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DMS-100 Family

XA-Core

Maintenance Manual

CSP17 Standard 07.03 March 2002

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XA-Core

Maintenance Manual

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Publication history

March 2002

Standard 07.03, supporting CSP17. This edition contains corrections to cross references in the procedures in the chapter “Introduction to recovery procedures”.

February 2002

Standard 07.02, supporting CSP17. Major changes in this edition are as follows.

- Added the following chapters, which were formerly chapters in the *XA-Core Maintenance Guide*, 297-8991-511:
 - “Preventive maintenance”. (This chapter was named “Preventive maintenance methods” in 297-8991-511.)
 - “Problem isolation and correction”
 - “How to problem solve a MemLim alarm”
- In the chapter “Understanding the alarm system”, added the new Config alarm and the new IOHits alarm.
- In the chapter “Introduction to card replacement”, in the procedures for replacing circuit packs, added instructions to check for bent backplane pins before inserting the replacement circuit packs.
- In the chapter “Introduction to trouble locating and clearing procedures”, in the section “How to perform a manual REx test on XA-Core”, deleted the descriptions of the REx test classes and added a cross reference to the descriptions of the test classes in the new “Preventive maintenance” chapter.

- In the new chapter “Preventive maintenance”, in the description of the REx test classes, updated the rules by which IOP circuit packs are selected for testing.
- In the new chapter “Problem isolation and correction”, in the table of alarms and related logs and operational measurements, added entries for the Config and IOHits alarms.

November 2001

Standard 06.02, supporting CSP16

- In the chapter “Understanding the alarm system”, added the new RExFlt alarm. Also in this chapter, removed the sections on the Image major and Image minor alarms, and added a section on the Image critical alarm.
- In the chapter “Introduction to card replacement”, added information about 7+1 PE configuration. Also in this chapter, added a procedure for replacing the high-performance input/output processor (HIOP) circuit pack. Also in this chapter, updated the procedure for replacing the Ethernet packlet.
- In the chapter “Introduction to routine maintenance procedures”, updated the procedure for checking and adjusting the time of day, to cover the use of Network Time Protocol as a timing reference. Also in this chapter, updated the procedure for upgrading firmware on an XA-Core component.
- Throughout the document, changed illustrations of the IO, RTIF, AMDI, and ETHR MAP levels to show the new screen format.

May 2001

Standard 05.03, supporting CSP15

- In the replacement instructions for the single-width and dual-width IOP circuit packs, removed the requirement that the replacement pack should have the same PEC suffix.

April 2001

Standard 05.02, supporting CSP15

- Revised instructions for clearing the LowPE critical alarm, to take into account the presence of three or more PE circuit packs.
- Revised illustrations of various MAP screens.

April 2001

Standard 05.01, supporting CSP15

- Added information about the 3+1 and 5+1 PE configurations, including procedures for upgrading and downgrading the PE configuration.
- Added procedures for upgrading and downgrading the number of Ethernet packets in the XA-Core.

March 2001

Standard 04.03, supporting CSP14

- Content maintenance and revisions.

October 2000

Standard 04.02

- Content maintenance and revisions.

August 2000

Standard 04.01

- Added ETHR critical major, and minor alarm clearing procedures, and card replacement procedure for the NTLX09AA packet. The Ethernet packet is required to support trials for Succession Network IP solutions and is scheduled for general availability in CSP15.
- Updated card replacement procedures for all IOP packets to support hot insertion of packets when the IOP is an NTLX03AB or NTLX03BB.
- Added common routine procedure Selection of DAT tapes approved by Nortel Networks and added reference in procedure How to clean the XA-Core tape drive.

May 2000

Standard release 03.02

- Added AMDI critical and major alarm clearing procedures.
- Updated the IOtrbl alarm to include AMDI packet information.

March 2000

Standard release 03.01

- Updated processor element (PE) and shared memory (SM) configurations.
- Added alarm clearing procedures for FWvers and FWsoak alarms and one routine procedure for firmware upgrade on an IOP, PE, and OC3.

November 1999

Standard release 02.02

- Added NTLX02CA processor element (PE) for CSP12.

August 1999

Standard release 02.01

- Updated release of the document for CSP12.

June 1999

Standard release 01.01

- First release of the document for CSP10.4.

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About this document

When to use this document

This document is a source of information for the XA Core product.

How to check the version and issue of this document

This document uses numbers, for example 01.01, to indicate the version and issue of the document.

The first two digits indicate the version. The version number increases with each update to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases with each revision when the document is released again in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

References in this document

The following documents are referred to in this document:

- *Switch Performance Monitoring System Application Guide*, 297-1001-330
- *Digital Switching Systems DMS-100 Family Maintenance Managers Morning Report*, 297-1001-535
- *DMS Family Commands Reference Manual*, 297-1001-822
- *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431 to 297-8001-5434 (four volumes)
- *Recovery Procedures*, 297-8001-545
- *Routine Maintenance Procedures*, 297-8001-546
- *Log Report Reference Manual*, 297-8001-8401 to 297-8001-8407 (seven volumes)
- *XA-Core Reference Manual*, 297-8991-810

What precautionary messages mean

The types of precautionary messages used in Nortel Networks documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

WARNING Possibility of equipment damage



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

CAUTION Possibility of service interruption or degradation



CAUTION

Loss of service

Do not repeat steps.

DANGER Possible risk of electrocution



DANGER

Risk of electrocution

Do not touch the cabinet wiring. Connections with unshielded cabinet wiring can result in electric shock. Only qualified power maintenance personnel can perform the voltage measurements in step 3.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

>BSY CTRL

Variables

Variables are shown in lowercase letters:

>BSY CTRL ctrl_no

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

FP 3 Busy CTRL 0: Command request has been submitted.

FP 3 Busy CTRL 0: Command passed.

The following excerpt from a procedure shows the command syntax used in this document:

Manually busy the CTRL on the inactive plane by typing:

>BSY CTRL ctrl_no

and pressing the enter key.

where

ctrl_no is the number of the CTRL (0 or 1)

Example of a MAP response:

FP 3 Busy CTRL 0: Command request has been submitted.

FP 3 Busy CTRL 0: Command passed.

The following example from a procedure shows the command syntax used in this document:

Procedure 1 How to clear an alarm

At the MAP level

- 1 Place the circuit pack (CP) in a manual busy (ManB) state. At the MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 7 r

Example of system response:

BSY 7 r completed

If the CP is	Do
not InSv	step 5
InSv	step 6

1 Understanding the alarm system

Introduction

This chapter describes the alarm clearing procedures on the DMS SuperNode (SN) and DMS SuperNode SE (SNSE) XA-Core (XAC).

Alarms notify you of problems or conditions that can change the performance or working state of the XA-Core system. Daily operation of XA-Core requires monitoring for alarms and checking that main switch functions continue without interruption. Alarms provide notification that a system hardware or software related event has occurred. Equipment faults cause reduced service and reliability. The XA-Core system provides alarm reporting, automatic diagnostics, and testing facilities to support maintenance and correct functioning of the switch.

There are three levels of XA-Core alarm severity: minor, major, and critical. XA-Core alarms indicate the following types of working conditions:

- equipment failure
- equipment state change
- equipment test notification
- equipment operating at degraded level
- equipment reached defined capacity level
- software errors
- loss of communication between subsystems

The DMS log utility (LOGUTIL) and alarm reporting system, form part of the XA-Core maintenance notification function. XA-Core log reports provide information about fault conditions or changes in the working state of XA-Core system components. Use the logs to help you to clear an alarm condition.

Alarm reporting system

The alarm reporting system integrates event detection and alarm notification functions. An alarm becomes active when a reduced service, reliability or test condition occurs in the XA-Core. The alarm remains active until a system

event or activity performed by operating company personnel clears the alarm condition. The alarm system includes audible notification and visual display through warning lights and the MAP terminal.

The form and sound of the audible notification can vary in each office. Audible indicators signal that one or more events have started an alarm. You must refer to the MAP or the logs to determine the source of the alarm condition. The MAP and alarm notification systems makes the period of time between alarm detection and analysis as short as possible. A quick response is important because the alarm event can reduce switch service or, in severe conditions, cause a switch outage.

The MAP terminal displays accurate information about alarm condition so that you can decide on an appropriate response. The MAP terminal displays alarm codes in the alarm banner and the subsystem status summary field (SSSF). The alarm banner displays alarm codes that indicate the effect of the alarm event on the XA-Core system. The SSSF displays alarm codes that indicate equipment faults or system states.

MAP alarm banner

The XA-Core system software monitors for equipment or software events or faults. For events that effect performance or redundancy, the XA-Core system raises and displays an appropriate system alarm in the MAP alarm banner. The MAP alarm banner displays alarm codes that indicate the effect of the alarm event on the XA-Core system. The figure (1-1) shows an example of a memory limit (MemLim) alarm with a critical severity level.

Figure 1-1 MAP alarm banner

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL	DMS system headers
MemLim	•	•	•	•	•	•	•	•	•	Alarm status codes
C										Alarm severity

The alarm banner displays the following information:

1. DMS system headers: The DMS headers permanently display a set of titles indicating the different switch DMS nodes. The XA-Core MAP system displays the DMS headers on all XA-Core MAP levels.
2. Alarm status codes: The alarm status codes indicate the system alarm status. The alarm status fields display the alarm status code under each of

the DMS headers. If there are multiple faults in a single switch system, the alarm status field displays the most important.

3. Alarm severity: The alarm severity field displays the severity of the alarm condition. Each DMS subsystem reports on critical, major and minor alarm conditions. If there are multiple faults in a single switch system, the alarm severity field displays the most important fault (see Figure 1-1 and Table 1-1). The alarm banner displays the alarm severity under the alarm indicator in XAC header.

The possible alarm severity conditions are as follows:

- blank (no alarm)
blank (Minor alarm)
- M (Major alarm)
- C (Critical alarm)

The XA-Core alarm banner shows one active alarm at a time in the alarm status code field. The alarm banner displays the most important alarm (see the table that describes alarm banner codes). The RExTst, ImgTst and Split minor alarms override all major alarms. All critical alarms override the RExTst, ImgTst and Split alarms.

Alarm severity and event hierarchy

Equipment alarms and alarm severity codes indicate the effect that a fault or event has on a single piece of equipment. There are three types of alarm severities:

- Critical alarm: A critical alarm indicates a reduced service condition or complete loss of service. A critical alarm indicates that the system can no longer perform its design function. The alarm condition requires immediate correcting action so that the performance of the system can return to its design function. Examples of critical alarm conditions include the following:
 - a reduction in call processing capability
 - a reduction or full loss of system sanity
 - service reduction below an operating company defined threshold
- Major alarm: A major alarm indicates lost redundancy. The next fault of the same type, can cause a reduction or complete loss of service. There is no backup if another fault occurs on the active system. This alarm level can be generated when service decreases below an operating company defined threshold.

The XA-Core system classifies REx test (RExTst), Image test (ImgTst) and Split mode (Split) as the highest of all minor system alarms. The

1-4 Understanding the alarm system

RExTst alarm is higher in the alarm hierarchy than ImgTst and Split alarms. The MAP displays critical alarms related to OOS CPs or packlets.

- Minor alarm: A minor alarm indicates a small loss of redundancy. The next fault of the same type won't cause degradation of service. Examples of minor alarm conditions include the following:
 - conditions that may lead to a major alarm if not corrected
 - one piece of a pool of equipment that has been taken out of service
 - service degradation that has fallen below an operating company defined threshold

The system assigns system alarm events into a hierarchy. The alarm event hierarchy determines the type of alarm codes displayed in the alarm banner and SSSF. The system uses the alarm event hierarchy to prevent alarm contention.

When more than one alarm applies to a single subsystem, the MAP alarm banner displays the highest order of the most severe alarm. The SSSF displays an alarm that applies to one or more subsystem. The SSSF displays the total number of OOS CPs or packlets in each of the subsystems.

Note: The Alarm MAP command helps operating company personnel to identify all outstanding XA-Core alarm conditions.

The following table provides the alarm status codes, the alarm severities, and reason descriptions.

Table 1-1 Alarm banner codes (Sheet 1 of 4)

Alarm status code	Alarm severity	Alarm description
RExTst	(Minor)	The system is now performing a system or manually requested routine exercise test
ImgTst	(Minor)	System is testing the image to see if it can withstand a restart.
Split	(Minor)	Split mode indicates that the system is in preparation for a system load upgrade. The system is split into two parts. One part handles call processing, the other handles the installation of new operating system software.
Config	(Minor)	The system raises the Config alarm when some but not all of the PE circuit packs in the XA-Core are NTLX02DA models. This occurs during an upgrade to NTLX02DA PEs. The craftsperson changes one PE at a time. The alarm remains raised until all the PEs are NTLX02DA models.

Table 1-1 Alarm banner codes (Sheet 2 of 4)

Alarm status code	Alarm severity	Alarm description
FWvers	(Major)	The system raises the FWvers alarm when the firmware version of a field replaceable unit (FRU) and the firmware version recorded in table XAFWLOAD do not match.
MemLim	(Major)	Insufficient memory resources are available to perform calculations and system-related functions.
MemLim	(Minor)	Memory allocated for XA-Core operating system has reached approximately 90% of physical (total) memory.
LowPE	C (Critical)	Processor capacity is low. A reset is possible.
LowPE	M (Major)	Loss of processor capacity redundancy.
LowSM	M (Major)	Loss of memory capacity redundancy.
LowSM	(Minor)	Partial loss of memory capacity redundancy.
MScomm	C (Critical)	Loss of communication between MS and XA-Core. (Note that for this alarm, the MAP cannot display the status code and severity.)
MScomm	M (Major)	Loss of communication redundancy between MS and XA-Core.
MScomm	(Minor)	Partial loss of communication redundancy between message switch (MS) and XA-Core.
AMDI	C (Critical)	Loss of messaging to Multi-service Gateway 4000.
AMDI	M (Major)	Loss of messaging redundancy.
ETHR	C (Critical)	Loss of two Ethernet links in a two-link configuration or loss of four links in a four-link configuration, which prevents call origination at the call server, or loss of three links in a four-link configuration, which causes the system to function below engineered capacity.
ETHR	M (Major)	Loss of one Ethernet link in a two-link configuration, or loss of two links in a four-link configuration, which causes a loss of redundancy.
ETHR	(Minor)	Loss of one Ethernet link in a four-link configuration, which causes a loss of redundancy.
IOHits	(Minor)	The system raises the IOHits alarm when the number of times that an IO component has gone from an in-service state to an out-of-service state reaches the threshold value. The threshold value is configurable, and is stored in the office parameter XA_IO_STATE_CHANGE_ALARM_THRESH in the OFCENG table. The category "IO components" includes CMIC, Ethr, and AMDI links, ports, and hardware (packets and sections of HIOP circuit packs).
Image	M (Major)	XA-Core software load cannot withstand a restart.

Table 1-1 Alarm banner codes (Sheet 3 of 4)

Alarm status code	Alarm severity	Alarm description
Image	(Minor)	XA-Core Image test shows possible image faults, test aborted or the test was not run.
TOD	C (Critical)	There is no accurate TOD. XA-Core system has detected faults on all TOD clocks.
TOD	M (Major)	Total loss of redundancy for TOD.
TOD	(Minor)	Partial loss of time of day (TOD) redundancy.
XATrap	M (Major)	Trap rate is above threshold value.
DISK	(Minor)	The alarm indicates a disk access problem caused by a fault in an input/output processor (IOP) or disk packet.
RTIF	C (Critical)	Access to all remote or local ports is not available.
RTIF	M (Major)	Access to two remote or local ports is not available.
RTIF	(Minor)	Access to one of the two remote or local ports is not available.
RExSch	(Minor)	Cancellation of more than two, daily system REx tests.
RExFlt	(Minor)	Indicates the failure of routine exercise tests (RExTst) that were conducted on one or more devices. The alarm remains up until all devices that failed the tests have been retested and have passed.
TAPE	(Minor)	An access problem between XA-Core and tape device caused by an OOS IOP or tape packet
PETbl	(Minor)	System software has detected a problem on one or more processor CPs. All PEs continue to be in service but at least one PE CP is in an IsTb state.
IOtbl	(Minor)	System software has detected a non-critical fault on one or more IOP or packet. All IOPs and packets remain in service.
IOP	(Minor)	System software has detected a non-critical fault on one or more IOP or packet. All IOPs and packets remain in service.
SMtbl	(Minor)	System software has detected a non-critical fault on one or more SM CP. All SMs CPs remain in service.
RIBkey	M (Major)	Two RIBkeys remain connected.
RIBkey	(Minor)	A single retrofit inactive boot key (RIBkey) remains connected to the RTIF local port.
WgSlot	(Minor)	A CP is in a wrong, or un-provisionable slot. The slot does not contain the correct CP or packet type.

Table 1-1 Alarm banner codes (Sheet 4 of 4)

Alarm status code	Alarm severity	Alarm description
FWsoak	(Minor)	The system raises the FWsoak alarm when the FRU is returned to service after loading new firmware. The system does not raise the alarm if the soak time for an FRU is set to zero in table XAFWLOAD.

MAP subsystem status summary field (SSSF)

The subsystem status summary field (SSSF) displays the working status of the XA-Core equipment subsystems. The SSSF has three rows and four columns of fields that display the following information:

1. **Subsystem headers:** The subsystem headers permanently display a set of titles that describe the different XA-Core equipment subsystems.
2. **Hardware alarm codes:** The hardware alarm code fields display hardware alarms for each subsystem type. If there are multiple faults in a single CP/packlet type, the hardware alarm field displays the most important.
3. **OOS circuit pack/packlet count:** The OOS CP/packlet count fields display the total number of out-of-service CPs or packlets in each of the subsystems. The count can increase for each alarm condition. The count does not increase for non-critical device faults and trouble conditions.

Figure 1-2 XA-Core MAP sub-system summary status field

SM	PE	IO	PKLT	
.	.	.	.	Subsystem headers
0	0	0	0	Hardware alarm codes
				OOS CP/packlet count

The table below summarizes the SSSF hardware alarm codes for the SM, PE and IO subsystems.

Table 1-2 Fault/state conditions and SM, PE and IO SSSF alarms (Sheet 1 of 2)

Fault/State	SM	PE	IO
Uncorrectable fault	SMfl	PEfl	IOPl
Inactive CP/packlet	Splt	Splt	Splt
REx Test	RExTst	RExTst	RExTst

Table 1-2 Fault/state conditions and SM, PE and IO SSSF alarms (Sheet 2 of 2)

Fault/State	SM	PE	IO
ManB CP	SM M	PE M	IOP M
CP trouble	SMtb	PEtb	IOPtb
Unprovisioned slot	badPEC	badPEC	badPEC
Unknown fault	SM ?	PE ?	IOP ?
Firmware fault	SMfw	PEfw	IOPfw

The table below summarizes the SSSF packet (PKLT) hardware alarm codes. The PKLT field displays the alarm that matches the fault or state detected in a packet. The PKLT field displays only the packet alarm that matches the most critical hardware alarm.

Table 1-3 Fault/state conditions and PKLT SSSF alarms

Fault/State	CMIC	TOD	LINK	RTIF	Local	AMD	ETHR	Remote	DISK	TAPE
Uncorrectable fault	CMICfl	TODfl	LINKfl	RTIFfl	LocPfl	AMDIf	ETHRfl	RemPfl	DISKfl	TAPEfl
Inactive CP/packet	split	split	split	split	split	split	split	split	split	split
REx Test	RExTst	RExTst	RExTst	RExTst	RExTst	RExTst	RExTst	RExTst	RExTst	RExTst
RIB Key not removed				RIBkey	RIBkey			RIBkey		
CMIC Isolation	XAisol									
TOD Isolation		TODflt								
MS TOD fault		MSTOD								
MS Isolation			MSisol							
ManB packet/link	CMIC M		LINK M	RTIF M	LocP M	AMD I M	ETHR M	RemP M	DISK M	TAPE M
Dependent busy packet/link	CMIC C	TOD C	LINK C	RTIF C	LocP C	AMD I C	ETHR C	RemP C	DISK C	TAPE C
Packet/link trouble	CMICtb	TODtb	LINKtb	RTIFtb	LocPtb	AMDItb	ETHRtb	RemPtb	DISKtb	TAPEtb
Unprovisioned slot	badPEC			badPEC		badPEC	badPEC		badPEC	badPEC
Unknown fault	CMIC ?	TOD ?	LINK ?	RTIF ?	LocP ?	AMD I ?	ETHR ?	RemP ?	DISK ?	TAPE ?

Enabling and disabling of XA-Core alarms

You can enable or disable alarm notification by using the appropriate MAP Alarm_ command (see the MAP commands section). The MAP terminal, warning lights and audible alarms notify operating company personnel of an event for enabled alarms.

The MAP or alarm notification system does not provide event notification for disabled alarms. The XA-Core software internally generates and records alarm events for all disabled alarms. The system records all alarm events for log generation, pegging OMs and updating internal data structures.

The Alarm_ command displays the current status of all enabled and disabled alarms to the MAP terminal.

Alarm enable MAP command

You can reset an alarm type by using the Alarm_ MAP command with the <enable> parameter. The command resets the alarm and allows event notification. A fault or maintenance event triggers an alarm (active alarm). An alarm does not have to be active to be enabled. Use the Alarm_ <enable> command from any MAP level.

Alarm disable MAP command

For maintenance or troubleshooting purposes, you can override the display of an existing alarm (system default or operating company personnel-selected). Disable any alarm by using the Alarm_ MAP command with the <disable> parameter. Use the Alarm_ <disable> command from any MAP level.

A disabled alarm does not remove the cause of the alarm. The reason for the alarm exists, but the alarm does not appear in the alarm banner. You can disable an inactive alarm.



CAUTION

Long-term system degradation

If you disable an alarm for maintenance or troubleshooting and then fail to re-enable that alarm, a situation then exists in which the system could run in a degraded state, without issuing an alarm to call attention to the problem.

Alarms and log reports

Log reports are a primary source of information about the function of the XA-Core equipment and performance. Use the Logs with the alarm system. Log reports include the following information:

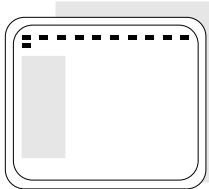
- severity of the log (represented by number of asterisks)
- type of log
- time and date
- suspected problem
- list of suspected faulty components

The LOGUTIL system outputs the appropriate log reports. Each alarm matches one or more logs. The MAP alarm banner displays XA-Core related alarms.

For lists of the logs that are related to each alarm, see Table 7-1, “Relations among alarms, logs, and OMs,” on page 7-5 in this document.

XAC AMDI critical

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
AMDI	.	.	.	.	.	.	.	.	.
C									

Indication

An AMDI critical alarm code appears under the XAC header of the alarm banner. The alarm code indicates a ATM multi-node data interface (AMDI) critical alarm.

Meaning

All AMDI links in at least one group (as defined in table XAMDILNK) are out of service (OOS).

The following link states can contribute to an AMDI critical alarm:

- AMDI links are in ManBsy state
- AMDI links are in CBsy state
- AMDI links are in SysBsy state

Impact

A minimum of one AMDI link for each messaging group must be INSV to guarantee messaging to a Multi-service Gateway 4000 (MG4K). Without at least one INSV AMDI link for each messaging group, call origination cannot occur at the Call Server.

