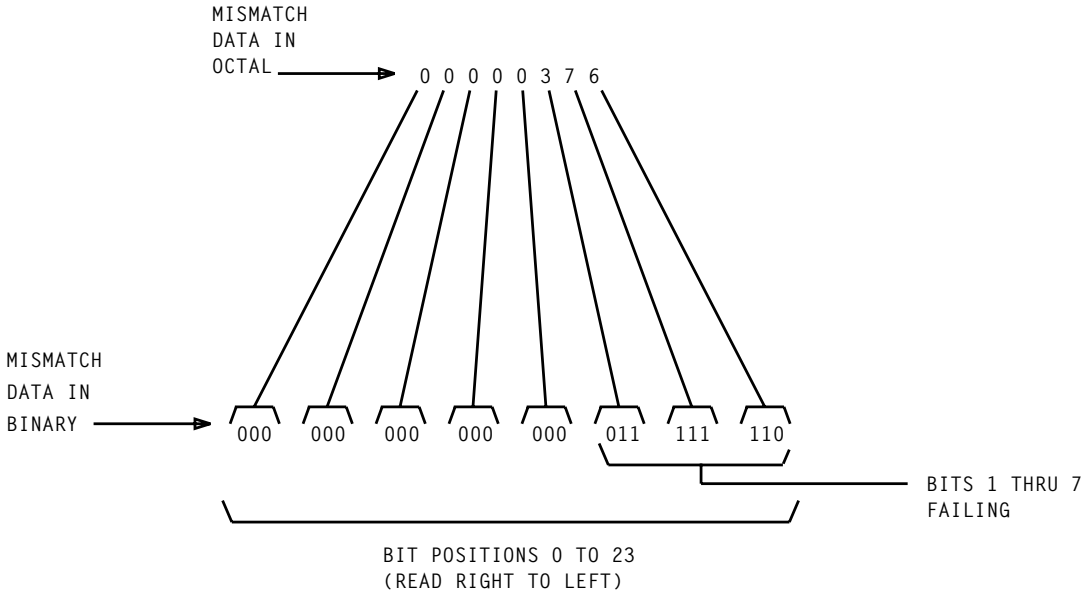


FIG. 2 - Example of Mismatch Data Octal To Binary Conversion

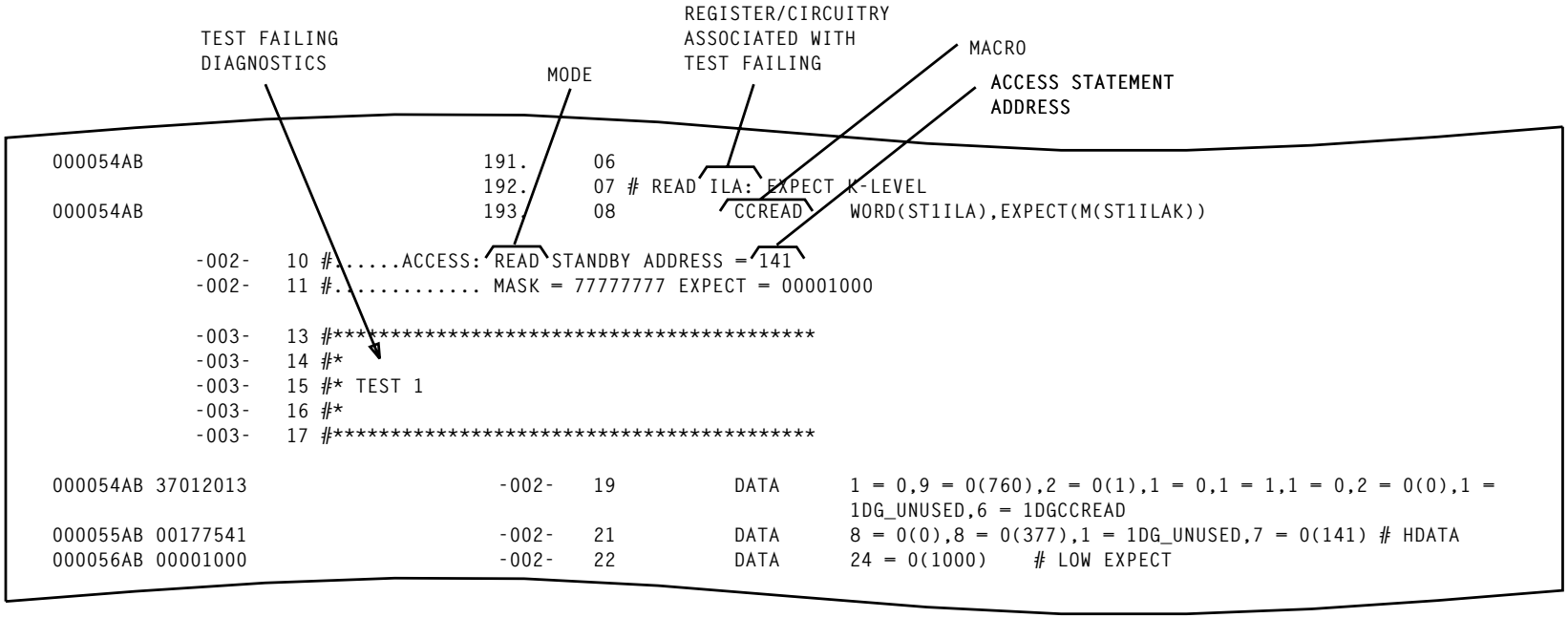
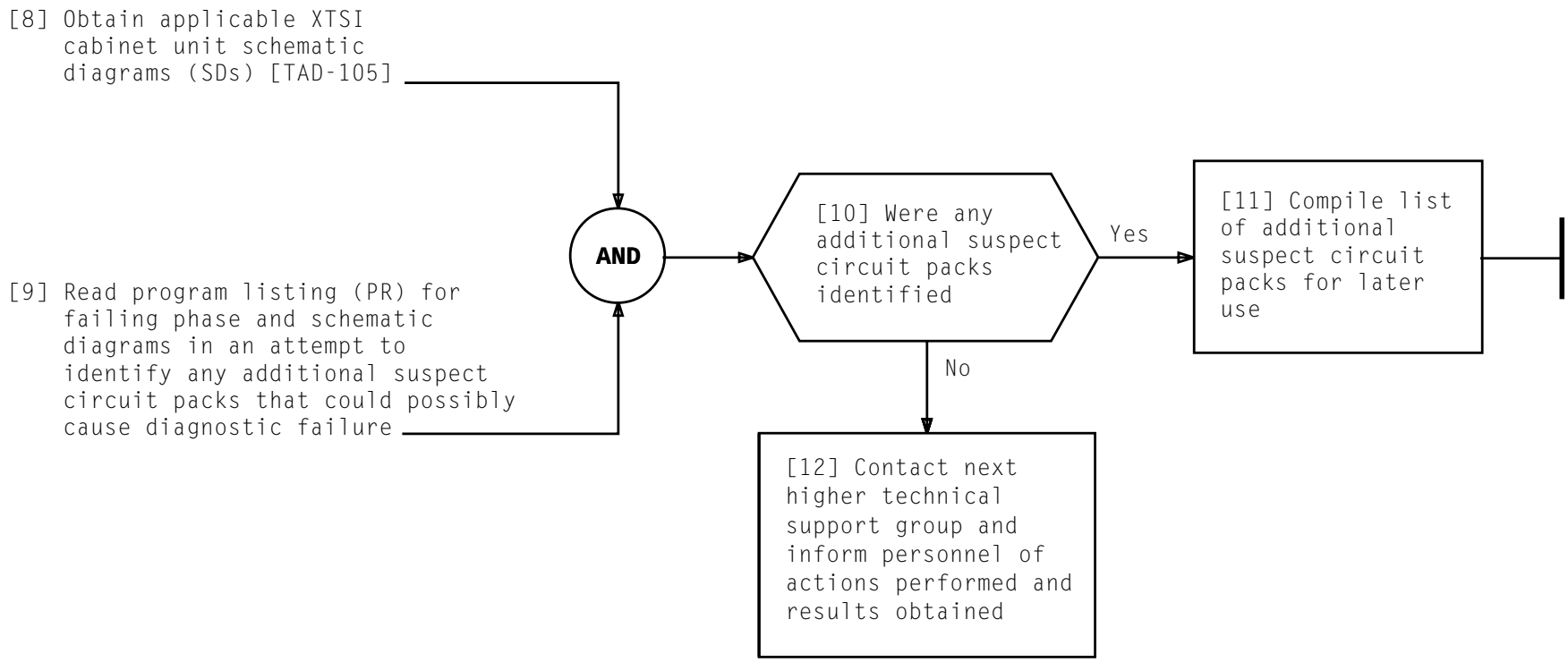
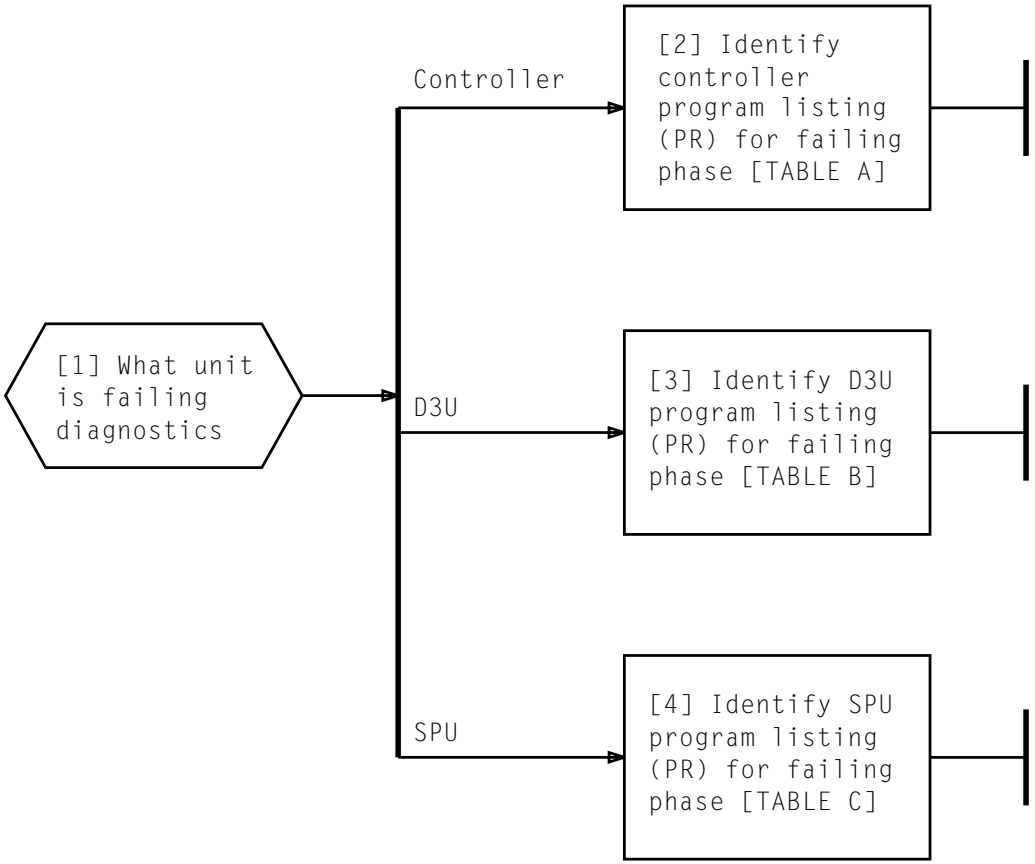


FIG. 3 – Example of Program Listing (PR)



IDENTIFY ADDITIONAL SUSPECT CIRCUIT PACKS USING FAILING DIAGNOSTIC RAW DATA



IDENTIFY PROGRAM LISTING (PR) FOR FAILING PHASE – XTSI CABINET

TABLE A
XTSI CONTROLLER DIAGNOSTIC PHASES AND ASSOCIATED PROGRAM LISTINGS (PRs)

DIAGNOSTIC GROUP AND PHASE NUMBER (PIDENT)	PHASE DESCRIPTION	PROGRAM LISTING
PUDGXTGR	Subroutines Used By XTC And A-link Diagnostic Phases	PR4A839
PUDGXT01	Controller And IPUB Power Tests; MA Pulse Source Test; Receive ON (RO), Maintenance Access (MA) And M-bit Tests	PR4A829
PUDGXT02	Send On (SO & S1) Tests; Reply Bus Clamping, Register And Parity Tests	PR4A830
PUDGXT04	All Seems Well And Interrupt Tests	PR4A831
PUDGXT05	Bus Mode Configuration Tests And 17X OPCODE Tests	PR4A832
PUDGXT06	Status Register Tests	PR4A833
PUDGXT07	OPCODE Verification Tests	PR4A861
PUDGXT09	All Seems Well Failure (ASWF) Error Recording And Blocking Tests	PR4A834
PUDGXT12	EXEC Circuit Pack Test	PR4A835
PUDGXT13	Global Ram (GRAM) Circuit Pack Tests	PR4A836
PUDGXT14	PU Bus Interface (PUBI) Circuit Pack Tests	PR4A837
PUDGXT15	CIA Circuit Pack Tests	PR4A825
PUDGXT16	Control Bus Access Tests	PR4A826
PUDGXT17	FBI Circuit Pack Tests	PR4A845
PUDGXT18	TSI Circuit Pack Tests	PR4A846
PUDGXT19	ALF Circuit Pack And PCM Bus Tests	PR4A827
PUDGXT21	Miscellaneous And Cross Controller Tests	PR4A828
PUDGXT22	PSC Interface Tests	PR4A864
PUDGXT40	A-link Controller Circuit Pack Power Monitor Tests	PR4A848
PUDGXT41	Controller Operational And Network Routing Tests	PR4A849
PUDGXT90	Flash Memory Read/Write Tests	PR4A863
PUDGXT99	IPUB Tests	PR4A838

TABLE B
XTSI D3U DIAGNOSTIC PHASES AND ASSOCIATED PROGRAM LISTINGS

DIAGNOSTIC GROUP AND PHASE NUMBER (PIDENT)	PHASE DESCRIPTION	PROGRAM LISTING
PUDGDSGR	Subroutines Used By D3U Diagnostic Phases	PR4A842
PUDGDS01	D3U Power Status Tests	PR4A841
PUDGDS02	D3U Control, Status, Error, Exercise And Test Data Registers Tests	PR4A840
PUDGDS03	D3U Power Control Tests	PR4A843
PUDGDS04	XTSI Controller Resident Diagnostic Tests And Control Bus Shared Memory Access Tests	PR4A844
PUDGDS05	D3U Processor/XTSI Controller Interface Resident Diagnostic Tests	PR4A850
PUDGDS06	D3U Processor Resident Diagnostic Tests	PR4A852
PUDGDS07	D3U Local RAM Resident Diagnostic Tests	PR4A851
PUDGDS08	D3U Shared Memory Resident Diagnostic Tests	PR4A853
PUDGDS09	Pump Into RAM Resident Diagnostic Tests	PR4A854
PUDGDS10	D3U Processor Interface With MO3 Chip Set Resident Diagnostic Tests	PR4A855
PUDGDS11	D3U PCM Data Path Looping At DS1 Level Diagnostic Tests	PR4A868
PUDGDS12	D3U PCM Data Path Looping At DS2 Level Diagnostic Tests	PR4A869
PUDGDS13	D3U PCM Data Path Looping At DS3 Level In M13 Device Diagnostic Tests	PR4A870
PUDGDS14	D3U PCM Data Path Looping At DS3 Level In 7296 Device Diagnostic Tests	PR4A871
PUDGDS15	D3U PCM Data Path Looping At DS3 Level In Paddleboard Diagnostic Tests	PR4A872
PUDGDS16	D3U Path Assurance Hardware Diagnostic Tests	PR4A873
PUDGDS17	Diagnostic Tests To Check Ability Of T1XC Devices To Detect Alarm Conditions, FDL Sanity, etc., While Looped At D3U Paddleboard	PR4A874
PUDGDS18	Diagnostic Tests To Check Ability Of M13 Device To Detect Alarm Conditions, FDL Sanity, etc., While Looped At D3U Paddleboard	PR4A875
PUDGDS19	Diagnostic To Check Ability Of D3U To Listen To Both XTSI Controllers	PR4A876

(Continued on Next Page)

TABLE B (Contd) XTSI D3U DIAGNOSTIC PHASES AND ASSOCIATED PROGRAM LISTINGS		
DIAGNOSTIC GROUP AND PHASE NUMBER (PIDENT)	**PHASE DESCRIPTION**	**PROGRAM LISTING**
PUDGDS90	Demand Phase To Perform D3U Loopback Check Between D3U And Extend Interface (DACS, DSX, etc)	PR4A858
PUDGDS91	Demand Phase To Perform D3U Loopback Check	PR4A877
DRPPXT	XTC And A-link Diagnostics Results Post Processor (DRPP) PIDENT That Produces TCP List For XTC And A-link Diagnostic Failures	—
DRPPDS	D3U Diagnostic Results Post Processor (DRPP) PIDENT That Produces TLP List For D3U Diagnostic Failures	—

TABLE C
XTSI SPU DIAGNOSTIC PHASES AND ASSOCIATED PROGRAM LISTINGS (PRs)

DIAGNOSTIC GROUP AND PHASE NUMBER (PIDENT)	PHASE DESCRIPTION	PROGRAM LISTING
PUDGXS01	SPU Power Status Tests	PR4A8800
PUDGXS02	SPU Control, Exercise, Status and Test Data Registers Tests	PR4A8801
PUDGXS03	SPU Power Control Tests	PR4A8802
PUDGXS04	SPU Control Bus Shared Memory Access Tests	PR4A8803
PUDGXS05	SPU Processor/XTSI Controller Interface Tests	PR4A8804
PUDGXS06	SPU Processor Basic Sanity Verification Tests	PR4A8805
PUDGXS07	SPU Local RAM Verification Tests	PR4A8806
PUDGXS08	SPU Shared Memory Tests	PR4A8807
PUDGXS09	SPU RAM Pump Tests	PR4A8808
PUDGXS10	Processor to FPGA Register/Memory Access Tests; Processor to Truevoice Register/Memory Access Tests; Processor to ECP/R4 Register/Memory Access Tests; Processor to Peripheral Error Detection Verification Tests and ECP/R4 Error Detection Tests	PR4A8809
PUDGXS11	PCMO/PCMI Microsequencer Verification Tests and PCMO/PCMI Microsequencer Perity/Checksum Error Detection Logic Tests	PR4A8810
PUDGXS12	PCMI Pipeline Stage Verification Tests and PCMO Pipe Injection Register Tests	PR4A8811
PUDGXS13	PCMO/PCMI In-band Injection/Retrieval Unit Verification Test	PR4A8812
PUDGXS14	Elastic Store Unit Verification Test	PR4A8813
PUDGXS15	SPU Chipset Interconnect/64K Clear Mode Verification Test	PR4A8814
PUDGXS16	PCMO/PCMI Backplane Interface - Data Path Verification Test and PCMO/PCMI Backplane Interface - Error Detection Verification Test	PR4A8815
PUDGXS17	Tag Control Verification Test	PR4A8816
PUDGXS18	Glue Logic Module Verification Test	PR4A8817
PUDGXS19	Enhanced 109 Test	PR4A8818
PUDGXS21	Test Error Propagation To FBI and PUBI Test And Standby Control/PCM Bus Interface Tests	PR4A8820

Using printout of diagnostics
with CATP results [FIG. 1]:

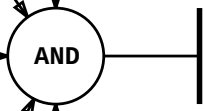
[1] Identify unit being diagnosed

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

[3] Convert CATP octal data to binary and identify failing bits (bits set to one) [FIG. 2]

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

[5] Determine if CATP results are explainable and acceptable



IDENTIFY CONDITIONS CAUSING DIAGNOSTICS TO COMPLETE WITH CATP RESULTS

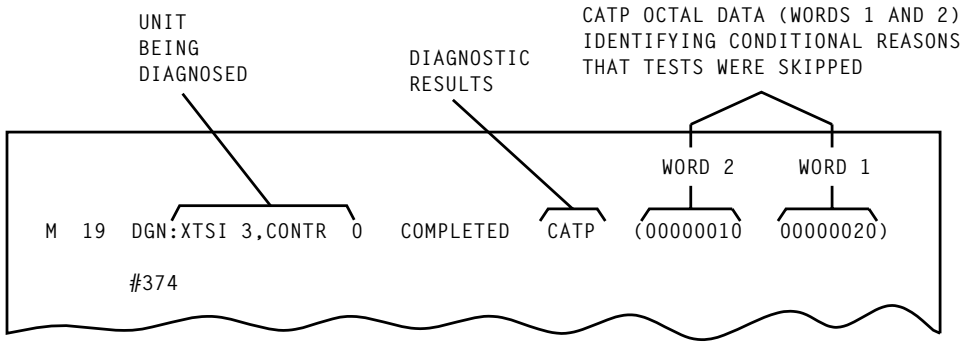


FIG. 1 — Sample Printout of Diagnostics With CATP Results

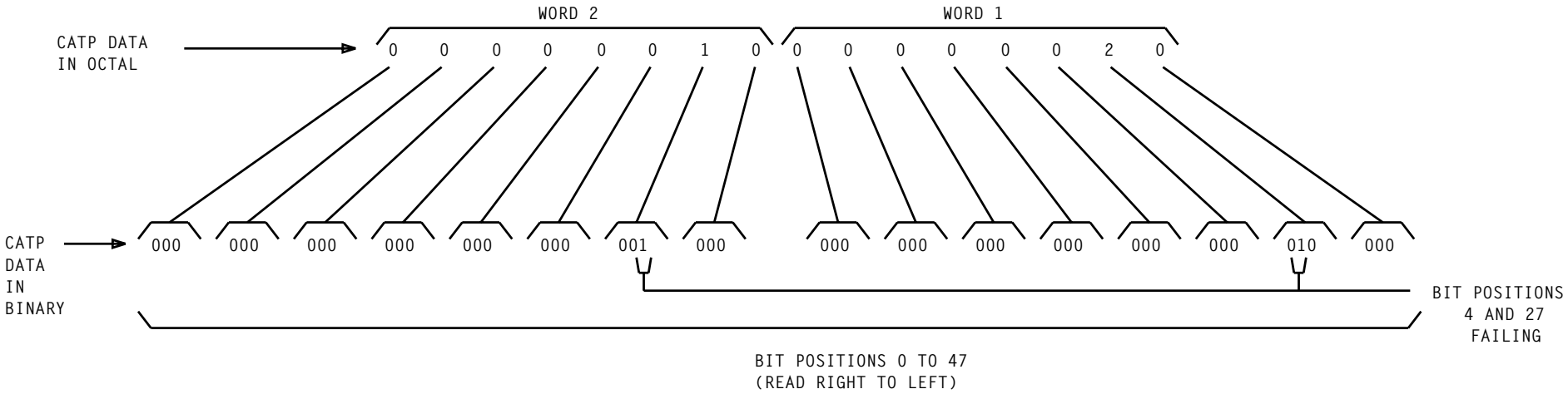


FIG. 2 - Example of CATP Data Octal To Binary Conversion

IDENTIFY CONDITIONS CAUSING DIAGNOSTICS TO COMPLETE WITH CATP RESULTS

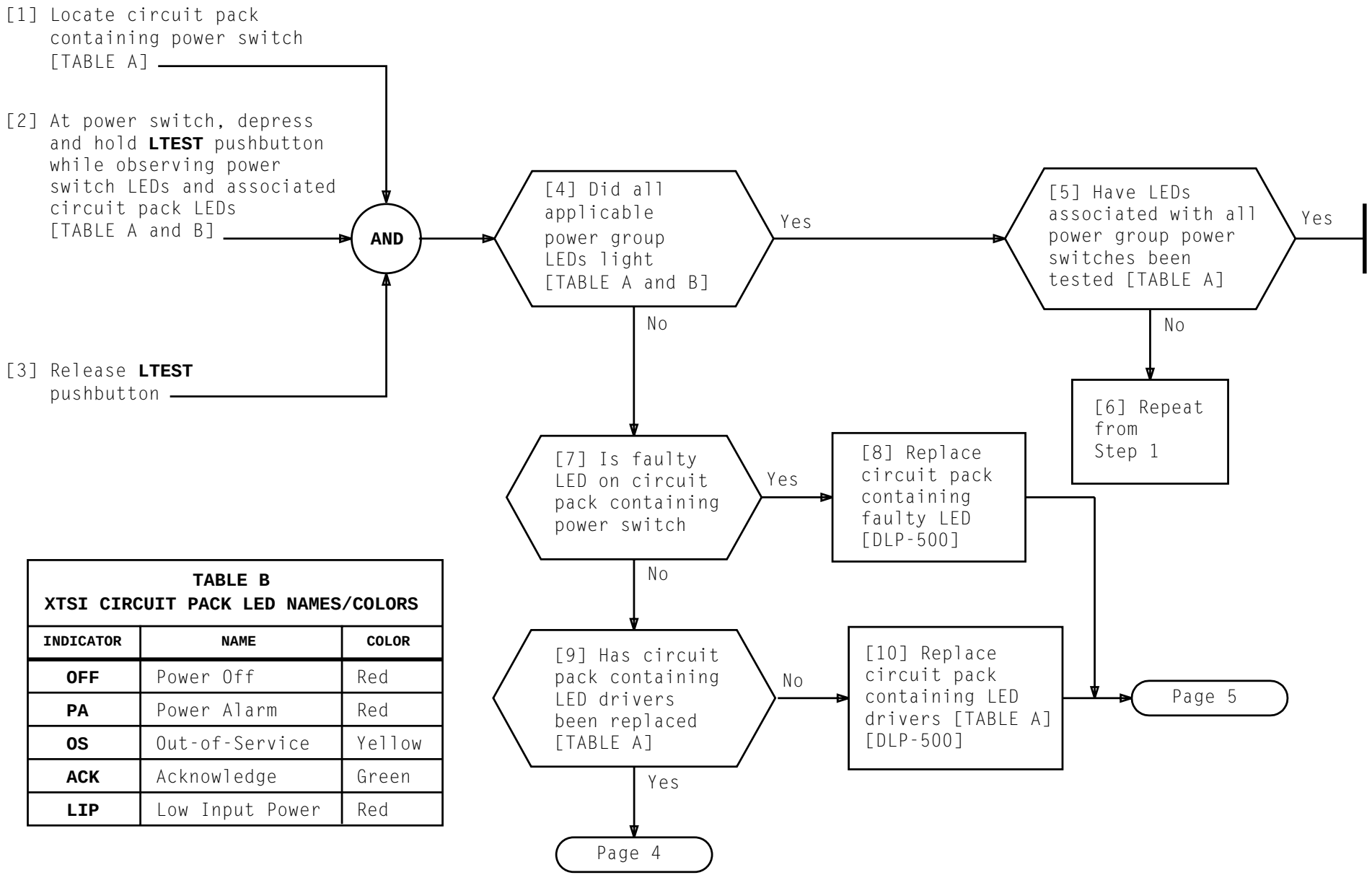


TABLE B
XTSI CIRCUIT PACK LED NAMES/COLORS

INDICATOR	NAME	COLOR
OFF	Power Off	Red
PA	Power Alarm	Red
OS	Out-of-Service	Yellow
ACK	Acknowledge	Green
LIP	Low Input Power	Red