Common procedures

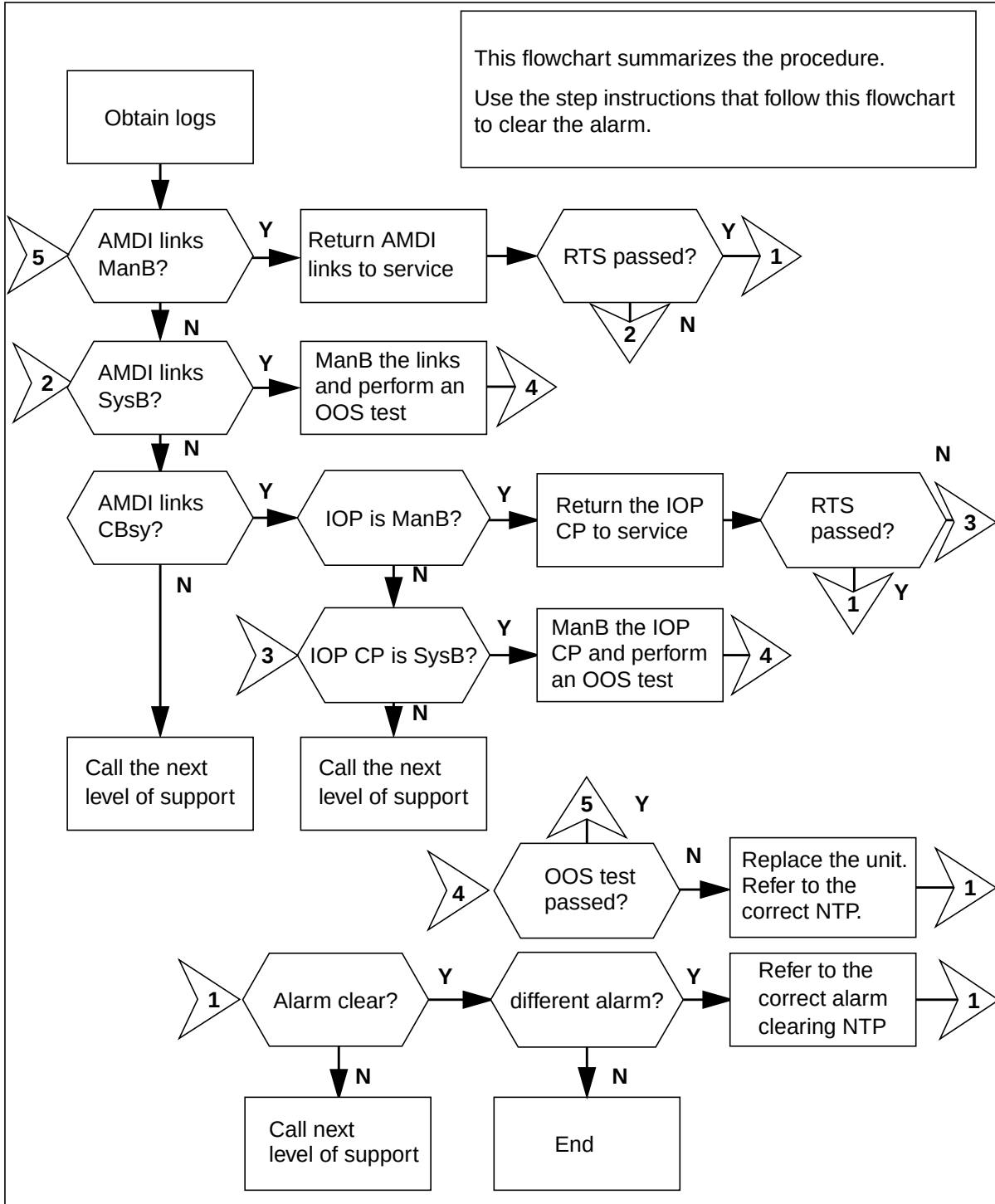
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC AMDI critical (continued)

Summary of clearing an AMDI alarm



XAC AMDI
critical (continued)**How to clear an AMDI alarm****ATTENTION**

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of equipment damage - electric static discharge (ESD)**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**CAUTION****Loss of service**

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC AMDI critical (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the logs indicate	Do
an AMDI link fault	step 2
a hardware fault	step 13
that the AMDI critical alarm condition is clear	step 19

- 2 Access the XA-Core AMDI MAP level by typing
MAPCI;MTC;XAC;AMDI
and pressing the Enter key.
- 3 Examine the AMDI MAP level. Record the location and status of the AMDI packets.

Note: The AMDI MAP level can display alarms and status as follows:

 - a system alarm code appears under the XAC header in the alarm banner.
 - an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
 - a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC AMDI critical (continued)

AMDI MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
AMDI	.	.	.	.	.	.	.	.	.
C									
AMDI									
0 Quit									
2									
3									
4									
5									
6 Tst_									
7 Bsy_									
8 RTS_									
9									
10 LoadFW_									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									

If the AMDI MAP level indicates	Do

AMDI links are in a ManB state	step 4
AMDI links are in a SysB state	step 5
AMDI links are in a CBsy state	step 7
a hardware fault	step 13
no alarm and all CPs and all links are InSv	step 19

- 4 Return the OOS AMDI links to service. Repeat this step for each ManB link. At the AMDI MAP level type
- >RTS <nn> <s> <p> <link>**
- and press the Enter key
- where
- <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

XAC AMDI

critical (continued)

<link> is the parameter that defines the link on an OC-3 packetlet. The two possible values are link0 or link1.

Example of command:

RTS 14 r l link0

Example of system response:

RTS 4 rear lower link0 passed

If the AMDI links are	Do
in a SysB state	step 5
in a CBSy state	step 7
in an InSv state	step 16

- 5** Manually busy the OOS AMDI links. Repeat this step for each SysB link. At the AMDI MAP level type

>BSY <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packetlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an OC-3 packetlet. The two possible values are link0 or link1.

Example of command use:

>BSY 14 r l link0

Example of system response:

BSY 4 rear lower link0 complete

Note: If needed, use the Force option to place the link in a ManB state. Refer to the XA-Core MAP commands documentation.

- 6** Perform an OOS test on the AMDI links. Repeat this step for each ManB AMDI link. At the AMDI MAP level type

>TST <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

XAC AMDI critical (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an OC-3 packlet. The two possible values are link0 or link1.

Example of command use:

>TST 14 r l link0

If the OOS test	Do
passed	step 3
did not pass	step 14

- 7 Access the IO MAP level. At the AMDI MAP level type

>IO

and press the Enter key.

- 8 Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packlet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC AMDI critical (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
AMDI	.	.	.	.	.	.	.	.	.
C									
IO									
0 Quit		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
		123456789012345678		456789012345		.	.	IOP M	RTIF C
2		Sta: .-. .-. .-. .-. .-. .-. .-. .-. .-		M-. .-. .-. .-		0	0	1	0
3		Dep:		F					
4		Typ: *		*					
5		Slot: Side: Status:							
6 Tst_	2	Front	.		Upper:	Middle:	Lower:		
7 Bsy_	17	Front	.		Tape .		Disk .		
8 RTS_	4	Rear	.		Tape .		Disk .		
9	5	Rear	S		RTIF .		CMIC .		
10 LoadFW_	6	Rear	.				AMDI C		
11	13	Rear	.				AMDI .		
12 Uneq_	14	Rear	M				AMDI C		
13	15	Rear	.		RTIF .		CMIC .		
14 Alarm_	XAC:								
15	IO:								
16									
17 Indicatt_									
18 Query_									
XMAP0									
Time 14:12	>								

	If the IOP CP is	Do
	in a ManB state	step 9
	in a SysB state	step 15
	in an InSv state	step 16
9	Return the IOP CP to service. Make sure that all related packlets are also in service.	
a	At the IO MAP level type	
	>RTS <nn> <s>	
	and press the Enter key	
	where	
	<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18	
	<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)	
	Example of command:	
	>RTS 4 r	
	Example of system response:	
	RTS 4 rear passed	

XAC AMDI critical (continued)

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related links are ManB	step 12
InSv and any related links are SysB	step 14
SysB and all related links are CBSy	step 10
InSv and all related links are InSv	step 16

- 10** Manually busy the OOS IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>BSY 4 r
Example of system response:
 BSY 4 rear complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type
>TST <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>TST 4 r

If the OOS test	Do
passed	step 8

XAC AMDI critical (continued)

	If the OOS test	Do
	did not pass	step 15
12	Access the correct MAP level. Return the ManB links to service. >RTS <nn> <s> <p> <link> and press the Enter key where <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane. <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value indicating the packlet location, upper (u) or lower (l). <link> is the parameter that defines the link on an OC-3 packlet. The two possible values are link0 or link1. Example of command: RTS 14 r l link0 <i>Example of system response:</i> RTS 4 rear lower link0 passed	
	If the links are	Do
	in a SysB state	step 14
	in an InSv state	step 16
13	Perform the correct packlet OOS test procedure. Refer to the correct NTP. Return to this point when complete.	
	If the packlet is	Do
	in a SysB state	step 14
	in an InSv state	step 16
14	Perform the Cleaning fiber-optic components and assemblies procedure. Refer to the correct NTP.	
	If the links are	Do
	in an InSv state	step 16
	in a SysB state	step 18

**XAC AMDI
critical (end)**

- 15** Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 16
in a SysB state	step 18

- 16** Confirm that the alarm is clear. Examine the alarm banner on the AMDI MAP level.

If the AMDI critical alarm is	Do
changed to a different alarm	step 17
not clear	step 18
clear	step 19

- 17** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

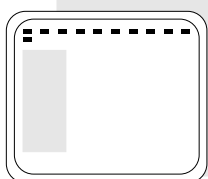
If the alarm is	Do
not clear	step 18
clear	step 19

- 18** Call the next level of support.

- 19** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC AMDI major

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
AMDI	.	.	.	.	.	.	.	.	.
M									

Indication

An AMDI major alarm code appears under the XAC header of the alarm banner. The alarm code indicates a ATM multi-node data interface (AMDI) major alarm.

Meaning

One AMDI link in at least one group (as defined in table XAMDILNK) are out of service (OOS).

The following link states can contribute to an AMDI major alarm:

- AMDI links are in ManBsy state
- AMDI links are in CBsy state
- AMDI links are in SysBsy state

Impact

A loss of AMDI link redundancy occurs. There is no loss of call origination at the Call Server.

Common procedures

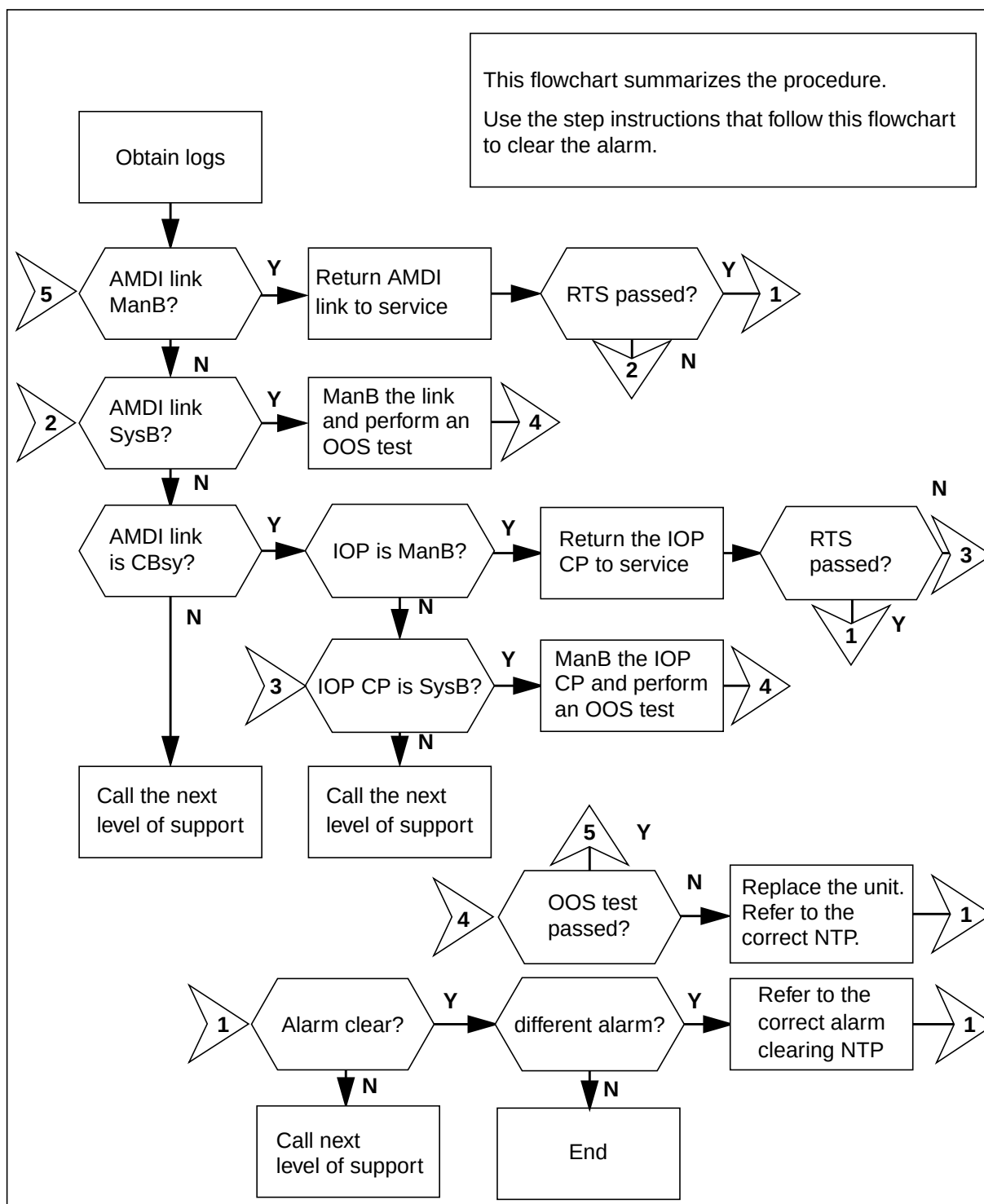
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC AMDI major (continued)

Summary of clearing an AMDI alarm



XAC AMDI

major (continued)

How to clear an AMDI alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC AMDI major (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the logs indicate	Do
an AMDI link fault	step 2
a hardware fault	step 13
that the AMDI major alarm condition is clear	step 19

- 2 Access the XA-Core AMDI MAP level by typing
MAPCI;MTC;XAC;AMDI
and pressing the Enter key.
- 3 Examine the AMDI MAP level. Record the location and status of the AMDI packets.

Note: The AMDI MAP level can display alarms and status as follows:

 - a system alarm code appears under the XAC header in the alarm banner.
 - an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
 - a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
AMDI      .      .      .      .      .      .      .      .      .
**
AMDI      Front:    11111111    Rear: 111111    SM      PE      IO      PKLT
0 Quit      123456789012345678    456789012345    .      .      .      Linkfl
2      Sta: . . - . . . . - . .      . . . . . . . .      0      0      0      0
3      Dep:      F
4      Typ:      **      **
5      Slot: Side: Packlet: Port0: Link0: Port1: Link1:
6 Tst_      5      Rear      Lower .      S      -
7 Bsy_      6      Rear      Lower .      .      -
8 RTS_      13     Rear      Lower .      .      -
9      14     Rear      Lower .      .      -
10 LoadFW_  XAC:
11      AMDI:
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
XMAP0
Time 14:12  >

```

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XAC AMDI major (continued)

<link> is the parameter that defines the link on an OC-3 packet. The two possible values are link0 or link1.

Example of command:

RTS 14 r l link0

Example of system response:

RTS 4 rear lower link0 passed

If the AMDI links are	Do
in a SysB state	step 5
in a CBSy state	step 7
in an InSv state	step 16

- 5 Manually busy the OOS AMDI links. Repeat this step for each SysB link. At the AMDI MAP level type

>BSY <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an OC-3 packet. The two possible values are link0 or link1.

Example of command use:

>BSY 14 r l link0

Example of system response:

BSY 4 rear lower link0 complete

Note: If needed, use the Force option to place the link in a ManB state. Refer to the XA-Core MAP commands documentation.

- 6 Perform an OOS test on the AMDI links. Repeat this step for each ManB AMDI link. At the AMDI MAP level type

>TST <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

XAC AMDI

major (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an OC-3 packlet. The two possible values are link0 or link1.

Example of command use:

>TST 14 r l link0

If the OOS test	Do
passed	step 3
did not pass	step 14

- 7 Access the IO MAP level. At the AMDI MAP level type

>IO

and press the Enter key.

- 8 Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packlet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC AMDI major (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
AMDI	.	.	.	.	.	.	.	.	.
M									
IO									
0 Quit		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
		123456789012345678		456789012345		.	.	IOP M	LINK C
2		Sta:		.M.		0	0	1	1
3		Dep:		F					
4		Typ: *		***					
5		Slot: Side: Status:				Upper:	Middle:	Lower:	
6 Tst_	2	Front	.			Tape .		Disk .	
7 Bsy_	17	Front	.			Tape .		Disk .	
8 RTS_	4	Rear	.			RTIF .		CMIC .	
9	5	Rear	M					AMDI C	
10 LoadFW_	6	Rear	.					AMDI .	
11	13	Rear	.					AMDI .	
12 Uneq_	14	Rear	.					AMDI .	
13	15	Rear	.			RTIF .		CMIC .	
14 Alarm_	XAC:								
15	IO:								
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

	If the IOP CP is	Do
	in a ManB state	step 9
	in a SysB state	step 15
	in an InSv state	step 16
9	Return the IOP CP to service. Make sure that all related packlets are also in service.	
a	At the IO MAP level type	
	>RTS <nn> <s>	
	and press the Enter key	
	where	
	<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18	
	<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)	
	Example of command:	
	>RTS 4 r	
	Example of system response:	
	RTS 4 rear passed	

XAC AMDI

major (continued)

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related links are ManB	step 12
InSv and any related links are SysB	step 14
SysB and all related links are CBSy	step 10
InSv and all related links are InSv	step 16

- 10** Manually busy the OOS IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>BSY 4 r
Example of system response:
 BSY 4 rear complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type
>TST <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>TST 4 r

If the OOS test	Do
passed	step 8

XAC AMDI major (continued)

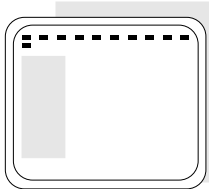
	<table> <tr> <th>If the OOS test</th><th>Do</th></tr> <tr> <td>did not pass</td><td>step 15</td></tr> </table>	If the OOS test	Do	did not pass	step 15		
If the OOS test	Do						
did not pass	step 15						
12	Access the correct MAP level. Return the ManB links to service. >RTS <nn> <s> <p> <link> and press the Enter key where <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane. <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value indicating the packet location, upper (u) or lower (l). <link> is the parameter that defines the link on an OC-3 packet. The two possible values are link0 or link1. Example of command: RTS 14 r l link0 <i>Example of system response:</i> RTS 4 rear lower link0 passed						
	<table> <tr> <th>If the links are</th><th>Do</th></tr> <tr> <td>in a SysB state</td><td>step 14</td></tr> <tr> <td>in an InSv state</td><td>step 16</td></tr> </table>	If the links are	Do	in a SysB state	step 14	in an InSv state	step 16
If the links are	Do						
in a SysB state	step 14						
in an InSv state	step 16						
13	Perform the correct packet OOS test procedure. Refer to the correct NTP. Return to this point when complete.						
	<table> <tr> <th>If the packet is</th><th>Do</th></tr> <tr> <td>in a SysB state</td><td>step 14</td></tr> <tr> <td>in an InSv state</td><td>step 16</td></tr> </table>	If the packet is	Do	in a SysB state	step 14	in an InSv state	step 16
If the packet is	Do						
in a SysB state	step 14						
in an InSv state	step 16						
14	Perform the Cleaning fiber-optic components and assemblies procedure. Refer to the correct NTP.						
	<table> <tr> <th>If the links are</th><th>Do</th></tr> <tr> <td>in an InSv state</td><td>step 16</td></tr> <tr> <td>in a SysB state</td><td>step 18</td></tr> </table>	If the links are	Do	in an InSv state	step 16	in a SysB state	step 18
If the links are	Do						
in an InSv state	step 16						
in a SysB state	step 18						

XAC AMDI major (end)

- 15** Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.
- | If the IOP CP is | Do |
|-------------------------|-----------|
| in an InSv state | step 16 |
| in a SysB state | step 18 |
- 16** Confirm that the alarm is clear. Examine the alarm banner on the AMDI MAP level.
- | If the AMDI major alarm is | Do |
|-----------------------------------|-----------|
| changed to a different alarm | step 17 |
| not clear | step 18 |
| clear | step 19 |
- 17** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.
- | If the alarm is | Do |
|------------------------|-----------|
| not clear | step 18 |
| clear | step 19 |
- 18** Call the next level of support.
- 19** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC Config minor

Alarm display



XAC Config	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

Indication

A Config alarm code appears under the XAC header of the alarm banner. The alarm banner code indicates a Config minor alarm.

Meaning

This alarm means that an upgrade of the PE circuit packs is in progress. The PE circuit packs are being upgraded to NTLX02DA models from earlier models. (The NTLX02DA models can handle more traffic.) The craftsperson upgrades the circuit packs by replacing the earlier models one at a time. The alarm indicates that the XA-Core currently contains a mixture of PE circuit packs, one or more NTLX02DA models, and one or more earlier models.

The alarm remains raised until the craftsperson has upgraded all the PE circuit packs, so that all the PE circuit packs in the shelf are NTLX02DA models.

Impact

There is no change in subscriber service.

Common procedures

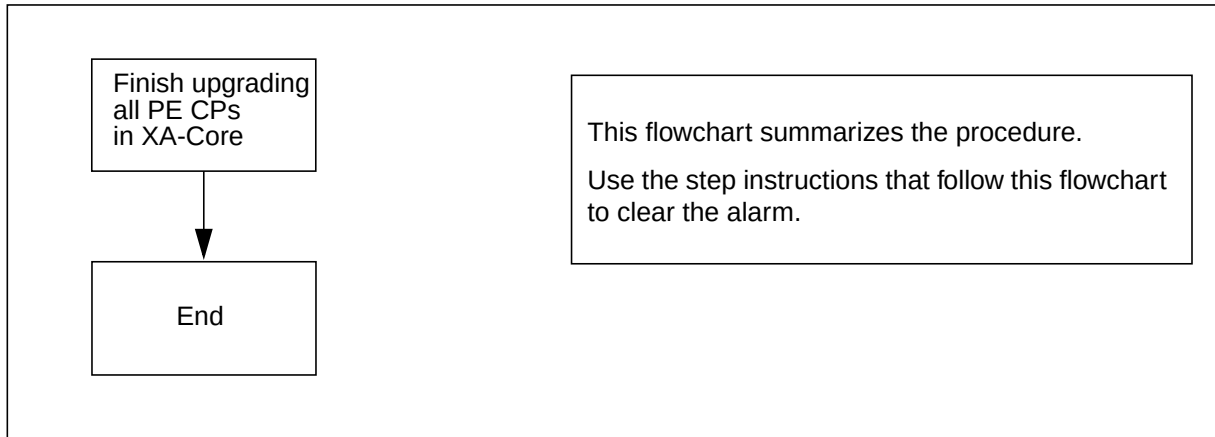
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC Config minor (end)

Summary of clearing a Config minor alarm



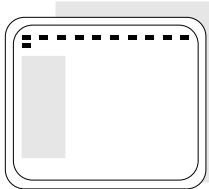
How to clear a Config minor alarm

At the XA-Core shelf

- 1** Replace all remaining earlier-model PE circuit packs in the XA-Core with NTLX02DA circuit packs. For instructions, see installation method (IM) 65-6161, which is available from Nortel Networks.
- 2** You have completed this procedure.

XAC Disk minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
DISK	.	.	.	.	.	.	.	.	.

Indication

A DISK alarm code appears under the XAC header of the alarm banner. The alarm banner code indicates a Disk minor alarm.

Meaning

The XA-Core cannot access a disk packlet. One or more of the following conditions cause the Disk minor alarm:

- An XA-Core disk packlet is system busy (SysB) or manual busy (ManB).
- An XA-Core input/output processor (IOP) circuit pack (CP) is SysB or ManB. The disk packlet state is in a OOS CBsy state.

Impact

There is no change in subscriber service.

Common procedures

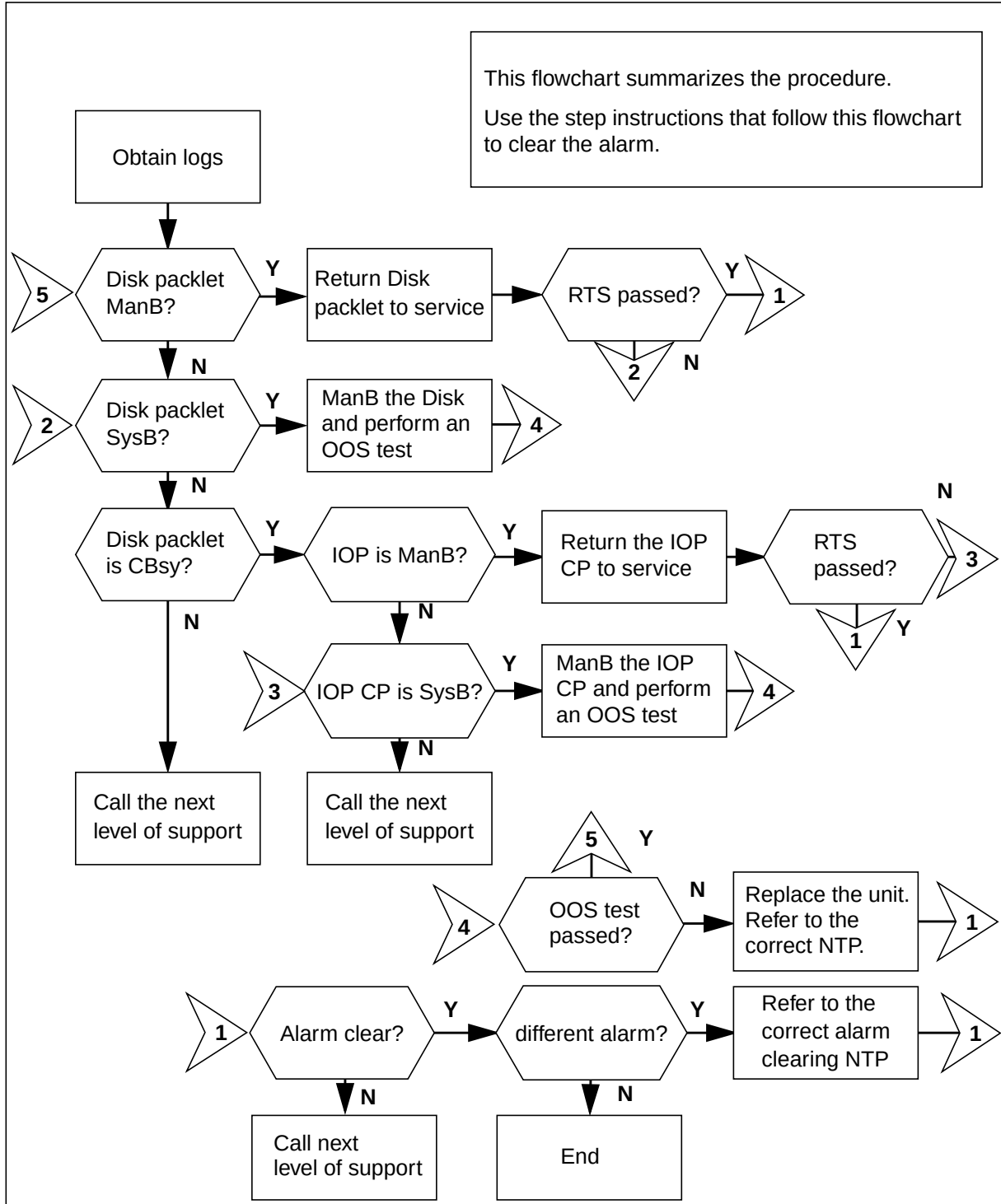
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC Disk minor (continued)

Summary of clearing a Disk alarm



XAC Disk minor (continued)

How to clear a Disk alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC Disk minor (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a Disk minor alarm condition	step 2
a different alarm condition	step 17
that the alarm condition is clear	step 19

- 2 Access the Disk MAP level. At the CI MAP level, type
MAPCI;MTC;XAC;DISK
and press the Enter key.
- 3 Examine the Disk MAP level. Record the status of the disk packlets and the IOP CPs. Record the location of any out of service (OOS) CPs or packlets.

Note: The Disk MAP level can display alarms and status as follows:

 - an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the PKLT header in the subsystem status summary field (SSSF)
 - status codes appear in the status field in the command interpreter output area

The following is a sample MAP display.

XAC Disk minor (continued)

Disk MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
DISK	.	.	.	.	.	.	.	.	.
Disk		Front:	111111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345	.	.	.	.	.	DISK M
2		Sta: -.-.-.-.-.-.-.-.-.-	-.-.-.-.-.-.-.-.-.-	0	0	0	0	0	1
3		Dep:		F					
4		Typ:	*	*					
5		Slot:	Side:	Packlet:	Status:				
6 Tst_		2	Front	Lower	.				
7 Bsy_		17	Front	Lower	M				
8 RTS_									
9									
10									
11 Format		DISK:							
12									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									>

If the MAP indicates

Do

a Disk packlet is in a SysB state	step 4
a Disk packlet is in a ManB state	step 6
a Disk packlet is in a Cbsy state	step 7
a different alarm	step 17
no alarm and all CPs and packlets are in service	step 19

4

Manually busy the OOS Disk packlet. At the Disk MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

XAC Disk minor (continued)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 17 f l

Example of system response:

BSY 4 rear upper complete

Note: If needed, use the Force option to place the packet in a ManB state. Refer to the XA-Core MAP commands documentation.

If the packet is	Do
in a ManB state	step 5
not in a ManB state	step 18

- 5 Perform an OOS test on the Disk packet. At the Disk MAP level type.

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).

Example of command:

>TST 17 f l

Example of system response:

TST 17 front lower passed

If the OOS test	Do
passed	step 6
did not pass	step 14

- 6 Return the Disk packet to service. At the Disk MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

XAC Disk minor (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command:

>RTS 17 f l

Example of system response:

RTS 17 front lower passed

If the Disk packlet is	Do
in a SysB state	step 4
in a CBsy state	step 7
in an InSv state	step 16

- 7** Access the IO MAP level. At the Disk MAP level type

>IO

and press the Enter key.

- 8** Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packlet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC Disk
minor (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
DISK	.	.	.	.	.	.	.	.	.
IO		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345			.	.	IOP M	DISK C
2	Sta:	-----M-	-----			0	0	1	2
3	Dep:		F						
4	Typ:	*	*	*	*				
5	Slot:	Side:	Status:		Upper:	Middle:	Lower:		
6 Tst_	2	Front	.		Tape .		Disk .		
7 Bsy_	17	Front	M		Tape C		Disk C		
8 RTS_	4	Rear	.		RTIF .		CMIC .		
9	15	Rear	.		CMIC .		CMIC .		
10 LoadFW_	XAC:								
11	IO:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is	Do
in a ManB state	step 9
in a SysB state	step 10
in an InSv state	step 16

- 9 Return the IOP CP to service. Make sure that all related packlets are also in service.
- a At the IO MAP level type
- >RTS <nn> <s>
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- Example of command:
- >RTS 17 f
- Example of system response:
- RTS 17 front passed

XAC Disk minor (continued)

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related packlet is ManB	step 12
InSv and any related packlet is SysB	step 14
SysB and all related packlets are CBSy	step 15
InSv and all related packlets are InSv	step 16

- 10** Manually busy the OOS IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>BSY 17 f
Example of system response:
 BSY 17 front complete
Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

If the IOP CP is	Do
in a ManB state	step 11
not in a ManB state	step 18

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type
>TST <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

XAC Disk minor (continued)

Example of command use:

>TST 17 f

If the OOS test	Do
passed	step 8
did not pass	step 15

- 12** Access the correct packlet MAP level. Return the ManB packlet to service.

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command:

RTS 17 f l

Example of system response:

RTS 17 front lower passed

If the packlet is	Do
in a SysB state	step 13
in an InSv state	step 16

- 13** Perform the correct packlet OOS test procedure. Refer to the correct NTP. Return to this point when complete.

If the packlet OOS test	Do
did not pass	step 14
passed	step 16

- 14** Perform the correct packlet replacement procedure. Refer to the correct NTP. Return to this point when complete.

If the packlet is	Do
in an InSv state	step 16
in a SysB state	step 18

**XAC Disk
minor (end)**

- 15** Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 16
in a SysB state	step 18

- 16** Confirm that the alarm is clear. Examine the alarm banner on the MAP screen.

If the Disk minor alarm is	Do
changed to a different alarm	step 17
not clear	step 18
clear	step 19

- 17** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

If the alarm is	Do
not clear	step 18
clear	step 19

- 18** Call the next level of support.

- 19** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC ETHR critical

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	ETHR	.	.	.	.	.	.	.	.	.
	C									

Indication

An ETHR critical alarm code appears under the XAC header of the alarm banner. The alarm code indicates an Ethernet critical alarm.

Meaning

The conditions that contribute to an ETHR critical alarm are dependent on the link configuration in use.

The following port or link states can contribute to an ETHR critical alarm in a four link configuration:

- Three or more Ethernet ports or links are in ManBsy state
- Three or more Ethernet ports or links are in CBsy state
- Three or more Ethernet ports or links are in SysBsy state

The following port or link states can contribute to an ETHR critical alarm in a two link configuration:

- Two Ethernet ports or links are in ManBsy state
- Two Ethernet ports or links are in SysBsy state

Impact

In a four link configuration, a minimum of 2 Ethernet links must be in-service (INSV) to guarantee messaging to a Ethernet network. With only one link in-service the system functions below engineered capacity.

In a two link configuration, a minimum of one Ethernet link must be in-service to guarantee messaging to a Ethernet network.

Without at least one INSV Ethernet link, call origination cannot occur at the call server.

XAC ETHR
critical (continued)

Common procedures

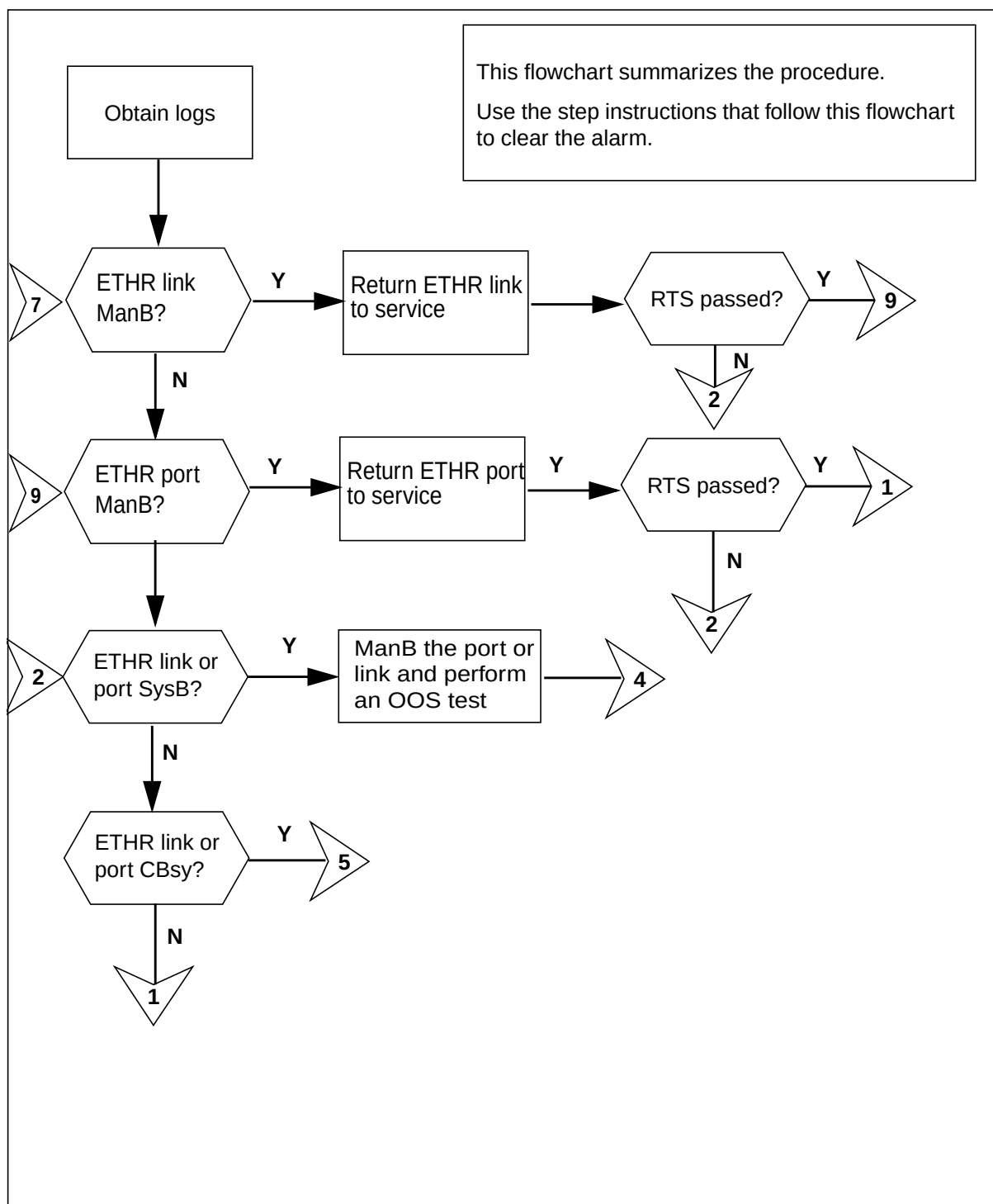
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

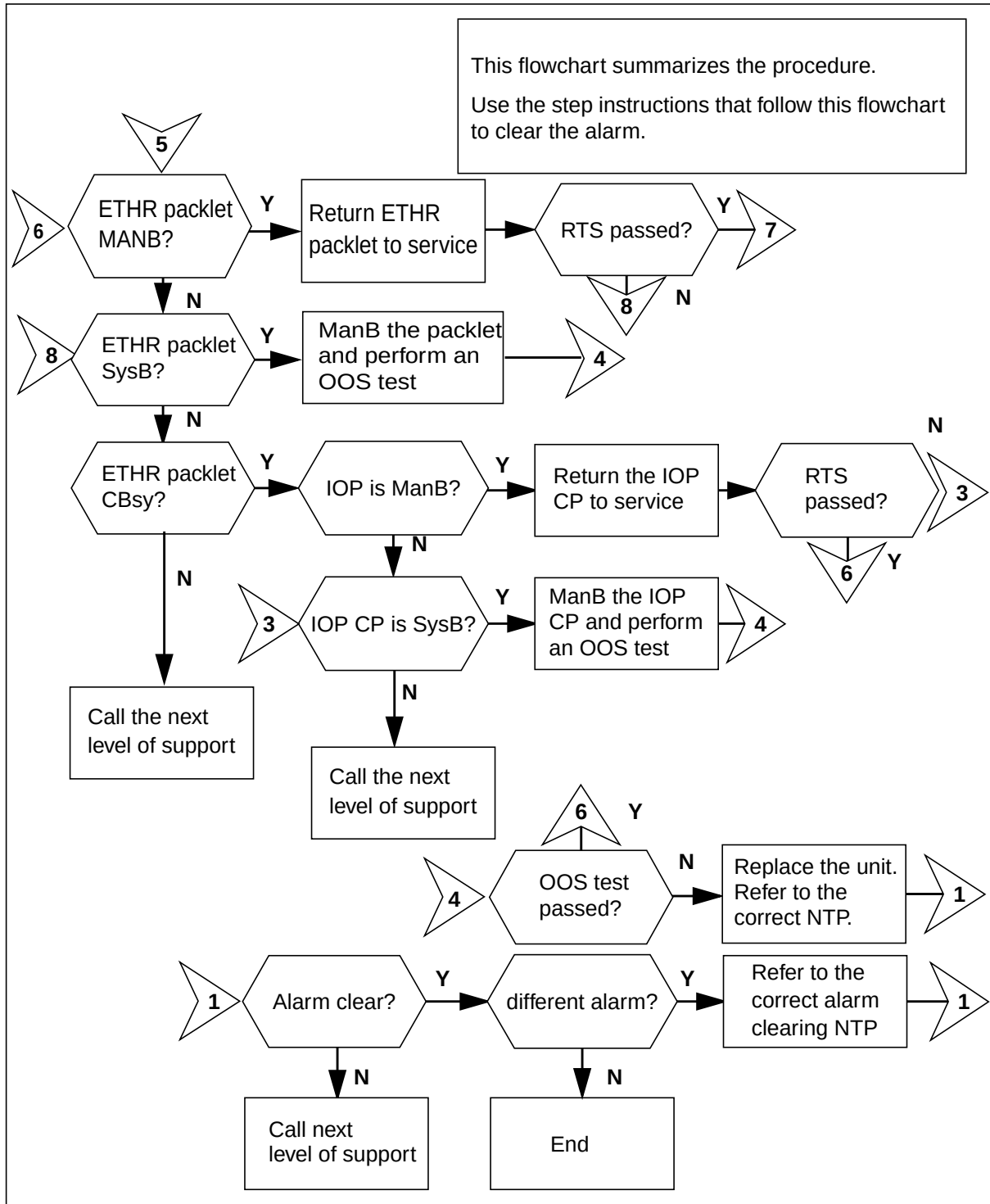
XAC ETHR critical (continued)

Summary of clearing an ETHR critical alarm



XAC ETHR critical (continued)

Summary of clearing an ETHR critical alarm



XAC ETHR **critical** (continued)

How to clear an ETHR critical alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC ETHR critical (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the logs indicate	Do
an Ethernet packet fault	step 2
an Ethernet port or link fault	step 2
an IOP packet hardware fault	step 13
that the ETHR critical alarm condition is clear	step 22

- 2 Access the XA-Core ETHR MAP level by typing
MAPCI;MTC;XAC;ETHR
and pressing the Enter key.
- 3 Examine the ETHR MAP level. Record the location and status of the ETHR packets.

Note: The ETHR MAP level can display alarms and status as follows:

 - a system alarm code appears under the XAC header in the alarm banner.
 - an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
 - a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC ETHR
critical (continued)

ETHR MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.
C									
ETHR		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345			.	.	.	ETHR M
2	Sta:	.	.....-.-	.....		0	0	0	1
3	Dep:			FF	F				
4	Typ:			**	**				
5	Slot:	Side:	Packlet:	Port:	Link:				
6 Tst_	5	Rear	Lower M	C	C				
7 Bsy_	6	Rear	Lower .	M	C				
8 RTS_	13	Rear	Lower .	.	S				
9	14	Rear	Lower I	.	.				
10 LoadFW_	XAC:								
11	ETHR:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the ETHR MAP level indicates	Do
ETHR packet is in a ManB state	step 4
ETHR packet is in a SysB state	step 5
ETHR packet is in a CBSy state	step 10
ETHR links or ports are in a ManB state	step 7
ETHR links or ports are in a SysB state	step 8
ETHR links are in a CBSy state	step 7
ETHR ports are in a CBSy state	step 4
no alarm and all CPs and all ports and links are InSv	step 22
4	Return the OOS packet to service. Repeat this step for each ManB packet. At the ETHR MAP level type >RTS <nn> <s> <p> and press the Enter key where

XAC ETHR critical (continued)

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

Example of command:

RTS 14 r l

Example of system response:

RTS 4 rear lower passed

If the ETHR packlet is	Do
in a SysB state	step 5
in a CBsy state	step 10
in an InSv state	step 19

- 5 Manually busy the OOS ETHR packlet. Repeat this step for each SysB packlet. At the ETHR MAP level type
>BSY <nn> <s> <p>
 and press the Enter key
where
 <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value indicating the packlet location, upper (u) or lower (l).
 Example of command use:
>BSY 14 r l
Example of system response:
 BSY 14 rear lower complete
- 6 Perform an OOS test on the ETHR packlet. Repeat this step for each ManB ETHR packlet. At the ETHR MAP level type
>TST <nn> <s> <p>
 and press the Enter key
where
 <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

XAC ETHR

critical (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

Example of command use:

>TST 14 r l

If the OOS test	Do
passed	step 3
did not pass	step 17

- 7 Return the OOS ETHR links or ports to service. Repeat this step for each ManB link and then each ManB port as directed. At the ETHR MAP level type

>RTS <nn> <s> <p> <link>

or

>RTS <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command:

RTS 14 r l link

Example of system response:

RTS 14 rear lower link passed

If the ETHR links or ports are	Do
in a SysB state	step 8
in an InSv state	step 19

- 8 Manually busy the OOS ETHR ports or links. Repeat this step for each SysB link or port. At the ETHR MAP level type

>BSY <nn> <s> <p> <link>

or

XAC ETHR critical (continued)

>BSY <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command use:

>BSY 14 r l link

Example of system response:

BSY 14 rear lower link complete

- 9** Perform an OOS test on the ETHR links or ports. Repeat this step for each ManB ETHR link or port. At the ETHR MAP level type

>TST <nn> <s> <p> <link>

or

>TST <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command use:

>TST 14 r l link

If the OOS test	Do
passed	step 3
did not pass	step 16

- 10** Access the IO MAP level. At the ETHR MAP level type

>IO

XAC ETHR critical (continued)

and press the Enter key.

- 11** Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packlet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.
C									
IO		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	IOP M	Linkfl
2		Sta:		.M.		0	0	1	1
3		Dep:		FF					
4		Typ: *		***					
5		Slot: Side: Status:		Upper:		Middle:		Lower:	
6 Tst_	2	Front	.	Tape				Disk	.
7 Bsy_	17	Front	.	Tape				Disk	.
8 RTS_	4	Rear	.	RTIF				CMIC	.
9	5	Rear	M					ETHR	C
10 LoadFW_	6	Rear	.					ETHR	F
11	13	Rear	.					ETHR	F
12 Uneq_	14	Rear	.					ETHR	.
13	15	Rear	.	RTIF				CMIC	.
14 Alarm_	XAC:								
15	IO:								
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is

Do

in a ManB state

step 12

in a SysB state

step 18

in an InSv state

step 19

- 12** Return the IOP CP to service. Make sure that all related packlets are also in service.

a At the IO MAP level type

XAC ETHR critical (continued)

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 14 r

Example of system response:

RTS 4 rear passed

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related packlet, ports or links are ManB	step 15
InSv and any related packlet, ports or links are SysB	step 3
SysB and any related packlet, ports or links are CBSy	step 13
InSv and any related packlets, ports and links are InSv	step 19

- 13** Manually busy the OOS IOP CP. At the IO MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

**>BSY
14 r**

Example of system response:

BSY 4 rear complete

- 14** Perform an OOS test on the ManB IOP CP. At the IO MAP level type

>TST <nn> <s>

XAC ETHR
critical (continued)