TEST POWER GROUP LEDs — XTSI CABINET

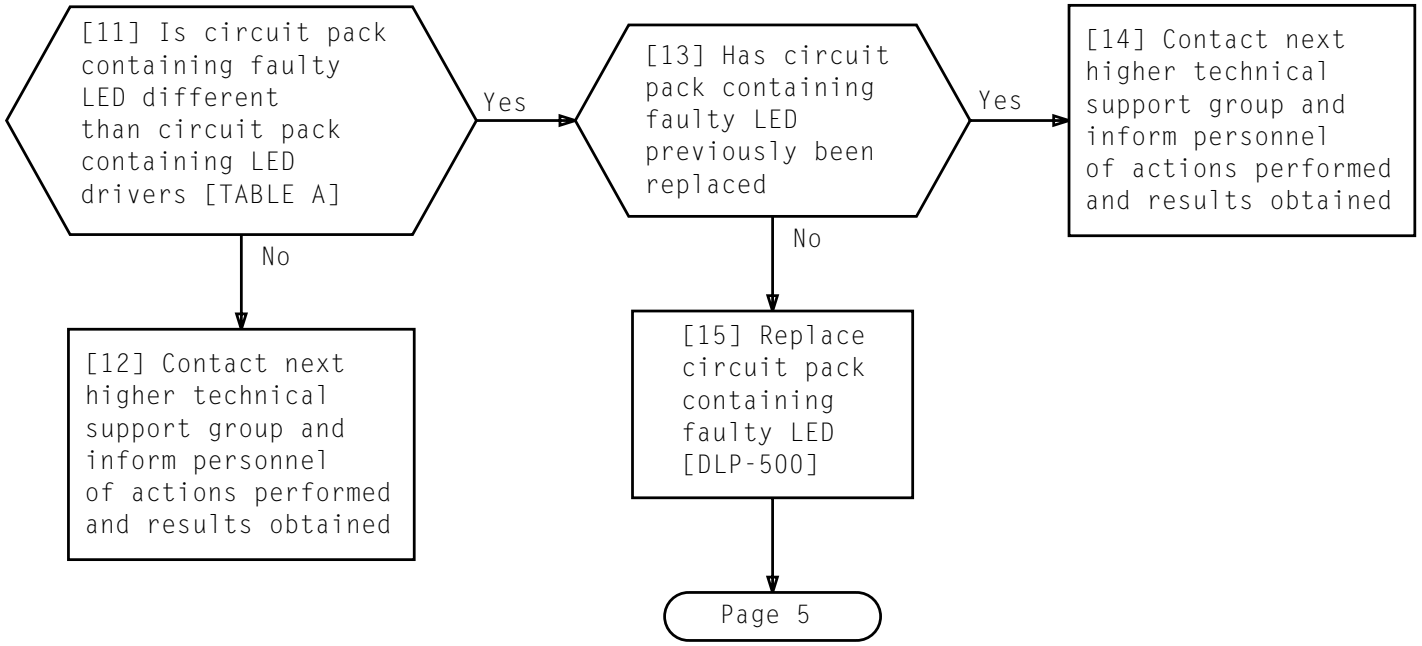
TABLE A
XTSI CABINET POWER GROUP LEDs

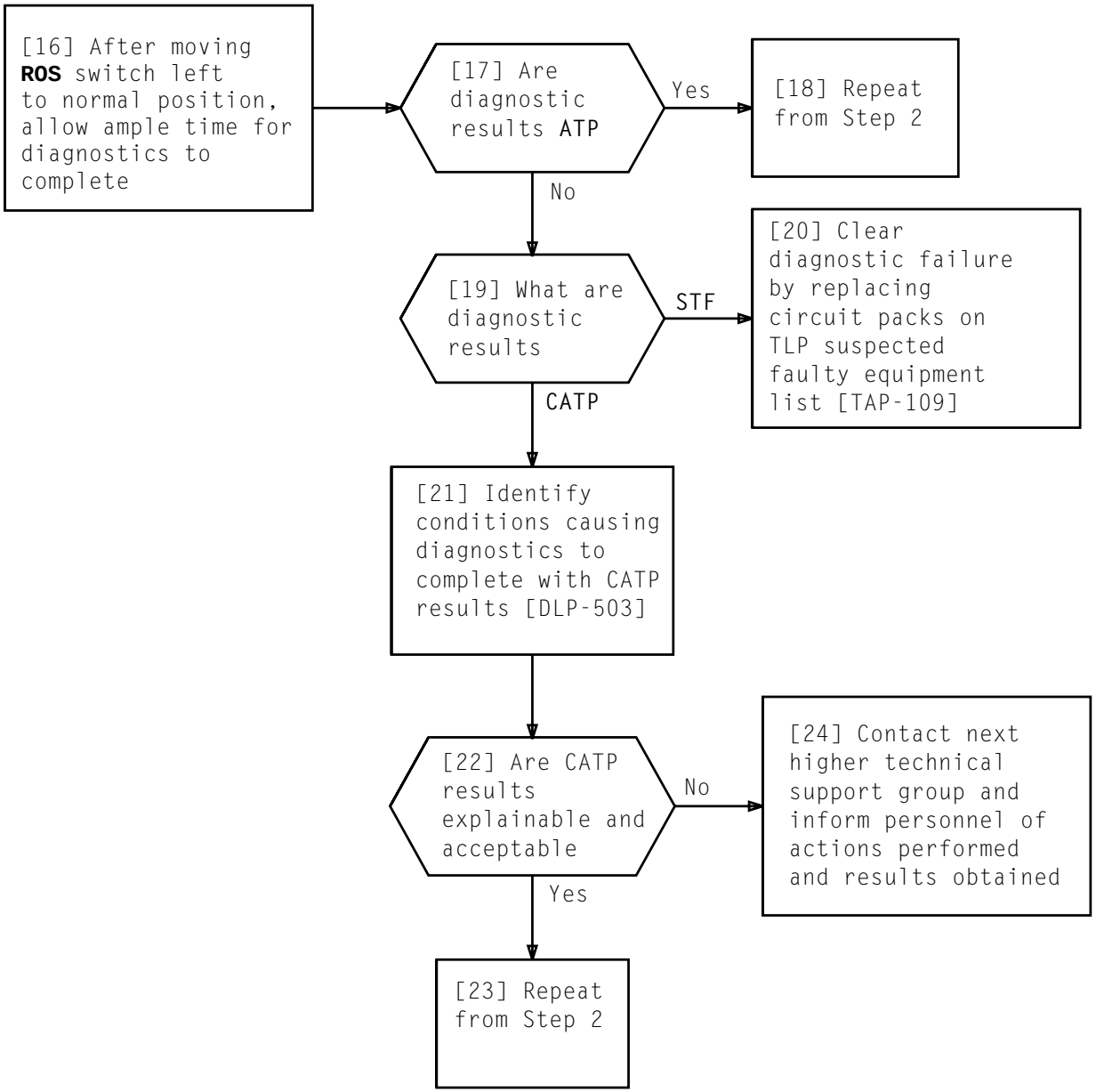
CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		CIRCUIT PACK CONTAINING LED DRIVERS		CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		CIRCUIT PACK CONTAINING LED DRIVERS	
IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
UN558	52-066	**UN558**	52-066	SAME CIRCUIT PACK IDENTIFIER	SAME CIRCUIT PACK LOCATION	**UN545**	52-014	**UN545**	52-014	SAME CIRCUIT PACK IDENTIFIER	SAME CIRCUIT PACK LOCATION
		UN556	52-074					**UN546**	52-026		
		UN556	52-148			**UN545**	61-014	**UN545**	61-014		
		UN547	52-082					**UN546**	61-026		
		UN557	52-106			**TN1994**	52-188	**UN559**	52-156		
		UN548	52-114					**UN559**	52-164		
		KBN16	52-137					**UN559**	52-172		
		4WB6	14-082	**4WB5**	14-130			**UN559**	52-180		
		4WB2	14-090					**TN1994**	52-188		
		4WB4	14-098			**TN1994**	61-188	**UN559**	61-156		
		4WB6	14-106					**UN559**	61-164		
		4WB5	14-130					**UN559**	61-172		
		4WB7	14-008	SAME CIRCUIT PACK IDENTIFIER	SAME CIRCUIT PACK LOCATION			**UN559**	61-180		
		4WB7	14-188					**TN1994**	61-188		
UN558	61-066	**UN558**	61-066			**4WB3**	14-024	NONE	NONE		
		UN556	61-074			**4WB3**	14-032				
		UN556	61-148			**4WB3**	14-040				
		UN547	61-082			**4WB3**	14-164				
		UN557	61-106			**4WB3**	14-172				
		UN548	61-114			**4WB3**	14-180				
		KBN16	61-137			**4WB3**	14-016				
		4WB6	31-082	**4WB5**	31-130	**4WB3**	14-156				
		4WB6	31-106			**4WB8**	31-024	NONE	NONE		
		4WB2	31-090			**4WB8**	31-032				
		4WB4	31-098			**4WB8**	31-040				
		4WB5	31-130			**4WB8**	31-048				
		4WB7	31-008	SAME CIRCUIT PACK IDENTIFIER	SAME CIRCUIT PACK LOCATION	**4WB8**	31-056				
		4WB7	31-188			**4WB8**	31-148				
						4WB8	31-156				

Continued on Next Page

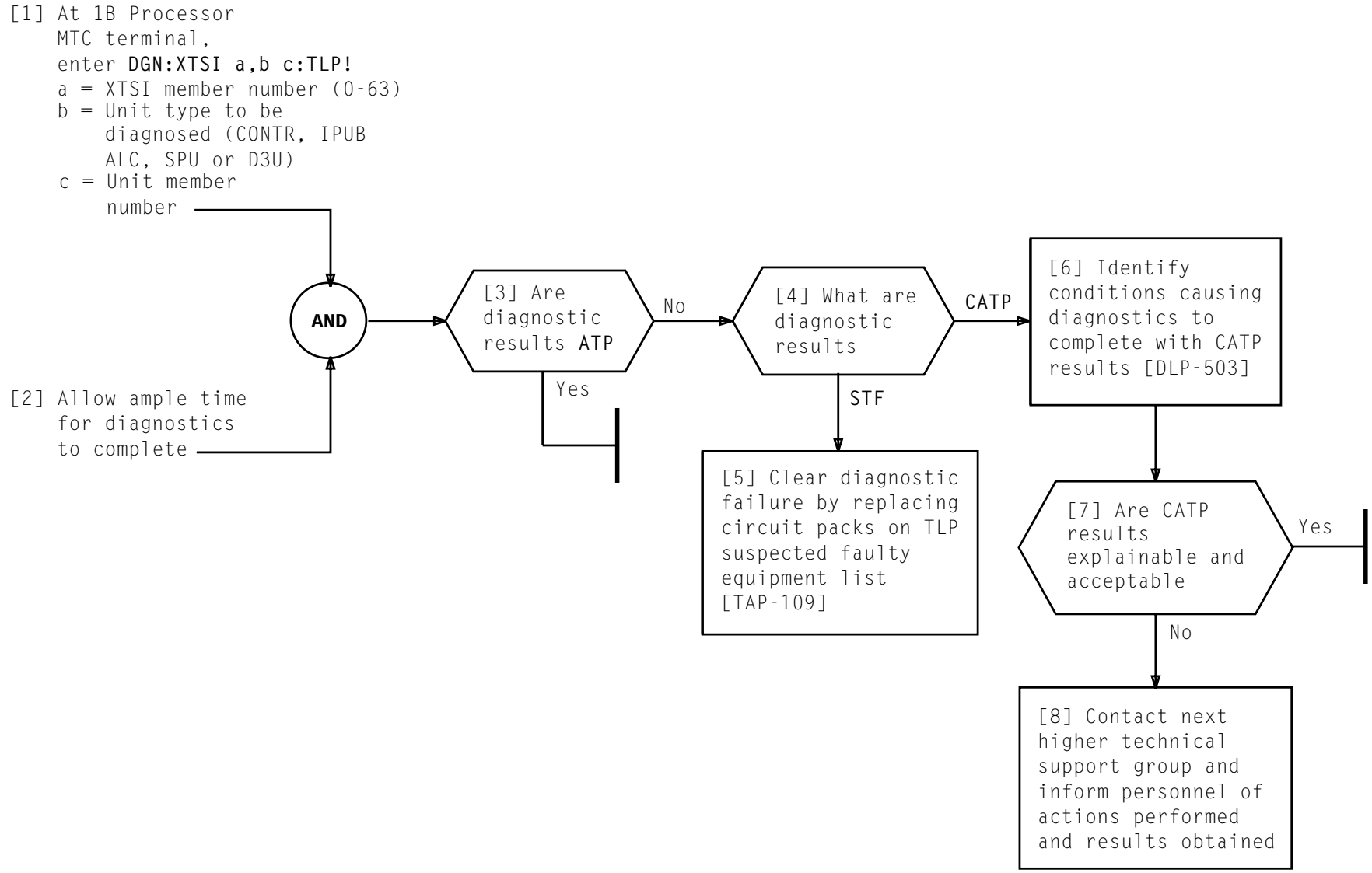
TABLE A (Continued)
XTSI CABINET POWER GROUP LEDs

CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		CIRCUIT PACK CONTAINING LED DRIVERS		CIRCUIT PACK CONTAINING POWER SWITCH		ASSOCIATED CIRCUIT PACKS CONTAINING LEDs		CIRCUIT PACK CONTAINING LED DRIVERS	
IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
4WB8	31-164	NONE	NONE	SAME CIRCUIT PACK IDENTIFIER	SAME CIRCUIT PACK LOCATION						
4WB8	31-172										
4WB8	31-180										
4WB8	31-016										
4WB8	31-140										

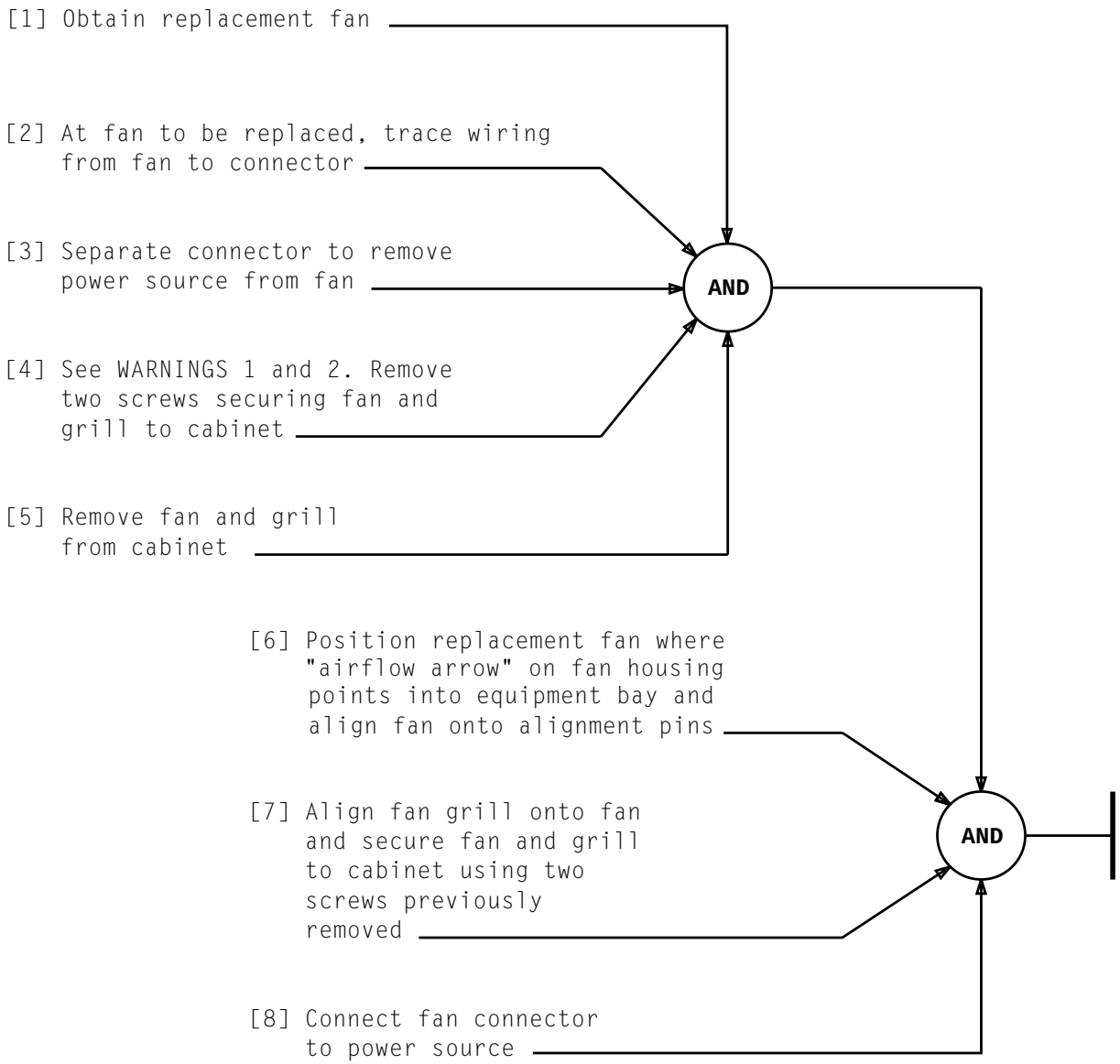

[11] Is circuit pack containing faulty LED different than circuit pack containing LED drivers [TABLE A]
Yes
No
[13] Has circuit pack containing faulty LED previously been replaced
Yes
No
[14] Contact next higher technical support group and inform personnel of actions performed and results obtained
[12] Contact next higher technical support group and inform personnel of actions performed and results obtained
[15] Replace circuit pack containing faulty LED [DLP-500]
Page 5



TEST POWER GROUP LEDs — XTSI CABINET



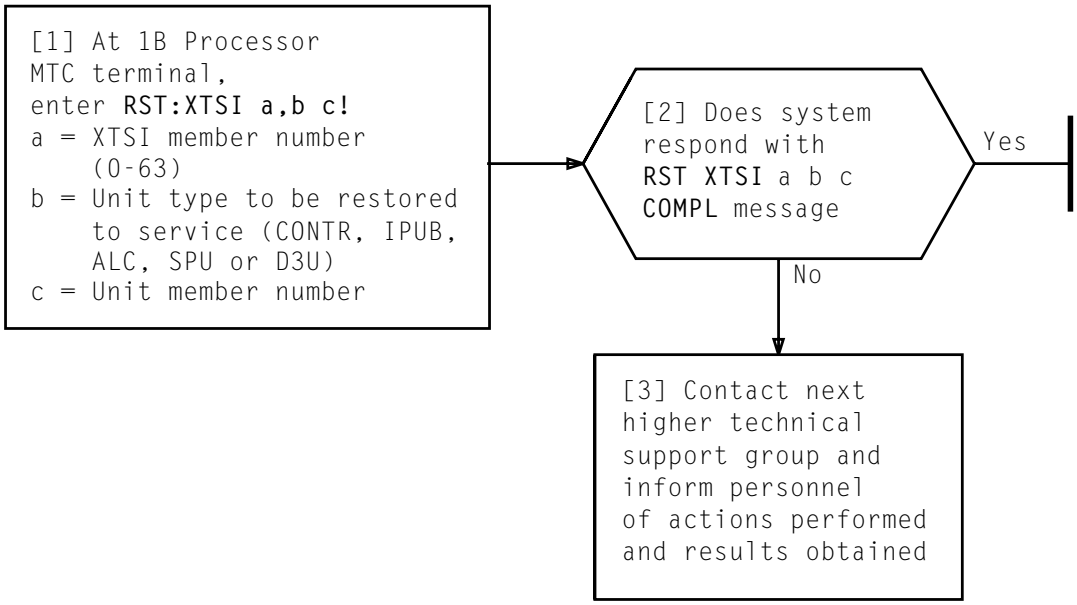
DIAGNOSE XTSI CABINET UNIT



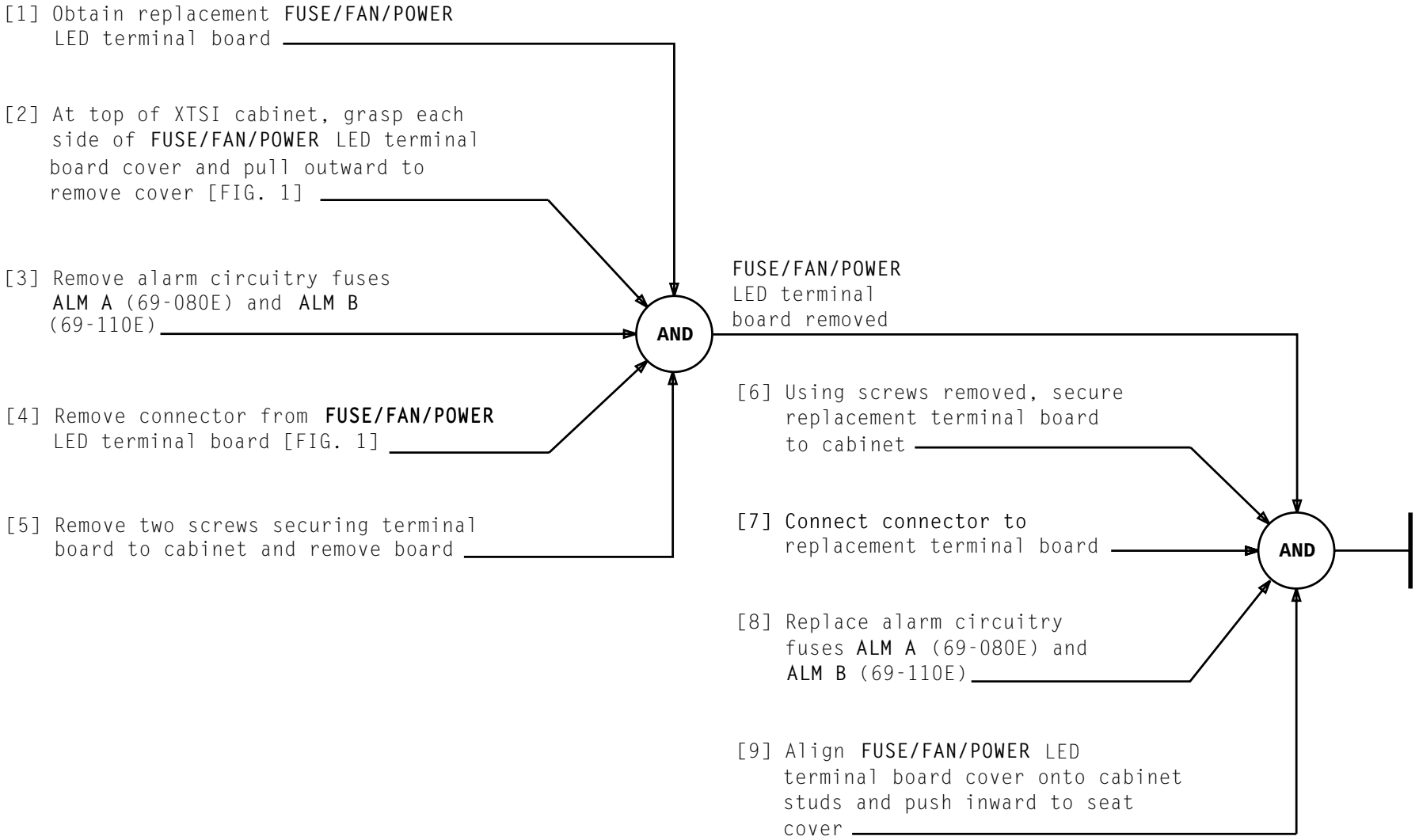
WARNINGS

1. *Place sheet of paper over grill of faulty fan to verify fan is not running. If fan is running, paper will be pulled against fan grill. The paper can also be folded into a 1-inch wide strip and inserted into the grill to stop any fan blade movement while fan is being removed from fan unit*
2. *When replacing FAN A, care must be taken to avoid shorting fan to -48V terminal strip lugs located directly above FAN A*

REPLACE FAN — XTSI CABINET



RESTORE XTSI CABINET UNIT TO SERVICE



REPLACE FUSE/FAN/POWER LED TERMINAL BOARD - XTSI CABINET

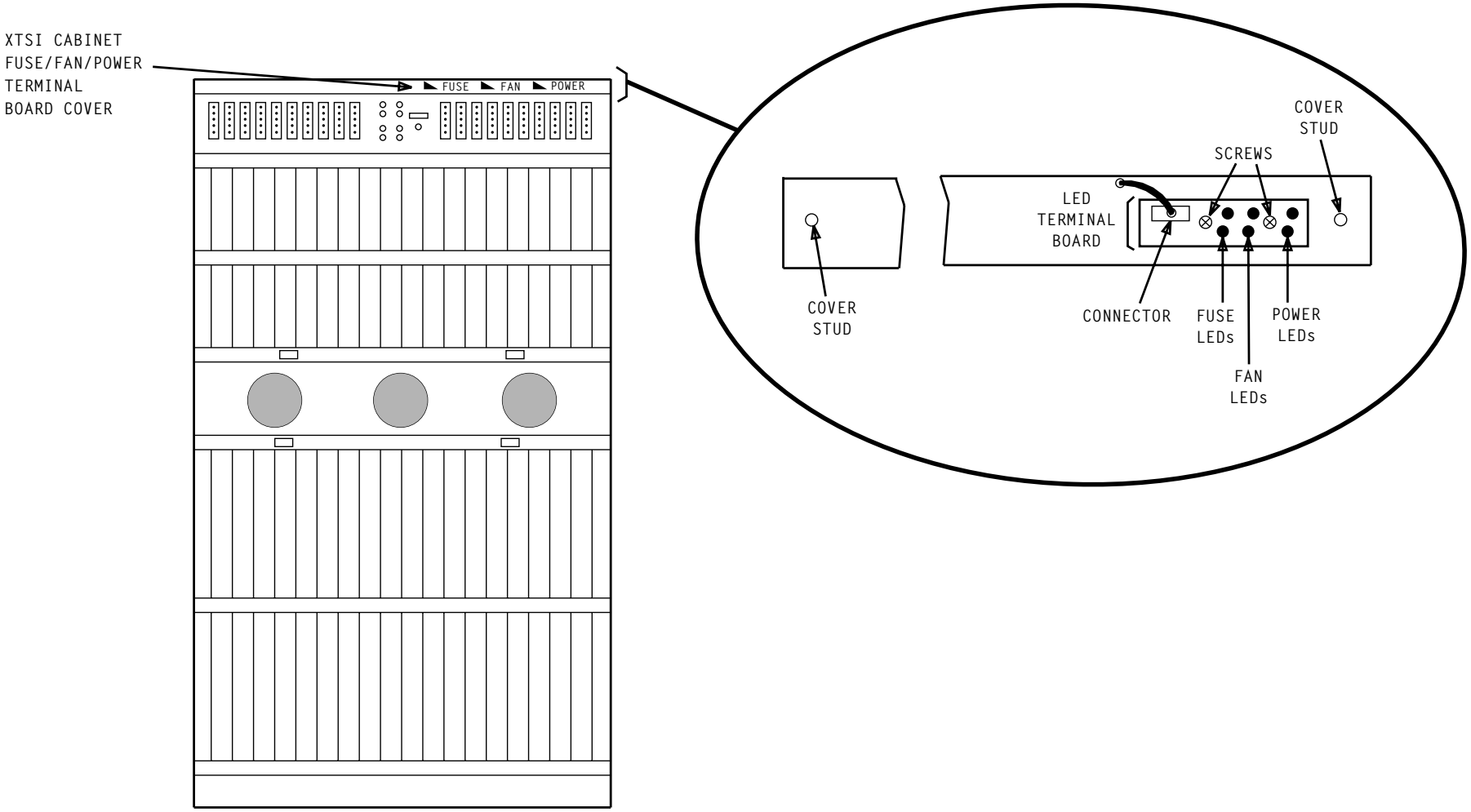
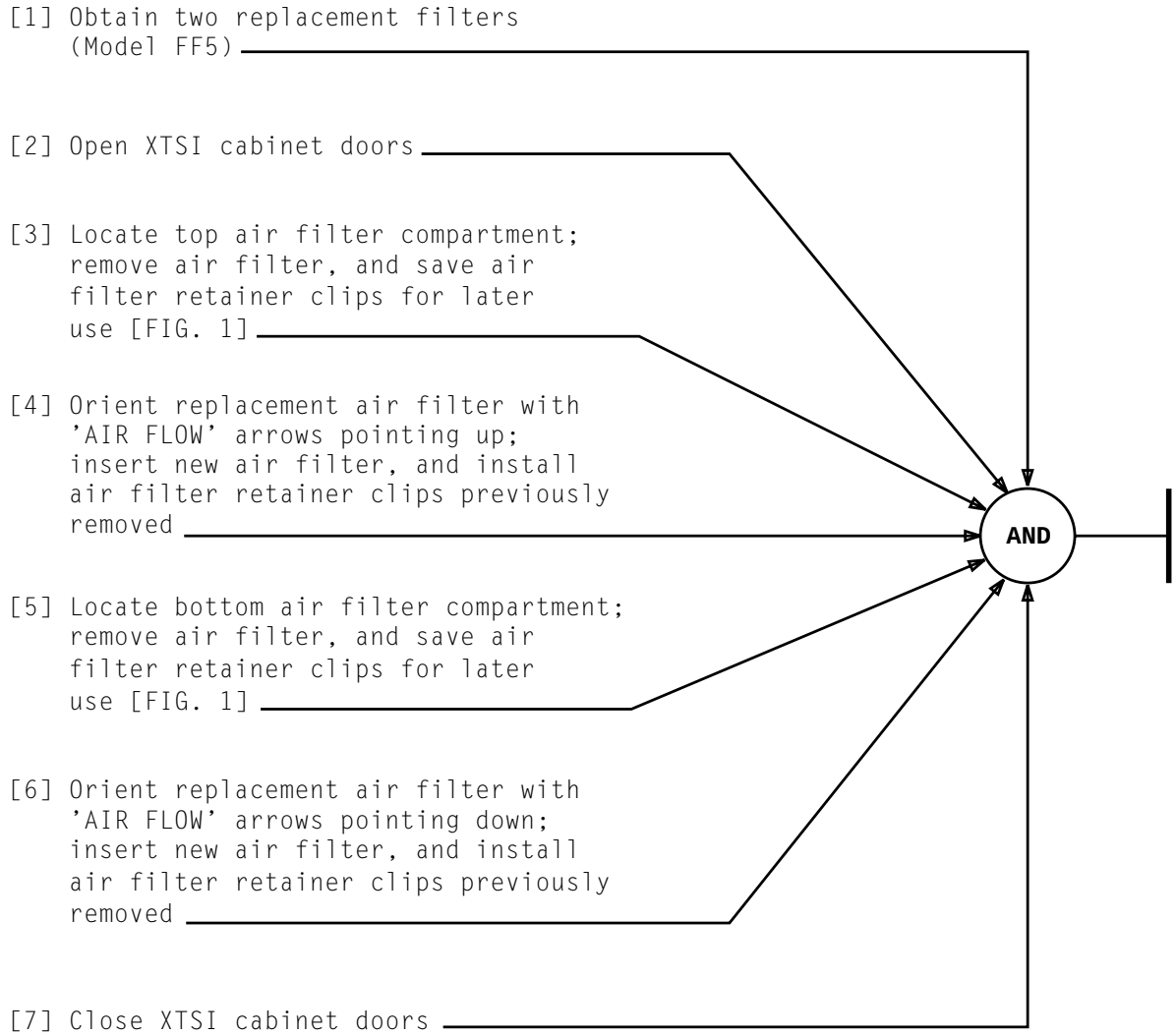