and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
Example of command use:
>TST 14 r

If the OOS test	Do
passed	step 11
did not pass	step 18

- 15** Access the correct MAP level. Return the ManB packlet links or ports to service.
>RTS <nn> <s> <p>
or
>RTS <nn> <s> <p> <link>
or
>RTS <nn> <s> <p> <port>
and press the Enter key
where
<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).
<link> is the parameter that defines the link on an Ethernet packlet.
<port> is the parameter that defines the port on an Ethernet packlet.
Example of command:
RTS 14 r l link
Example of system response:
RTS 14 rear lower link passed

If the MAP level indicates	Do
Ethernet packlet or port is in a SysB state	step 17

XAC ETHR critical (continued)

	If the MAP level indicates	Do
	Ethernet link is in a SysB state	step 16
	in an InSv state	step 19
16	Perform the corrective link maintenance. Refer to the correct NTP. Return to this point when complete.	
	If the links are	Do
	in a SysB state	step 17
	in an InSv state	step 19
17	Perform the correct packet replacement procedure. Refer to the correct NTP. Return to this point when complete.	
	If the packet is	Do
	in a InSv state	step 19
	in a SysB state	step 21
18	Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.	
	If the IOP CP is	Do
	in an InSv state	step 19
	in a SysB state	step 21
19	Confirm that the alarm is clear. Examine the alarm banner on the ETHR MAP level.	
	If the ETHR critical alarm is	Do
	changed to a different alarm	step 20
	not clear	step 21
	clear	step 22
20	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.	
	If the alarm is	Do
	not clear	step 21
	clear	step 22
21	Call the next level of support.	

XAC ETHR
critical (end)

- 22 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC ETHR major

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	ETHR	.	.	.	.	.	.	.	.	.
	M									

Indication

An ETHR major alarm code appears under the XAC header of the alarm banner. The alarm code indicates an Ethernet major alarm.

Meaning

The conditions that contribute to an ETHR major alarm are dependent on the link configuration in use.

The following port or link states can contribute to an ETHR major alarm in a four link configuration:

- Two Ethernet ports or links are in ManBsy state
- Two Ethernet ports or links are in CBsy state
- Two Ethernet ports or links are in SysBsy state

The following port or link states can contribute to an ETHR major alarm in a two link configuration:

- One Ethernet port or link is in ManBsy state
- One Ethernet port or link is in SysBsy state

Impact

A loss of Ethernet redundancy occurs. There is no loss of call origination at the Call Server.

Common procedures

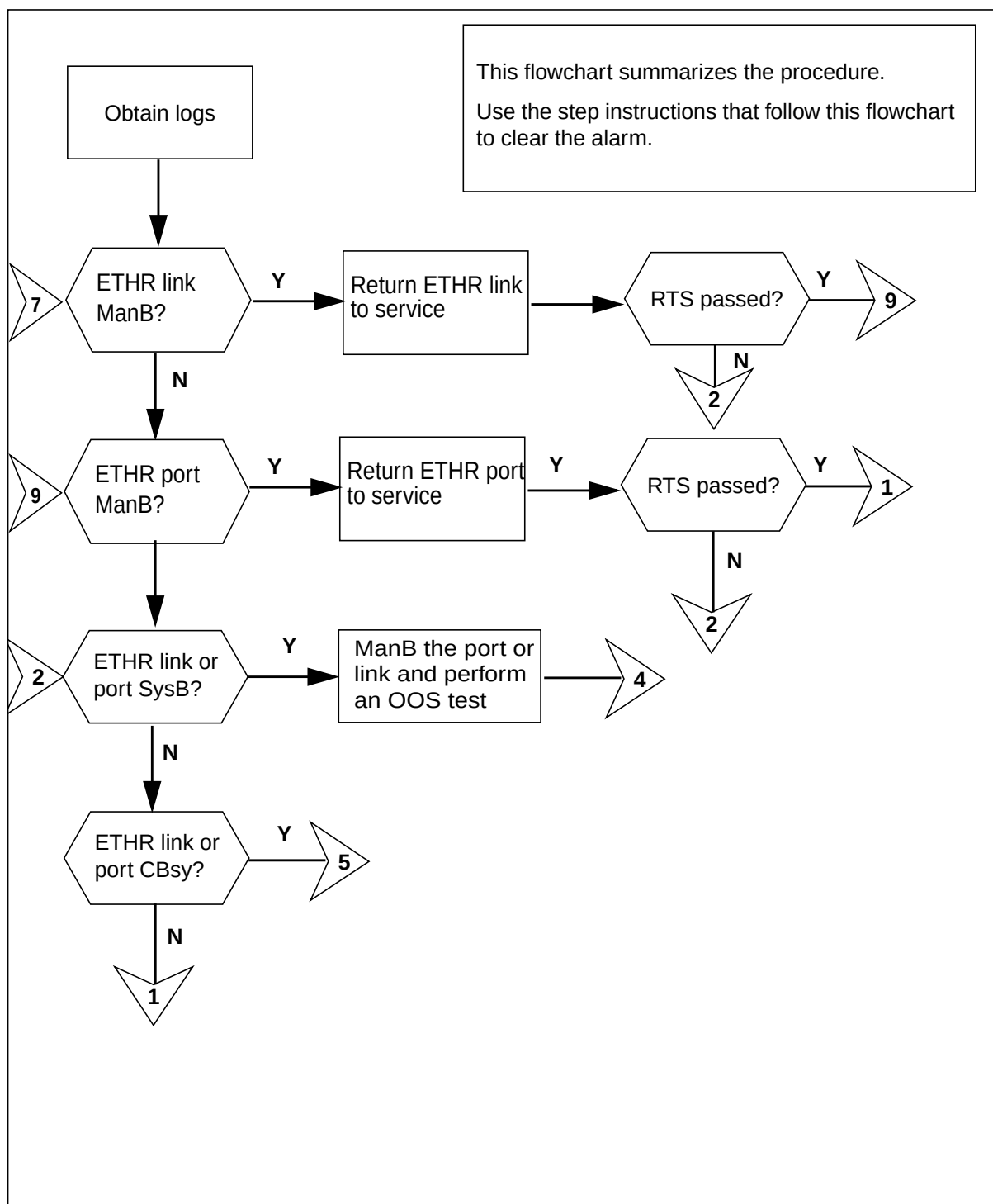
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

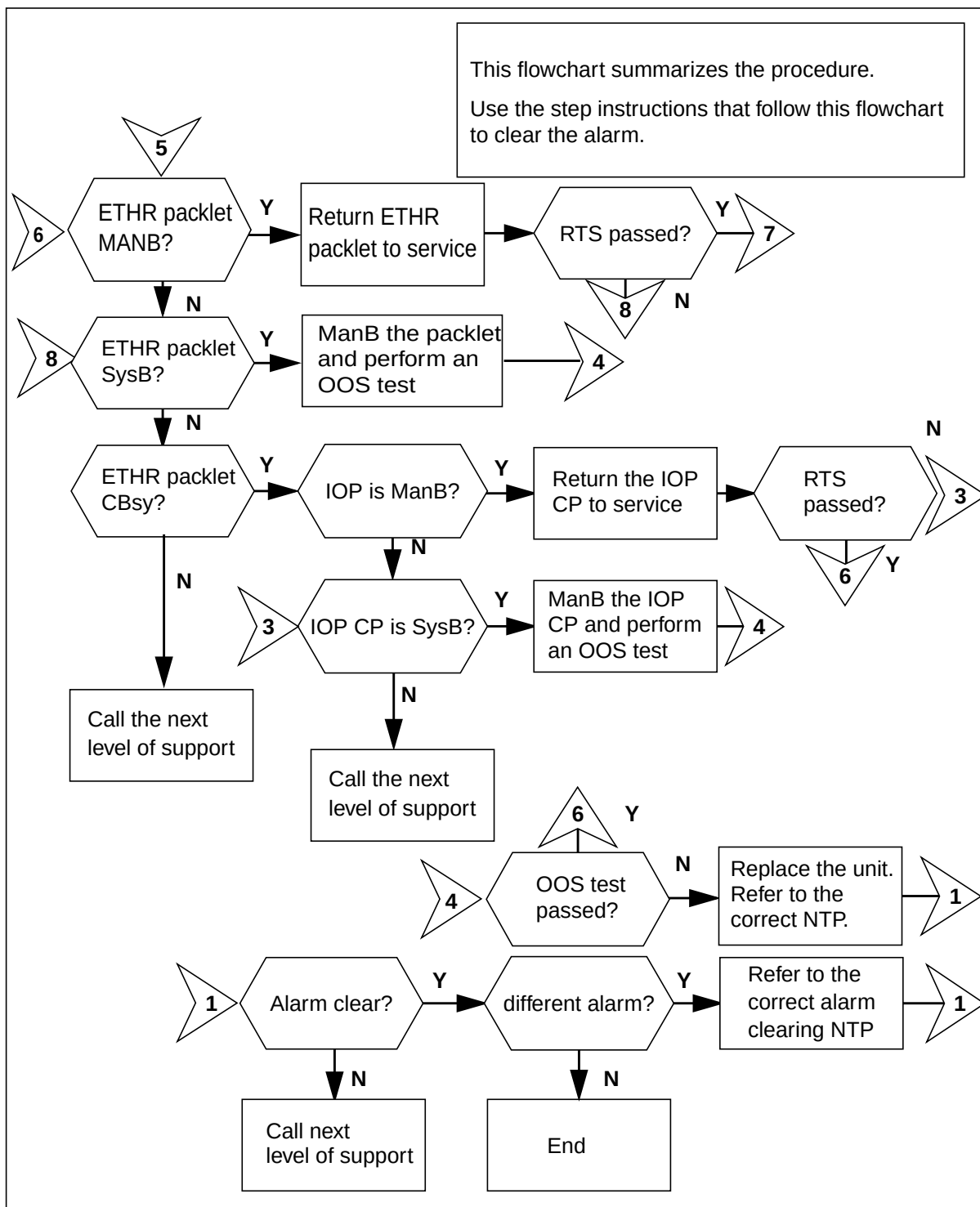
XAC ETHR major (continued)

Summary of clearing an ETHR major alarm



XAC ETHR major (continued)

Summary of clearing an ETHR major alarm



XAC ETHR

major (continued)

How to clear an ETHR major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC ETHR major (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the logs indicate	Do
an Ethernet packet fault	step 2
an Ethernet port or link fault	step 2
an IOP packet hardware fault	step 13
that the ETHR major alarm condition is clear	step 22

- 2 Access the XA-Core ETHR MAP level by typing
MAPCI;MTC;XAC;ETHR
and pressing the Enter key.
- 3 Examine the ETHR MAP level. Record the location and status of the ETHR packets.

Note: The ETHR MAP level can display alarms and status as follows:

 - a system alarm code appears under the XAC header in the alarm banner.
 - an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
 - a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC ETHR
major (continued)

ETHR MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.
M									
ETHR		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	PortFl
2	Sta:					0	0	0	0
3	Dep:			F	F				
4	Typ:			**	**				
5	Slot:	Side:	Packlet:	Port:	Link:				
6 Tst_	5	Rear	Lower .	S	C				
7 Bsy_	6	Rear	Lower .	.	.				
8 RTS_	13	Rear	Lower .	.	.				
9	14	Rear	Lower .	.	M				
10 LoadFW_	XAC:								
11	ETHR:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the ETHR MAP level indicates	Do
ETHR packet is in a ManB state	step 4
ETHR packet is in a SysB state	step 5
ETHR packet is in a CBsy state	step 10
ETHR links or ports are in a ManB state	step 7
ETHR links or ports are in a SysB state	step 8
ETHR links are in a CBsy state	step 7
ETHR ports are in a CBsy state	step 4
no alarm and all CPs and all ports and links are InSv	step 22

XAC ETHR major (continued)

- 4 Return the OOS packet to service. Repeat this step for each ManB packet. At the ETHR MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

Example of command:

RTS 14 r l

Example of system response:

RTS 14 rear lower passed

If the ETHR packet is	Do
in a SysB state	step 5
in a CBsy state	step 10
in an InSv state	step 19

- 5 Manually busy the OOS ETHR packet. Repeat this step for each SysB packet. At the ETHR MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

Example of command use:

>BSY 14 r l

Example of system response:

BSY 14 rear lower complete

XAC ETHR

major (continued)

- 6 Perform an OOS test on the ETHR packet. Repeat this step for each ManB ETHR packet. At the ETHR MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

Example of command use:

>TST 14 r l

If the OOS test	Do
passed	step 3
did not pass	step 17

- 7 Return the OOS ETHR ports or links to service. Repeat this step for each ManB link and each ManB port as directed. At the ETHR MAP level type

>RTS <nn> <s> <p> <link>

or

>RTS <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packet.

<port> is the parameter that defines the port on an Ethernet packet.

Example of command:

RTS 14 r l link

XAC ETHR major (continued)

Example of system response:

RTS 14 rear lower link passed

If the ETHR links or ports are	Do
in a SysB state	step 8
in an InSv state	step 19

- 8** Manually busy the OOS ETHR ports or links. Repeat this step for each SysB port or link. At the ETHR MAP level type

>BSY <nn> <s> <p> <link>

or

>BSY <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packet.

<port> is the parameter that defines the port on an Ethernet packet.

Example of command use:

>BSY 14 r l link

Example of system response:

BSY 14 rear lower link complete

XAC ETHR major (continued)

- 9 Perform an OOS test on the ETHR ports or links. Repeat this step for each ManB ETHR port or link. At the ETHR MAP level type
- >TST <nn> <s> <p> <link>**
- or*
- >TST <nn> <s> <p> <port>**
- and press the Enter key
- where*
- <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value indicating the packlet location, upper (u) or lower (l).
- <link> is the parameter that defines the link on an Ethernet packlet.
- <port> is the parameter that defines the port on an Ethernet packlet.
- Example of command use:

>TST 14 r l link

If the OOS test	Do
passed	step 3
did not pass	step 16

- 10 Access the IO MAP level. At the ETHR MAP level type
- >IO**
- and press the Enter key.
- 11 Examine the IO MAP level. Record the working state and location of the OOS IOP CP.
- Note:** The IO MAP level displays IOP CP and packlet working states as follows:
- an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
 - a status indicator appears in the state field in the shelf layout area.
 - a status indicator appears in the equipment status field in the command interpreter output area.

XAC ETHR major (continued)

The following is a sample MAP display.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.
M									
IO									
0 Quit		Front: 11111111	Rear: 111111	SM	PE	IO	PKLT		
		123456789012345678	456789012345	.	.	IOP M	Link M		
2				0	0	1	1		
3	Sta:	.....	..	.M.....					
4	Dep:			F	F				
5	Typ: *		*	***	***				
6 Tst_	Slot:	Side:	Status:	Upper:	Middle:	Lower:			
7 Bsy_	2	Front	.	Tape .		Disk .			
8 RTS_	17	Front	.	Tape .		Disk .			
9	4	Rear	.	RTIF .		CMIC .			
10 LoadFW_	5	Rear	M			ETHR C			
11	6	Rear	.			ETHR .			
12 Uneq_	13	Rear	.			ETHR .			
13	14	Rear	.			ETHR F			
14 Alarm_	15	Rear	.	RTIF .		CMIC .			
15	XAC:								
16	IO:								
17 Indicatt									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is

Do

in a ManB state	step 12
in a SysB state	step 18
in an InSv state	step 19

- 12** Return the IOP CP to service. Make sure that all related packlets are also in service.

- a** At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 14 r

XAC ETHR major (continued)

Example of system response:

RTS 14 rear passed

- b** Make sure that all related packets are in service. Examine the IO MAP level to determine the packet working states.

If the IOP CP is	Do
InSv and any related packet, ports or links are ManB	step 15
InSv and any related packet, ports or links are SysB	step 3
SysB and any related packet, ports or links are CBSy	step 13
InSv and any related packets, ports and links are InSv	step 19

- 13** Manually busy the OOS IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

**>BSY
14 r**

Example of system response:

BSY 14 rear complete

- 14** Perform an OOS test on the ManB IOP CP. At the IO MAP level type
>TST <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
 Example of command use:

XAC ETHR major (continued)

>TST 14 r

If the OOS test	Do
passed	step 11
did not pass	step 18

- 15** Access the correct MAP level. Return the ManB links or ports to service.

>RTS <nn> <s> <p>

or

>RTS <nn> <s> <p> <link>

or

>RTS <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command:

RTS 14 r l link

Example of system response:

RTS 14 rear lower link passed

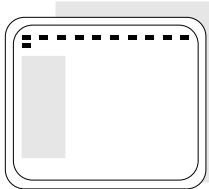
If the MAP level indicates	Do
Ethernet packlet or port is in a SysB state	step 17
Ethernet links are in a SysB state	step 16
in an InSv state	step 19

XAC ETHR
major (end)

- 16** Perform the corrective link maintenance. Refer to the correct NTP. Return to this point when complete.
- | If the links are | Do |
|-------------------------|-----------|
| in a SysB stat | step 17 |
| in an InSv | step 19 |
- 17** Perform the correct packlet replacement procedure. Refer to the correct NTP. Return to this point when complete.
- | If the packlet is | Do |
|--------------------------|-----------|
| in a InSv state | step 19 |
| in a SysB state | step 21 |
- 18** Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.
- | If the IOP CP is | Do |
|-------------------------|-----------|
| in an InSv state | step 19 |
| in a SysB state | step 21 |
- 19** Confirm that the alarm is clear. Examine the alarm banner on the ETHR MAP level.
- | If the ETHR major alarm is | Do |
|-----------------------------------|-----------|
| changed to a different alarm | step 20 |
| not clear | step 21 |
| clear | step 22 |
- 20** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.
- | If the alarm is | Do |
|------------------------|-----------|
| not clear | step 21 |
| clear | step 22 |
- 21** Call the next level of support.
- 22** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC ETHR minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.

Indication

An ETHR minor alarm code appears under the XAC header of the alarm banner. The alarm code indicates an Ethernet minor alarm.

Meaning

An Ethernet minor alarm is only possible when using a four link configuration.

An Ethernet minor alarm can not occur in a two link configuration.

The following port or link states can contribute to an ETHR minor alarm in a four link configuration:

- One Ethernet port or link is in ManBsy state.
- One Ethernet port or link is in CBsy state.
- One Ethernet port or link is in SysBsy state.

Impact

A loss of Ethernet redundancy occurs. There is no loss of call origination at the Call Server.

Common procedures

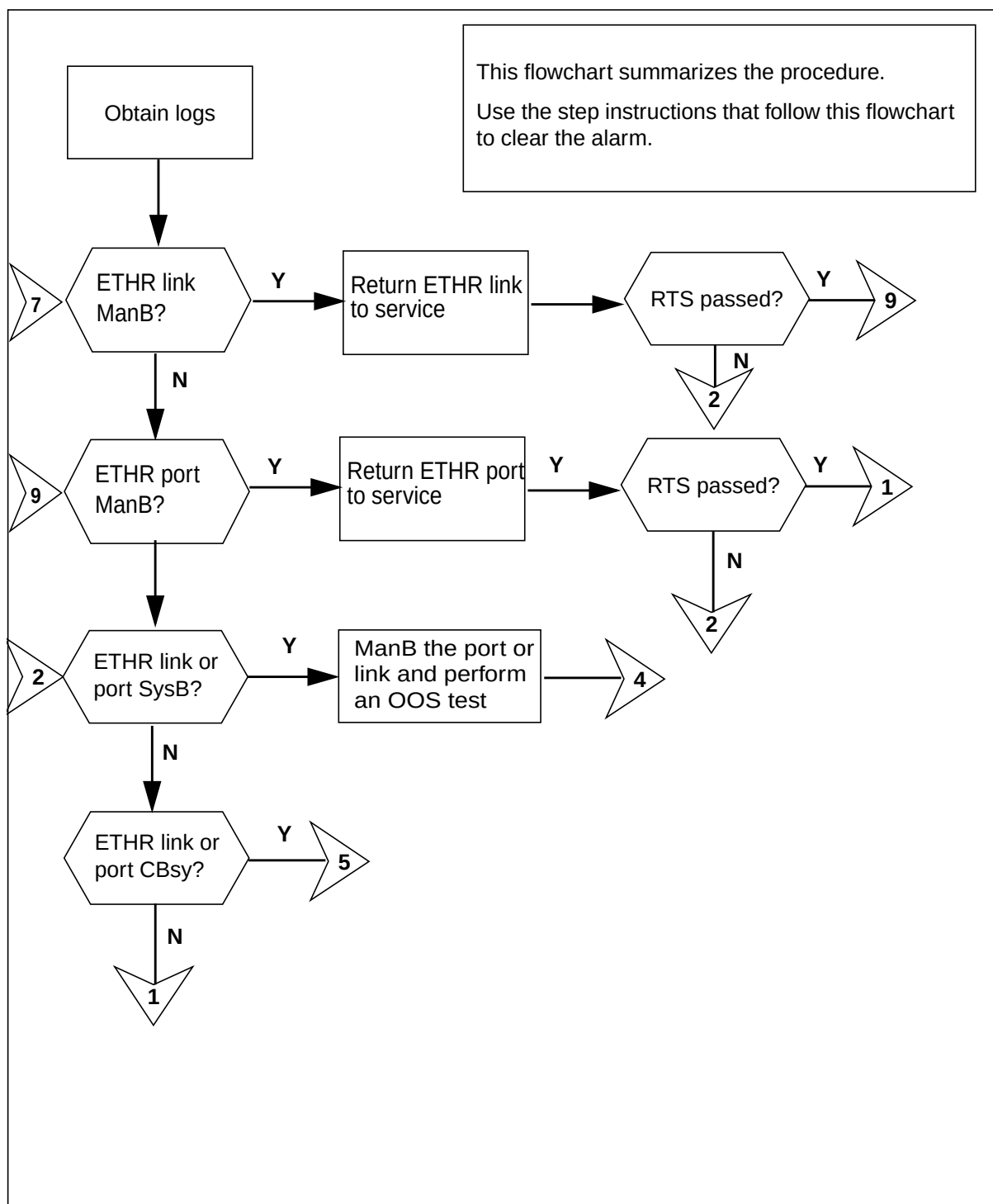
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

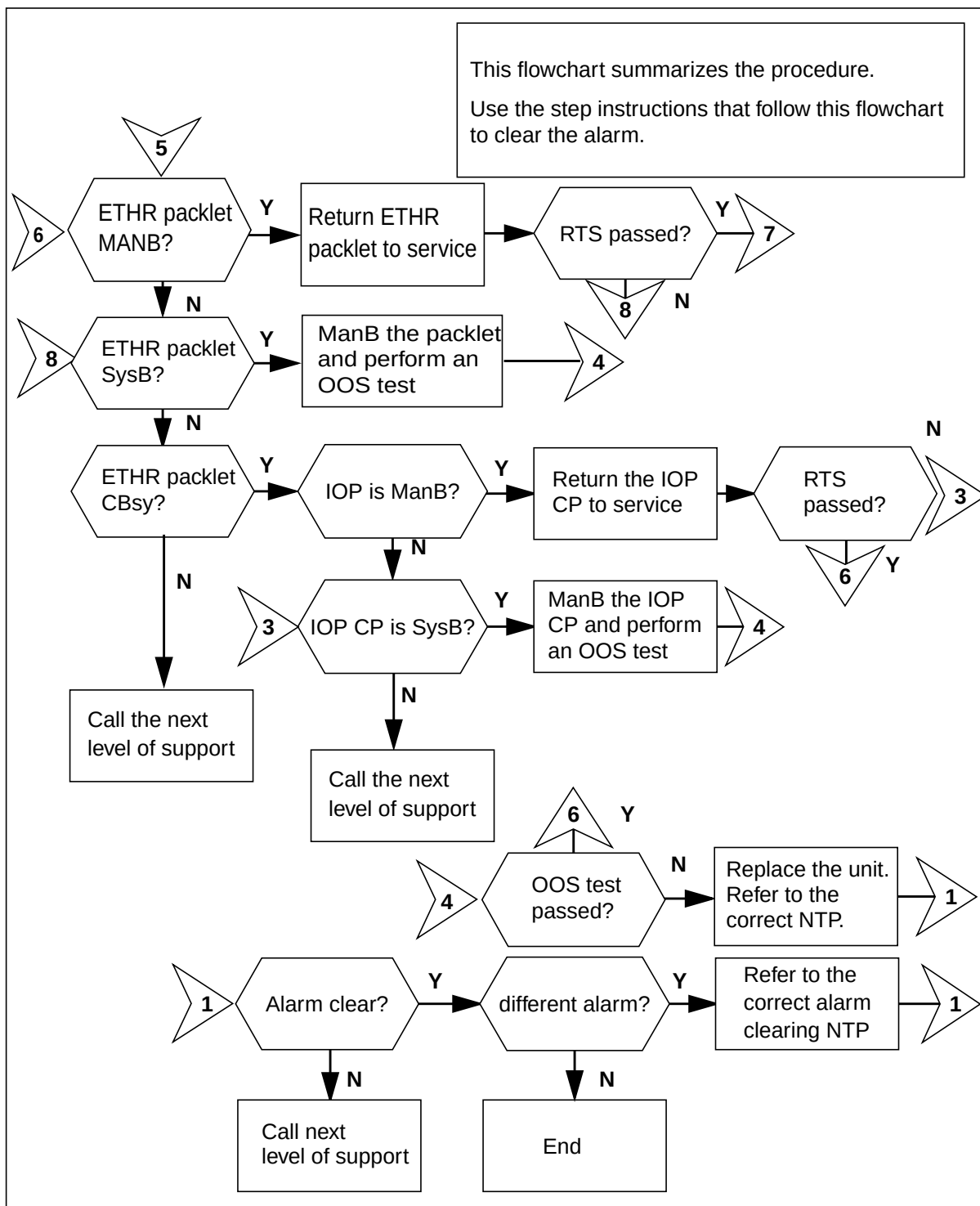
XAC ETHR minor (continued)

Summary of clearing an ETHR minor alarm



XAC ETHR minor (continued)

Summary of clearing an ETHR minor alarm



XAC ETHR **minor** (continued)

How to clear an ETHR minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC ETHR minor (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the logs indicate	Do
an Ethernet packet fault	step 2
an Ethernet port or link fault	step 2
an IOP CP hardware fault	step 13
that the ETHR minor alarm condition is clear	step 22

- 2 Access the XA-Core ETHR MAP level by typing
MAPCI;MTC;XAC;ETHR
and pressing the Enter key.
- 3 Examine the ETHR MAP level. Record the location and status of the ETHR packets.

Note: The ETHR MAP level can display alarms and status as follows:

 - a system alarm code appears under the XAC header in the alarm banner.
 - an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
 - a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC ETHR
minor (continued)

ETHR MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL	
ETHR	.	.	.	.	.	.	.	.	.	
ETHR	Front: 11111111 Rear: 111111 SM PE IO PKLT									
0 Quit	123456789012345678 456789012345 . . . 0 0 0 0 Linkfl									
2	Sta:	 F								
3	Dep:	 ** **								
4	Typ:									
5	Slot:	Side:	Packlet:	Port:	Link:					
6 Tst_	5	Rear	Lower .	.	S					
7 Bsy_	6	Rear	Lower .	.	.					
8 RTS_	13	Rear	Lower .	.	.					
9	14	Rear	Lower .	.	.					
10 LoadFW_	XAC:									
11	ETHR:									
12 Uneq_										
13										
14 Alarm_										
15										
16										
17 Indicatt_										
18 Query_										
XMAP0										
Time 14:12	>									

If the ETHR MAP level indicates	Do
ETHR packet is in a ManB state	step 4
ETHR packet is in a SysB state	step 5
ETHR packet is in a CBSy state	step 10
ETHR links or ports are in a ManB state	step 7
ETHR links or ports are in a SysB state	step 8
ETHR links are in a CBSy state	step 7
ETHR ports are in a CBSy state	step 4
no alarm and all CPs and all ports and links are InSv	step 22
4	Return the OOS packet to service. Repeat this step for each ManB packet. At the ETHR MAP level type >RTS <nn> <s> <p> and press the Enter key where

XAC ETHR minor (continued)

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

Example of command:

RTS 14 r l

Example of system response:

RTS 4 rear lower passed

If the ETHR packlet is	Do
in a SysB state	step 5
in a CBsy state	step 10
in an InSv state	step 19

- 5 Manually busy the OOS ETHR packlet. Repeat this step for each SysB packlet. At the ETHR MAP level type
>BSY <nn> <s> <p>
 and press the Enter key
where
 <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value indicating the packlet location, upper (u) or lower (l).
 Example of command use:
>BSY 14 r l
Example of system response:
 BSY 14 rear lower complete
- 6 Perform an OOS test on the ETHR packlet. Repeat this step for each ManB ETHR packlet. At the ETHR MAP level type
>TST <nn> <s> <p>
 and press the Enter key
where
 <nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

XAC ETHR minor (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

Example of command use:

>TST 14 r l

If the OOS test	Do
passed	step 3
did not pass	step 17

- 7 Return the OOS ETHR links or ports to service. Repeat this step for each ManB link and then each ManB port as directed. At the ETHR MAP level type

>RTS <nn> <s> <p> <port>

or

>RTS <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command:

RTS 14 r l link

Example of system response:

RTS 14 rear lower link passed

If the ETHR ports or links are	Do
in a SysB state	step 8
in a CBsy state	step 10
in an InSv state	step 19

- 8 Manually busy the OOS ETHR ports or links. Repeat this step for each SysB port or link. At the ETHR MAP level type

>BSY <nn> <s> <p> <port>

XAC ETHR minor (continued)

or

>BSY <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command use:

>BSY 14 r l link

Example of system response:

BSY 14 rear lower link complete

- 9** Perform an OOS test on the ETHR ports or links. Repeat this step for each ManB ETHR port or link. At the ETHR MAP level type

>TST <nn> <s> <p> <port>

or

>TST <nn> <s> <p> <link>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packlet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packlet.

<port> is the parameter that defines the port on an Ethernet packlet.

Example of command use:

>TST 14 r l link

If the OOS test	Do
passed	step 3
did not pass	step 16

- 10** Access the IO MAP level. At the ETHR MAP level type

XAC ETHR minor (continued)

>IO

and press the Enter key.

- 11** Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packlet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.
10 Quit		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
2		123456789012345678		456789012345		.	.	IOP M	Link C
3	Sta:			.M.		0	0	1	1
4	Dep:			F					
5	Typ: *		*	***	***				
6 Tst_	Slot: 2	Front	.		Upper:		Middle:	Lower:	
7 Bsy_	17	Front	.		Tape .			Disk .	
8 RTS_	4	Rear	.		Tape .			Disk .	
9	5	Rear	M		RTIF .			CMIC .	
10 LoadFW_	6	Rear	.					ETHR C	
11	13	Rear	.					ETHR .	
12 Uneq_	14	Rear	.					ETHR .	
13	15	Rear	.		RTIF .			ETHR .	
14 Alarm_	XAC:							CMIC .	
15	IO:								
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is

Do

in a ManB state

step 12

in a SysB state

step 18

in an InSv state

step 19

- 12** Return the IOP CP to service. Make sure that all related packlets are also in service.

XAC ETHR minor (continued)

- a** At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 14 r

Example of system response:

RTS 14 rear passed

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related ports or links are ManB	step 15
InSv and any related ports or links are SysB	step 3
SysB and all related ports or links are CBSy	step 13
InSv and all related ports and links are InSv	step 19

- 13** Manually busy the OOS IOP CP. At the IO MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

**>BSY
14 r**

Example of system response:

BSY 14 rear complete

- 14** Perform an OOS test on the ManB IOP CP. At the IO MAP level type

XAC ETHR

minor (continued)

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 11
did not pass	step 18

- 15** Access the correct MAP level. Return the ManB ports or links to service.

>RTS <nn> <s> <p>

or

>RTS <nn> <s> <p> <link>

or

>RTS <nn> <s> <p> <port>

and press the Enter key

where

<nn> is the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value indicating the packet location, upper (u) or lower (l).

<link> is the parameter that defines the link on an Ethernet packet.

<port> is the parameter that defines the port on an Ethernet packet.

Example of command:

RTS 14 r l link

Example of system response:

RTS 14 rear lower link passed

If the MAP level indicates	Do
Ethernet packet or port is in a SysB state	step 17

XAC ETHR minor (continued)

	If the MAP level indicates	Do
	Ethernet link is in a SysB state	step 16
	In an InSv state	step 19
16	Perform the corrective link maintenance. Refer to the correct NTP. Return to this point when complete.	
	If the links are	Do
	in a SysB state	step 17
	in an InSv	step 19
17	Perform the correct packet replacement procedure. Refer to the correct NTP. Return to this point when complete.	
	If the packet is	Do
	in a InSv state	step 19
	in a SysB state	step 21
18	Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.	
	If the IOP CP is	Do
	in an InSv state	step 19
	in a SysB state	step 21
19	Confirm that the alarm is clear. Examine the alarm banner on the ETHR MAP level.	
	If the ETHR minor alarm is	Do
	changed to a different alarm	step 20
	not clear	step 21
	clear	step 22
20	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.	
	If the alarm is	Do
	not clear	step 21
	clear	step 22
21	Call the next level of support.	

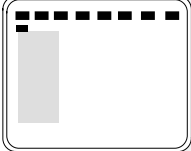
XAC ETHR

minor (end)

- 22** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC FWvers major

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
FWvers	.	.	.	.	.	.	.	.	.
M									

Indication

The FWvers alarm appears in the alarm banner of all MTC MAP levels under the XAC header. The FWvers alarm indicates there is a firmware mismatch. The FWvers alarm severity is major.

Meaning

When the system or operating company personnel issues the query card command, the system checks for a firmware mismatch. The system raises the FWvers alarm when the firmware version of the field replaceable unit (FRU) and the firmware version recorded in table XAFWLOAD do not match.

Impact

When the system raises this alarm, it generates log XAC330. When the system clears the alarm, it generates log XAC630. Use the information in these logs when performing this procedure.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

Repeat this procedure if it is not successful when you first perform the procedure.

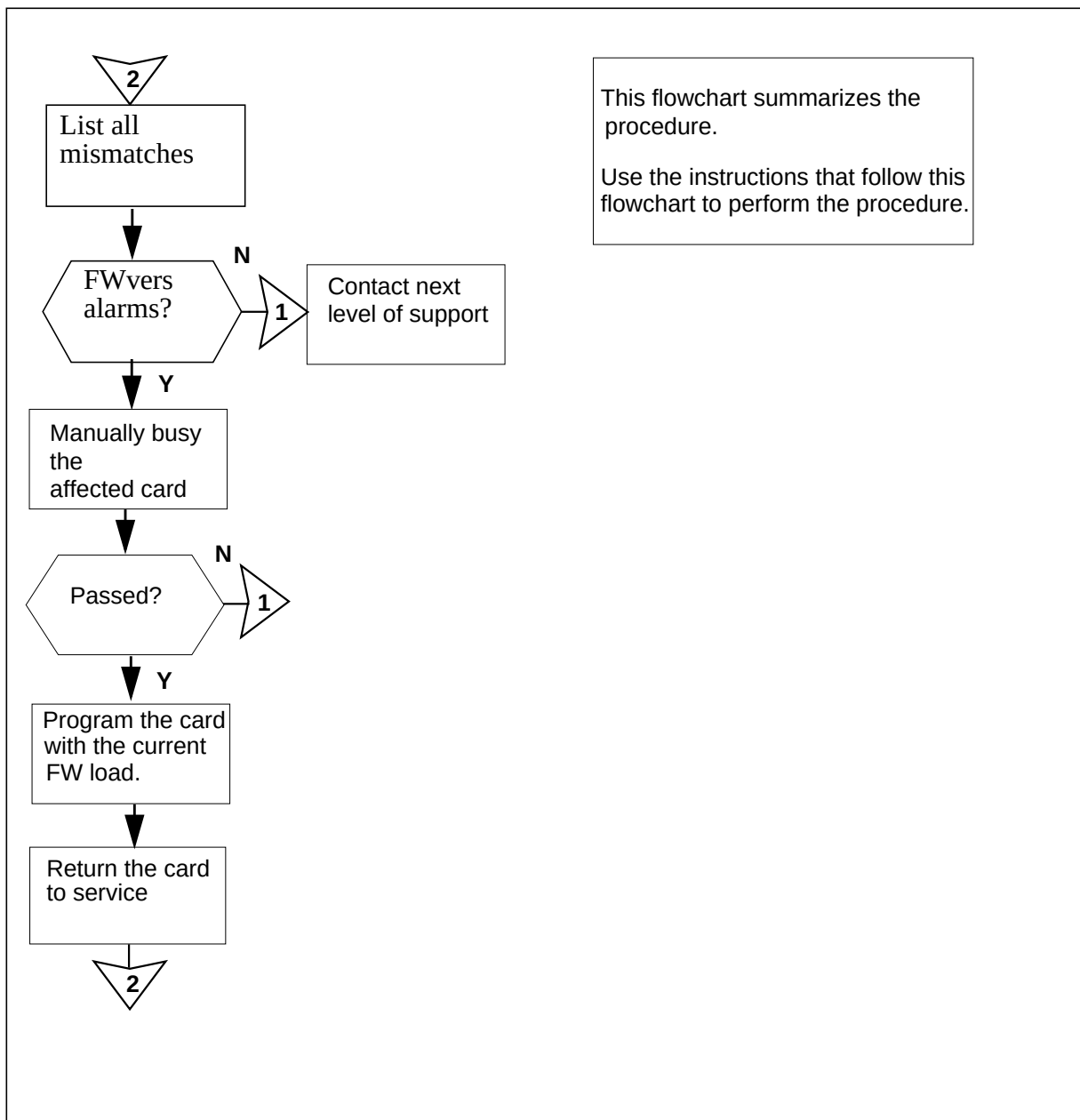
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*, 297-8001-8401, 297-8001-8402, 297-8001-8403, 297-8001-8404, 297-8001-8405, 297-8001-8406, and 297-8001-8407 (seven volumes).

XAC FWvers major (continued)

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step action procedure that follows the flowchart to clear the alarm.

Summary of clearing alarm XAC FWvers alarm



XAC FWvers major (continued)

Clearing alarm XAC FWvers major

At your current location

- 1 To query FWvers alarms and list all mismatches, type
>ALARM FWVERS
 and press the Enter key.

Example of MAP response

Cause	FRU/device	State	Slot	Side	Packlet
FW version mismatch	PE	InSv	4	front	
FW version mismatch	IOP	InSv	2	front	
FW version mismatch	IOP	InSv	17	front	
FW version mismatch	CMIC	InSv	4	rear	lower

If	Do
any FWvers alarms are listed	step 2
there are no FWvers alarms	step 12

- 2 To access the table XAFWLOAD, type
>TABLE XAFWLOAD
 and press the Enter key.
Example of MAP response
 JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
 TABLE: XAFWLOAD
- 3 To review the tuples in the table, type
>LIST ALL
 and press the Enter key.
Example of MAP response