FIG. 1 - XTSI Cabinet FUSE/FAN/POWER Terminal Board Layout



REPLACE AIR FILTERS — XTSI CABINET

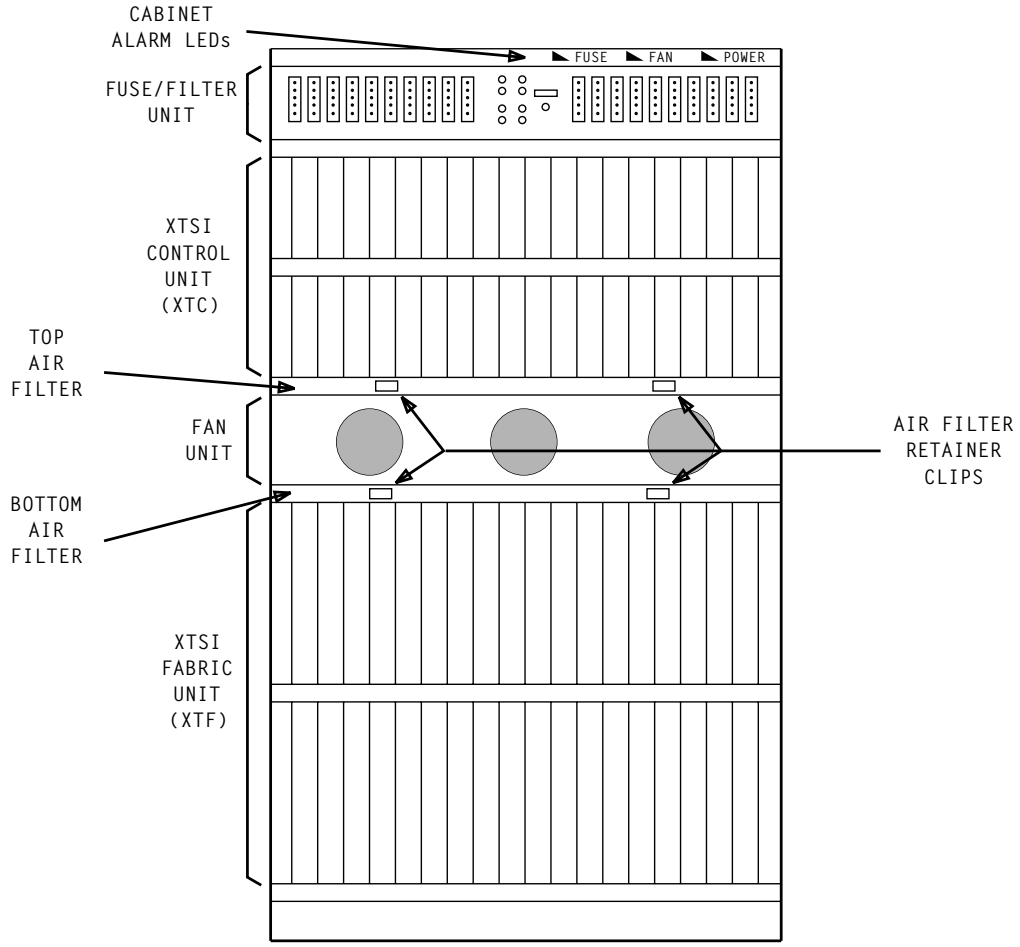
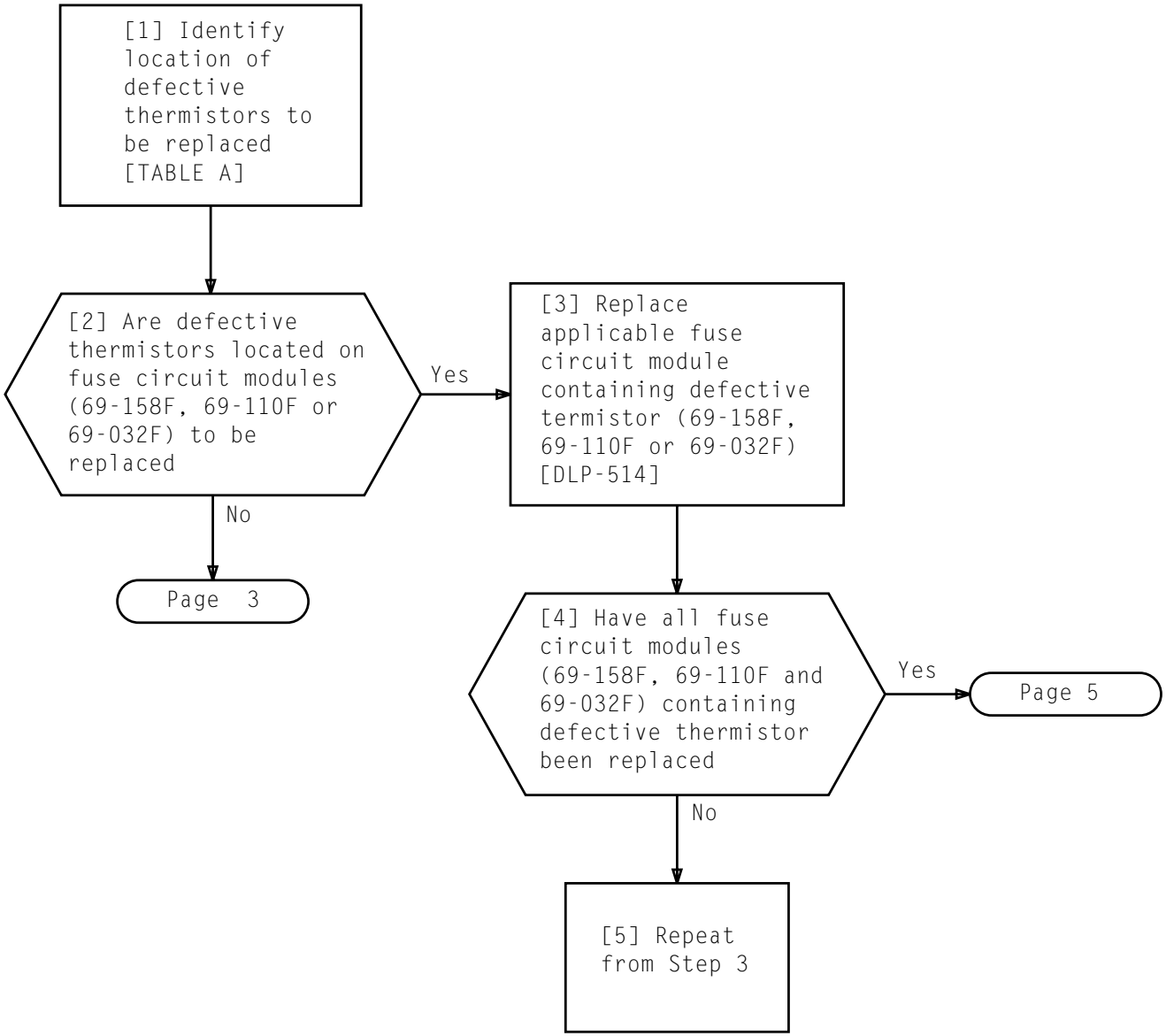


FIG. 1 — XTSI CABINET LAYOUT



REPLACE FAN SYSTEM THERMISTOR - XTSI CABINET

TABLE A

CONTROLLER BOARD CONNECTOR J6 PINS AND ASSOCIATED THERMISTORS/FANS

CONNECTOR J6 PIN IDENTIFICATION	THERMISTOR			ASSOCIATED FANS
	RESISTANCE RANGE	LOCATION	FUNCTION	
TH RTN	Greater than 10M ohms to Frame Ground (Infinite Resistance)	N/A	Common Return Pin	N/A
TH1	3K-10K ohms to TH RTN	46-064R (Fan Unit Rear)	Downward Air Inlet Temperature	Fans A, B, and C (Downward Air Movement)
TH2	1K-7K ohms to TH RTN	05-168 (Cabinet Base)	Bottom Right Air Exit Temperature	
TH3	1K-7K ohms to TH RTN	05-112 (Cabinet Base)	Bottom Center Air Exit Temperature	
TH4	1K-7K ohms to TH RTN	05-056 (Cabinet Base)	Bottom Left Air Exit Temperature	
TH5	3K-10K ohms to TH RTN	42-132F (Fan Unit Front)	Upward Air Inlet Temperature	Fans E, F, and G (Upward Air Movement)
TH6	1K-7K ohms to TH RTN	69-158F (Fuse Ckt Card)	Top Right Air Exit Temperature	
TH7	1K-7K ohms to TH RTN	69-110F (Fuse Ckt Card)	Top Center Air Exit Temperature	
TH8	1K-7K ohms to TH RTN	69-032F (Fuse Ckt Card)	Top Left Air Exit Temperature	
NC	N/A	N/A	No Connection	N/A

[6] Are thermistors located on front (42-132F) or rear (46-064R) of fan unit to be replaced

Yes

No

Page 4

[7] Obtain replacement thermistor

[8] Grasp defective thermistor; depress thermistor connector tab and pull outward to remove thermistor assembly from thermistor cabinet connector [FIG. 1]

AND

[9] Orient replacement thermistor assembly with thermistor cabinet connector and gently push thermistor into connector until properly seated [FIG. 1]

[10] Have all defective thermistors in front (42-132F) and rear (46-064R) of fan unit been replaced

Yes

Page 5

No

[11] Repeat from Step 7

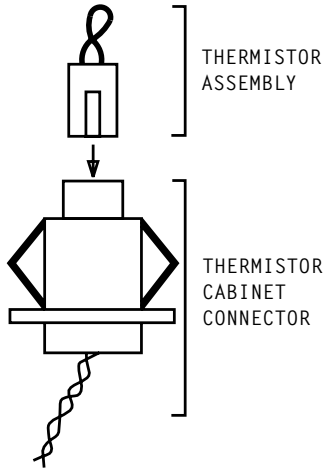


FIG. 1 - Example of Thermistor Assembly And Thermistor Cabinet Connector

At front of XTSI cabinet:

[12] Release door hinges; remove cabinet doors and store in area away from equipment work area

[13] Remove screws securing cabinet door bottom hinge/ baseplate cover to frame

[14] Obtain replacement thermistor

[15] Grasp defective thermistor; depress thermistor connector tab and pull outward to remove thermistor assembly from thermistor cabinet connector [FIG. 1]

[16] Orient replacement thermistor assembly with thermistor cabinet connector and gently push thermistor into connector until properly seated [FIG. 1]

AND

[17] Have all defective thermistors in base of cabinet been replaced

Yes

No

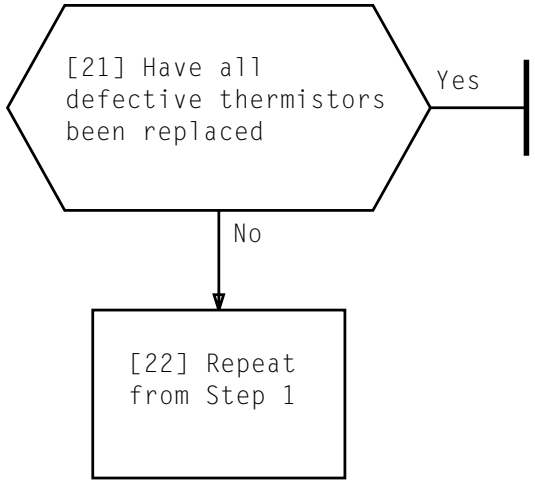
[18] Repeat from Step 14

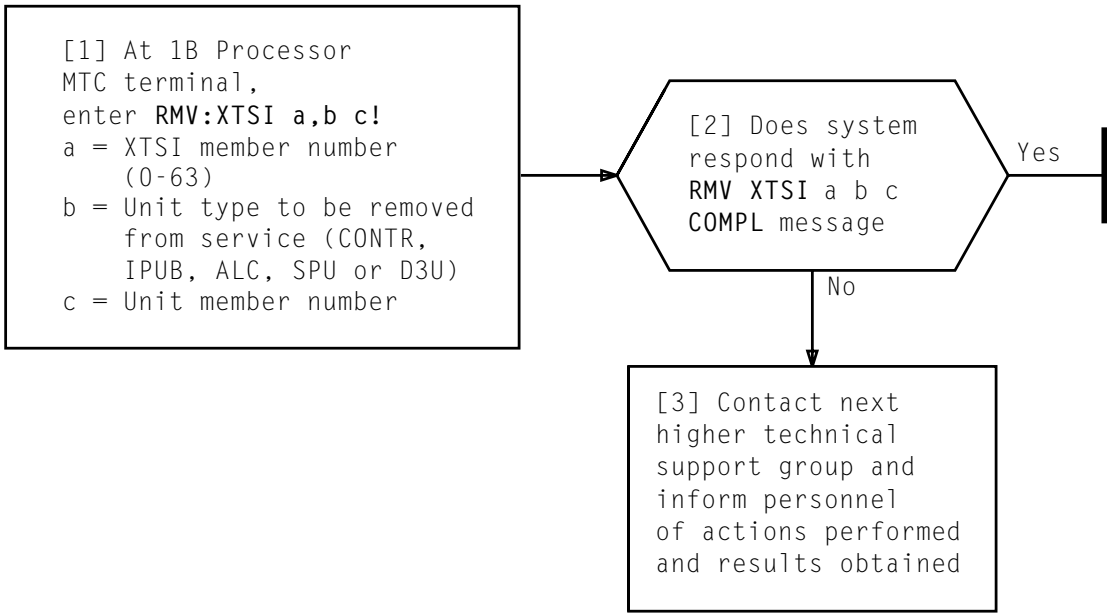
[19] Using screws previously removed, secure cabinet door bottom hinge/ baseplate cover to frame

[20] Obtain and install cabinet doors previously removed

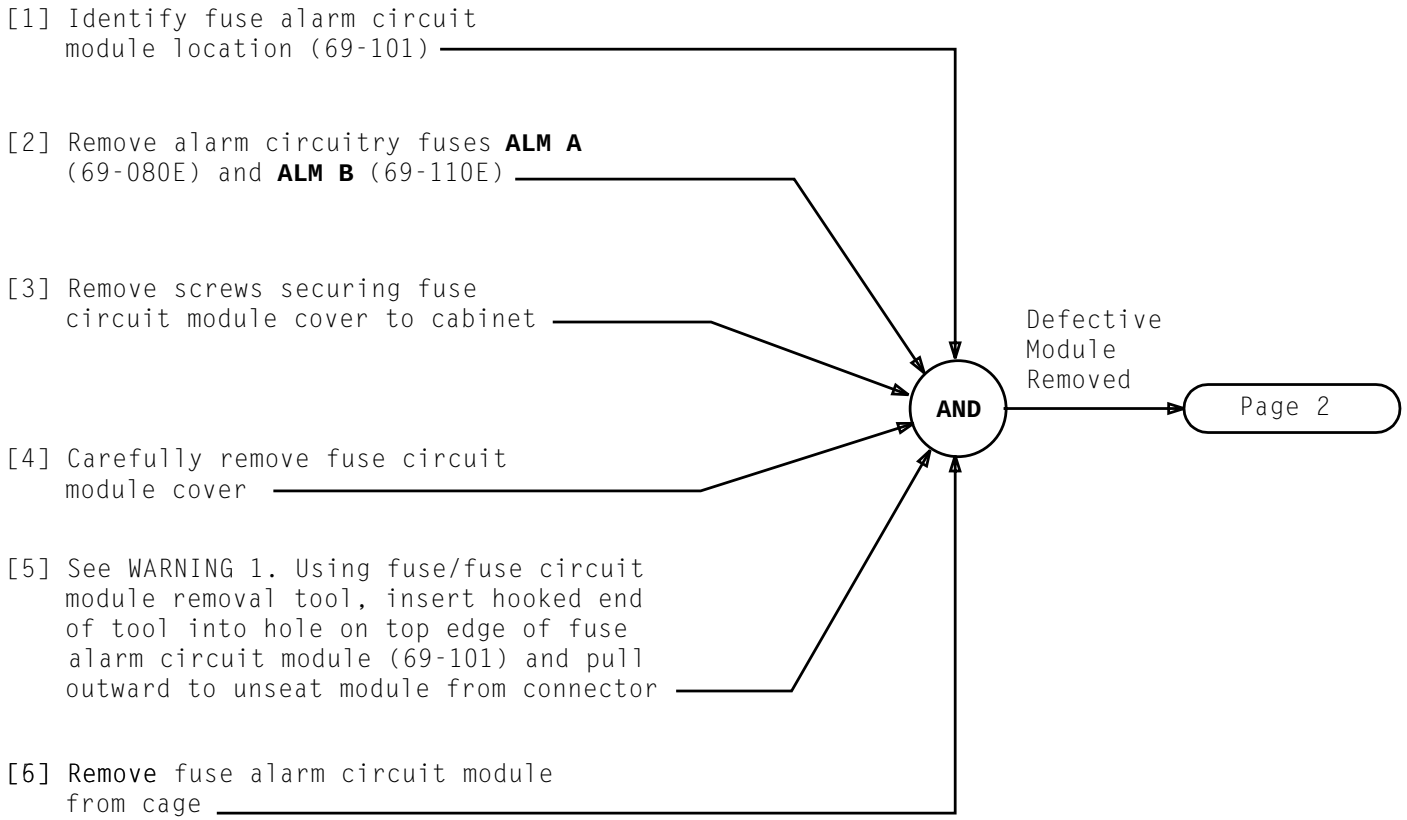
Page 5

REPLACE FAN SYSTEM THERMISTOR - XTSI CABINET


[21] Have all defective thermistors been replaced
Yes
No
[22] Repeat from Step 1



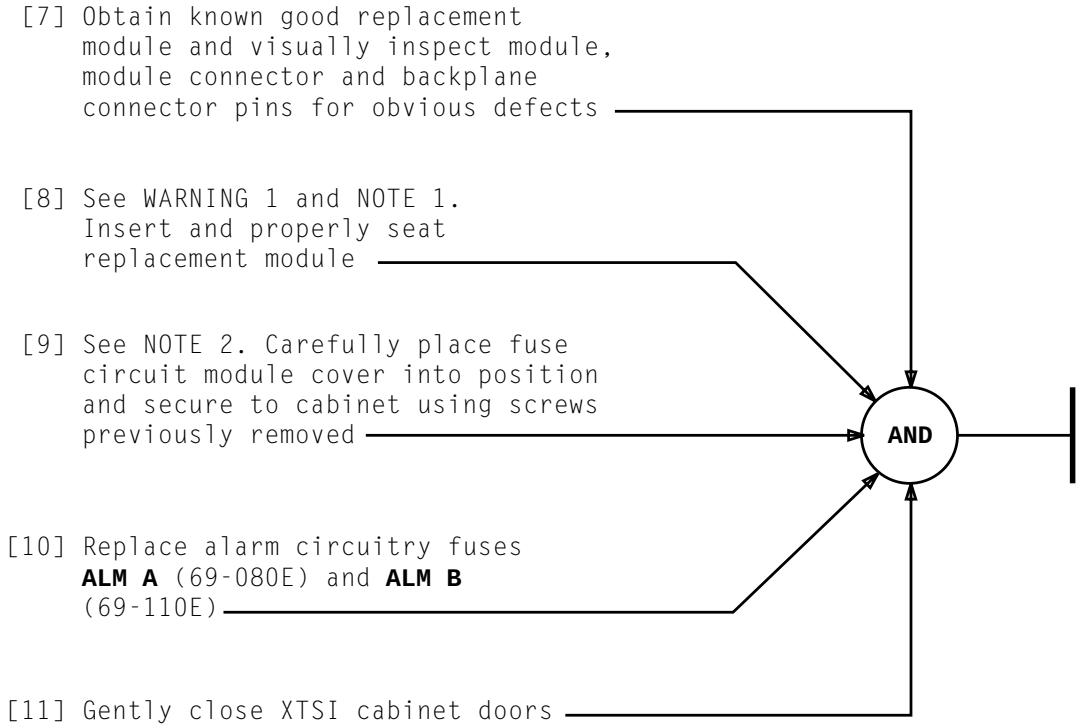
REMOVE XTSI CABINET UNIT FROM SERVICE



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

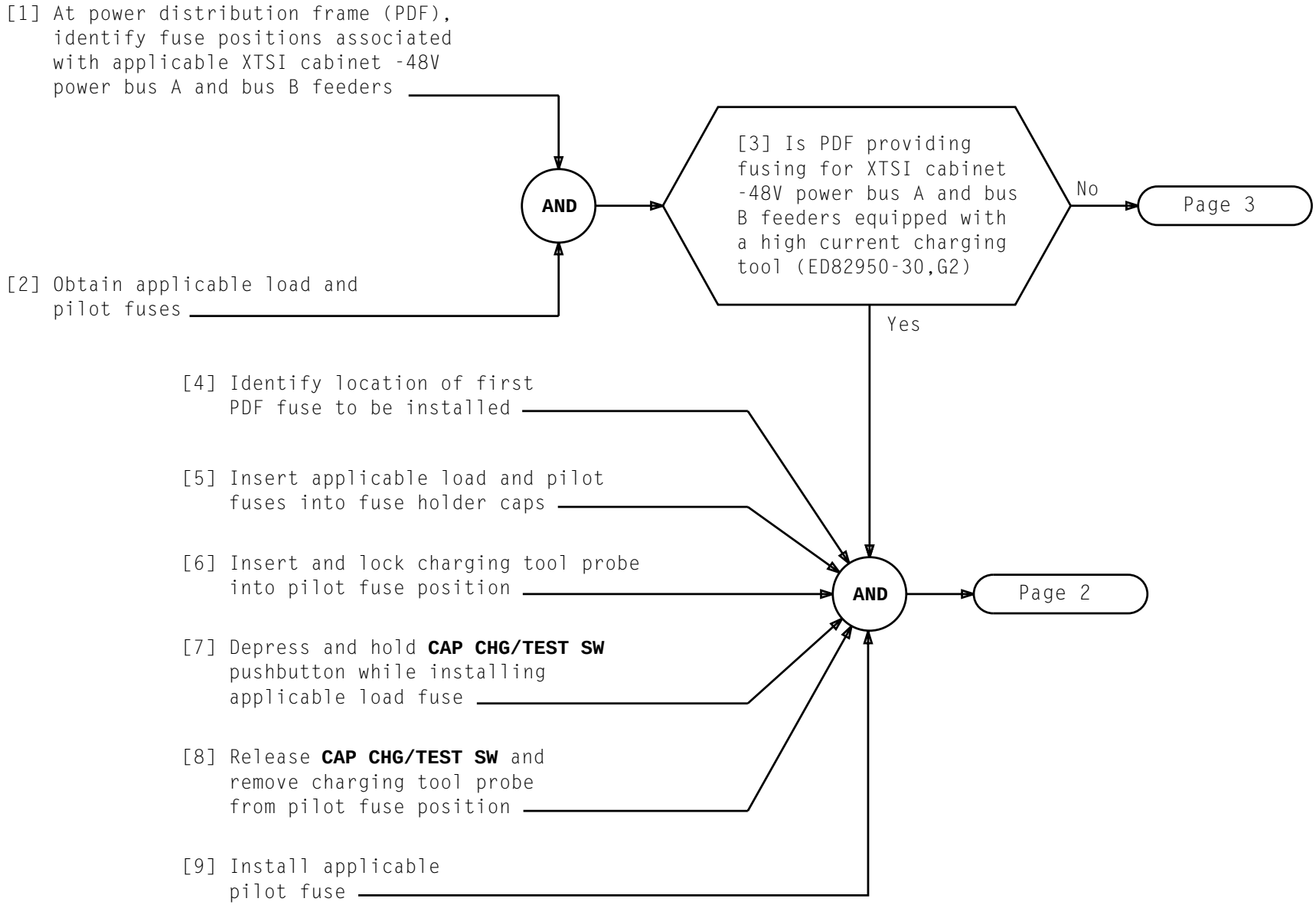
WARNING 1
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack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

REPLACE FUSE ALARM CIRCUIT MODULE — XTSI CABINET



NOTE 2

If fuse alarm circuit module is being replaced in an attempt to clear a NO INPUT POWER (NIP) alarm, the fuse circuit module cover should be left off fuse unit until all possible faulty fuse circuit modules have been replaced



CHARGE POWER DISTRIBUTION FRAME (PDF) CAPACITORS AND REPLACE -48V POWER BUS A AND BUS B FUSES — XTSI CABINET

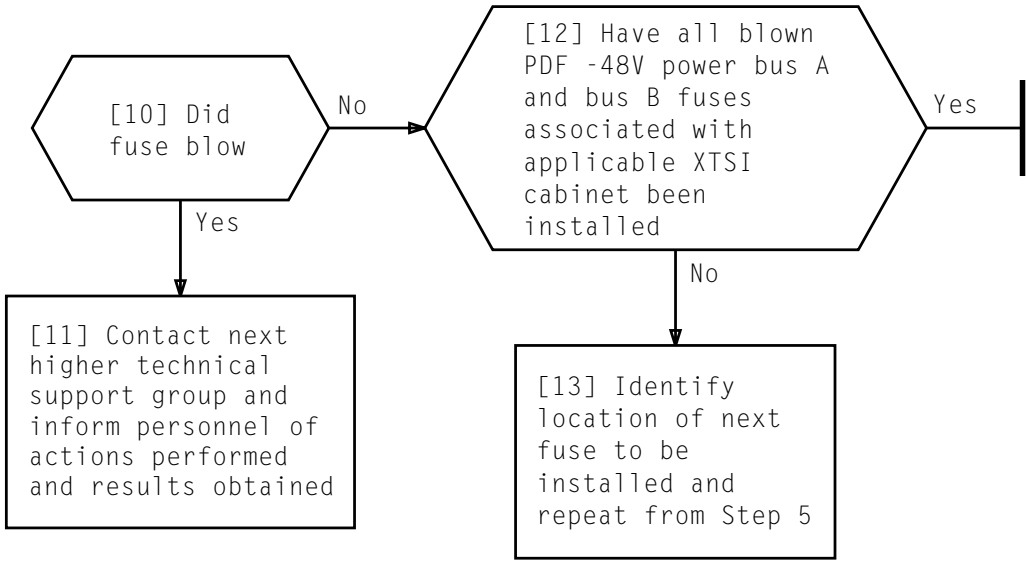
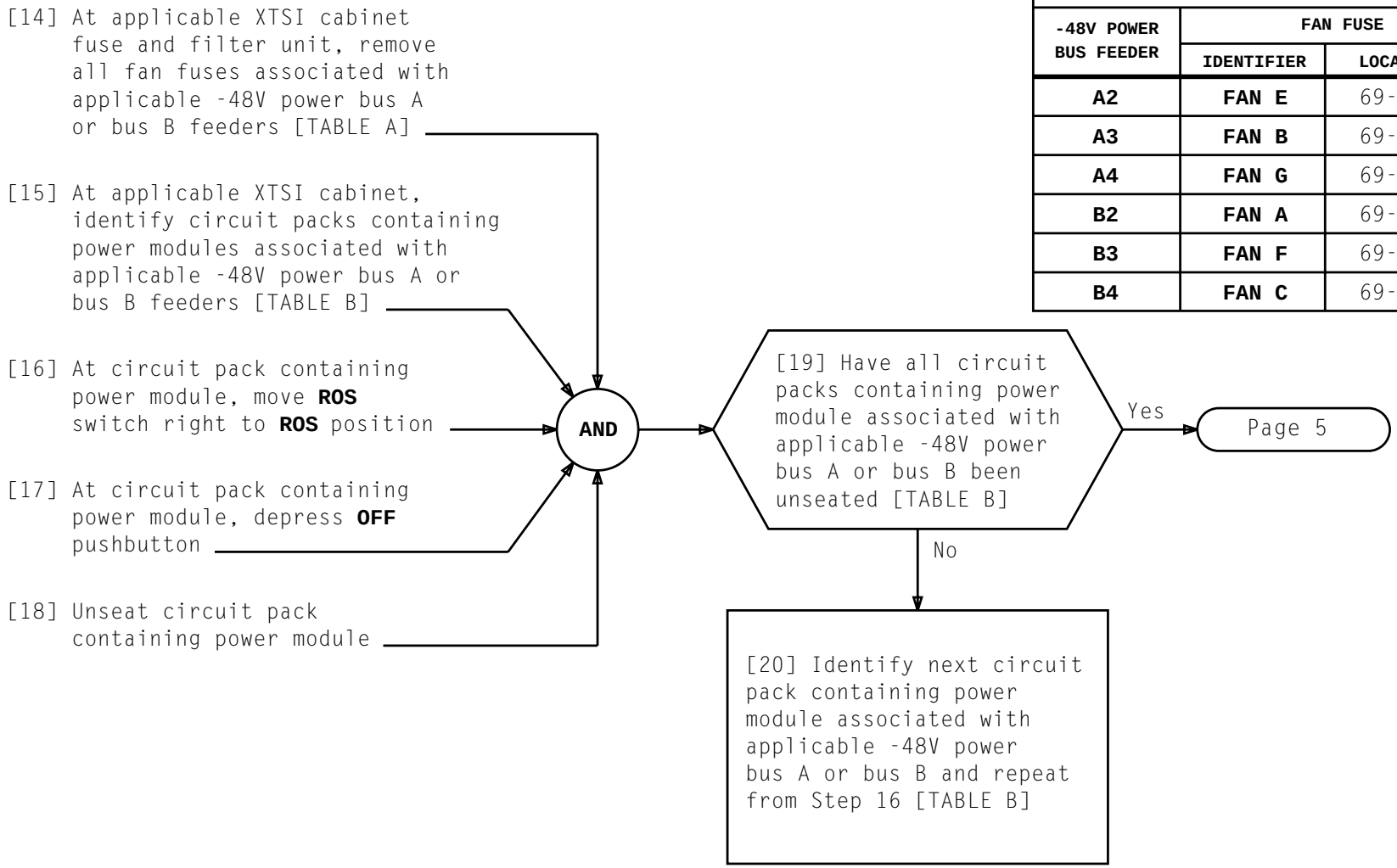


TABLE A
XTSI CABINET FAN FUSES AND ASSOCAITED -48V POWER BUS FEEDERS

-48V POWER BUS FEEDER	FAN FUSE		ASSOCIATED FAN
	IDENTIFIER	LOCATION	
A2	**FAN E**	69-048A	FAN E
A3	**FAN B**	69-064A	FAN B
A4	**FAN G**	69-072B	FAN G
B2	**FAN A**	69-150B	FAN A
B3	**FAN F**	69-166A	FAN F
B4	**FAN C**	69-174B	FAN C



CHARGE POWER DISTRIBUTION FRAME (PDF) CAPACITORS AND REPLACE -48V POWER BUS A AND BUS B FUSES — XTSI CABINET

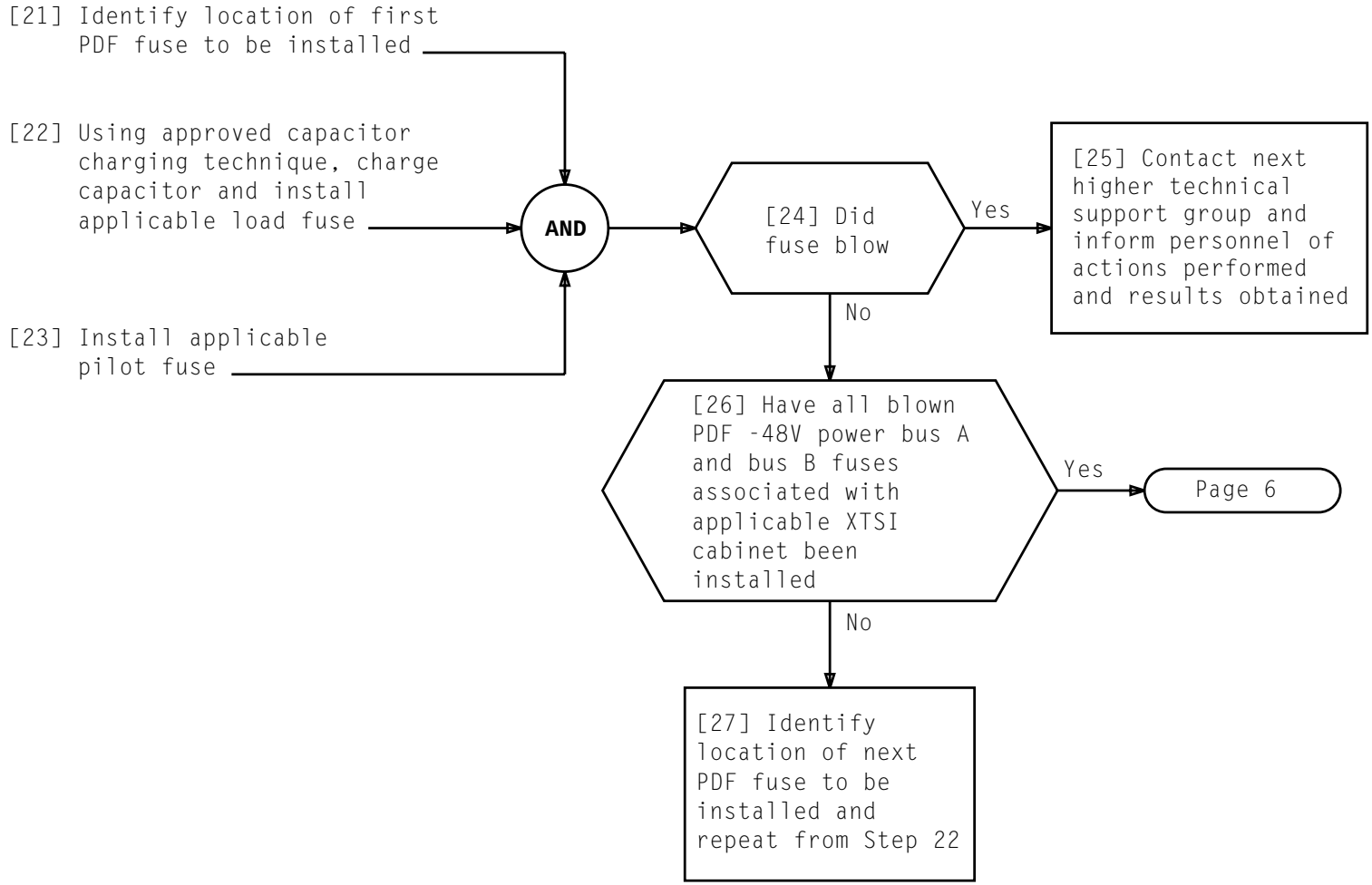
TABLE B
CIRCUIT PACKS CONTAINING POWER MODULES AND ASSOCIATED -48V POWER BUS FEEDERS

-48V POWER BUS FEEDER	CIRCUIT PACK CONTAINING POWER MODULES		ASSOCIATED POWER GROUP	-48V POWER BUS FEEDER	CIRCUIT PACK CONTAINING POWER MODULES		ASSOCIATED POWER GROUP
	IDENTIFIER	LOCATION			IDENTIFIER	LOCATION	
A0	**UN558**	52-066	CONTR0	B0	**UN558**	61-066	CONTR1
	4WB3	14-016	D3U6		**4WB3**	14-016	D3U6
	4WB3	14-156	D3U7		**4WB3**	14-156	D3U7
	4WB5	31-024	SPU0		**4WB5**	31-024	SPU0
	4WB3	31-172	SPU8		**4WB3**	31-172	SPU8
A1	**UN545**	14-130	CONTR0	B1	**UN545**	31-130	CONTR1
	4WB3	14-164	D3U3		**4WB3**	14-164	D3U3
A2	**TN1994**	52-014	ALC0	B2	**TN1994**	61-014	ALC1
	4WB3	14-024	D3U0		**4WB3**	14-024	D3U0
	4WB3	31-032	SPU1		**4WB3**	31-032	SPU1
	4WB3	31-140	SPU11		**4WB3**	31-140	SPU11
	4WB3	31-180	SPU9		**4WB3**	31-180	SPU9
A3	**4WB8**	52-188	IPUB0	B3	**4WB8**	61-188	IPUB1
	4WB8	14-040	D3U2		**4WB8**	14-040	D3U2
	4WB8	14-172	D3U4		**4WB8**	14-172	D3U4
	4WB8	31-040	SPU2		**4WB8**	31-040	SPU2
	4WB8	31-048	SPU3		**4WB8**	31-048	SPU3
	4WB8	31-148	SPU5		**4WB8**	31-148	SPU5
	4WB8	31-156	SPU6		**4WB8**	31-156	SPU6

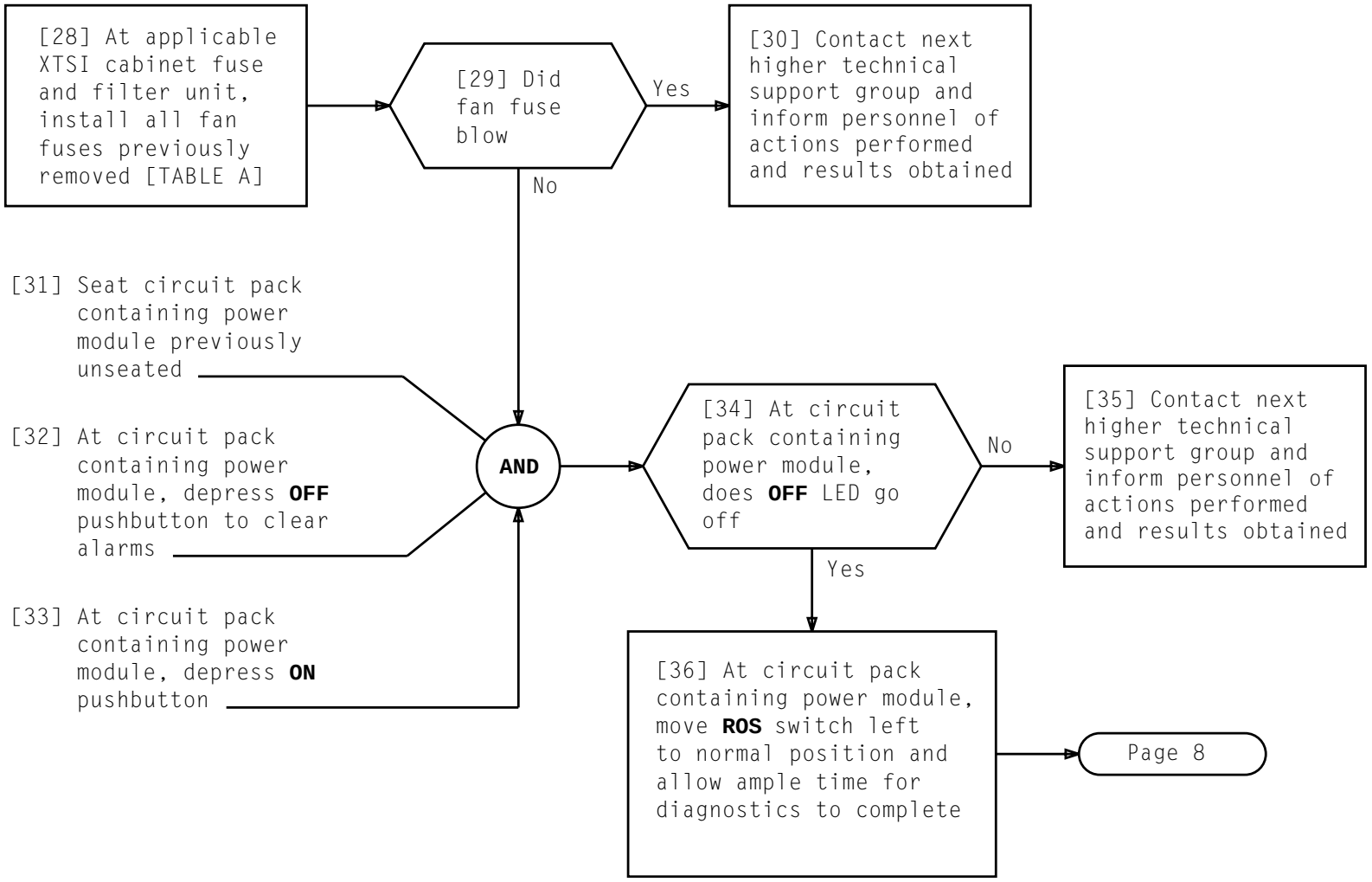
(Continued on Next Page)

TABLE B (Continued)
CIRCUIT PACKS CONTAINING POWER MODULES AND ASSOCIATED -48V POWER BUS FEEDERS

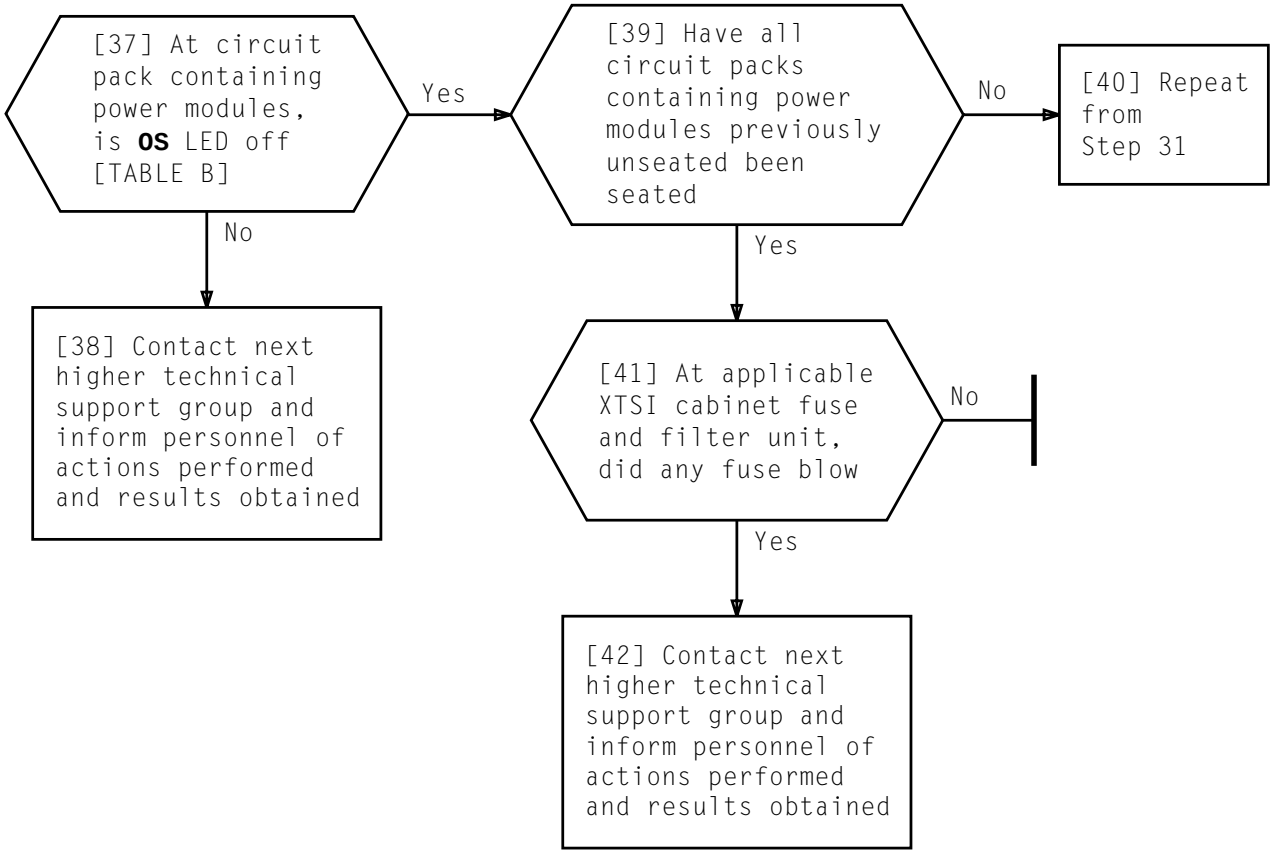
-48V POWER BUS FEEDER	CIRCUIT PACK CONTAINING POWER MODULES		ASSOCIATED POWER GROUP	-48V POWER BUS FEEDER	CIRCUIT PACK CONTAINING POWER MODULES		ASSOCIATED POWER GROUP
	IDENTIFIER	LOCATION			IDENTIFIER	LOCATION	
A4	**4WB3**	14-180	D3U5	B4	**4WB3**	14-180	D3U5
	4WB3	14-032	D3U1		**4WB3**	14-032	D3U1
	4WB8	31-016	SPU10		**4WB8**	31-016	SPU10
	4WB8	31-056	SPU4		**4WB8**	31-056	SPU4
	4WB8	31-164	SPU7		**4WB8**	31-164	SPU7



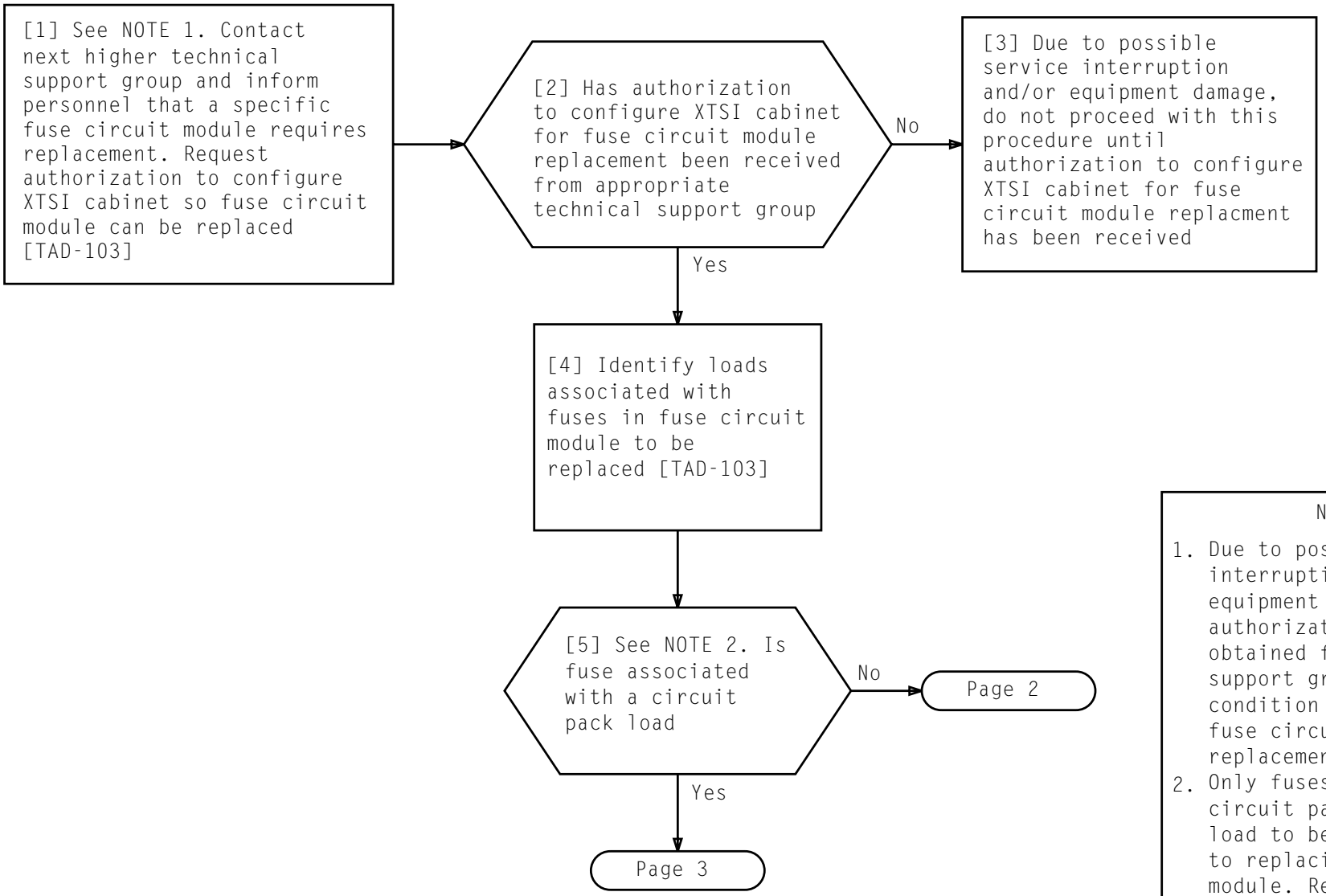
CHARGE POWER DISTRIBUTION FRAME (PDF) CAPACITORS AND REPLACE -48V POWER BUS A AND BUS B FUSES — XTSI CABINET



CHARGE POWER DISTRIBUTION FRAME (PDF) CAPACITORS AND REPLACE -48V POWER BUS A AND BUS B FUSES — XTSI CABINET



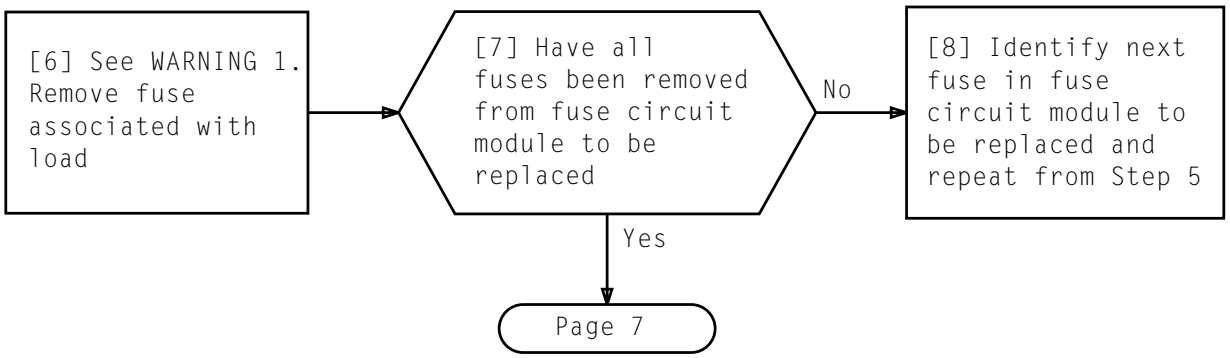
CHARGE POWER DISTRIBUTION FRAME (PDF) CAPACITORS AND REPLACE -48V POWER BUS A AND BUS B FUSES — XTSI CABINET



NOTES

1. Due to possible service interruption and/or equipment damage, authorization must be obtained from technical support group to properly condition XTSI cabinet for fuse circuit module replacement.
2. Only fuses associated with circuit pack loads require load to be removed prior to replacing fuse circuit module. Removing fuse associated with load is sufficient for all loads other than circuit packs

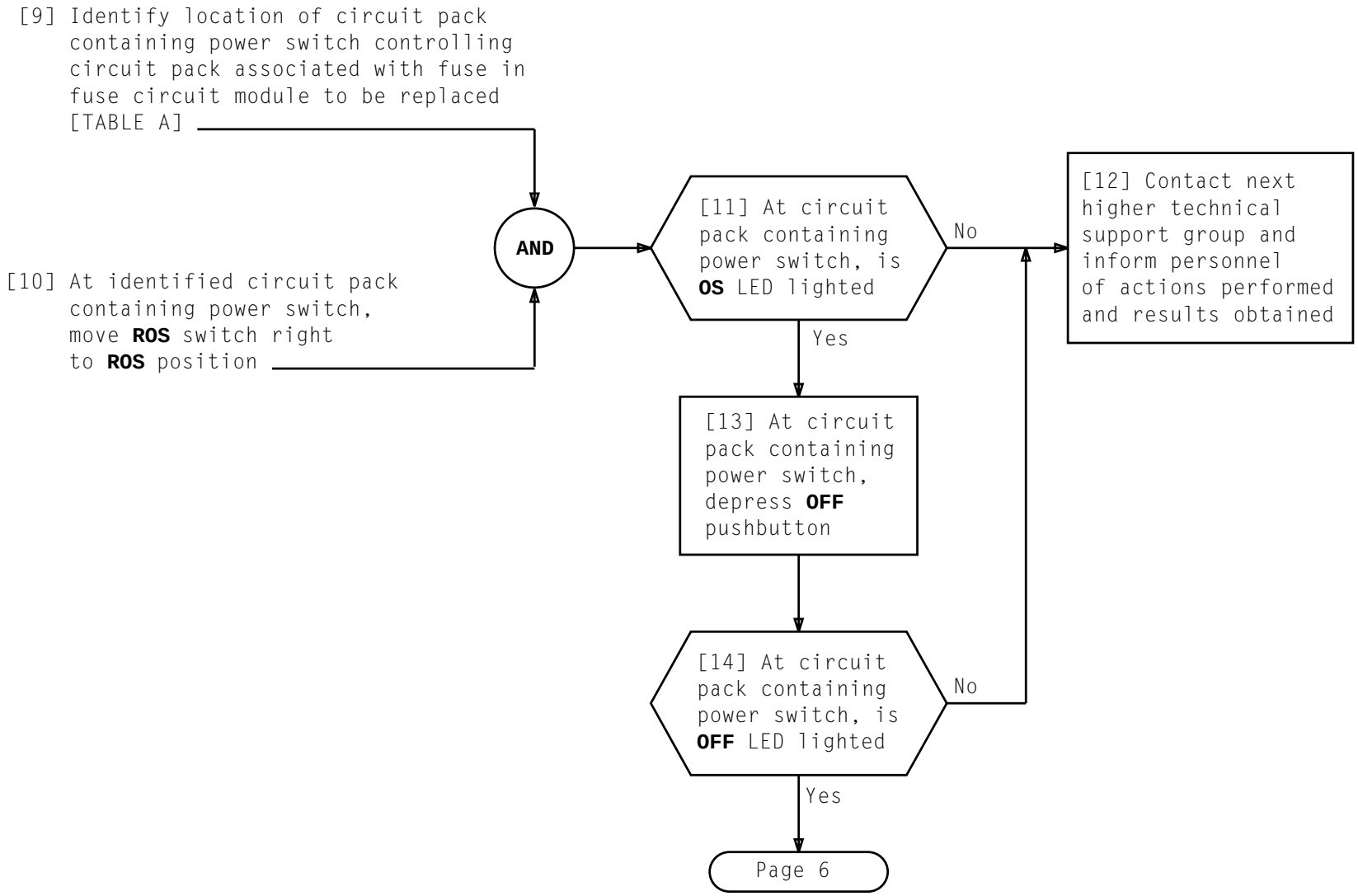
REPLACE FUSE CIRCUIT MODULE — XTSI CABINET