```

INDEX FRU PEC VERSION VOLUME FILE STATUS SOAK
-----
1 PE   NTLX02AA XAPE01AC F02LFWLOADS PEFW413 old 48
2 PE   NTLX02AA XAPE01AG F02LFWLOADS PEFW421 current 48
3 PE   NTLX02AA XAPE01BA F02LFWLOADS PEFW424 old 48
4 IOP  NTLX03AA XAI001AA F02LFWLOADS ISEFW41 old 0
5 IOP  NTLX03AA XAI001AC F02LFWLOADS ISEFW44 current 0
6 CMIC NTLX05AA PK10CU10 F02LFWLOADS 0C3FW75 current 72

BOTTOM

```

- 4 To query the card with an associated FWvers alarm, type
>QUERY CARD <slot>
 and press the Enter key.

XAC FWvers major (continued)

where

<slot> is the slot position of the card (for example, 4 Front)

Example of MAP response

query card 4 f

Command Submitted.

Query 4 front completed

PEC : NTLX02AA

Serial No. : 00000000000000

Firmware Ver: XAPE01AG

Record the information.

- 5 To access the appropriate MAP level to program the FLASH with the current firmware version and clear the alarm, type

>MAPCI;MTC;XAC;map;<MAP_level>

and press the Enter key.

where

<MAP_level> is the name of the MAP level (for example, PE, IOP or CMIC)

Example of MAP response

XAC MS IOD APPL

FWvers . .

M

- 6 To manually busy the card, type

>BSY <slot> FORCE

or

>BSY <slot>

and press the Enter key.

where

<slot> is the slot position of the card (for example, 4 Front)

Note: If this command reduces redundancy, you must use the Force option.

Example of MAP response

Warning: Bsy command will take it out of service.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

- 7 To confirm the action, type

>Y

XAC FWvers major (continued)

and press the Enter key.

If	Do
the response is Command Submitted. Bsy 4 front completed	step 8
the response is Command Submitted. Bsy 4 front failed	step 11

- 8** To program the card with the current FW load, type
>LOADFW <slot> FILE CURRENT
 and press the Enter key.
 where
 <slot> is the slot position of the card (for example, 4 Front)

If	Do
the response is Command Submitted. LoadFW 4 front completed	step 9
the response is Command Submitted. LoadFW 4 front failed Volume nonexistent.	step 11

- 9** To return the card to service, type
>RTS <slot>
 and press the Enter key.
 where
 <slot> is the slot position of the card (for example, 4 Front)

If	Do
the response is Command Submitted. RTS 4 front passed	step 10
the response is Command Submitted. RTS 4 front failed	step 11

- 10** To query all FWvers alarms and list all mismatches, type
>ALARM FWVERS
 and press the Enter key.
Example of MAP response

XAC FWvers major (end)

Cause	FRU/device	State	Slot	Side	Packlet
FW version mismatch	IOP	InSv	2	front	
FW version mismatch	IOP	InSv	17	front	
FW version mismatch	CMIC	InSv	4	rear	lower

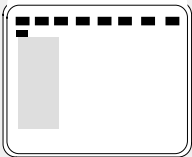
If	Do
any FWvers alarms are listed	step 2
there are no FWvers alarms	step 12

11 Contact your next level of support.

12 The procedure is complete.

**XAC FWsoak
minor**

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	FWsoak	.	.	.	.	.	.	.	.	.

Indication

The FWsoak alarm appears in the alarm banner of all MTC MAP levels under the XAC header. The command ALARM FWSOAK lists the field replaceable units (FRU) currently soaking firmware. The system raises the FWsoak alarm when the FRU is returned to service after loading new firmware. The system does not raise the alarm if the soak time for an FRU is set to zero in table XAFWLOAD.

Meaning

The FWsoak alarm indicates the firmware is being soaked on at least one FRU. The alarm clears when the soaking time expires. This alarm requires no action.

Impact

There is no immediate change in subscriber service.

Common procedures

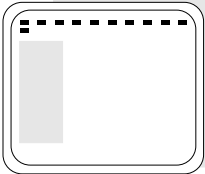
There are no common procedures.

Action

No action is required. The system automatically clears the alarm when the soak time expires.

XAC Image critical

Alarm display

	XAC IMAGE *C*	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

An Image critical alarm code appears under the XAC header of the alarm banner. The alarm banner code indicates an image critical alarm.

Meaning

This alarm means that an image test was unsuccessful. In an image test, the switch splits into two sides, the active image and the inactive image. Then a restart is executed on the inactive image and some tests are executed on that image to verify that the software load is sane and that the switch could restart properly using the software load. The image critical alarm indicates that one or more of the tests has failed.

Impact

There is no immediate change in subscriber service. However, the sanity of the software load is in question and its ability to survive a restart is in question. If a restart were to occur on the switch, it is possible that the restart would not be successful.

If an image critical alarm is in effect, do not take an image. Do not set the autoload registered (ALR) image file in the image table of contents (ITOC) to an image that has failed an image test.

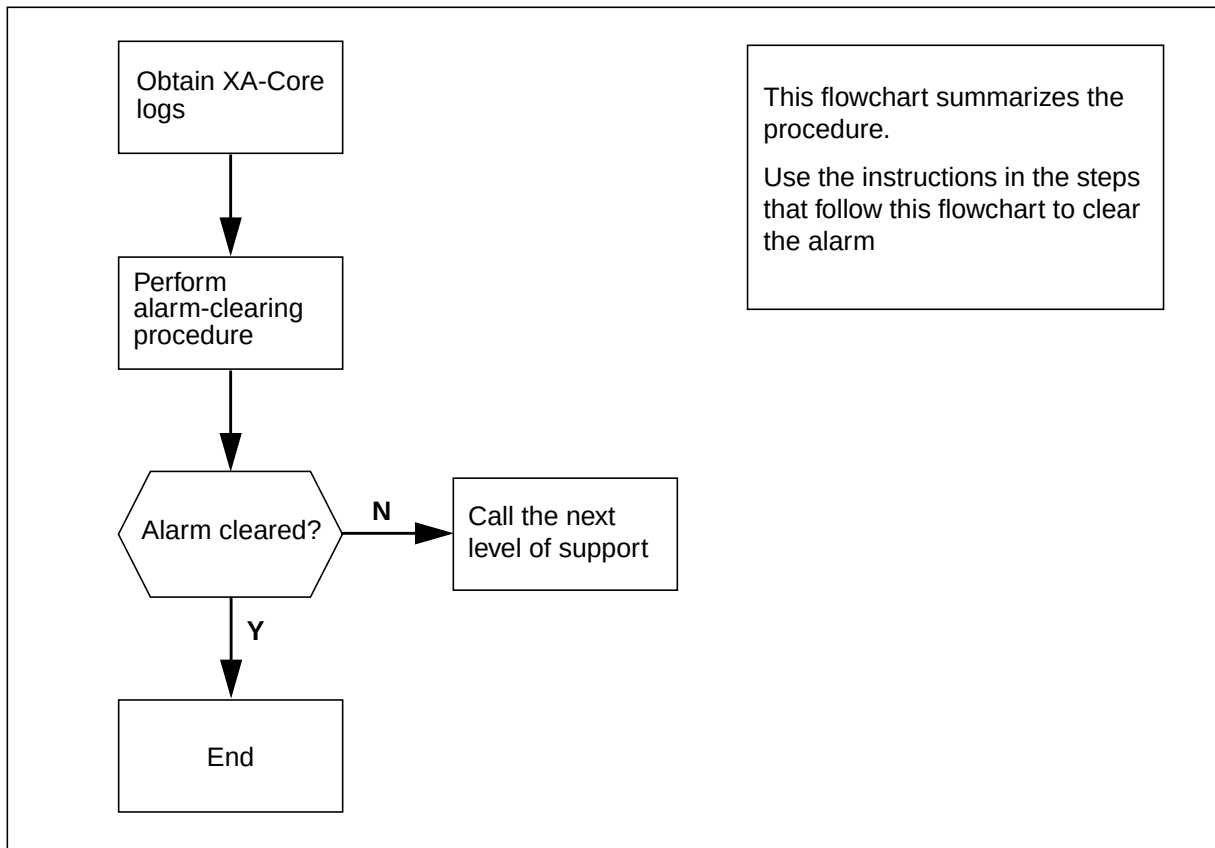
The image table of contents lists image files that can be used for restarts. There is a tuple for each image, with an index number at the beginning of the tuple. When the switch has to restart, the image file with the lowest number is used. If that image file fails to boot, then the switch tries the next image file.

Common procedures

There are no common procedures.

**XAC Image
critical** (continued)**Action**

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing an ImgTst minor alarm**How to clear an ImgTst minor alarm****ATTENTION**

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

XAC Image critical (end)



CAUTION
Loss of service
Do not repeat steps.

At your current location

- 1** Collect information from the log report system. The log messages provide information about the source of the alarm.
 - a** Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b** Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c** Examine and record the appropriate log reports.
 - d** Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

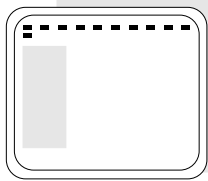
If the log indicates	Do
a different alarm condition	step 2
an Image critical alarm condition	step 3
the alarm condition is clear	step 4

- 2** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

If the alarm is	Do
not clear	step 3
clear	step 4

- 3** Call the next level of support.
- 4** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

**XAC ImgTst
minor**

Alarm display

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ImgTst	.	.	.	.	.	.	.	.	.

Indication

An ImgTst minor alarm code appears under the XAC header of the alarm banner. The alarm code indicates an image test minor alarm.

Meaning

The XA-Core system is performing an image test on the XA-Core software load. The image test executes in response to the image test MAP command. The image test checks for correct software function and image restart capability.

Impact

Call processing capacity can be reduced.

Common procedures

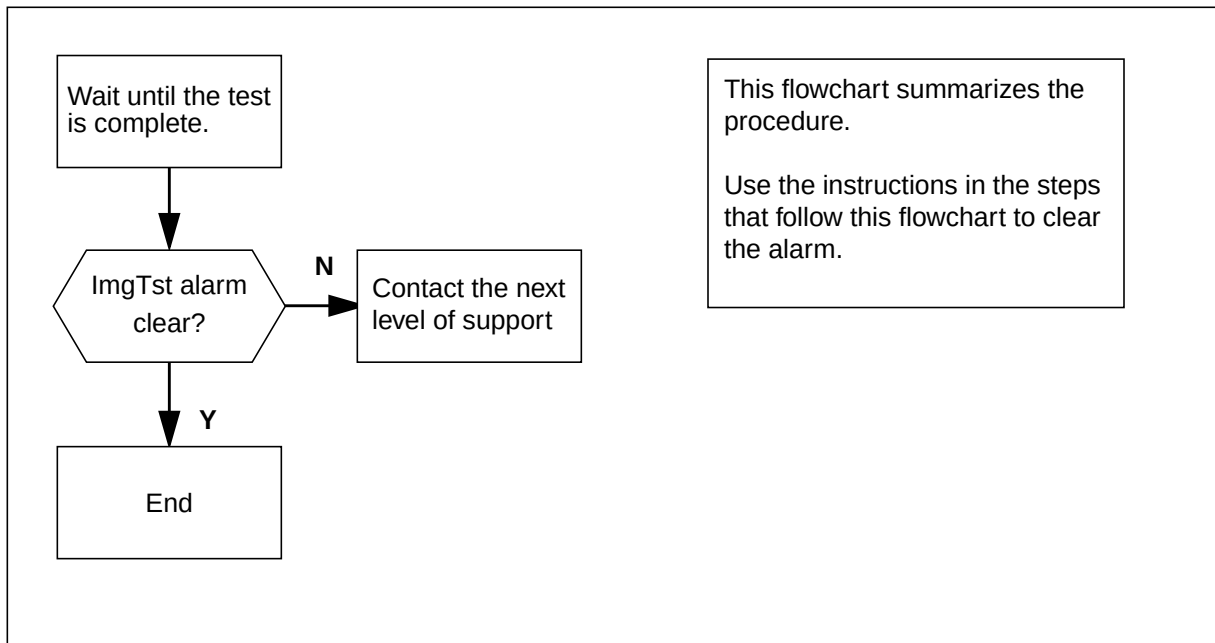
There are no common procedures.

XAC ImgTst minor (continued)

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing an ImgTst minor alarm



How to clear an XA-Core ImgTst minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



CAUTION

Loss of service

Do not repeat steps.

XAC ImgTst minor (continued)

At your current location

- 1 Examine the XACMtc MAP level. At the CI MAP prompt, type:

>MAPCI;MTC;XAC;XACMTC

and press the enter key.

Note: The MAP can display an ImgTst alarm as follows:

- an alarm code appears under the XAC header in the alarm banner.
- an equipment status code appears in a status field in the shelf layout area.

The following is a sample MAP display.

XACMtc MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
ImgTst   .       .       .       .       .       .       .       .       .

XACMtc
0 Quit
2
3
4 Sta: .....- ..... 0 0 0 0
5 Dep:
6
7 Traps:      Per Minute: = 0      Total = 1
8 Last Image run at: 1999/02/15 13:13
9      restart type= reload
10      Result = pass
11 Image Last XAREXTst run at: 1999/03/15 14:25
12 RExTst_ Last XAREXTst Type: full
13 RExInt_ Last XAREXTst Result: notRun
14 Alarm_
15 XACMTC:
16
17 Indicatt_
18 Query_

XMAP0
Time 14:12 >

```

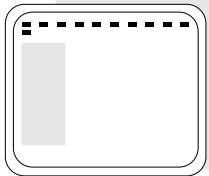
If the MAP indicates	Do
an ImgTst alarm	step 2
a different alarm	step 3
no alarm and all CPs are in service	step 6

XAC ImgTst minor (end)

2	Wait for the image test to end.						
	<table border="0" style="width: 100%;"><tr><td style="width: 50%;">If the ImgTst alarm is</td><td style="width: 50%;">Do</td></tr><tr><td>not clear</td><td>step 5</td></tr><tr><td>clear</td><td>step 4</td></tr></table>	If the ImgTst alarm is	Do	not clear	step 5	clear	step 4
If the ImgTst alarm is	Do						
not clear	step 5						
clear	step 4						
3	Perform the correct alarm clearing procedure.						
	<table border="0" style="width: 100%;"><tr><td style="width: 50%;">If the alarm is</td><td style="width: 50%;">Do</td></tr><tr><td>not clear</td><td>step 5</td></tr><tr><td>clear</td><td>step 6</td></tr></table>	If the alarm is	Do	not clear	step 5	clear	step 6
If the alarm is	Do						
not clear	step 5						
clear	step 6						
4	Record the result of the image test and note any errors.						
	<table border="0" style="width: 100%;"><tr><td style="width: 50%;">If the ImgTst shows there are</td><td style="width: 50%;">Do</td></tr><tr><td>errors</td><td>step 5</td></tr><tr><td>no errors</td><td>step 6</td></tr></table>	If the ImgTst shows there are	Do	errors	step 5	no errors	step 6
If the ImgTst shows there are	Do						
errors	step 5						
no errors	step 6						
5	Call the next level of support.						
6	You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.						