WARNING 1

When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

REPLACE FUSE CIRCUIT MODULE — XTSI CABINET



REPLACE FUSE CIRCUIT MODULE — XTSI CABINET

TABLE A
XTSI CABINET UNIT POWER SWITCH IDENTIFIERS AND LOCATIONS

UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH		UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
Controller 0	**UN558**	52-066	**UN558**	52-066	ALC0	**UN545**	52-014	**UN545**	52-014
	UN556	52-074				**UN546**	52-026		
	UN556	52-148			ALC1	**UN545**	61-014	**UN545**	61-014
	UN547	52-082				**UN546**	61-026		
	UN557	52-106			IPUB0	**UN559**	52-156	**TN1994**	52-188
	UN548	52-114				**UN559**	52-164		
	KBN16	52-137				**UN559**	52-172		
	4WB6	14-082				**UN559**	52-180		
	4WB2	14-090				**TN1994**	52-188		
	4WB4	14-098			IPUB1	**UN559**	61-156	**TN1994**	61-188
	4WB6	14-106				**UN559**	61-164		
	4WB5	14-130				**UN559**	61-172		
	4WB7	14-008				**UN559**	61-180		
	4WB7	14-188				**TN1994**	61-188		
Controller 1	**UN558**	61-066	**UN558**	61-066	D3U0	**4WB3**	14-024	Self-Powered	Same Location
	UN556	61-074			D3U1	**4WB3**	14-032		
	UN556	61-148			D3U2	**4WB3**	14-040		
	UN547	61-082			D3U3	**4WB3**	14-164		
	UN557	61-106			D3U4	**4WB3**	14-172		
	UN548	61-114			D3U5	**4WB3**	14-180		
	KBN16	61-137			D3U6	**4WB3**	14-016		
	4WB6	31-082			D3U7	**4WB3**	14-156		
	4WB2	31-090			SPU0	**4WB8**	31-024		
	4WB4	31-098			SPU1	**4WB8**	31-032		
	4WB6	31-106			SPU2	**4WB8**	31-040		
	4WB5	31-130			SPU3	**4WB8**	31-048		
	4WB7	31-008			SPU4	**4WB8**	31-056		
	4WB7	31-188			SPU5	**4WB8**	31-148		

(Continued on Next Page)

TABLE A (Continued)
XTSI CABINET UNIT POWER SWITCH IDENTIFIERS AND LOCATIONS

UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH		UNIT	CIRCUIT PACK TO BE REPLACED		CIRCUIT PACK CONTAINING POWER SWITCH	
	IDENTIFIER	LOCATION	IDENTIFIER	LOCATION		IDENTIFIER	LOCATION	IDENTIFIER	LOCATION
SPU6	**4WB8**	31-156	SELF POWERED	SAME LOCATION					
SPU7	**4WB8**	31-164							
SPU8	**4WB8**	31-172							
SPU9	**4WB8**	31-180							
SPU10	**4WB8**	31-016							
SPU11	**4WB8**	31-140							

[15] See WARNING 2. Unseat circuit pack associated with fuse in fuse circuit module to be replaced

[16] See WARNING 3. Remove fuses in fuse circuit module associated with circuit pack previously unseated

AND

[17] Have all fuses been removed from fuse circuit module to be replaced

Yes → Page 7

No

[18] Identify next fuse in fuse circuit module to be replaced and repeat from Step 5

WARNINGS

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

3. When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

[19] Remove screws securing fuse circuit module cover to cabinet

[20] Carefully remove fuse circuit module cover

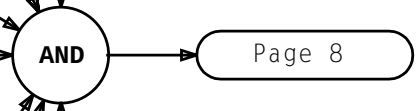
[21] See WARNING 4. Using fuse/fuse circuit module removal tool, insert hooked end of tool into hole at top edge of fuse circuit module and pull outward to unseat module from connector

[22] Remove fuse circuit module from cage

[23] Obtain known good replacement fuse circuit module, ensure module type is same as type removed, visually inspect module, module connector and fuse unit connector for obvious defects

[24] Remove colored fuse designator plugs and any dummy fuse plugs from fuse circuit module just removed and install plugs in same locations on replacement fuse circuit module

[25] See WARNING 4 and NOTE 3. Insert and properly seat replacement fuse circuit module



NOTE 3
Excessive force is not required to properly seat fuse circuit module. If equal pressure applied at top and bottom of module does not smoothly seat module, identify reason that module cannot be properly seated before proceeding

WARNING 4
A grounded antistatic wrist strap (R-4987 or equivalent) must be worn when handling circuit packs. The wrist strap must be connected to a ground common to the circuit pack ground. When appropriate wrist strap is not available, always touch grounded (exposed) metal before handling circuit pack in any manner. Never pass an unprotected circuit pack to an ungrounded person or touch components, leads or connector pins

[26] See NOTE 4. Carefully place fuse circuit module cover into position and secure to cabinet using screws previously removed

[27] See WARNING 5. Install fuses previously removed

[28] Seat all circuit packs previously unseated

[29] Identify location of circuit pack containing power switch controlling circuit pack previously seated [TABLE A]

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

[31] At identified circuit pack containing power switch, depress **ON** pushbutton

AND

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

Yes

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No

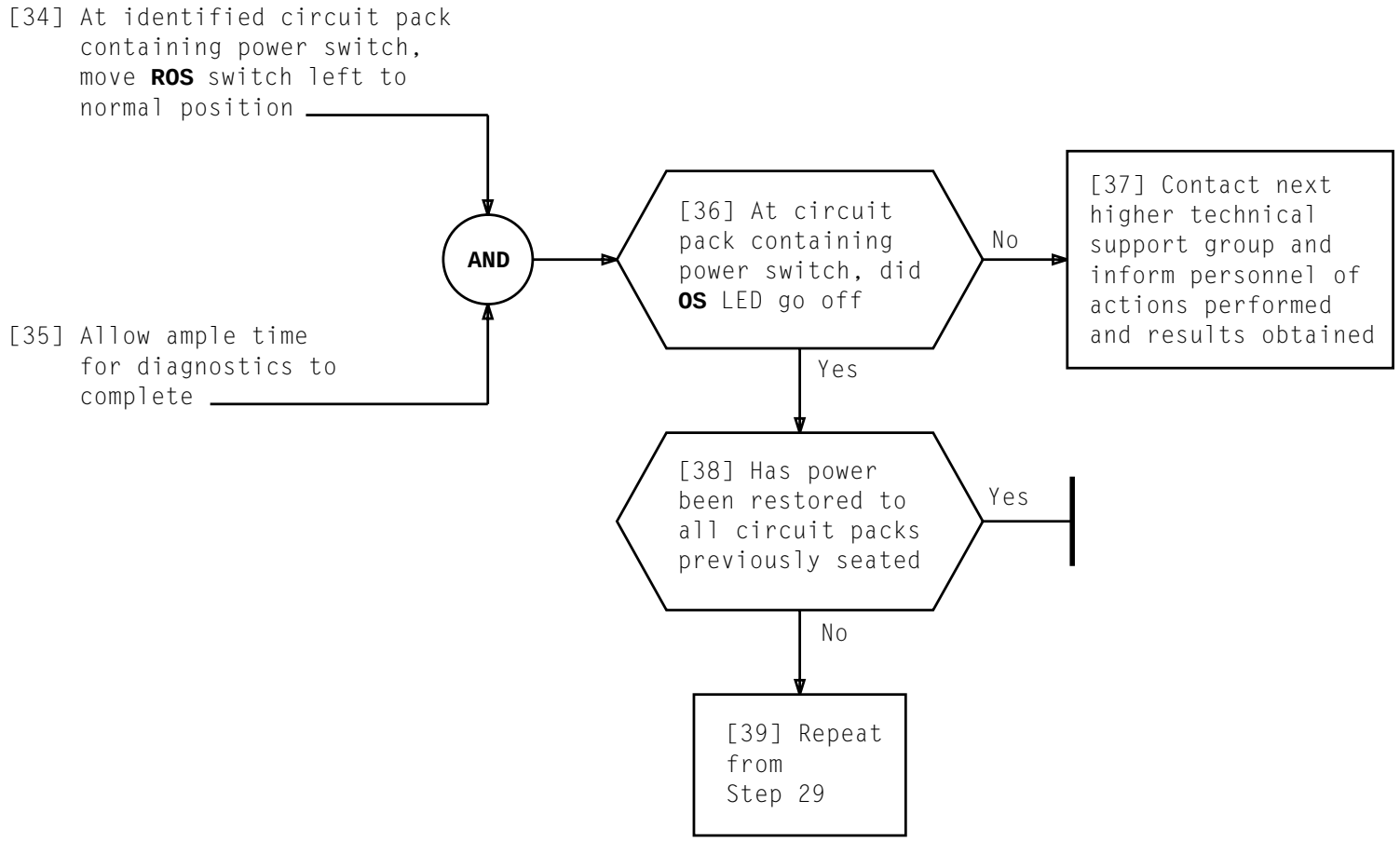
[33] Contact next higher technical support group and inform personnel of actions performed and results obtained

NOTE 4

If fuse circuit modules are being replaced in an attempt to clear a No Input Power (NIP) alarm, the fuse circuit module cover should be left off fuse unit until all possible faulty fuse circuit modules have been replaced

WARNING 5

When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module


[34] At identified circuit pack containing power switch, move **ROS** switch left to normal position
AND
[35] Allow ample time for diagnostics to complete
[36] At circuit pack containing power switch, did **OS** LED go off
No
[37] Contact next higher technical support group and inform personnel of actions performed and results obtained
Yes
[38] Has power been restored to all circuit packs previously seated
Yes
No
[39] Repeat from Step 29

[1] Identify location of D3U circuit pack containing suspected faulty paddleboard [TABLE A]

[2] See CAUTION 1. Contact next higher technical support group or facilities engineering group and request identification of trunks assigned to D3U circuit pack containing suspected faulty paddleboard. Obtain authorization to maintenance disable (MTC.DSA) identified trunks

AND

[3] Were trunks identified and authorization received to maintenance disable (MTC.DSA) identified trunks

No

[4] Do not proceed with this procedure until assigned trunks have been identified and authorization has been received to maintenance disabled (MTC.DSA) identified trunks

Yes

[5] Set trunk status to maintenance disabled (MTC.DSA) state for trunks assigned to identified D3U circuit pack [DLP-516]

Page 3

CAUTION 1

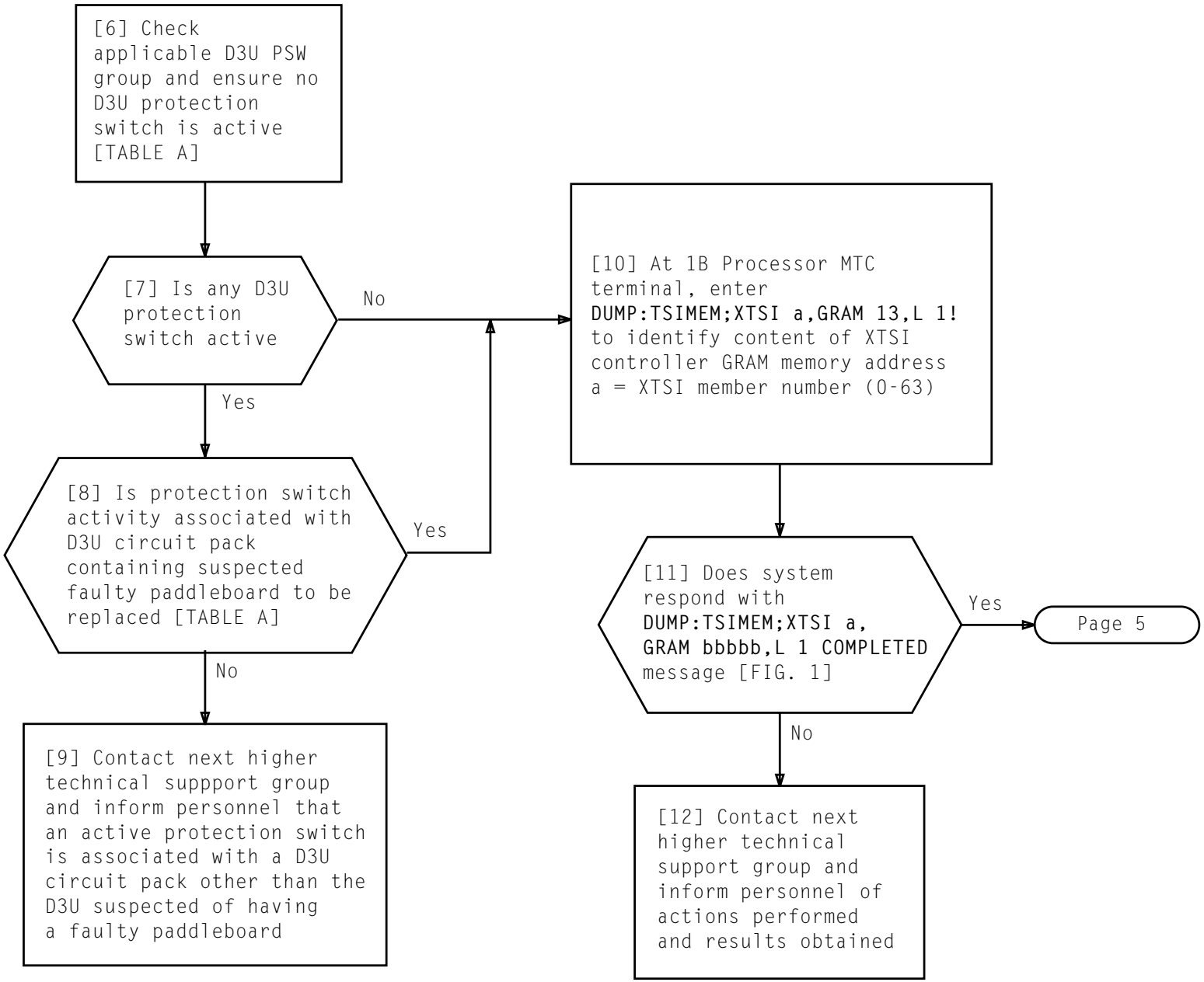
672 trunks are associated with each XTSI D3U circuit pack. Replacing a D3U paddleboard will degrade service and possibly interrupt established calls

REPLACE D3U PADDLEBOARD (470A CIRCUIT MODULE) — XTSI CABINET

TABLE A
XTSI D3U PADDLEBOARD (470A CIRCUIT MODULE) LOCATIONS

D3U PSW GROUP	D3U CLIENT IDENTIFIER	PROTECTION SWITCH CLIENT (PSC) IDENTIFICATION	D3U CIRCUIT PACK		D3U PADDLEBOARD (470A CIRCUIT MODULE) LOCATION
			TYPE	LOCATION	
0	6	0	**4WB3**	14-016	See NOTE
	0	1	**4WB3**	14-024	14-024-163A
	1	2	**4WB3**	14-032	14-032-163A
	2	3	**4WB3**	14-040	14-040-163A
1	7	8	**4WB3**	14-156	See NOTE
	3	9	**4WB3**	14-164	14-164-163A
	4	10	**4WB3**	14-172	14-172-163A
	5	11	**4WB3**	14-180	14-180-163A

NOTE: No D3U paddleboard is associated with D3U protection switch (PSW) circuit pack



REPLACE D3U PADDLEBOARD (470A CIRCUIT MODULE) — XTSI CABINET

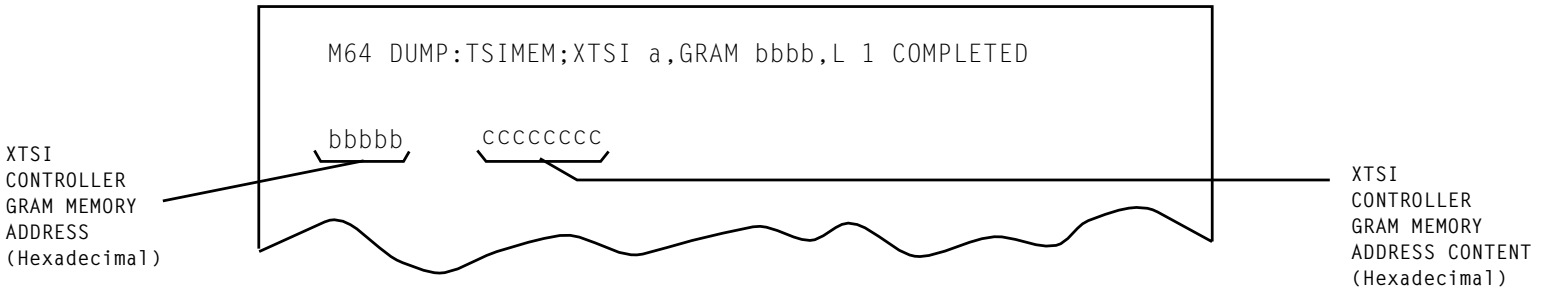


FIG. 1 - Sample layout of DUMP:TSIMEM output message

[13] Using **DUMP:TSIMEM** output response [FIG. 1], identify and record XTSI controller GRAM memory address content for later use

[14] See NOTE 1. At 1B Processor MTC terminal, enter **LOAD:TSIMEM;XTSI a,GRAM 13:HDATA 1!** to write content of XTSI controller GRAM memory address to one, inhibiting all XTSI controller audits
a = XTSI member number (0-63)

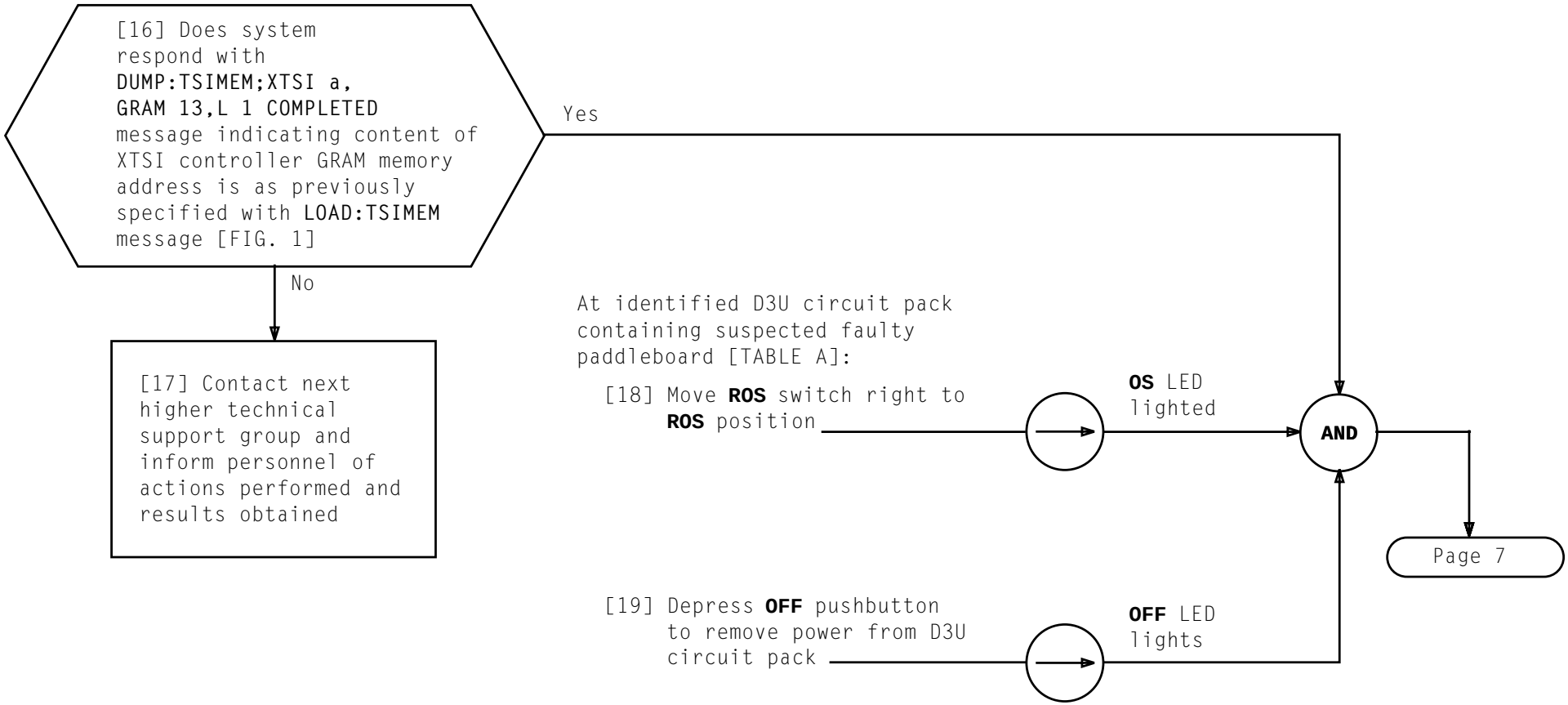
AND

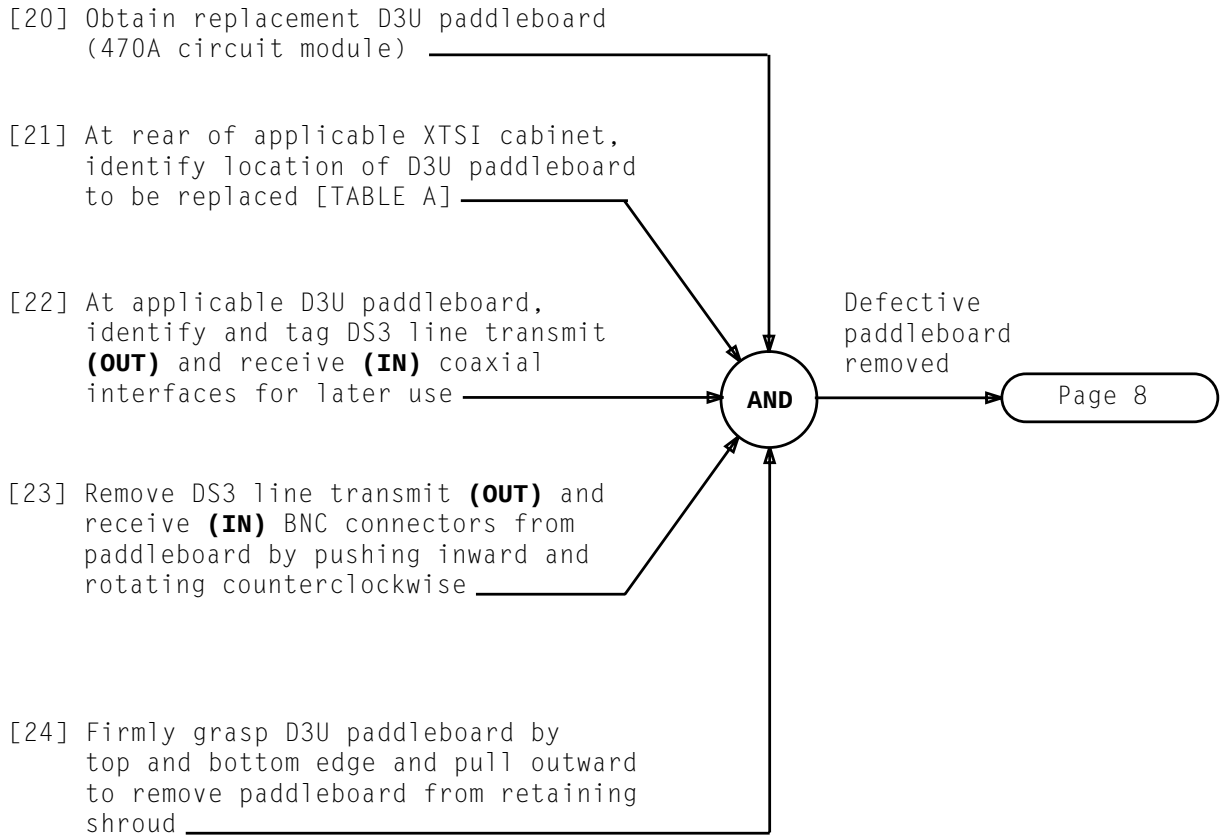
Page 6

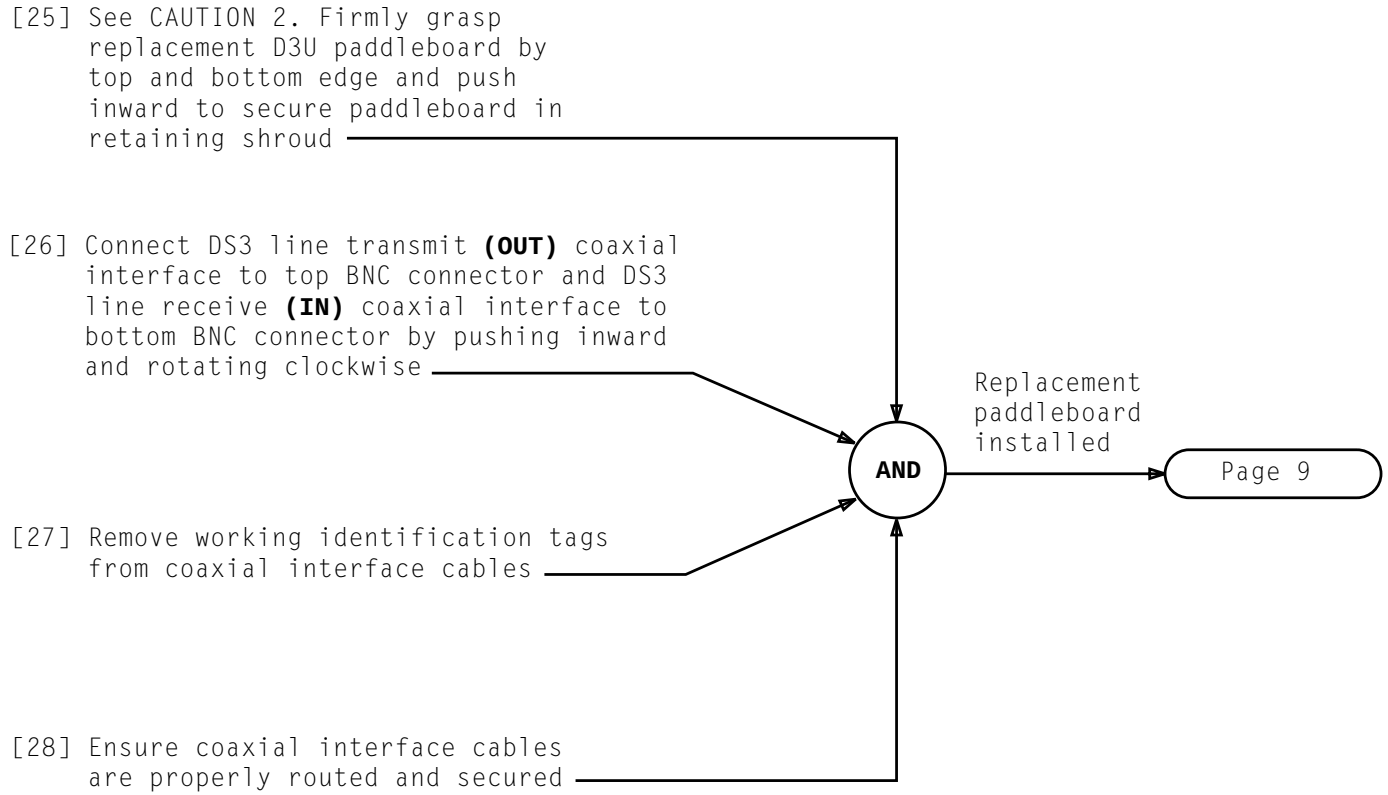
[15] At 1B Processor MTC terminal, enter **DUMP:TSIMEM;XTSI a,GRAM 13,L 1!** to verify content of XTSI controller GRAM memory address is set to one
a = XTSI member number (0-63)

NOTE 1

Normally, execution of **LOAD:TSIMEM** message occurs immediately. However, if diagnostic file copying or similar system activity is occurring, execution of **LOAD:TSIMEM** message may take from 1-15 minutes




[20] Obtain replacement D3U paddleboard (470A circuit module)
[21] At rear of applicable XTSI cabinet, identify location of D3U paddleboard to be replaced [TABLE A]
[22] At applicable D3U paddleboard, identify and tag DS3 line transmit (OUT) and receive (IN) coaxial interfaces for later use
[23] Remove DS3 line transmit (OUT) and receive (IN) BNC connectors from paddleboard by pushing inward and rotating counterclockwise
[24] Firmly grasp D3U paddleboard by top and bottom edge and pull outward to remove paddleboard from retaining shroud
AND
Defective paddleboard removed
Page 8

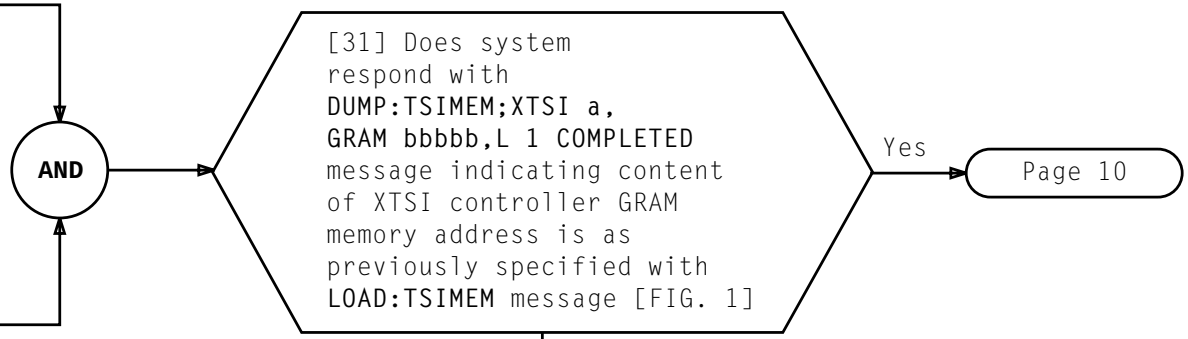


CAUTION 2

Extreme care must be taken when aligning paddleboard with retaining shroud to ensure paddleboard is not installed onto pins outside of retaining shroud area. Misalignment of paddleboard onto shrould could possibly cause power alarms in both controllers thus forcing an XTSI controller duplex failure

[29] See NOTE 2 and NOTE 3. At 1B Processor MTC terminal, enter
LOAD:TSIMEM;XTSI a,GRAM 13:HDATA bbbb,bbbb!
to write content of XTSI controller GRAM memory address to its original content allowing all XTSI controller audits
a = XTSI member number (0-63)
b = XTSI controller GRAM memory address content prior to replacing paddleboard (Step 13)

[30] At 1B Processor MTC terminal, enter
DUMP:TSIMEM;XTSI a,GRAM 13,L 1!
to identify content of XTSI controller GRAM memory address
a = XTSI member number (0-63)



[32] Contact next higher technical suppport group and inform personnel of actions performed and results obtained

NOTES
2. Normally, execution of **LOAD:TSIMEN** message occurs immediately. However, if diagnostic file copying or similar system activity is occurring, exection of **LOAD:TSIMEN** message may make from 1-15 minutes
3. When specifying the GRAM memory address content in the **LOAD:TSIMEM** message, every fourth bit position must be seperated with a comma (for example, OOFF,FFFD)

At D3U circuit pack containing paddleboard previously replaced [TABLE A]:

[33] Depress **OFF** pushbutton to clear alarms

[34] Depress **ON** pushbutton

OFF LED goes off

AND

[35] See NOTE 4. Move **ROS** switch left to normal position

[36] Were trunks associated with D3U circuit pack containing previously replaced paddleboard set to the maintenance disabled (MTC.DSA) state

No

[38] Record corrective action for local records

Yes

[37] Set trunk status to active (ACT) state for trunks assigned to XTSI D3U circuit pack containing previously replaced paddleboard [DLP-517]

NOTE 4
D3U will not restore to service via **ROS** switch due to D3U being remove via an input mesage

[1] Identify base TAN assigned to group 0 trunks associated with D3U member number [TABLE A]

[2] At 1B Processor MTC terminal, enter OP:TRKSTAT,TAN a;SUM:NUM 336,STAT MTC.DSA! to determine if any trunks associated with specified base TAN are currently in the maintenance disabled state
a = Base TAN assigned to group 0 trunks

AND

[3] Does system respond with OP TRKSTAT MTC.DSA TAN a NUM SUM COMPLETED TRUNK COUNT 0 message

Yes → Page 2

No

[4] At 1B Processor MTC terminal, enter OP:TRKSTAT, TAN a:NUM 336, STAT MTC.DSA! to obtain a list of all trunks associated with specified base TAN that are currently in the maintenance disabled state
a = Base TAN assigned to group 0 trunks

[5] Obtain printout identifying trunks in the maintenance disable state and retain for later use when activating trunks

→ Page 2

TABLE A
TAN ASSIGNMENTS ASSOCIATED WITH GROUP 0 TRUNKS ASSIGNED TO XTSI D3U MEMBER NUMBER

D3U MEMBER NUMBER	BASE TAN ASSIGNMENT
0	aa00001
1	aa02081
2	aa05033
3	bb00001
4	bb02081
5	bb05033

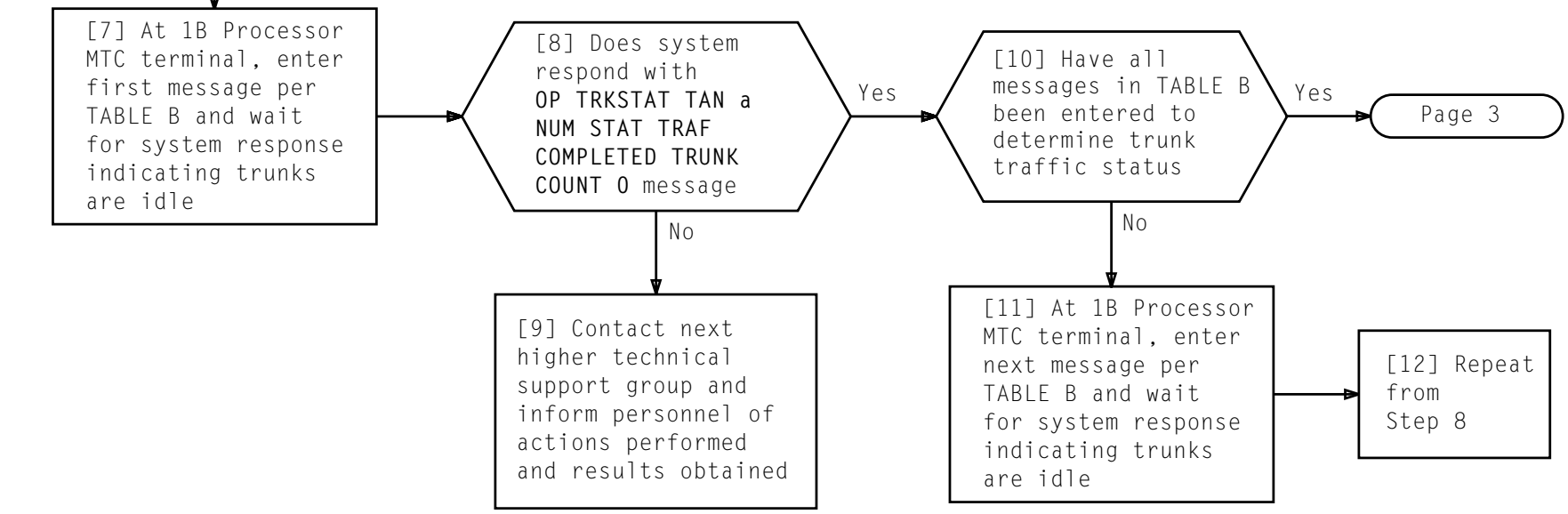
aa = Even XTSI 2-digit member number
bb = Odd XTSI 2-digit member number

SET TRUNK STATUS TO MAINTENANCE DISABLED (MTC.DSA) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK

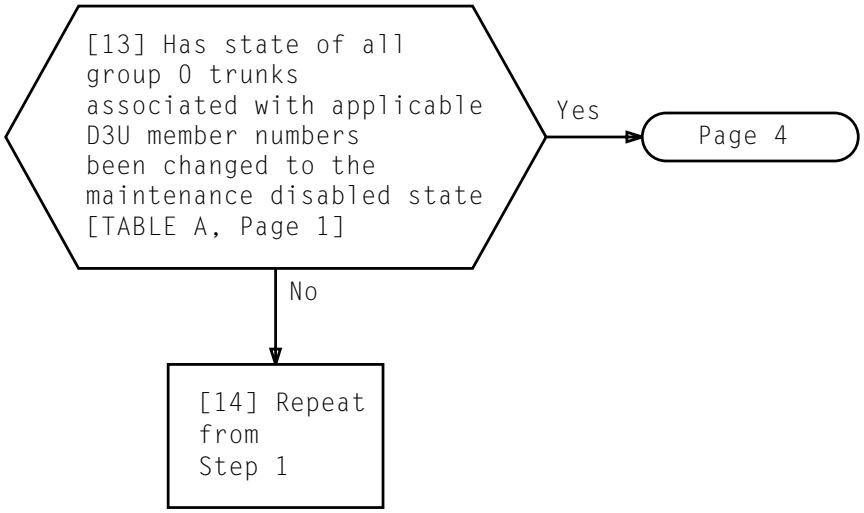
[6] At 1B Processor MTC terminal, enter **SET:TRKSTAT MTC.DSA,TAN a;SUM:NUM 336!** to set all trunks associated with specified base TAN to the maintenance disabled state
a = Base TAN assigned to group 0 trunks

TABLE B
INPUT MESSAGES TO OBTAIN TRUNK TRAFFIC STATUS

OP:TRKSTAT,TAN a;SUM:NUM 336,STAT TRAF <NOT OOSI>!
OP:TRKSTAT,TAN a;SUM:NUM 336,STAT TRAF <CODE 6>!
OP:TRKSTAT,TAN a;SUM:NUM 336,STAT TRAF <CODE 9>!
a = Base TAN assigned to group 0 trunks



SET TRUNK STATUS TO MAINTENANCE DISABLED (MTC.DSA) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK



[15] Identify base TAN assigned to group 1 trunks associated with D3U member number [TABLE C]

[16] At 1B Processor MTC terminal, enter **OP:TRKSTAT,TAN a;SUM:NUM 336,STAT MTC.DSA!** to determine if any trunks associated with specified base TAN are currently in the maintenance disabled state
a = Base TAN assigned to group 1 trunks

AND

[17] Does system respond with **OP TRKSTAT MTC.DSA TAN a NUM SUM COMPLETED TRUNK COUNT 0** message

Yes → Page 5

No

[18] At 1B Processor MTC terminal, enter **OP:TRKSTAT, TAN a:NUM 336, STAT MTC.DSA!** to obtain a list of all trunks associated with specified base TAN that are currently in the maintenance disabled state
a = Base TAN assigned to group 1 trunks

[19] Obtain printout identifying trunks in the maintenance disable state and retain for later use when activating trunks

→ Page 5

TABLE C
TAN ASSIGNMENTS ASSOCIATED WITH GROUP 1 TRUNKS ASSIGNED TO XTSI D3U MEMBER NUMBER

D3U MEMBER NUMBER	BASE TAN ASSIGNMENT
0	aa10001
1	aa12081
2	aa15033
3	bb10001
4	bb12081
5	bb15033

aa = Even XTSI 2-digit member number
bb = Odd XTSI 2-digit member number

SET TRUNK STATUS TO MAINTENANCE DISABLED (MTC.DSA) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK

[20] At 1B Processor MTC terminal, enter **SET:TRKSTAT MTC.DSA,TAN a;SUM:NUM 336!** to set all trunks associated with specified base TAN to the maintenance disabled state
a = Base TAN assigned to group 1 trunks

TABLE D
INPUT MESSAGES TO OBTAIN TRUNK TRAFFIC STATUS

OP:TRKSTAT,TAN a;SUM:NUM 336,STAT TRAF <NOT OOSI>!
OP:TRKSTAT,TAN a;SUM:NUM 336,STAT TRAF <CODE 6>!
OP:TRKSTAT,TAN a;SUM:NUM 336,STAT TRAF <CODE 9>!
a = Base TAN assigned to group 1 trunks

[21] At 1B Processor MTC terminal, enter first message per TABLE D and wait for system response indicating trunks are idle

[22] Does system respond with **OP TRKSTAT TAN a NUM STAT TRAF COMPLETED TRUNK COUNT 0** message

Yes

[24] Have all messages in TABLE D been entered to determine trunk traffic status

Yes

Page 6

No

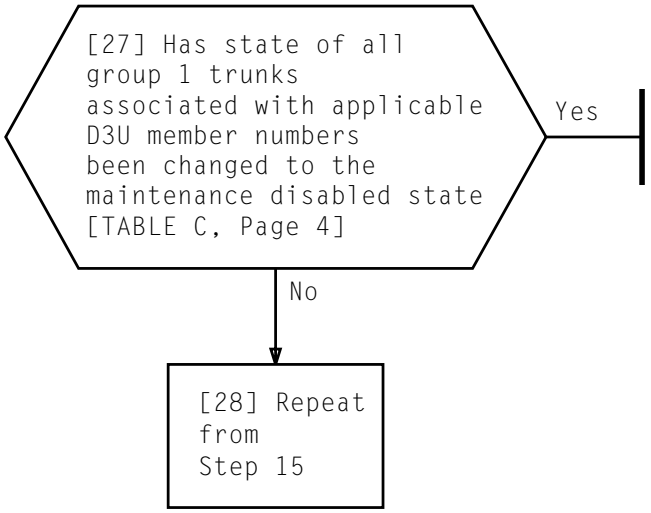
[23] Contact next higher technical support group and inform personnel of actions performed and results obtained

No

[25] At 1B Processor MTC terminal, enter next message per TABLE D and wait for system response indicating trunks are idle

[26] Repeat from Step 22

SET TRUNK STATUS TO MAINTENANCE DISABLED (MTC.DSA) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK



[1] Identify base TAN assigned to group 0 trunks associated with D3U member number [TABLE A]

[2] At 1B Processor MTC terminal, enter **SET:TRKSTAT ACT,TAN a;SUM:NUM 336!** to set all trunks associated with specified base TAN to the active state
a = Base TAN assigned to group 0 trunks

[3] At 1B Processor MTC terminal, enter **OP:TRKSTAT,TAN a;SUM:NUM 336,STAT MTC.DSA!** to determine if any trunks associated with specified base TAN are currently in the maintenance disabled state
a = Base TAN assigned to group 0 trunks

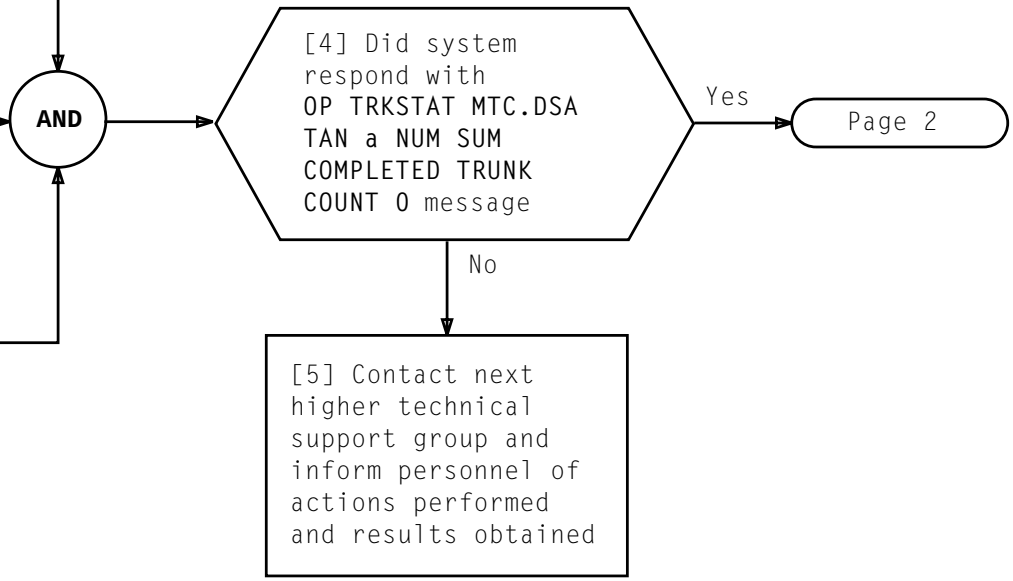
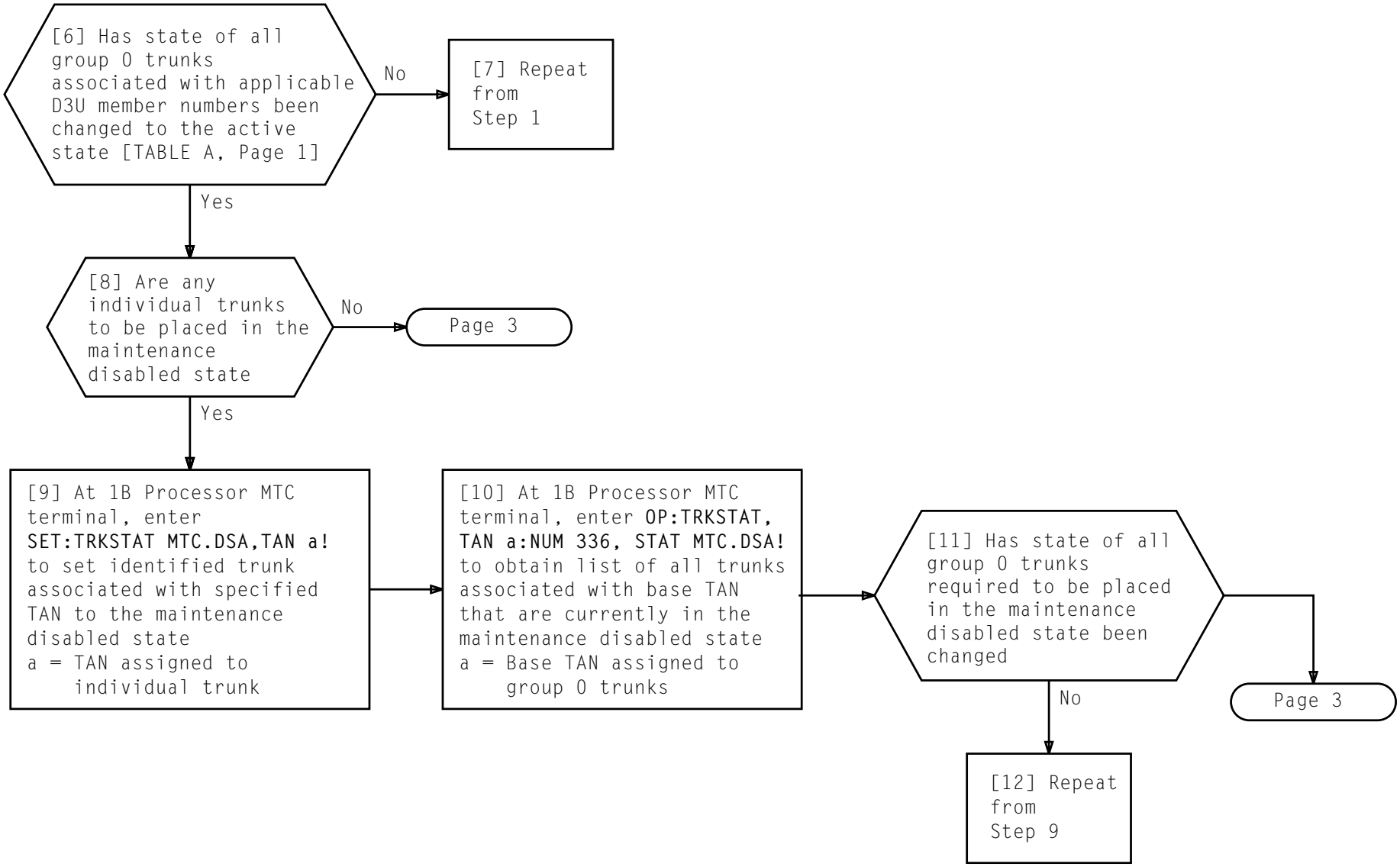


TABLE A
TAN ASSIGNMENTS ASSOCIATED WITH GROUP 0 TRUNKS ASSIGNED TO XTSI D3U MEMBER NUMBER

D3U MEMBER NUMBER	BASE TAN ASSIGNMENT
0	aa00001
1	aa02081
2	aa05033
3	bb00001
4	bb02081
5	bb05033

aa = Even XTSI 2-digit member number
bb = Odd XTSI 2-digit member number

SET TRUNK STATUS TO ACTIVE (ACT) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK



SET TRUNK STATUS TO ACTIVE (ACT) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK

[13] Identify base TAN assigned to group 1 trunks associated with D3U member number [TABLE B]

[14] At 1B Processor MTC terminal, enter **SET:TRKSTAT ACT,TAN a;SUM:NUM 336!** to set all trunks associated with specified base TAN to the active state
a = Base TAN assigned to group 1 trunks

[15] At 1B Processor MTC terminal, enter **OP:TRKSTAT,TAN a;SUM:NUM 336,STAT MTC.DSA!** to determine if any trunks associated with specified base TAN are currently in the maintenance disabled state
a = Base TAN assigned to group 1 trunks

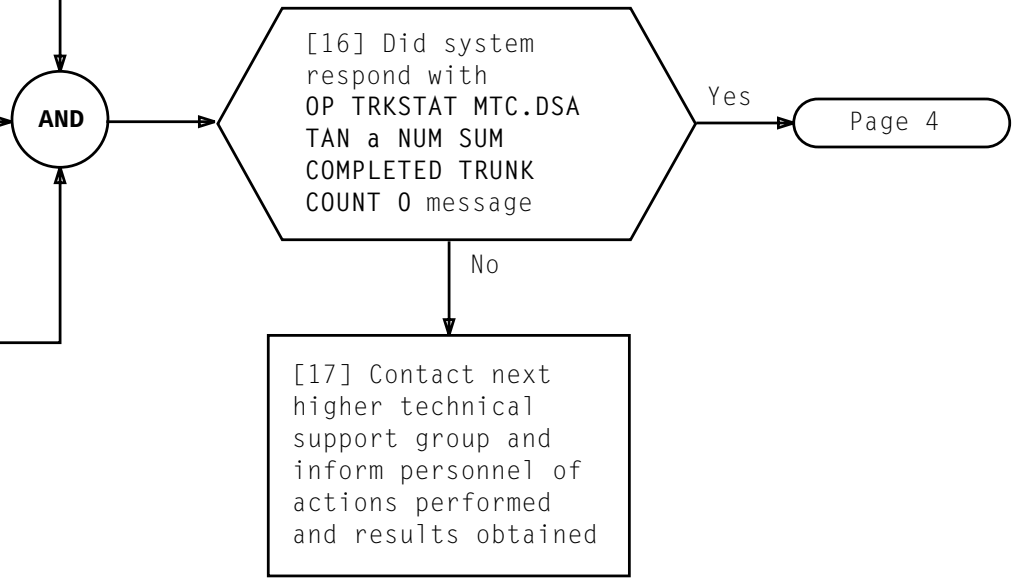
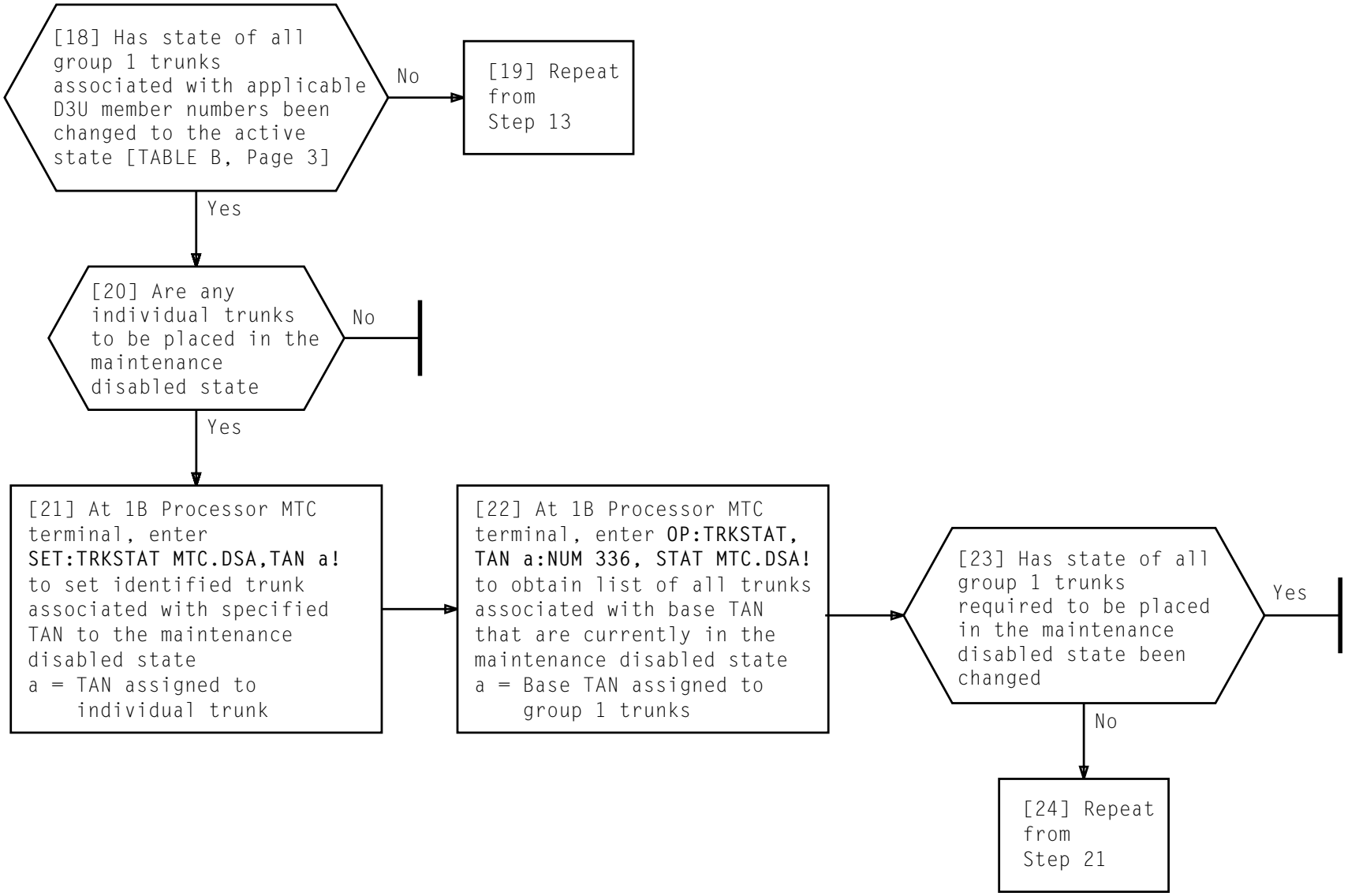