XAC IOHits minor

Alarm display



XAC IOHits	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

Indication

An IOHits alarm code appears under the XAC header of the alarm banner. The alarm banner code indicates an IOHits minor alarm.

Meaning

An IO component is bouncing between the in-service state and the out-of-service state. The system raises this alarm when the number of times an IO component has gone from in-service to out-of-service reaches the threshold value set in the office parameter `XA_IO_STATE_CHANGE_THRESH` in table `OFCENG`. The system monitors the following IO components: CMIC, ETHR, and AMDI links, ports, and hardware. The hardware can be a packet or a section of an HIOP circuit pack.

The alarm remains raised until you reset the counter that records state changes for the IO component in question. Frequent state changes may indicate a defective component.

Impact

The bouncing component may cause a degradation of performance. Otherwise, there is no change in subscriber service.

Common procedures

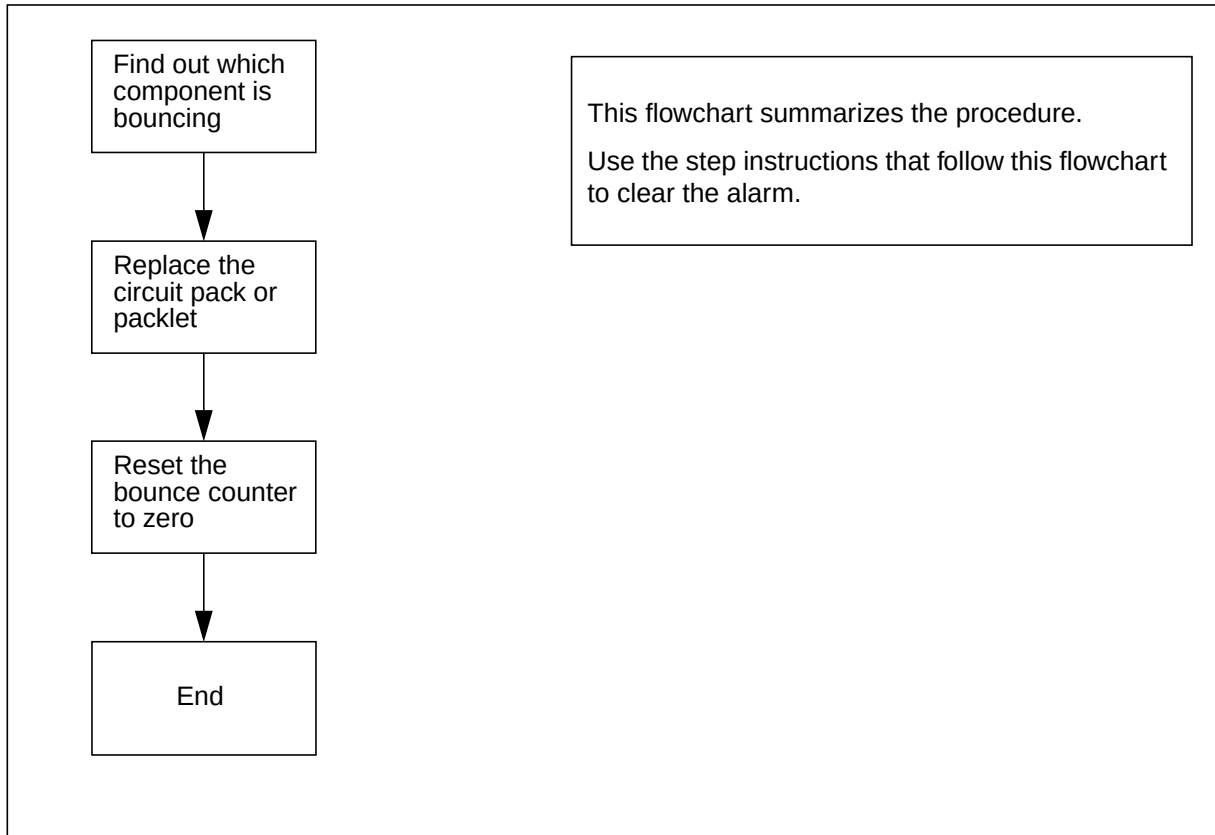
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC IOHits minor (continued)

Summary of clearing an IOHits minor alarm



How to clear an IOHits minor alarm

At the MAP terminal

- 1 Go to the XAC MAP level. At the command input prompt on any MAP screen, type
>MAPCI;MTC;XAC
and press the Enter key.
- 2 Obtain information about the alarm. At the command input prompt, type
>ALARM IOHITS
and press the Enter key.
In response, the system displays the reason why the alarm has been raised, the state of the bouncing IO component, and the location of the component.

XAC IOHits minor (continued)

3

If the bouncing IO component is	Do
a circuit pack or a packlet	step 4
a device (a port or a link or a TOD device)	step 8

4

Replace the circuit pack or packlet that is bouncing. Perform the appropriate replacement procedure. Replacement procedures are found in Chapter 2 of this document. Return to this point when done.

Note: If the IOHits alarm is raised repeatedly for a circuit pack or packlet, and if replacing the circuit pack or packlet does not prevent the bouncing, the source of the problem may be a damaged fiber.

5

Query the bounce counter for the circuit pack or packlet. At the command input prompt, type

>CNTRS QUERY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packlet - 0 to 18

<s> is the side parameter value - front (f) or rear (r)

<p> is used only if the IO component is a packlet, and indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of system response:

Warning: cntrs command will reset the IOHits counter. Please confirm ("YES", "Y", "NO", "N"):

6

Confirm the command. Type

>Y

and press the Enter key.

In response, the system displays the value of the bounce counter for the circuit pack or packlet, and then resets the counter to zero.

Note: There may be a slight delay before the automatic reset occurs. If you want to eliminate any such delay, use the CNTRS RESET command. The format of the command is **CNTRS RESET <nn> <s> <p>**

7

Go to step 11.

8

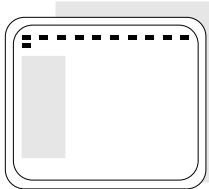
Replace the circuit pack or packlet whose device is bouncing. Perform the appropriate replacement procedure. Replacement procedures are found in Chapter 2 of this document. Return to this point when done.

XAC IOHits minor (end)

- 9 Query the bounce counter for the bouncing device. At the command input prompt, type
- >CNTRS QUERY <nn> <s> <p> <device>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packet whose device is bouncing - 0 to 18
- <s> is the side parameter value - front (f) or rear (r)
- <p> is used only if the bouncing IO component is a device on a packet, and indicates the packet location in an input/output processor (IOP) - upper (u) or lower (l)
- <device> indicates the bouncing IO device. Possible values for <device> are as follows:
- on a CMIC packet, TOD, link0 or link1
 - on an RTIF packet, local or remote
 - on an AMDI packet, port0, port1, link0 or link1
 - on an Ethernet packet, port or link
 - on the Ethernet section of an HIOP circuit pack, port or link
- In response, the system displays the value of the bounce counter for the device.
- 10 Reset the bounce counter for the device to zero. At the command input prompt, type
- >CNTRS RESET <nn> <s> <p> <device>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packet whose device is bouncing - 0 to 18
- <s> is the side parameter value - front (f) or rear (r)
- <p> is used only if the bouncing IO component is a device on a packet, and indicates the packet location in an input/output processor (IOP) - upper (u) or lower (l)
- <device> indicates the bouncing IO device
- In response, the system resets the bounce counter for the IO device to zero.
- Note:** You must use the CNTRS RESET command to reset the bounce counter for a device. Automatic reset, such as referred to in step 6, is not available for device bounce counters.
- 11 You have completed this procedure.

XAC IOP minor

Alarm display



XAC IOP	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

Indication

An IOP alarm code appears under the XAC header of the alarm banner. The alarm code indicates the input/output processor (IOP) minor alarm.

An equipment alarm appears under the IO header in the subsystem summary status field (SSSF).

Meaning

The XA-Core has low IOP redundancy. An IOP minor alarm occurs for one or more of the following events:

- an uncorrectable fault in an HIOP or IOP circuit pack (CP)
- a manually busy (ManB) HIOP or IOP CP

Impact

There is no change in subscriber service.

Common procedures

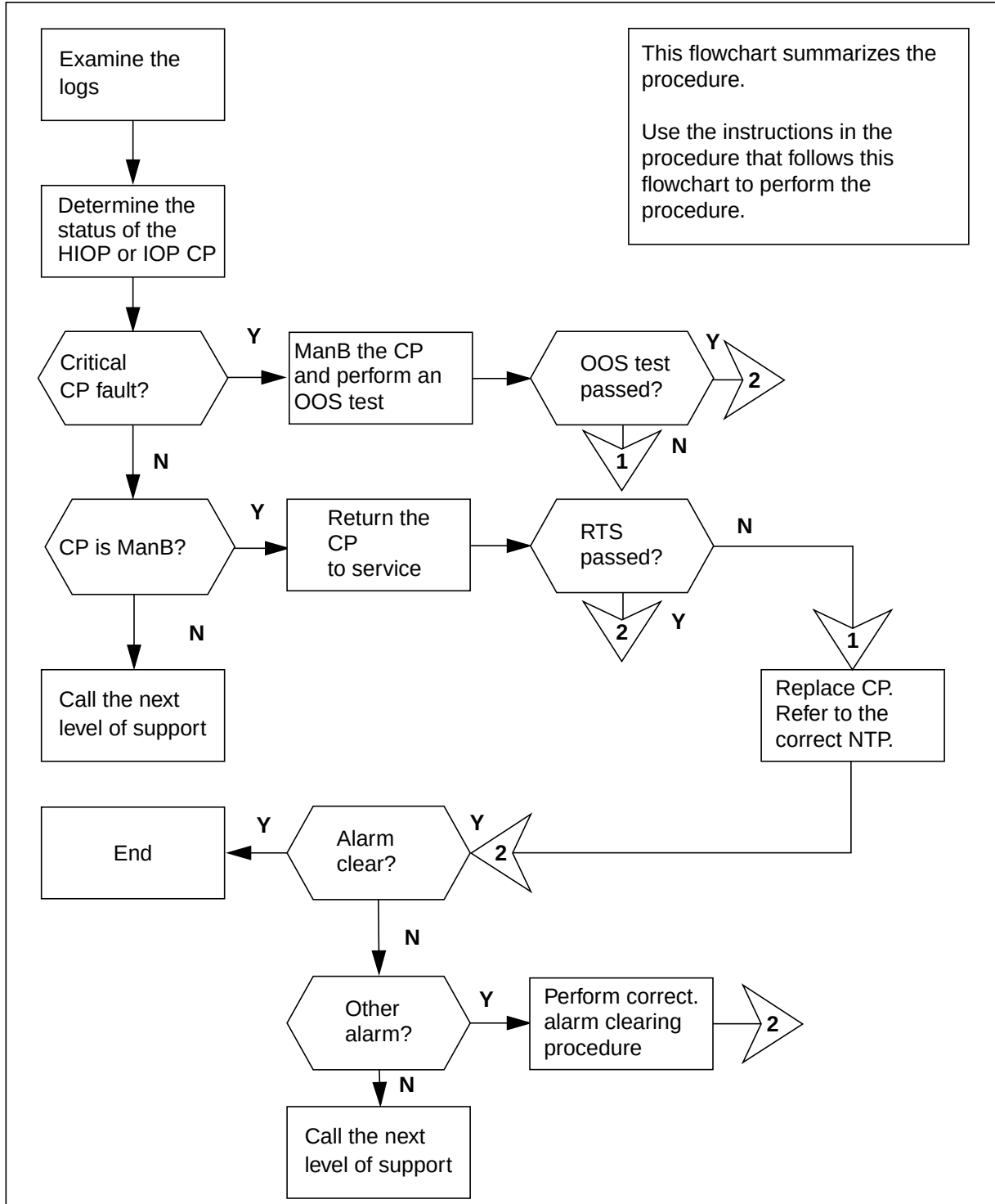
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC IOP minor (continued)

Summary of clearing a IOP minor alarm



XAC IOP minor (continued)

How to clear an IOP minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC IOP minor (continued)

At your current location

- 1 Collect log information from the log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
an IOP minor alarm condition	step 2
another alarm condition	step 10
that the IOP minor alarm condition is clear	step 12

- 2 Examine the IO MAP level. At the MAP terminal, type
>MAPCI;MTC;XAC;IO
and press the Enter key
- 3 Examine the IO MAP level. Record the working state of the system and the HIOP and IOP CPs. Also record the HIOP and IOP CP locations on the physical shelf, side and slot.

Note: The IO MAP can display alarms and status as follows:

 - an IOP alarm appears under the XAC header in the alarm banner
 - an equipment alarm under the PE header in the subsystem summary status field (SSSF)

The following is a sample MAP display.

XAC IOP
minor (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOP	.	.	.	.	.	.	.	.	.
IO		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345			.	.	IOptb	.
2		Sta: -I-	-----	-----		0	0	0	0
3		Dep:							
4		Typ: *		*	*				
5		Slot:	Side:	Status:		Upper:	Middle:	Lower:	
6 Tst_	2	Front	I		Disk	.		Tape	.
7 Bsy_	17	Front	.		Disk	.		Tape	.
8 RTS_	4	Rear	.		RTIF	.		CMIC	.
9	15	Rear	.		CMIC	.		CMIC	.
10 LoadFW_	XAC:								
11	IO:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IO MAP level indicates	Do
an HIOP or IOP CP is in a ManB state	step 4
an HIOP or IOP CP is in a SysB state	step 5
a different alarm	step 10
no alarm and all CPs are in service	step 9

XAC IOP minor (continued)

At the XA-Core MAP

- 4** Return the HIOP or IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>RTS 2 f
Example of system response:
 RTS 2 front passed

If the HIOP or IOP CP is	Do
not in an InSv state	step 5
in an InSv state	step 9

- 5** Manually busy the OOS HIOP or IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>BSY 2 f
Example of system response:
 BSY 2 front complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

If the HIOP or IOP CP is	Do
in a ManB state	step 6
not in a ManB state	step 11

- 6** Perform an OOS test on the ManB HIOP or IOP CP. At the IO MAP level type

XAC IOP minor (continued)

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 2 f

If the OOS test	Do
passed	step 7
did not pass	step 8

- 7** Return the HIOP or IOP CP to service. Make sure that all related packlets are also in service.

- a** At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 2 f

Example of system response:

RTS 2 front passed

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the HIOP or IOP CP is	Do
not in an InSv state	step 8
in an InSv state	step 9

- 8** Perform the correct HIOP or IOP CP replacement procedure. Refer to the correct CP replacement NTP. Continue to 9 when complete.

XAC IOP minor (end)

- 9** Confirm that the alarm is clear. Examine the IO MAP display.

If the IOP minor alarm is	Do
changed to a different alarm	step 10
not clear	step 11
clear	step 12

- 10** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete

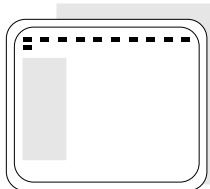
If the alarm is	Do
not clear	step 11
clear	step 12

- 11** Call the next level of support.

- 12** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC IOtrbl minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOtrbl	.	.	.	.	.	.	.	.	.

Indication

An IOtrbl alarm code appears under the XAC header of the alarm banner. The alarm code indicates an input/output (IO) trouble minor alarm.

An “I” (in-service trouble code) appears in the state field in the shelf layout area. The indicator appears directly below the number that matches the HIOp or IOP location in the physical shelf slot.

The XA-Core MAP displays an IOtrbl alarm if there is a non-critical fault in the HIOp circuit pack (CP) or in the IOP circuit pack and related packlets. The following equipment alarm codes can appear under the IO header in the subsystem status summary field (SSSF):

- IOPtb (input/output trouble)
- CMICtb (OC-3 two-port interface packlet trouble)
- LINKtb (CMIC link trouble)
- TODtb (time of day trouble)
- RTIFtb (reset terminal interface packlet trouble)
- LocPtb (local port trouble)
- RemPtb (remote port trouble)
- DISKtb (disk packlet trouble)
- TAPETb (tape packlet trouble)
- AMDItb (AMDI packlet trouble)
- ETHRtb (Ethernet packlet trouble)

XAC IOtrbl minor (continued)

Meaning

The state of the HIOP or IOP circuit pack (CP) has changed from in-service (InSv) to in-service trouble (IsTb). There is a loss of a redundant power feed to the HIOP or IOP CP or a non-critical fault in one or more of the following:

- HIOP or IOP CP
- packlets
- local or remote RTIF ports
- Time of day signals (TODs)
- CMIC links
- AMDI links
- ethernet links

Impact

There is no change in subscriber service. To minimize service degradation, test or replace the HIOP or IOP CP when call traffic is low.

Common procedures

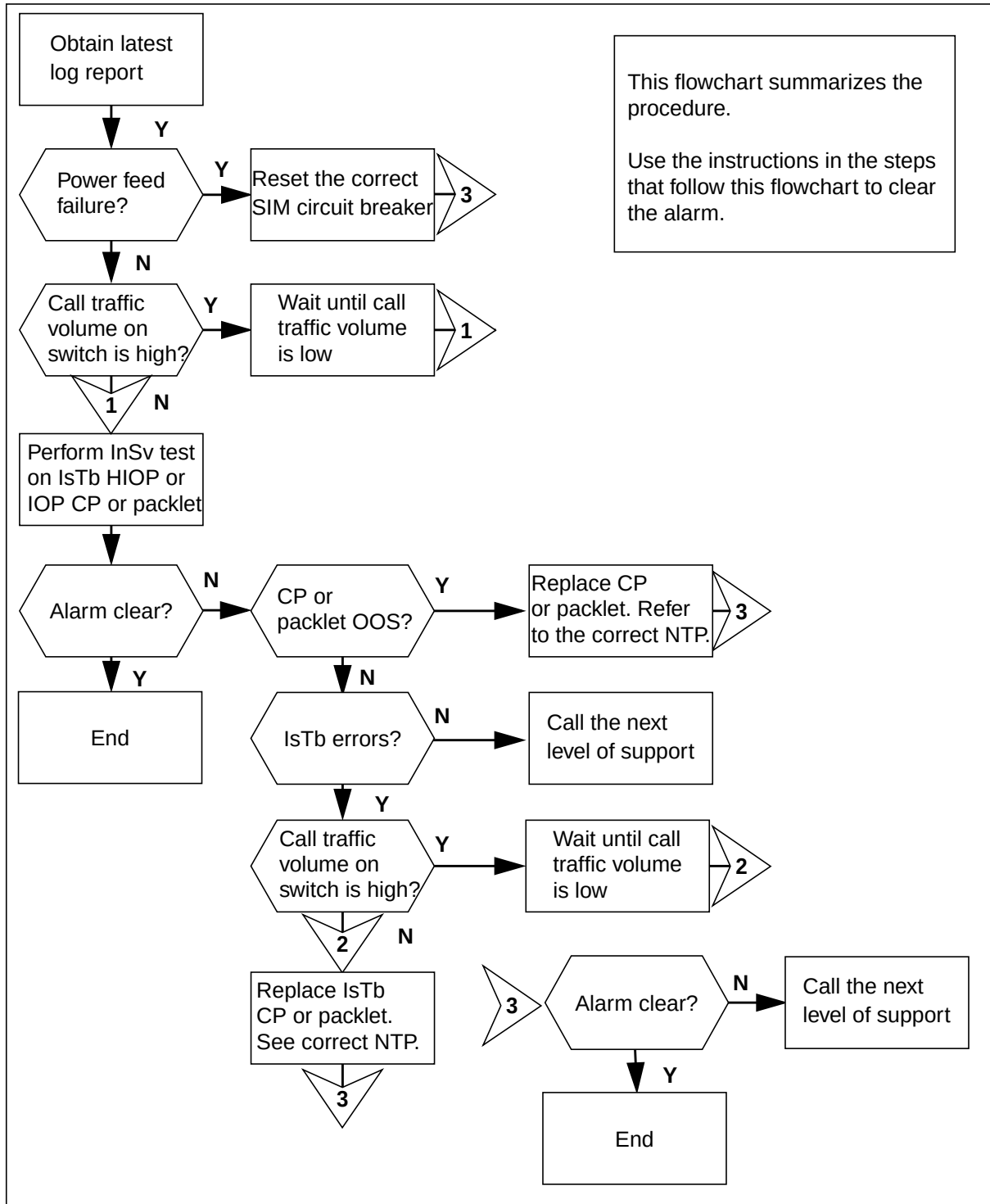
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC IOTrbI minor (continued)

Summary of clearing an IOTrbI minor alarm



XAC IOtrbl **minor** (continued)

How to clear an IOtrbl minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC IOtrbl minor (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the IOtrbl alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
 and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
 and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
 and press the Enter key.

If the log indicates	Do
an IOtrbl minor condition	step 2
a different alarm condition	step 18
that the alarm condition is clear	step 20

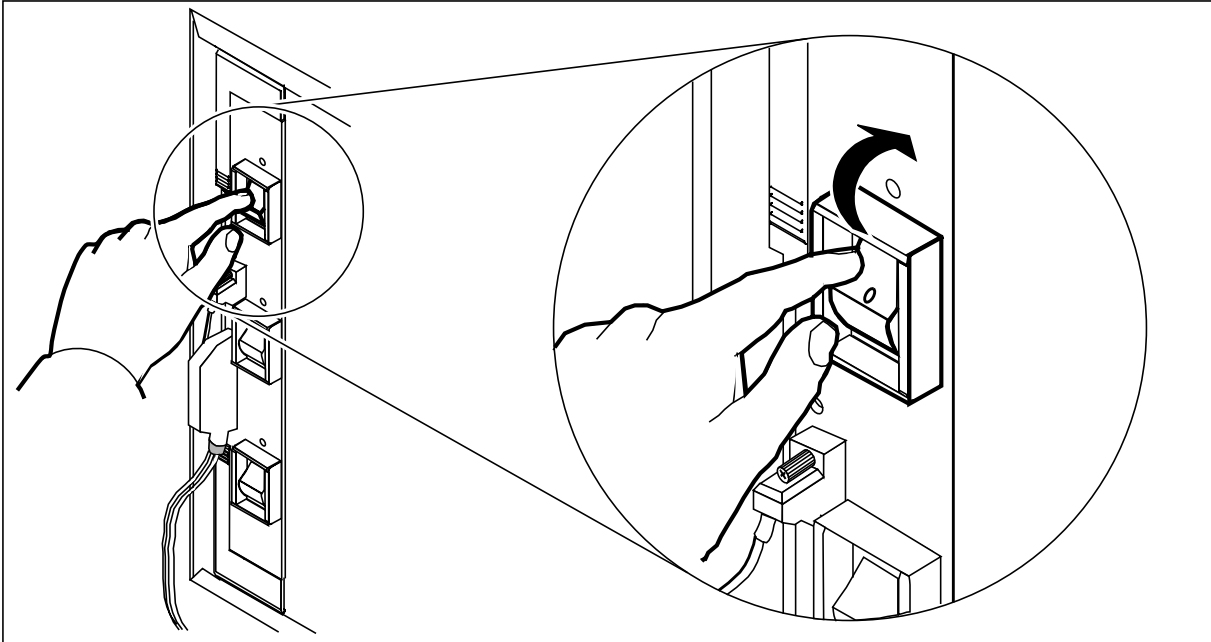
- 2 Examine the shelf interface modules (SIMs). Make sure that all circuit breakers are in the ON position. Make sure that the green LEDs are lit.

If SIM circuit breakers are	Do
in the OFF position and a red led is lit	step 3
in the ON position and green leds are lit	step 4

- 3 Set the shelf interface module (SIM) circuit breaker to the ON position (see the diagram in this step). Wait 30 sec.

XAC IOtrbl minor (continued)

Set circuit breaker on the SIM to the ON (1) position



If SIM circuit breaker	Do
resets to the ON position	step 4
does not reset to the ON position	step 19

At the XA-Core MAP

- 4 Access the IO MAP level. At the XAC MAP level type
>IO
and press the Enter key.
- 5 Examine the IO MAP level. Record the status and location of the IsTb HIOP or IOP CP.