TABLE B
TAN ASSIGNMENTS ASSOCIATED WITH GROUP 1 TRUNKS ASSIGNED TO XTSI D3U MEMBER NUMBER

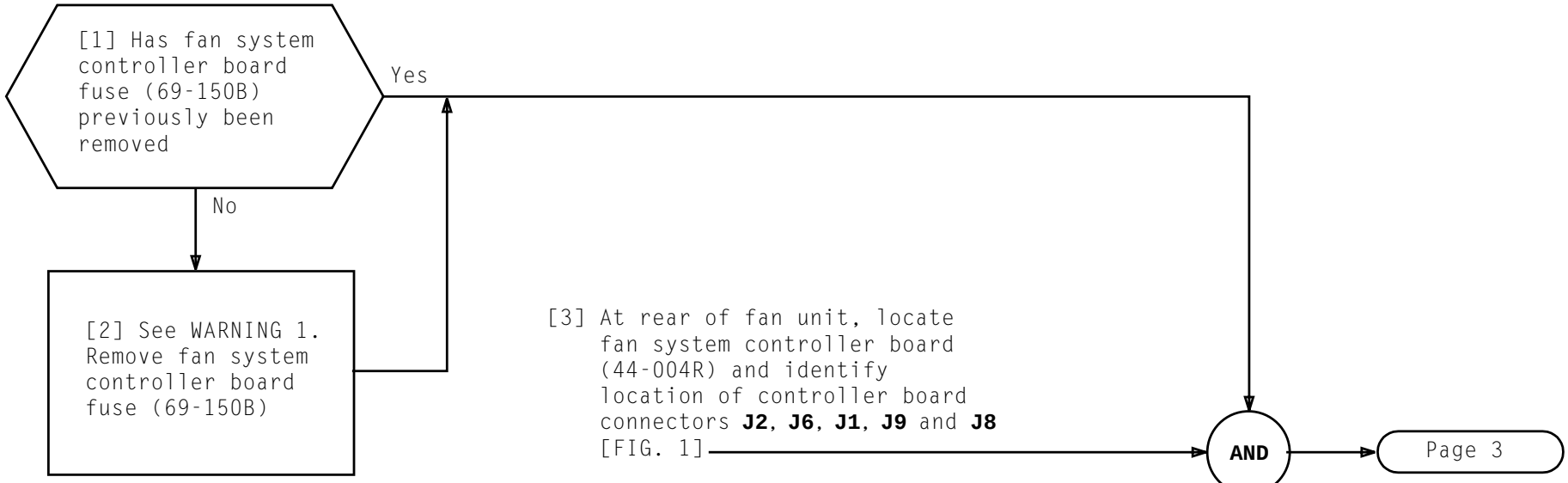
D3U MEMBER NUMBER	BASE TAN ASSIGNMENT
0	aa10001
1	aa12081
2	aa15033
3	bb10001
4	bb12081
5	bb15033

aa = Even XTSI 2-digit member number
bb = Odd XTSI 2-digit member number

SET TRUNK STATUS TO ACTIVE (ACT) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK



SET TRUNK STATUS TO ACTIVE (ACT) STATE FOR TRUNKS ASSIGNED TO XTSI D3U CIRCUIT PACK



WARNING 1
When inserting and removing fuses, care must be taken to ensure fuses are pushed in and pulled out straight. Failure to push/pull fuses straight can exert excessive pressure on fuse assembly causing fuse assembly to crack or completely break off and lodge in fuse circuit module

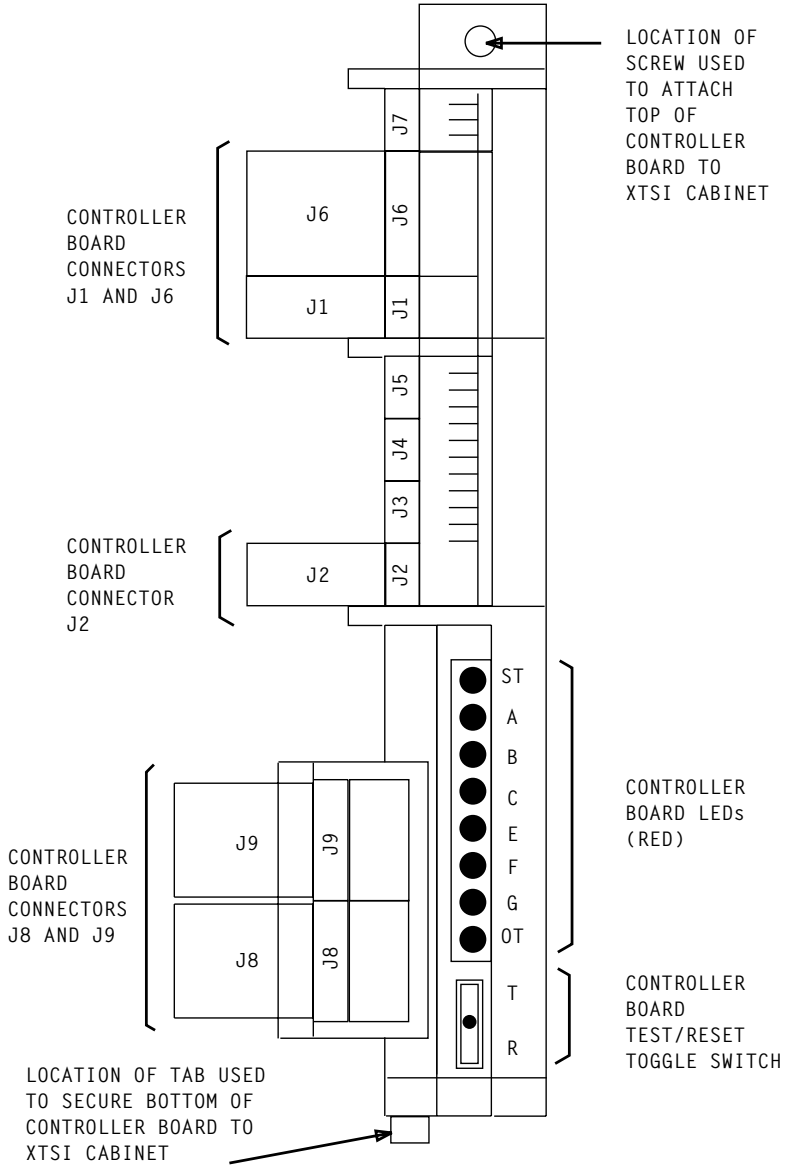


FIG. 1 - Fan System Controller Board (44-004R)

FAN SYSTEM CONTROLLER BOARD LEGEND		
CONTROLLER BOARD INDICATOR		**INDICATOR IDENTIFICATION**
ST LED		STATUS LED
A LED		FAN A FAIL LED
B LED		FAN B FAIL LED
C LED		FAN C FAIL LED
E LED		FAN E FAIL LED
F LED		FAN F FAIL LED
G LED		FAN G FAIL LED
OT LED		OVER TEMPERATURE LED
TWO FUNCTION TOGGLE SWITCH	**T**	TEST
	R	RESET

REPLACE FAN SYSTEM CONTROLLER BOARD

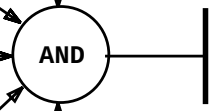
[5] See WARNING 2. Using insulated screwdriver, carefully remove screw securing top of fan system controller board to cabinet [FIG. 1]

[6] Carefully move controller board upward to remove tab on bottom of controller board from cabinet slot [FIG. 1]

[7] Carefully remove controller board from back of cabinet

[8] Obtain replacement fan system controller board and carefully position controller board bottom tab into cabinet slot and secure top using screw previously removed

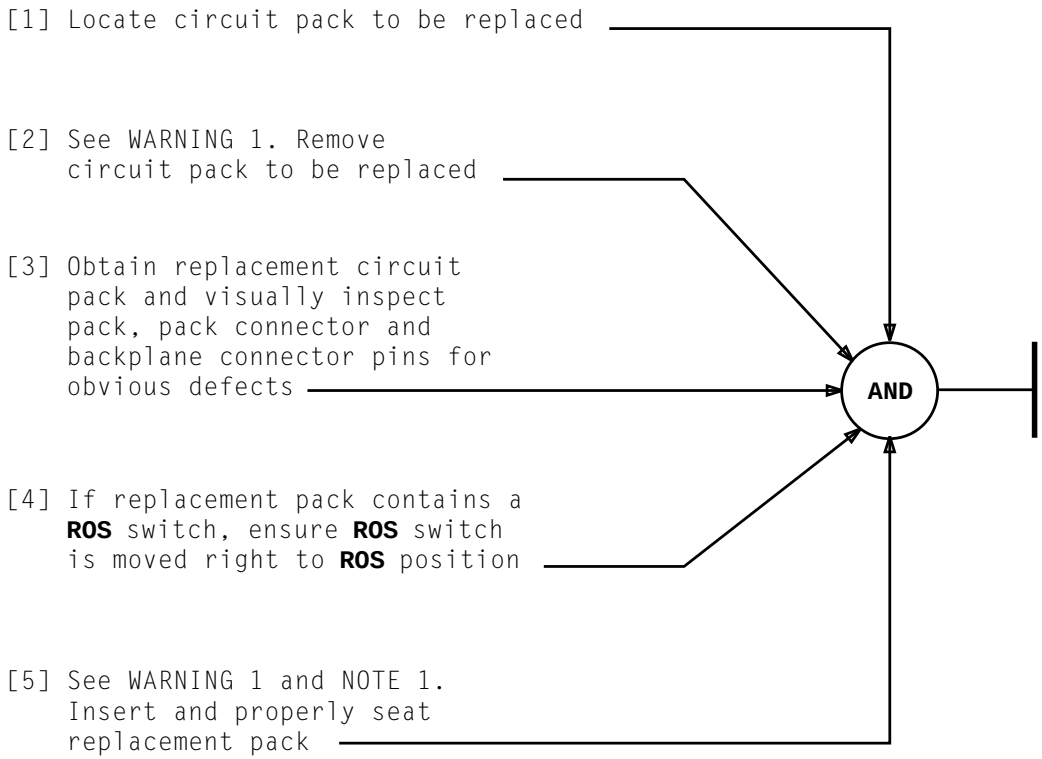
[9] In the following order, seat controller board connectors **J2**, **J6**, **J1**, **J9** and **J8** onto replacement controller board and remove all working tags previously attached



WARNING 2

When replacing fan system controller board, care must be taken to avoid shorting board to -48V terminal strip lugs located directly above FAN A

REPLACE FAN SYSTEM CONTROLLER BOARD



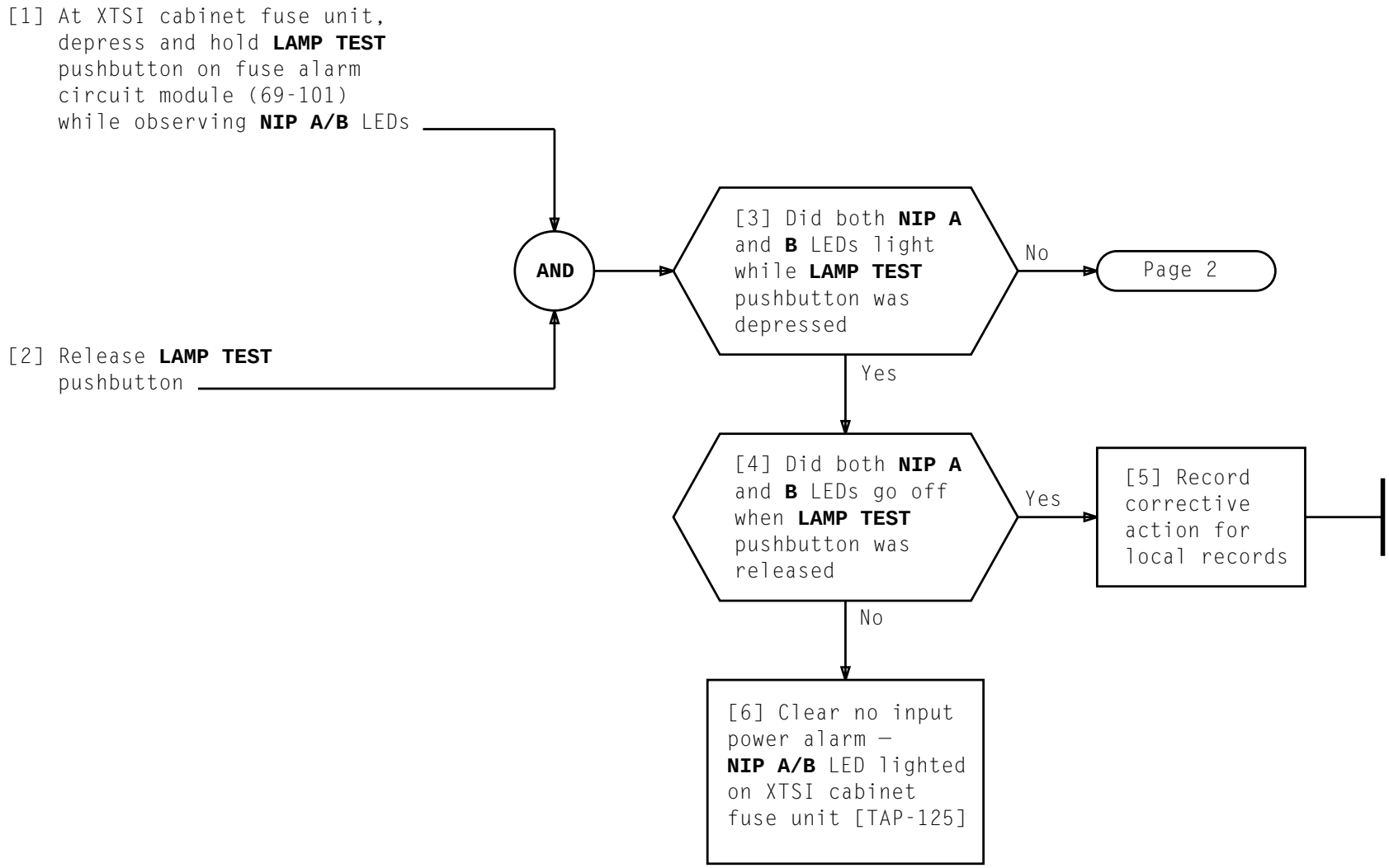
NOTE 1

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

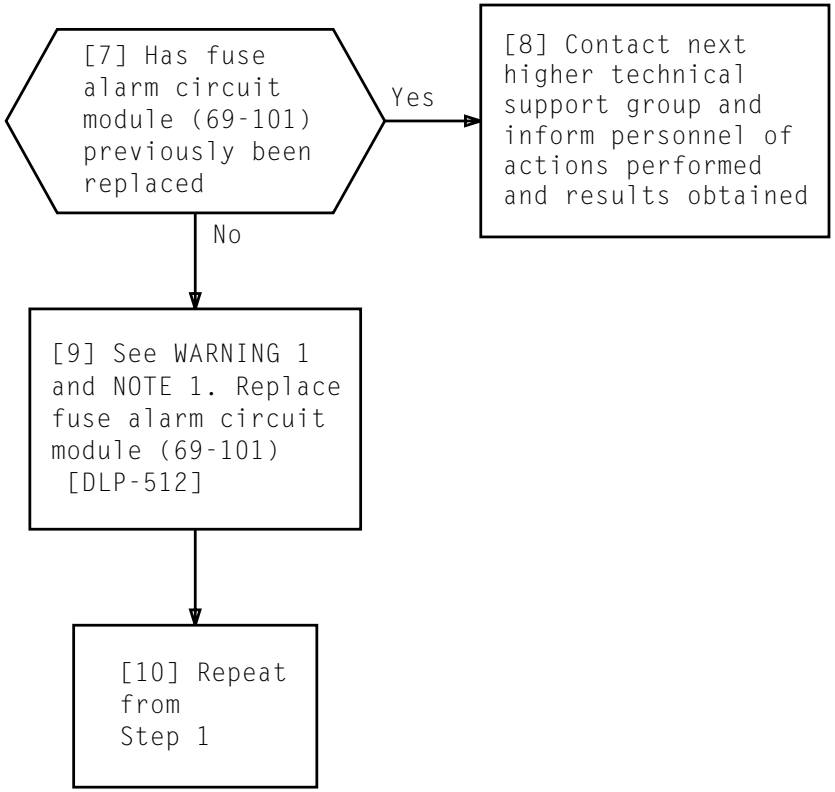
WARNING 1

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

REPLACE CIRCUIT PACK — XTSI CABINET FUSE/POWER ALARM



TEST FUSE UNIT NIP A/B LEDs — XTSI CABINET



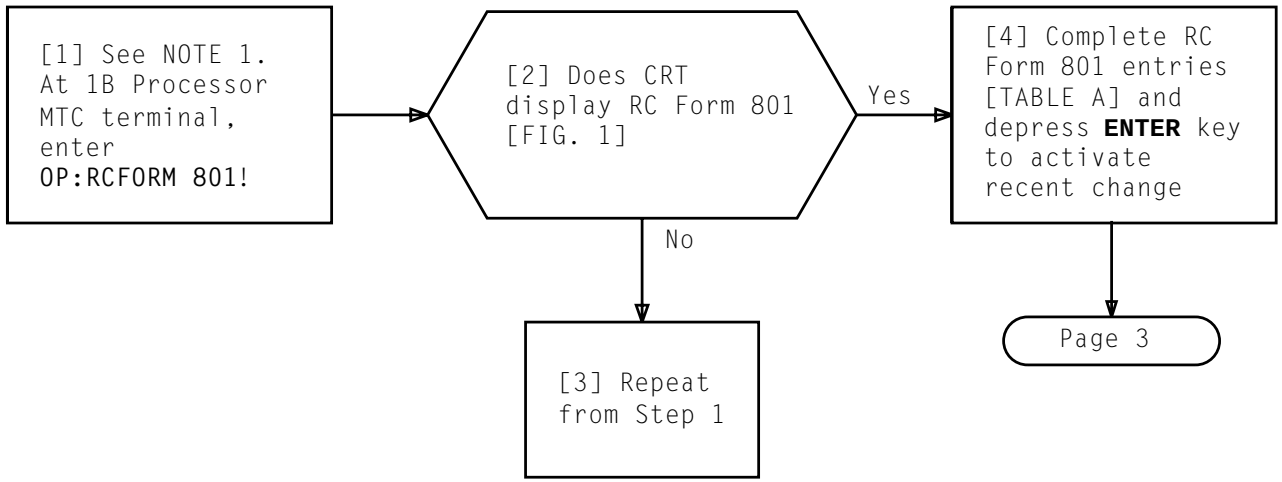
NOTE 1

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

WARNING 1

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

TEST FUSE UNIT NIP A/B LEDs — XTSI CABINET



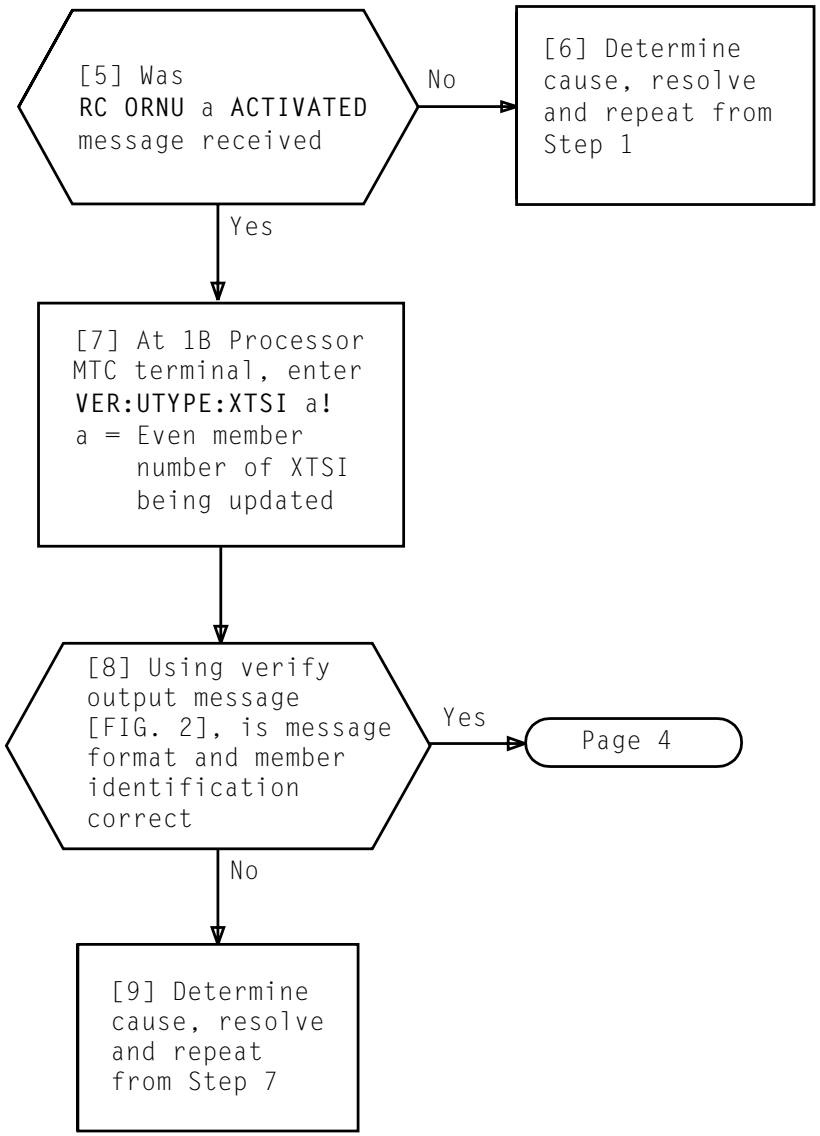

```
RC:FUNC;CHG;OPT(TRANS), ---:                TRANSID_______,
ORNU ------,
ENTRY _______, WORDNO _____,
SIZE --,       DISP --,
BINOCT -,
NEWDATA ------------------------ ,
OLDDATA ------------------------ ,
REMARKS ------------------------------------------------ !
```

FIG. 1 — Sample CRT Display of Blank RC Form 801

NOTE 1

Requesting RC form will cause all CRT data to be cleared

TABLE A RECENT CHANGE FORM 801 ENTRIES	
RC FORM 801 FIELD	**VALID ENTRY**
RC:FUNC;CHG;OPT(TRANS)	FTA
TRANSID	UTTSI
ORNU	Assigned RC Order Number
ENTRY	Even XTSI Member Number
WORDNO	8
SIZE	6
DISP	0 (Zero)
BINOCT	0 (Letter O)
NEWDATA	11
OLDDATA	00
REMARKS	Any Applicable Remarks



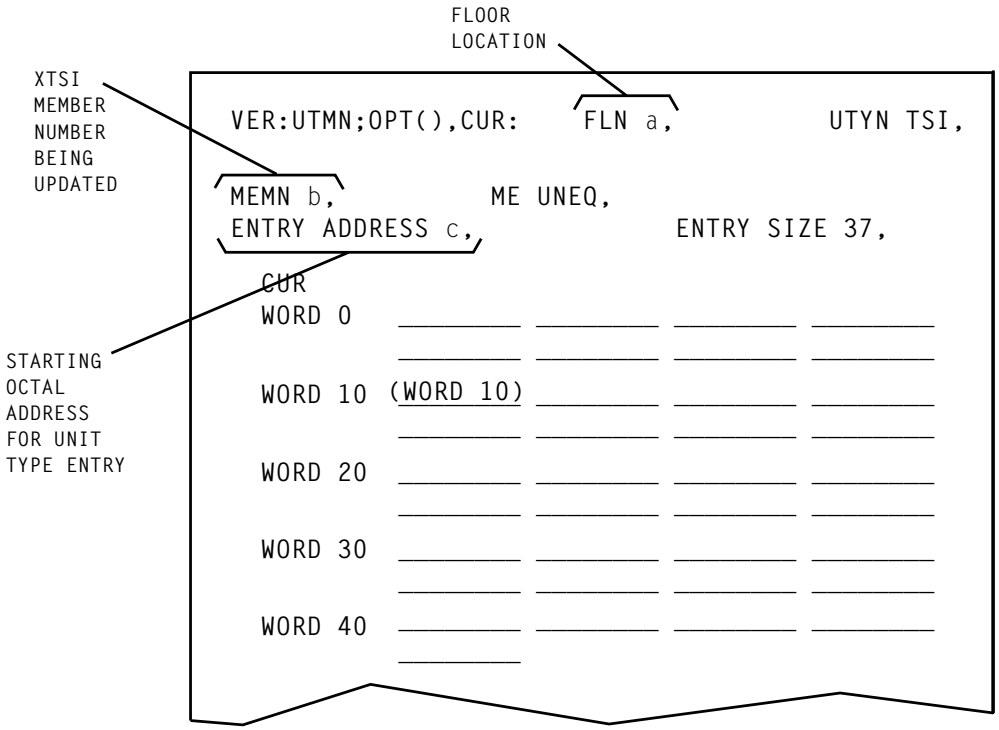
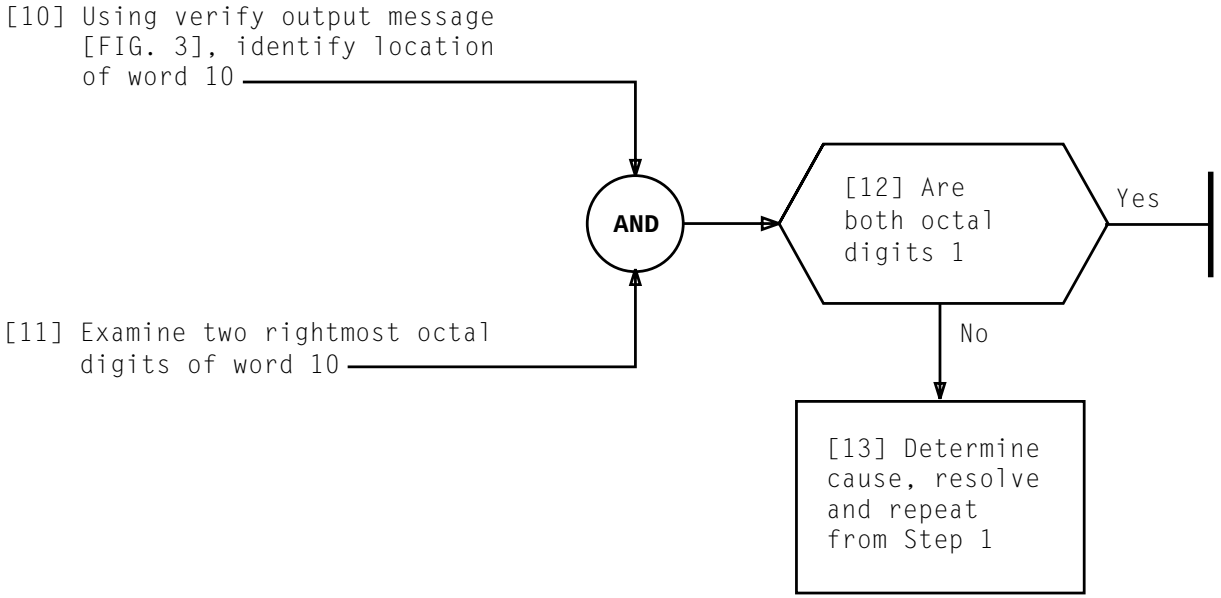


FIG. 2 - Example of Verify Ouput Message Printout



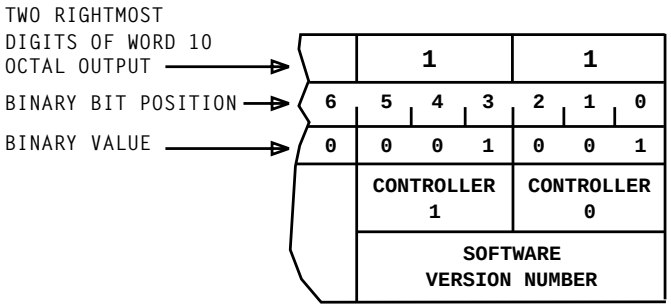
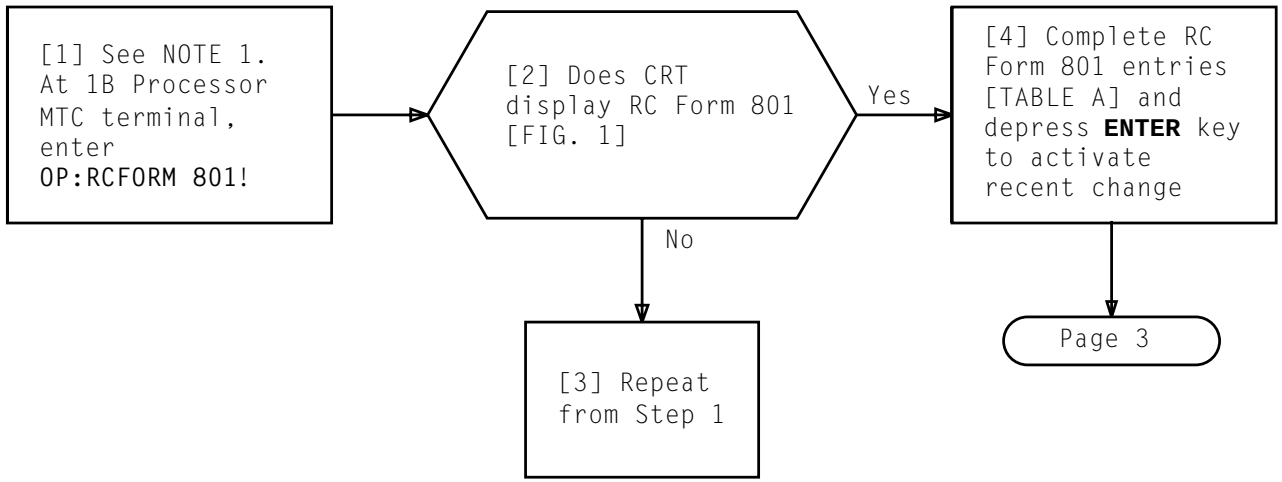


FIG. 3 – Example of Word 10 Breakdown Identifying Controller 0 and 1 Software Version Number



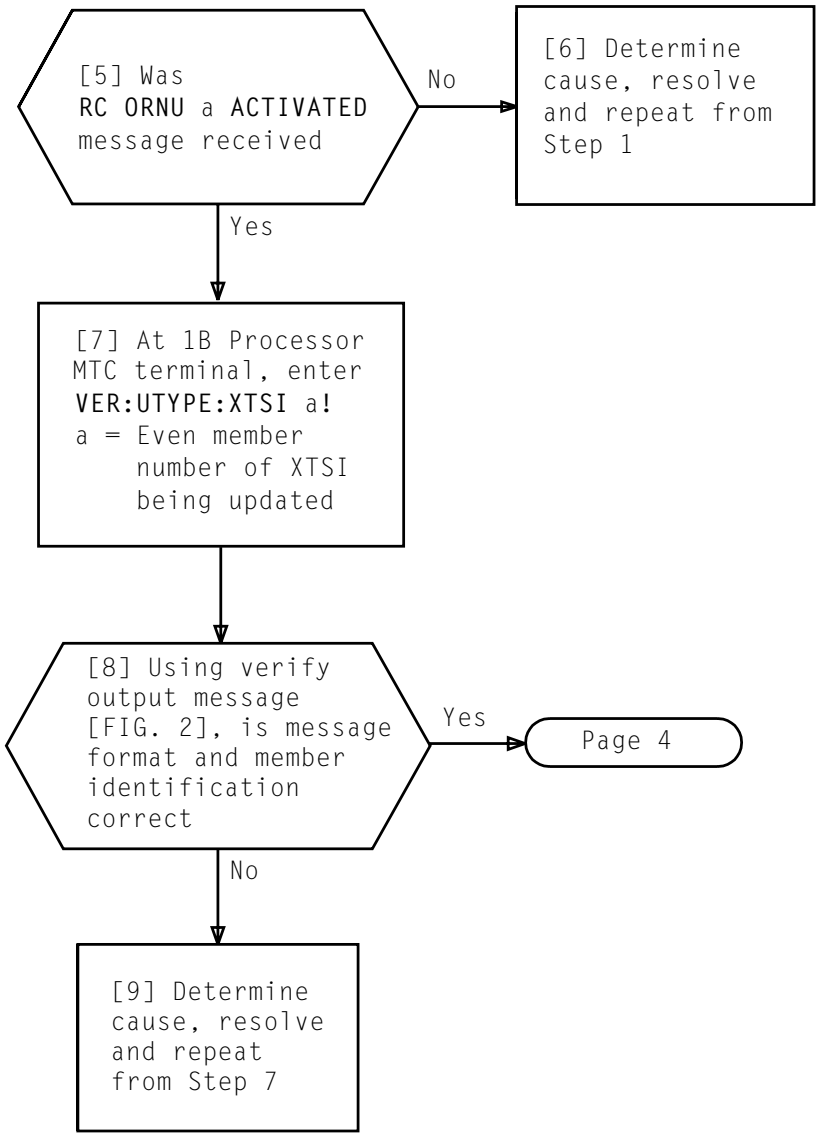

```
RC:FUNC;CHG;OPT(TRANS), ---:                TRANSID_______,
ORNU ------,
ENTRY _______, WORDNO _____,
SIZE --,       DISP --,
BINOCT -,
NEWDATA ------------------------ ,
OLDDATA ------------------------ ,
REMARKS ------------------------------------------------ !
```

FIG. 1 — Sample CRT Display of Blank RC Form 801

NOTE 1

Requesting RC form will cause all CRT data to be cleared

TABLE A RECENT CHANGE FORM 801 ENTRIES	
RC FORM 801 FIELD	**VALID ENTRY**
RC:FUNC;CHG;OPT(TRANS)	FTA
TRANSID	UTTSI
ORNU	Assigned RC Order Number
ENTRY	Even XTSI Member Number
WORDNO	8
SIZE	6
DISP	0 (Zero)
BINOCT	O (Letter O)
NEWDATA	00
OLDDATA	11
REMARKS	Any Applicable Remarks



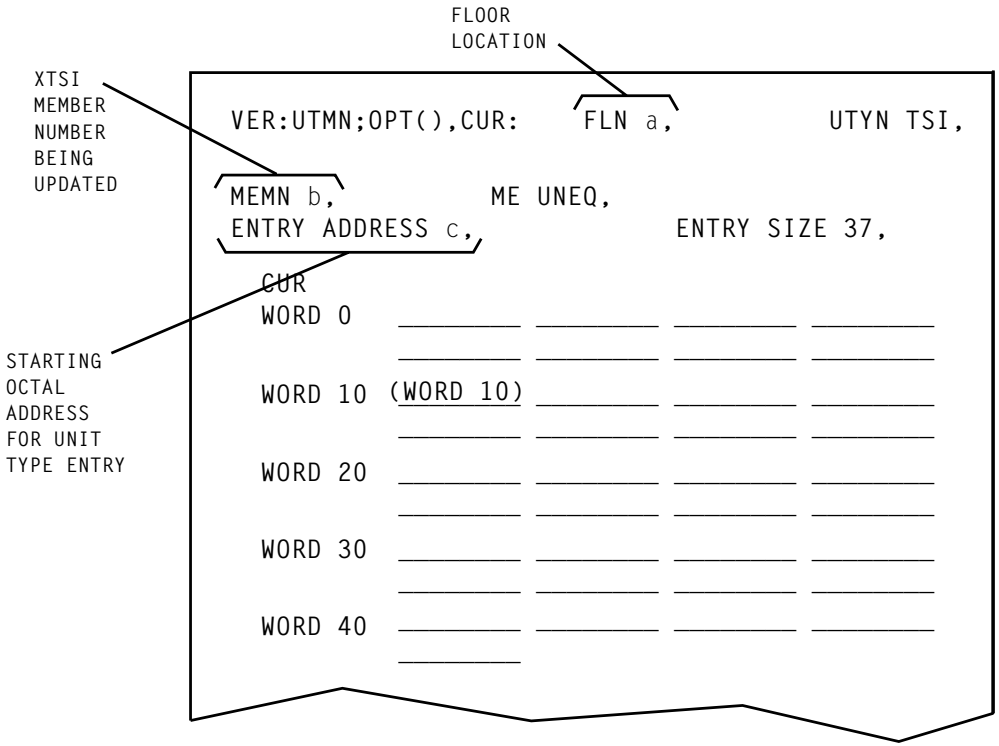
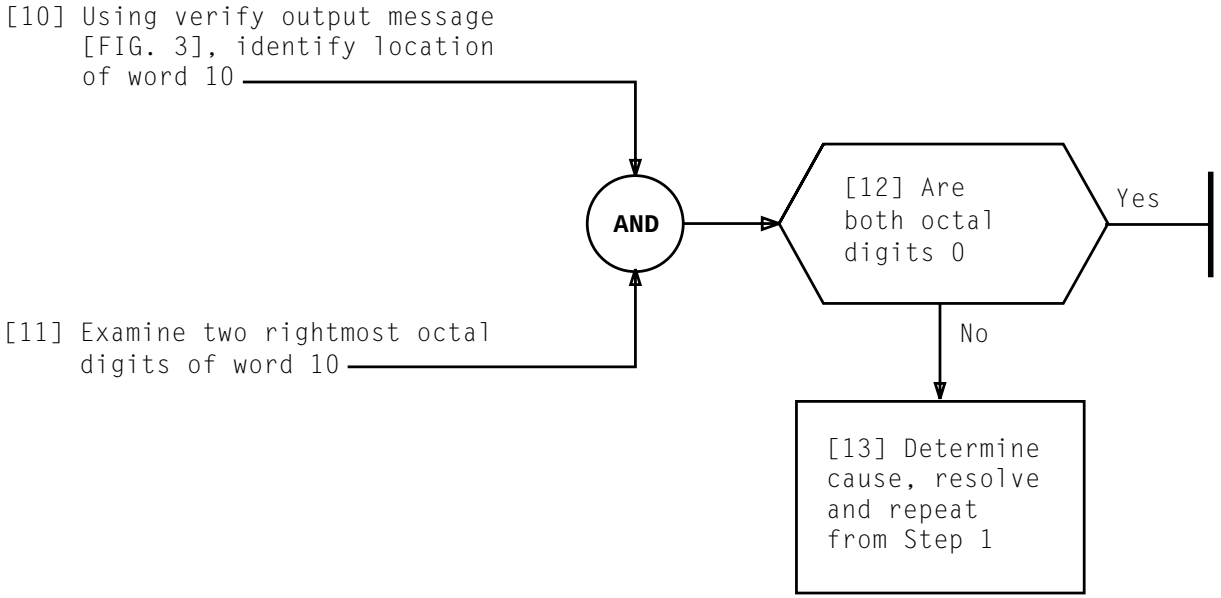


FIG. 2 - Example of Verify Ouput Message Printout



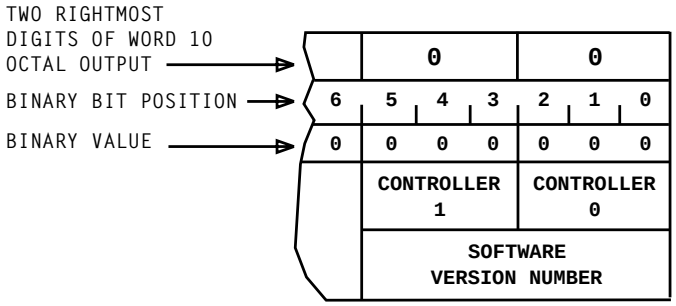


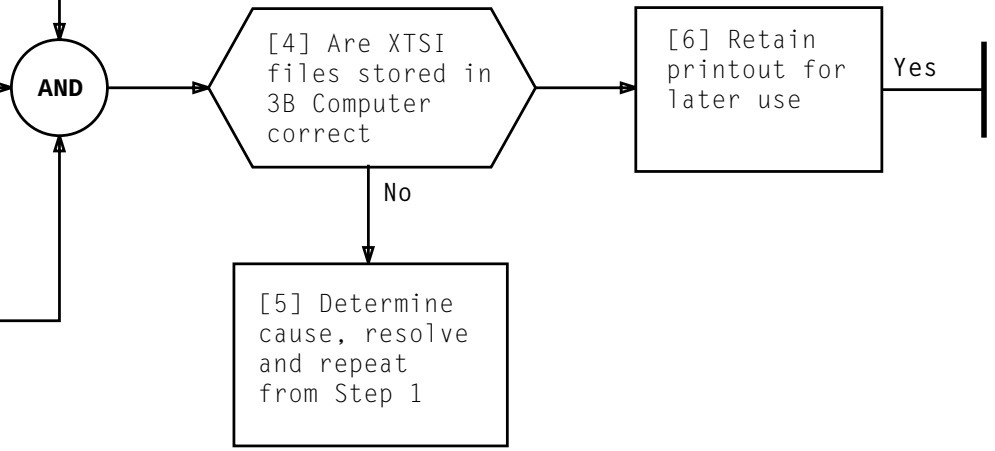
FIG. 3 – Example of Word 10 Breakdown Identifying Controller 0 and 1 Software Version Number

[1] See NOTE 1. At 3B Computer MCRT, enter
EXC:ENVIR:UPROC,FN "/tools/prxtsihdrs"

Using **EXC:ENVIR:UPROC** printout [FIG. 1]:

[2] Request next higher technical support group to verify that latest XTSI operating and diagnostic files are stored in 3B Computer memory

[3] Verify that XTSI subunits are running on latest software



NOTE 1

Execution of this command will take from 5 to 15 minutes to complete depending on system call load

VERIFY XTSI FILES STORED IN 3B COMPUTER

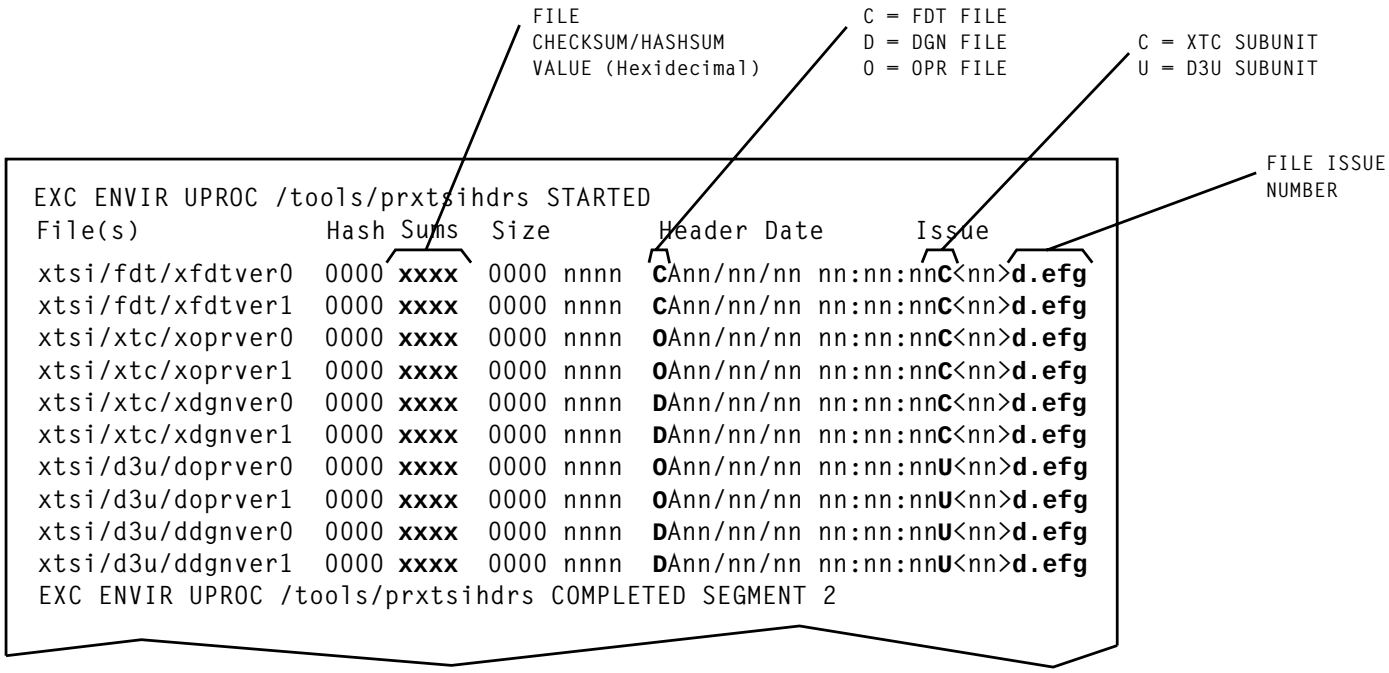
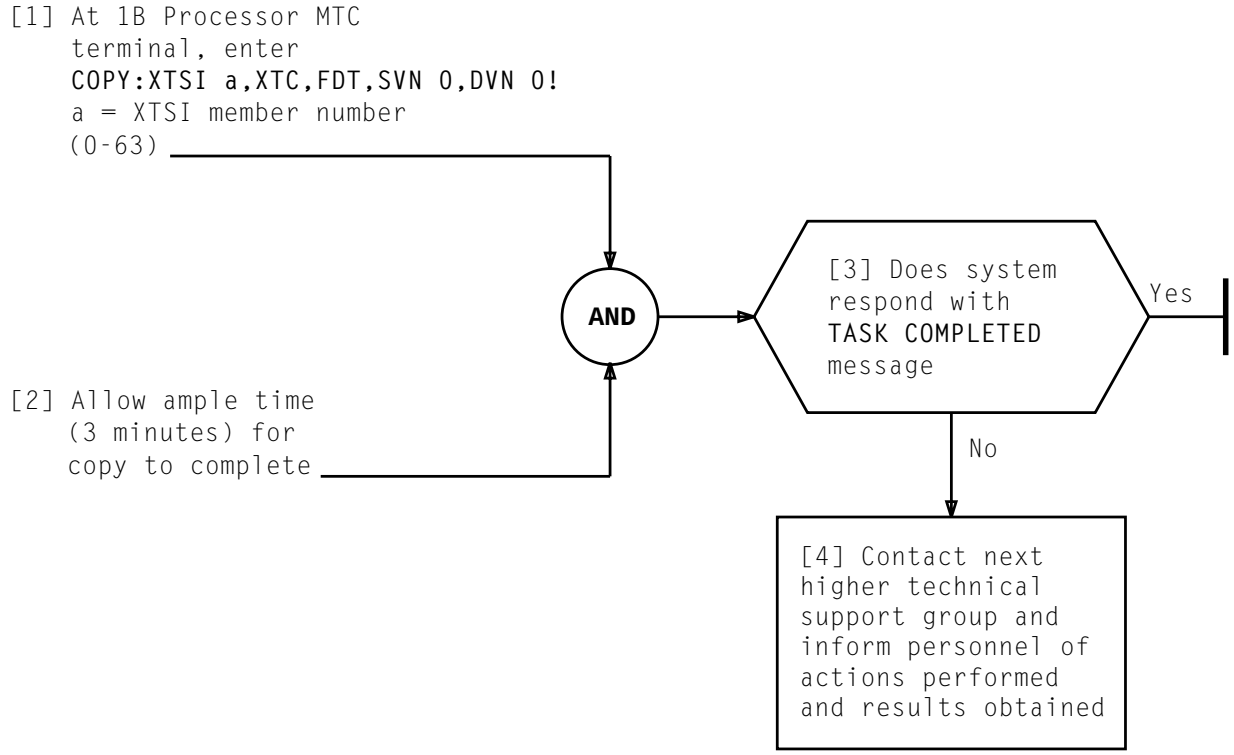


FIG. 1 — Sample Printout of EXC:ENVIR:UPROC Output Message



COPY FILE DESCRIPTOR TABLE (FDT) FILE FROM 3B COMPUTER TO XTSI

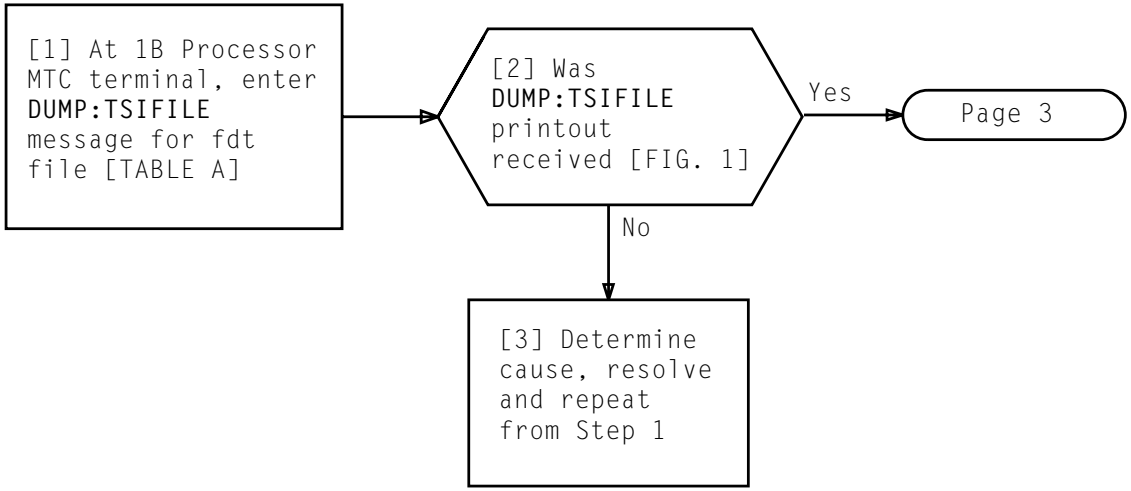


TABLE A
XTSI FILE DESCRIPTOR TABLE (FDT) DUMP MESSAGE

MESSAGE NUMBER	INPUT MESSAGES	ASSOCIATED FILE DRIVER
1	DUMP:TSIFILE;XTSI a,FILE 0,HADR 0,L 20!	/xtc/fdtver

a = Even XTSI member number

VERIFY SYSTEM FILE DESCRIPTOR TABLE (FDT) FILE WAS COPIED TO XTSI

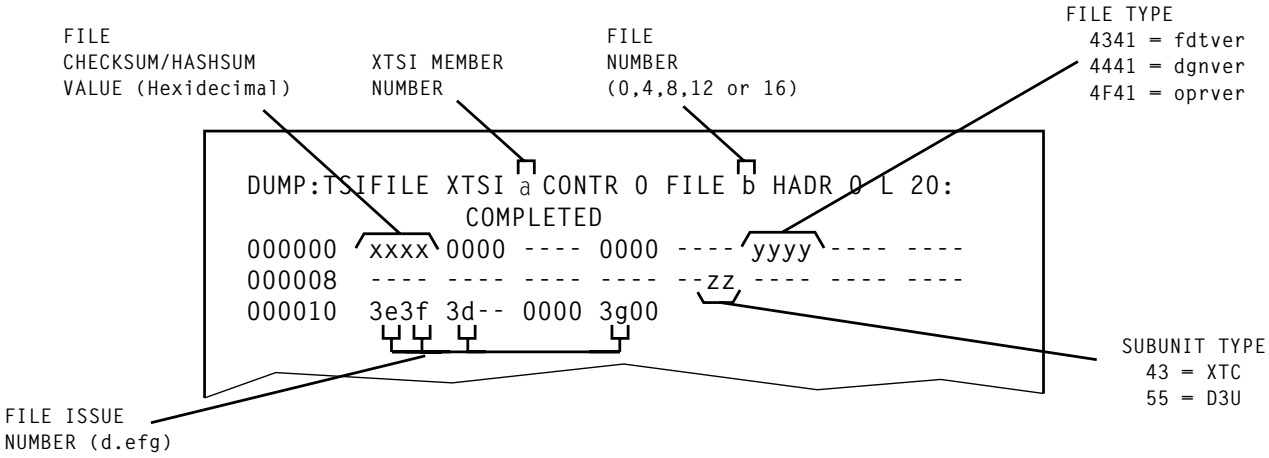


FIG. 1 - Sample Printout of DUMP:TSIFILE Output Message

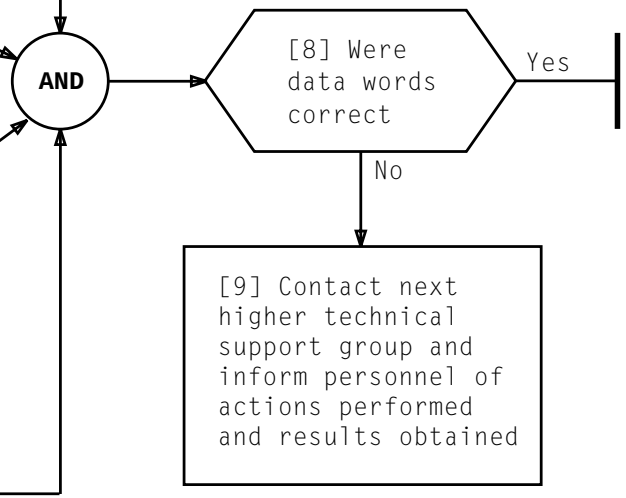
Using **DUMP:TSIFILE** printout [FIG. 1]:

[4] Compare checksum value in word 0 with associated checksum value from 3B computer printout saved earlier and record any discrepancy for later use

[5] Compare software release issue in words 10, 11, and 13 with associated software release issue from 3B computer printout saved earlier and record any discrepancy for later use

[6] Verify type of file data in word 5 for associated message entered and record any discrepancy for later use

[7] Verify subunit type in word C (hex) for associated message entered and record any discrepancy for later use



VERIFY SYSTEM FILE DESCRIPTOR TABLE (FDT) FILE WAS COPIED TO XTSI

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
TPG-000	2	DLP-500	2								
LPG-000	2	DLP-501	2								
• IXL-001	2	DLP-502	2								
NTP-002	2	DLP-503	2								
NTP-003	2	DLP-504	2								
NTP-004	2	DLP-505	2								
• TAD-100	2	DLP-506	2								
TAD-101	2	DLP-507	2								
TAD-102	2	DLP-508	2								
TAD-103	2	DLP-509	2								
TAD-104	2	DLP-510	2								
TAD-105	2	DLP-511	2								
TAD-106	2	DLP-512	2								
TAD-107	2	DLP-513	2								
TAD-108	2	DLP-514	2								
TAP-109	2	• DLP-515	2								
TAP-110	2	DLP-516	2								
TAP-111	2	DLP-517	2								
TAP-112	2	DLP-518	2								
TAP-113	2	DLP-519	2								
TAP-114	2	DLP-520	2								
TAP-115	2	DLP-521	2								
TAP-116	2	DLP-522	2								
TAP-117	2	DLP-523	2								
TAP-118	2	DLP-524	2								
TAP-119	2	DLP-525	2								
TAP-120	2	• CKL-891	2								
TAP-121	2	TNG-893	2								
TAP-122	2										
TAP-123	2										
TAP-124	2										
TAP-125	2										
TAP-126	2										
• TAP-127	2										
• TAD-128	2										

• REVISED OR ADDED ITEM ☐ CANCELED ITEM

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CHECKLIST

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