Note: The IO MAP level can display alarms and status as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- an “I” (in-service trouble indicator) appears in the state field in the shelf layout area.
- an “I” (in-service trouble indicator) appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC IOtrbl minor (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOtrbl	.	.	.	.	.	.	.	.	.
10	Quit	Front: 11111111	Rear: 111111	SM	PE	IO	PKLT		
2		123456789012345678	456789012345	.	.	IOptb	.		
3	Sta: -I-	.....	.....	0	0	0	0		
4	Dep:								
5	Typ: *		*	*	*				
6	Slot:	Side:	Status:	Upper:	Middle:	Lower:			
7	2	Front	I	Disk .		Tape .			
8	17	Front	.	Disk .		Tape .			
9	4	Rear	.	RTIF .		CMIC .			
10	15	Rear	.	CMIC .		CMIC .			
11	LoadFW_	XAC:							
12	Uneq_	IO:							
13	Alarm_								
14	Indicat_								
15	Query_								
16	XMAP0								
17	Time 14:12								
18	>								

If the IO SSSF field indicates	Do
an HIOP or IOP CP is in an IsTb state (IOptb)	step 6
a OC-3 two-port interface packet is in an IsTb state (CMICtb)	step 7
an RTIF packet is in an IsTb state (RTIFtb)	step 8
a Disk packet is in an IsTb state (DISKtb)	step 9
a Tape packet is in an IsTb state (TAPE)	step 10
an AMDI packet is in an ISTb state (AMDItb)	step 11
an Ethernet packet is in an ISTb state (ETHR)	step 12
a different alarm	step 18
no alarm and all CPs are in service	step 20

6 Perform an in-service test on the HIOP or IOP CP.

XAC IOtrbl minor (continued)

- a Wait until call traffic volume is low. At the IO MAP level, type
>TST <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
Example of command use:
>TST 2 f
- b Examine the alarm banner and SSSF. Determine the result of the test.
Example of system response:
Tst 2 front passed

If the	Do
HIOP or IOP CP changes to an OOS state	step 14
IsTb alarm is not clear	step 16
IsTb alarm is clear	step 17

- 7 Access the CMIC MAP level. At the IO MAP level type
>CMIC
and press the Enter key.
Examine the CMIC MAP level. Record the status and location of the IsTb OC-3 two-port interface packlet.
Note: The CMIC MAP level can display alarms and status as follows:
- an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
 - an "I" (in-service trouble indicator) appears in the equipment status, link or TOD fields in the command interpreter output area.
- The following is a sample MAP display.*

XAC IOtrbl minor (continued)

CMIC MAP level

XAC IOtrbl	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
CMIC		Front: 11111111	Rear: 111111	SM	PE	IO	PKLT		
0 Quit		123456789012345678	456789012345	.	.	.	CMICTb		
2		Sta: -.-.-.-.-.-.-.-.-.-	-.-.-.-.-.-.-.-.-.-	0	0	0	0		
3		Dep:							
4		Typ:		*	*				
5		Slot: Side: Packlet:	Status: Link0: Link1: TOD:						
6 Tst_		4 Rear Lower	I	.	.	.			
7 Bsy_		15 Rear Lower	.	.	.	.			
8 RTS_		CMIC:							
9									
10									
11									
12									
13 Route_									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									

- a Perform an in-service test on the OC-3 two-port interface packet. Wait until call traffic volume is low. At the CMIC MAP level, type
- >TST <nn> <s> <p>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >TST 4 r l**
- Example of system response:*
- Tst 4 rear lower passed
- b Examine the alarm banner and SSSF. Determine the result of the test.

If the	Do
OC-3 two port interface packet changes to an OOS state	step 13

XAC IOtrbl
minor (continued)

If the	Do
IsTb alarm is not clear	step 15
IsTb alarm is clear	step 17

- 8 Access the RTIF MAP level. At the IO MAP level type
>RTIF
and press the Enter key
Examine the RTIF MAP level. Record the status and location of the IsTb RTIF packet.

Note: The RTIF MAP level can display alarms and status as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- an “I” (in-service trouble indicator) appears in the equipment status or port fields in the command interpreter output area.

The following is a sample MAP display.

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOtrbl	.	.	.	.	.	.	.	.	.
RTIF		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RTIFtb
2		Sta: .....		.....		0	0	0	0
3		Dep:							
4		Typ:		*	*				
5		Slot: Side: Packet:		Local Port: Remote Port:					
6 Tst_		4 Rear Upper I		.		.			
7 Bsy_		15 Rear Upper .		.		.			
8 RTS_		XAC:							
9		RTIF:							
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									>

- a Perform an in-service test on the RTIF packet. At the RTIF MAP level, type
>TST <nn> <s> <p>
and press the Enter key
where

XAC IOtrbl minor (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>TST 4 r u

Example of system response:

Tst 4 rear upper passed

- b** Examine the alarm banner and SSSF. Determine the result of the test.

If the	Do
RTIF packlet changes to an OOS state	step 13
IsTb alarm is not clear	step 15
IsTb alarm is clear	step 17

- 9** Access the Disk MAP level. At the IO MAP level type

>DISK

and press the Enter key.

Examine the Disk MAP level. Record the status and location of the IsTb Disk packlet.

Note: The Disk MAP level can display alarms and status as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- an "I" (in-service trouble indicator) appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
IOtrbl   .       .       .       .       .       .       .       .       .

Disk
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10
11 Format
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

Front: 111111111 Rear: 111111 SM PE IO PKLT
123456789012345678 456789012345 . . . DISKtb
Sta: -. . . . . . . . . . . . . . . . 0 0 0 0
Dep:
Typ: * *
Slot: Side: Packlet: Status:
7 Bsy_ 2 Front Lower I
8 RTS_ 17 Front Lower .
9
10
11 Format DISK:
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

XMAP0
Time 14:12 >

```

- a** Perform an in-service test on the Disk packlet. Wait until call traffic volume is low. At the Disk MAP level, type
- >TST <nn> <s> <p>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >TST 2 f l**
- Example of system response:*
- Tst 2 front lower passed
- b** Examine the alarm banner and SSSF. Determine the result of the test.

If the	Do
Disk packet changes to an OOS state	step 13

XAC IOtrbl minor (continued)

	If the	Do
	IsTb alarm is not clear	step 15
	IsTb alarm is clear	step 17
- 10** Access the Tape MAP level. At the IO MAP level type
>TAPE
 and press the Enter key.
- Examine the Tape MAP level. Record the status and location of the IsTb Tape packet.
- Note:** The Tape MAP level can display alarms and status as follows:
- an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
 - an "I" (in-service trouble indicator) appears in the equipment status field in the command interpreter output area.
- The following is a sample MAP display.*

Tape MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOtrbl	.	.	.	.	.	.	.	.	.
Tape									
0 Quit		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
2		1234567890	12345678	45678901	2345	.	.	.	TAPetb
3		Sta:	.....	.....	0	0	0	0	0
4		Dep:							
5		Typ:	*	*					
6 Tst_		Slot:							
7 Bsy_		2	Front	Packlet:	Status:	User Name:		Drive:	
8 RTS_		17	Front	Upper	I			Unmounted	
9		TAPE:			.			Unmounted	
10									
11									
12									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12 >									

- a Perform an in-service test on the Tape packet. Wait until call traffic volume is low. At the Tape MAP level, type
- >TST <nn> <s> <p>**

XAC IOtrbl

minor (continued)

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>TST 2 f u

Example of system response:

Tst 2 front upper passed

- b** Examine the alarm banner and SSSF. Determine the result of the test.

If the	Do
Tape packet changes to an OOS state	step 13
IsTb alarm is not clear	step 15
IsTb alarm is clear	step 17

- 11** Access the AMDI MAP level. At the IO MAP level type

>AMDI

and press the Enter key.

Examine the AMDI MAP level. Record the status and location of the IsTb AMDI packet.

Note: The AMDI MAP level can display alarms and status as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- an "I" (in-service trouble indicator) appears in the equipment status, link or TOD fields in the command interpreter output area.

The following is a sample MAP display.

XAC IOtrbl minor (continued)

AMDI MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOtrbl	.	.	.	.	.	.	.	.	.
AMDI	Front: 11111111 Rear: 111111 SM PE IO PKLT 123456789012345678 456789012345 Sta:- Dep: Typ: ** ** Slot: Side: Packlet: Port0: Link0: Port1: Link1: 5 Rear Lower I . - 6 Rear Lower . - 13 Rear Lower . - 14 Rear Lower . - XAC: AMDI:								
0 Quit									
2									
3									
4									
5									
6 Tst_									
7 Bsy_									
8 RTS_									
9									
10 LoadFW_									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

- a Perform an in-service test on the AMDI packet. Wait until call traffic volume is low. At the AMDI MAP level, type
- >TST <nn> <s> <p>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >TST 4 r l**
- Example of system response:*
- Tst 4 rear lower passed

- b Examine the alarm banner and SSSF. Determine the result of the test.

If the	Do
AMDI packlet changes to an OOS state	step 13
IsTb alarm is not clear	step 15

XAC IOtrbl minor (continued)

	If the	Do
	IsTb alarm is clear	step 17
- 12** Access the ETHR MAP level. At the IO MAP level type
>ETHR
 and press the Enter key.
 Examine the ETHR MAP level. Record the status and location of the IsTb ETHR packet.
- Note:** The ETHR MAP level can display alarms and status as follows:
- an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
 - an "I" (in-service trouble indicator) appears in the equipment status, port or link fields in the command interpreter output area.
- The following is a sample MAP display.*

ETHR MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOtrbl	.	.	.	.	.	.	.	.	.
ETHR	Front: 11111111		Rear: 111111		SM	PE	IO	PKLT	
0 Quit	123456789012345678		456789012345		.	.	ETHRtb	.	
2	Sta:					0	0	0	0
3	Dep:			F					
4	Typ:			**		**			
5	Slot:	Side:	Packlet:	Port:	Link:				
6 Tst_	5	Rear	Lower I	.	-				
7 Bsy_	6	Rear	Lower .	.	-				
8 RTS_	13	Rear	Lower .	.	-				
9	14	Rear	Lower .	.	-				
10 LoadFW_	XAC:								
11	ETHR:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

- a** Perform an in-service test on the ETHR component (the ETHR packet or the ETHR component in the HIOP CP). Wait until call traffic volume is low. At the ETHR MAP level, type
>TST <nn> <s> <p>
 and press the Enter key
 where

XAC IOtrbl minor (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 to 18 for the front plane, 4 to 15 for the rear plane.

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location. If the ETHR component is a packet in an IOP CP, use u for upper or l for lower. If the ETHR component is on an HIOP CP, omit this parameter.

Example of command use:

>TST 4 r l

Example of system response:

Tst 4 rear lower passed

- b** Examine the alarm banner and SSSF. Determine the result of the test.

	If the	Do
	ETHR component changes to an OOS state	step 13
	IsTb alarm is not clear	step 15
	IsTb alarm is clear	step 17
13	Replace the OOS ethernet packet or HIOP CP immediately. Refer to the correct replacement procedure located in this document. Continue to 17 when complete.	
14	Replace the OOS IOP CP immediately. Refer to the correct replacement procedure located in this document. Continue to 17 when complete.	
15	Wait until call traffic volume is low. Replace the IsTb ethernet packet or HIOP CP. Refer to the correct replacement procedure. Continue to 17 when complete.	
16	Wait until call traffic volume is low. Replace the IsTb IOP CP. Refer to the correct replacement procedure. Return to this point when complete.	
17	Confirm that the alarm is clear. Examine the IO MAP level.	
	If the alarm is	Do
	changed to another alarm	step 18
	not clear	step 19
	clear	step 20
18	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.	
	If the alarm is	Do
	not clear	step 19

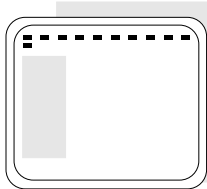
XAC IOtrbl

minor (end)

	If the alarm is	Do
	clear	step 20
19	Call the next level of support.	
20	You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.	

XAC LowPE critical

Alarm display

	XAC LowPE *C*	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

A LowPE critical alarm code appears under the XAC header of the alarm banner. Audible alarms provide notice of a critical processor element (PE) condition. If all PE capacity has been lost, the reset terminal interface (RTIF) provides reboot messages.

The CP and packlet red LEDs light for a short period of time. If the CPs and packlets return to service, the green LEDs light. If the reboot is successful, XA-Core displays a restart reload message on the MAP terminal.

An ACTIVE message and CI prompt displayed on the MAP terminal indicates a successful reboot and restart reload.

Meaning

The amount of PE capacity that has been lost is so large that the PE capacity that remains available is below the engineered capacity. In CSP16 this means that more than one PE CP is out of service.

One or more of the following conditions cause the LowPE major alarm:

- a critical fault in multiple PE circuit packs (CPs) cause InSv PE CPs to go OOS
- a critical fault in a PE CP causes an InSv PE CP to go OOS while a PE CP is manually busy (ManB)

Impact

The impact depends on whether any PE capacity remains available.

If some PE capacity remains available

If some PE capacity remains available, there is a degradation in service.

XAC LowPE **critical** (continued)

If no PE capacity remains available

If no PE capacity remains available, the switch is in an outage condition. Call processing has stopped and there is no processing redundancy. Internal switch operations cannot receive processing instructions. An XA-Core reboot and restart reload begins automatically.

The reboot sequence begins and the operating software tries to return the XA-Core processors to service. If the reboot is successful, XA-Core displays a restart reload message on the MAP terminal. A reload restart simulates a reload of the current software load from disk or tape. The restart reload messages indicate that the system is performing restart self tests.

A restart reload initializes the system software and runs tests on all hardware. The tests are done before and after loading the Interface software files. XA-Core maintenance software tests all subsystem hardware during a restart. The tests cause the red LED on circuit packs (CPs) to light. When the tests are complete, the green LEDs are lit. The red LEDs on damaged, or inactive CPs or packlets remain lit. An ACTIVE message displayed on the MAP indicates a successful reload and restart.

Note 1: A restart disables the MAP system. you cannot use the MAP system to determine the source of the fault. Use the RTIF terminal to monitor the reboot and restart reload process. You can use the MAP system if the restart is successful.

Note 2: If the restart is not successful, the system repeats the reboot procedure.

Note 3: If the restart reload is successful, all manual busy (ManB) CPs automatically return to service.

Common procedures

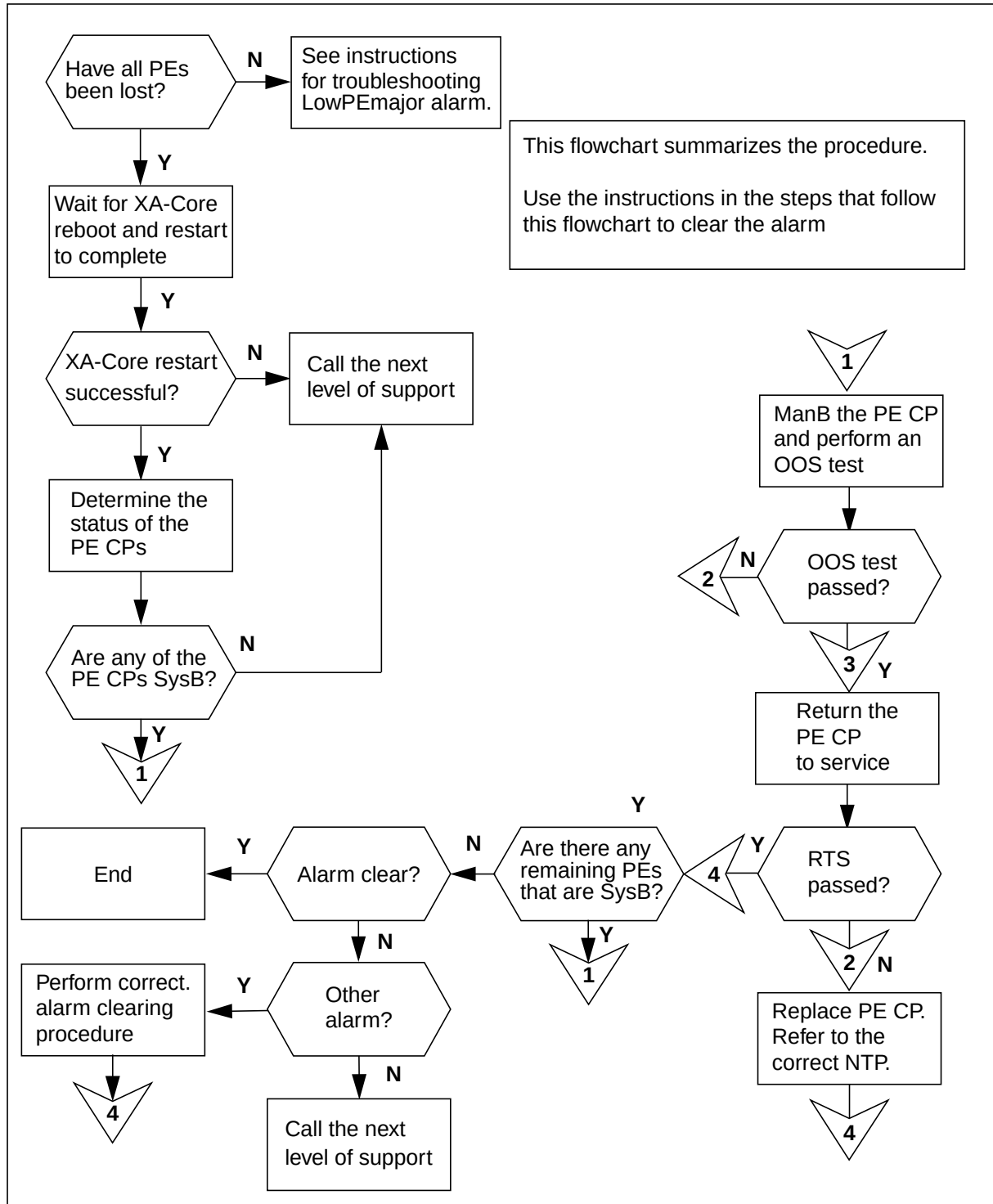
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC LowPE critical (continued)

Summary of clearing a LowPE critical alarm



XAC LowPE critical (continued)

How to clear a LowPE critical alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.

At your current location

- 1 Check how many PEs are out of service.

If	Do
all PEs are out of service	step 2
some but not all PEs are out of service	troubleshoot each of the OOS PEs by following the instructions for troubleshooting a LowPE major alarm

- 2 Wait for the XA-Core to execute a system reboot and restart reload. Look at the RTIF screen. The RTIF screen displays boot and reload messages.

If the XA-Core restart is	Do
successful	step 3
not successful and continues to execute the restart repeatedly	step 12

- The following is a sample MAP display.

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
LowPE    .      .      .      .      .      .      .      .      .
*C*

PE
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10 LoadFw
11
12 Uneq_
13
14 Alarm_
15
16 TrnsL_
17 Indicat_
18 Query_

Front: 111111111 Rear: 111111 SM PE IO PKLT
123456789012345678 456789012345 . PEfl . .
Sta: --S----- .--- . 0 1 0 0
Dep:
Typ: ** * *
PE:
XMAP0
Time 14:12 >

```

XAC LowPE critical (continued)

	If the MAP indicates	Do
	a LowPE alarm and one or more PE CPs are SysB	step 5
	a different alarm condition	step 11
	no alarm and all CPs are in service	step 13
5	Manually busy the OOS PE CP. At the PE MAP level type >BSY <nn> <s> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) Example of command use: >BSY 4 f <i>Example of system response:</i> BSY 4 front complete	
6	Perform an OOS test on the ManB PE CP. At the PE MAP level type >TST <nn> <s> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) Example of command use: >TST 4 f	
	If the OOS test	Do
	passed	step 7
	did not pass	step 8
7	Return the PE to service. At the PE MAP level type >RTS <nn> <s> and press the Enter key	

XAC LowPE critical (end)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>RTS 4 f

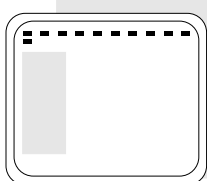
Example of system response:

RTS 4 front passed

	If the PE CP is	Do
	in a SysB state	step 12
	in an InSv state	step 9
8	Perform the PE CP replacement procedure. Refer to the correct NTP. Return to this point when complete.	
9	Check whether there are any PEs that are still SysB.	
	If	Do
	there is another PE that is SysB	step 5
	no more PEs are SysB	step 10
10	Confirm that the alarm is clear. Examine the PE MAP level.	
	If the alarm is	Do
	changed to a different alarm	step 11
	not clear	step 12
	clear	step 13
11	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.	
	If the alarm is	Do
	not clear	step 12
	clear	step 13
12	Call the next level of support.	
13	You have completed this procedure.	

XAC LowPE major

Alarm display

	XAC LowPE M	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

A LowPE major alarm code appears under the XAC header of the alarm banner. The alarm code indicates a processor element (PE) major alarm.

Meaning

The amount of PE capacity that has been lost is so large that all redundant capacity is absent. In CSP16 this means that one PE CP is out of service. One or more of the following conditions cause the LowPE major alarm:

- a critical fault in a PE circuit pack (CP) causes an InSv PE CP to go OOS
- undetectable, invalid, or uninitialized PE CP
- wrong CP type
- manually busy (ManB) PE CP

Impact

There is no immediate change in subscriber service. A restart can occur if the remaining PEs cannot manage the volume of call traffic or internal processes.

Common procedures

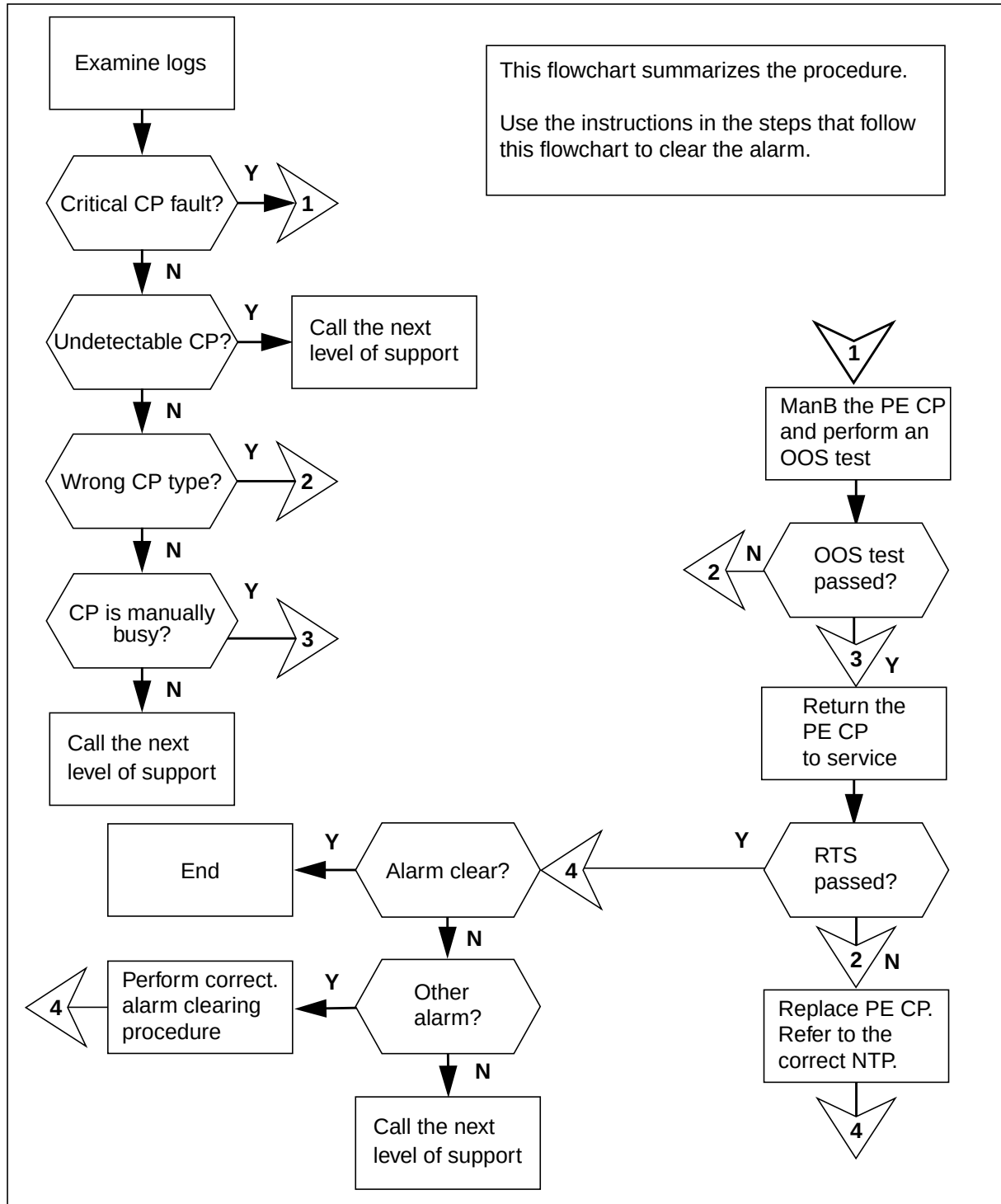
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC LowPE major (continued)

Summary of clearing a LowPE major alarm



XAC LowPE major (continued)

How to clear a LowPE major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets, or resources OOS.

XAC LowPE major (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the LowPE alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt, type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt, type
>QUIT
and press the Enter key.

If the log indicates	Do
a LowPE major condition	step 2
a different alarm condition	step 9
that the LowPE major alarm condition is clear	step 11

- 2 Access the PE MAP level. At the MAP terminal, type
>MAPCI;MTC;XAC;PE
and press the Enter key.
- 3 Examine the PE MAP level. Record the location and status of the PE CPs. Identify the location of any trouble PE CPs

Note: The PE MAP level displays alarms and status as follows:

 - A system alarm code appears under the XAC header in the alarm banner.
 - An equipment alarm code appears under the PE header in the subsystem status summary field (SSSF).
 - An equipment status code appears in the Status field in the shelf layout area.

The following is a sample MAP display.

XAC LowPE
major (continued)

PE MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
LowPE	.	.	.	.	.	.	.	.	.
M									
PE			Front: 11111111		Rear: 111111	SM	PE	IO	PKLT
0 Quit			123456789012345678		456789012345	.	PEfl	.	.
2						.			
3			Sta: --S--			0	1	0	0
4			Dep:						
5			Typ: **		* *				
6 Tst_			PE:						
7 Bsy_									
8 RTS_									
9									
10 LoadFW									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									>

If the MAP indicates	Do
a LowPE alarm and a PE CP is in a SysB state	step 4
a LowPE alarm and a PE CP is in a SysB state	step 5
a different alarm condition	step 9
no alarm and all CPs are in service	step 11

- 4 Manually busy the OOS PE CP. At the PE MAP level type
>BSY <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
Example of command use:
>BSY 4 f

XAC LowPE major (continued)

Example of system response:

BSY 4 front complete

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the PE CP is	Do
in a ManB state	step 5
not in a ManB state	step 10

- 5 Perform an OOS test on the ManB PE CP. At the PE MAP level type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 4 f

If the OOS test	Do
passed	step 6
did not pass	step 7

- 6 Return the PE to service. At the PE MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>RTS 4 f

XAC LowPE major (end)

Example of system response:

RTS 4 front passed

If the PE CP is	Do
in a SysB state	step 7
in an InSv state	step 8

At the XA-Core physical shelf

- 7** Perform the PE CP replacement procedure. Refer to the correct CP replacement procedure in this document. Return to this point when complete.

At the XA-Core MAP terminal

- 8** Confirm that the alarm is clear. Examine the PE MAP level.

If the LowPE alarm is	Do
changed to a different alarm	step 9
not clear	step 10
clear	step 11

- 9** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

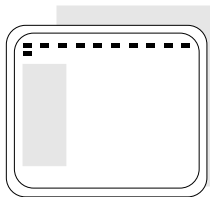
If the alarm is	Do
not clear	step 10
clear	step 11

- 10** Call the next level of support.

- 11** You have completed this procedure.

**XAC LowSM
major**

Alarm display

	XAC LowSM M	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

A LowSM major alarm code appears under the XAC header of the alarm banner. The alarm code indicates the shared memory (SM) major alarm.

Meaning

The XA-Core has lost shared memory redundancy and is now in a Simplex working state. A LowSM major alarm can occur from one or more of the following events:

- a critical fault in one or more SM circuit packs (CPs)
- manually busy (ManB) SM CP

Impact

There is no immediate change in subscriber service. Shared memory redundancy is not available and the system cannot support another critical fault in an SM CP. A restart can occur if another SM CP changes state to out-of-service.

Common procedures

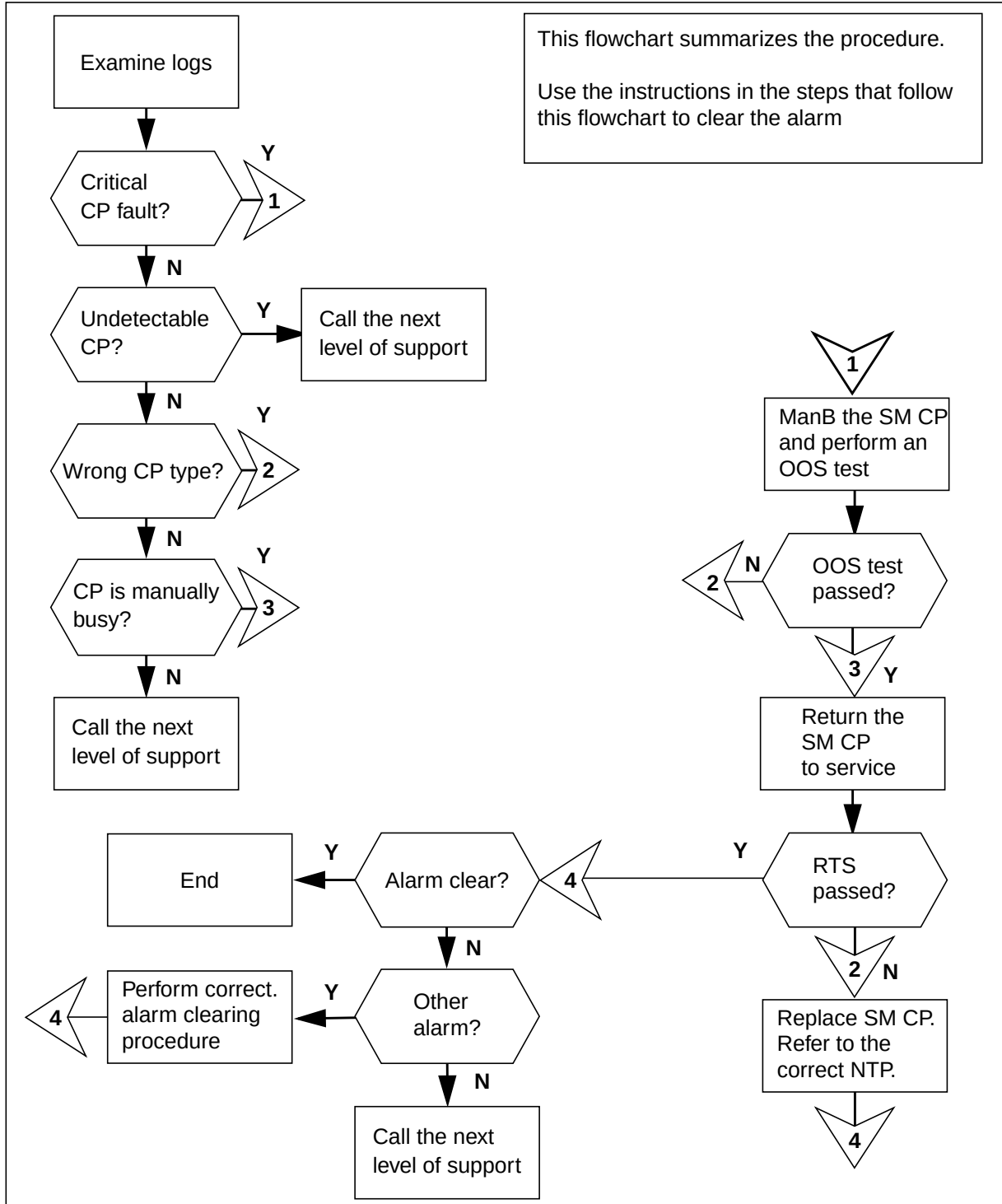
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC LowSM major (continued)

Summary of clearing a LowSM major alarm



XAC LowSM major (continued)

How to clear a LowSM major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC LowSM major (continued)

At your current location

- 1** Collect information from the XA-Core log report system. The log messages provide information about the source of the LowSM alarm.
 - a** Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b** Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c** Examine and record the appropriate log reports.
 - d** Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a LowSM major alarm condition	step 2
a different alarm condition	step 9
that the LowSM major alarm condition is clear	step 11

- 2** Access the XA-Core SM MAP level. At the CI MAP level prompt type
>MAPCI;MTC;XAC;SM
and press the Enter key.

XAC LowSM major (continued)

- 3 Examine the XA-Core SM MAP level. Record the location and status of the SM CPs. Identify the location of the trouble SM CP.

Note: The SM MAP can display alarms as follows:

- a system alarm code appears under the XAC header in the alarm banner
- a system alarm code appears under the XAC header in the alarm banner
- an equipment status code appears in the status field in the shelf layout area.

The following is a sample MAP display.

SM MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
LowSM	.	.	.	.	.	.	.	.	.
M									
SM									
0 Quit		Front: 111111111	Rear: 111111	SM	PE	IO	PKLT		
2		123456789012345678	456789012345	SMfl	.	.	.		
3		Sta: -.-----S-----	.-S-----	2	0	0	0		
4		Dep:							
5		Typ: ** **	*						
6 Tst_		Physical: 1920	Useable: 1152			Available: 576			
7 Bsy_		SYNC State: simplex							
8 RTS_		SM:							
9									
10									
11									
12									
13									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									
>									

If the MAP indicates	Do
a LowSM alarm and one or more SM CPs are in a SysB state	step 4
a LowSM alarm and one or more SM CPs are in a ManB state	step 6
a different alarm condition	step 9
no alarm and all CPs are in service	step 11

- 4 Manually busy the OOS SM CP. At the SM MAP level type

XAC LowSM major (continued)

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 7 r

Example of system response:

BSY 7 rear complete

- 5 Perform an OOS test on the ManB SM CP. At the SM MAP level type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 7 r

If the OOS test	Do
passed	step 6
did not pass	step 7

- 6 Return the ManB SM CP to service. At the SM MAP level type

>RTS <nn> <s>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>RTS 7 r

XAC LowSM major (end)

Example of system response:

RTS 7 rear passed

If the SM CP is	Do
in a SysB state	step 7
in an InSv state	step 8

At the XA-Core physical shelf

- 7** Perform the SM CP replacement procedure. Refer to the correct CP replacement procedure in this document. Return to this point when complete.

At the XA-Core MAP terminal

- 8** Confirm that the alarm is clear. Examine the SM MAP level display.

If the LowSM alarm is	Do
changed to a different alarm	step 9
not clear	step 10
clear	step 11

- 9** Perform the correct alarm clearing procedure. Refer to the correct NTP located in this document. Return to this point when complete

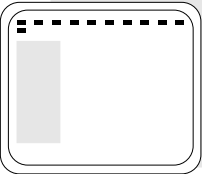
If the alarm is	Do
not clear	step 10
clear	step 11

- 10** Call the next level of support.

- 11** You have completed this procedure.

**XAC LowSM
minor**

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	LowSM	.	.	.	.	.	.	.	.	.

Indication

A LowSM minor code appears under the XAC header of the alarm banner. The alarm code indicates a shared memory (SM) minor alarm.

An equipment alarm appears under the SM heading in the subsystem status summary field (SSSF).

Meaning

The XA-Core memory redundancy is partially lost but shared memory synchronization is in full duplex. A LowSM minor alarm can occur from one or more of the following events:

- an SM circuit pack (CP) is out-of-service (OOS)
- a manually busy (ManB) SM CP

Impact

There is no immediate change in subscriber service.

Common procedures

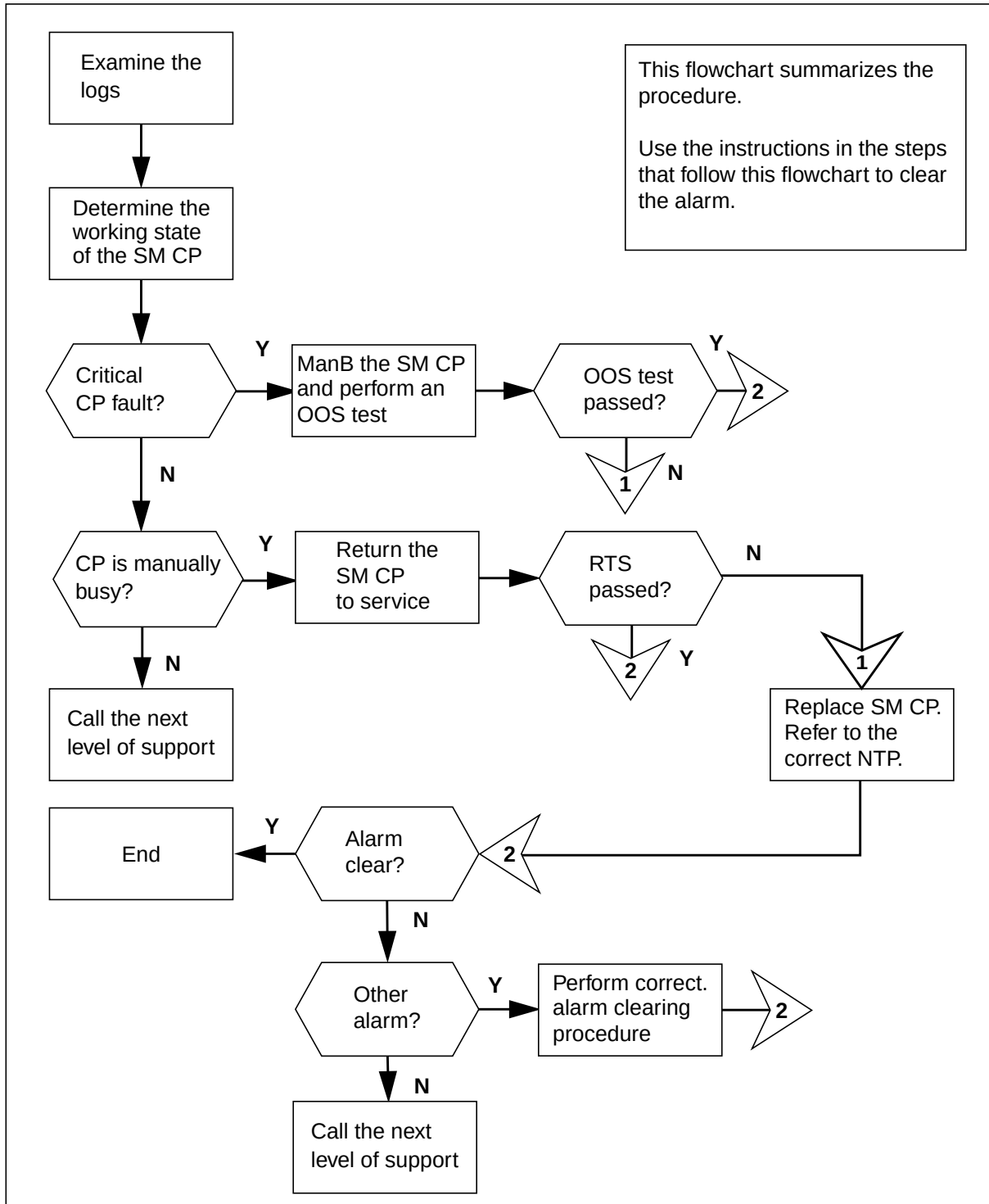
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC LowSM minor (continued)

Summary of clearing a LowSM minor alarm



XAC LowSM minor (continued)

How to clear a LowSM minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

**XAC LowSM
minor** (continued)

At the MAP terminal

- 1** Collect log information from the log report system. The log messages provide information about the source of the LowSM alarm.

- a** Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
- b** Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
- c** Examine and record the appropriate log reports.
- d** Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a LowSM minor alarm condition	step 2
a different alarm condition	step 11
that the LowSM minor alarm condition is clear	step 13

- 2** Access the SM MAP. At the MAP terminal, type
>MAPCI;MTC;XAC;SM
and press the Enter key

Note: The SM MAP can display alarms and status as follows:

- a system alarm code appears under the XAC header in the alarm banner
- an equipment status code appears in the status field in the shelf layout area
- an equipment alarm code appears under the SM header in the subsystem status summary field (SSSF)

SM MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
LowSM    .      .      .      .      .      .      .      .      .

SM
0 Quit      Front:  111111111  Rear: 111111  SM      PE      IO      PKLT
2          123456789012345678  456789012345  SM M    .      .      .
3          Sta:  -.------.-----  .--M-----  1      0      0      0
4          Dep:
5          Typ:      **  **      *
6 Tst_      Physical: 1536      Useable: 1536      Available: 960
7 Bsy_
8 RTS_      SYNC State: duplex
9          SM:
10
11
12
13
14 Alarm_
15
16 TrnsL_
17 Indicat_
18 Query_

XMAP0
Time 14:12  >

```

If the SM MAP level indicates	Do
an SM CP is in a ManB state	step 4
an SM CP is in a SysB state	step 5
split, REXtst	step 8
a different alarm	step 11
no alarm and all CPs are in service	step 13

XAC LowSM minor (continued)

- 4 Return the SM CP to service. At the SM MAP level type

>RTS <nn> <s>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>RTS 7 r

Example of system response:

RTS 7 rear passed

If the SM CP is	Do
not in an InSv state	step 5
in an InSv state	step 10

- 5 Manually busy the OOS SM CP. At the SM MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 7 r

Example of system response:

BSY 7 rear complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

If the SM CP is	Do
in a ManB state	step 6
not in a ManB state	step 12

- 6 Perform an OOS test on the ManB SM CP. At the SM MAP level type

>TST <nn> <s>

XAC LowSM minor (continued)

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 7 r

If the OOS test	Do
passed	step 7
did not pass	step 9

- 7 Return the SM CP to service. At the SM MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 7 r

Example of system response:

RTS 7 rear passed

If the SM CP is	Do
not in an InSv state	step 9
in an InSv state	step 10

- 8 Wait for the image test, upgrade or RExTst to complete. Continue when the system process is complete.

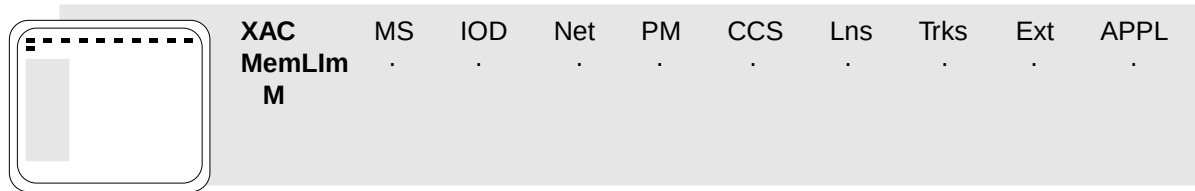
If the SM MAP level shows	Do
the system process is successful	step 10
a different alarm	step 11
the system process is not successful	step 12

**XAC LowSM
minor (end)**

- 9** Perform the SM CP replacement procedure. Refer to the correct replacement procedure. Return to this point when complete.
- 10** Confirm that the LowSM minor alarm is clear. Examine the SM MAP level.
- | If the LowSM minor alarm is | Do |
|------------------------------------|-----------|
| changed to a different alarm | step 11 |
| not clear | step 12 |
| clear | step 13 |
- 11** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.
- | If the alarm is | Do |
|------------------------|-----------|
| not clear | step 12 |
| clear | step 13 |
- 12** Call the next level of support.
- 13** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

**XAC MemLim
major**

Alarm display



Indication

A MemLim alarm code appears under the XAC header of the alarm banner. The alarm code indicates the memory limit major alarm.

Meaning

The memory availbale for allocation by the XA-Core operating system has dropped below one or both of the major memory limit alarm thresholds. The alarm indicates that there are not enough memory resources to perform calculations or system related functions. The MemLim alarm does not indicate a fault in any hardware.

Impact

There is no change to subscriber service. The XA-Core operating software cancels some internal switch processes such as testing and reporting.

Common procedures

There are no common procedures.

Action

Use the instructions in the step-action procedure to clear the alarm.

XAC MemLim major (continued)

How to clear a MemLim major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

At the XA-Core MAP

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.

Note: Due to the refresh rate for MemLim alarm information, the user may experience some delay between the event that triggered the alarm to the change in the alarm condition.

- a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
- b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
- c Examine and record the appropriate log reports.
- d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a MemLim major condition	step 2
another alarm condition	step 4
that the alarm condition is clear	step 7

- 2 Access the XA-Core SM MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;SM
and press the Enter key.
- 3 Examine the SM MAP level. Record the amount of available memory.
Note: The SM MAP level can display alarms and status as follows:
 - The MAP displays a MemLim alarm code under the XAC header in the alarm banner.
 - The MAP displays the amount of physical, usable and available memory in the command output area.

The following is a sample MAP display.

XAC MemLim
major (continued)

SM MAP level

XAC
MemLim
M

SM

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10

11

12

13

14 Alarm_

15

16 Trnsl_

17 Indicat_

18 Query_

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

Front: 111111111

Rear: 111111

SM

PE

IO

PKLT

123456789012345678

456789012345

.

.

.

.

Sta . . . - - - -

Dep:

Type: *****

Physical: 3840

Usable: 3840

Available: 0

SYNC State: duplex

XMAP0

Time 14:12 >

If the MAP indicates		Do
a different alarm		step 4
a MemLim alarm		step 5
no alarm and all CPs are in service		step 7
4	Perform the correct alarm clearing procedure as described in this document. Return to this point when complete.	
If the alarm is		Do
not clear		step 5
clear		step 7
5	Collect further information on memory limits using the XSMEMLIM command.	
a	At the CI prompt, type	
	> XSMEMLIM	
	and press the Enter key.	

**XAC MemLim
major (end)**

- b** Examine and record the displayed memory statistics.

Available memory	Alarm status
Critical data-store is less than 512 kilobytes.	DS major
Data-store is less than 32768 kilobytes.	DS minor
Critical program store is less than 64 kilobytes.	PS major
Program store is less than 8192 kilobytes.	PS minor

- 6** Contact the next level of support.
- 7** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

XAC MemLim
minor

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	MemLim	.	.	.	.	.	.	.	.	.

Indication

A MemLim alarm code appears under the XAC header of the alarm banner. The alarm code indicates the memory limit minor alarm.

Meaning

The memory allocation to the XA-Core operating system has reached 90% of the available address space. The alarm indicates that there are not enough memory resources to perform calculations or system related functions. The MemLim alarm does not indicate a fault in any hardware.

Impact

There is no change to subscriber service. The XA-Core operating software cancels some internal switch processes such as testing and reporting.

Common procedures

There are no common procedures.

Action

Use the instructions in the step-action procedure to clear the alarm.

XAC MemLim minor (continued)

How to clear a MemLim minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

At the XA-Core MAP

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a MemLim minor condition	step 3
another alarm condition	step 4
that the alarm condition is clear	step 6

- 2 Access the XA-Core SM MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;SM
and press the Enter key.
- 3 Examine the SM MAP level. Record the amount of available memory.

Note: The SM MAP level can display alarms and status as follows:

 - The MAP displays a MemLim alarm code under the XAC header in the alarm banner
 - The MAP displays the amount of physical, usable and available memory in the command output area. The MemLim condition indicates that the amount of available memory is 10% of the amount of usable memory.

The following is a sample MAP display.

XAC MemLim
minor (end)

SM MAP level

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10

11

12

13

14 Alarm_

15

16 Trnsl_

17 Indicat_

18 Query_

XMAP0

Time 14:12 >

XAC
MemLim

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

Front: 111111111

123456789012345678

Sta: -.-----

Dep:

Typ: ** **

Physical: 1920

SYNC State: duplex

Rear: 111111

456789012345

*

Useable: 1920

SM

.

0

0

0

0

PE

.

0

0

IO

.

0

PKLT

.

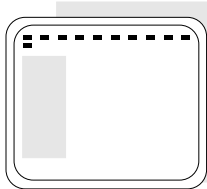
0

Available: 191

If the MAP indicates		Do
a different alarm		step 4
a MemLim alarm		step 5
no alarm and all CPs are in service		step 6
4	Perform the correct alarm clearing procedure as described in this document. Return to this point when complete.	
If the alarm is		Do
not clear		step 5
clear		step 6
5	Call the next level of support.	
6	You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.	

XAC MScomm critical

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

There is no MAP alarm code under the XAC header to indicate a critical XA-Core/message switch (MS) communication alarm. Audible alarms provide notice of an outage. The local reset terminal interface (RTIF) provides status information on the progress of a software restart or system reboot.

Note: The events that cause an MScomm critical alarm make it impossible for the MAP to display alarm codes. The XA-Core has lost all avenues of communication with the message switch. None of the MAP interfaces is available.

The CP and packlet red LEDs light for a short period of time. If the CPs and packlets return to service, the green LEDs light. If the reboot is successful, XA-Core displays a restart reload message on the MAP terminal.

An ACTIVE message and CI prompt displayed on the MAP terminal indicates a successful reboot and restart reload.

Meaning

There is no communication between the XA-Core and MS. The OC-3 two-port interfaces, the physical links or the MS cannot provide communication service because of one or more of the following:

- XA-Core OC-3 two-port interface packlet status is a combination of system busy (SysB), out of service (OOS) CBsy or ManB
- OC-3 two-port interface paddleboard status is a combination of SysB and ManB
- MS port circuit packs (CPs) are SysB
- damage to ports on the OC-3 two-port interface packlets or OC-3 two-port interface paddleboards
- damage to fiber optic cables
- fiber optic cables disconnected

XAC MScomm **critical** (continued)

Impact

There is a change in subscriber service. Subscriber service has stopped and a system restart sequence begins. The system restart sequence tries to establish communication with the MS and return the XA-Core to service. A restart reload initializes the system software and runs tests on all hardware. The tests are done before and after loading the Interface software files.

XA-Core maintenance software tests all subsystem hardware during a restart. The tests cause the red LED on circuit packs (CPs) and packlets to light. When the tests are complete, the green LEDs are lit. The red LEDs on damaged, or inactive CPs or packlets remain lit. An ACTIVE message displayed on the MAP indicates a successful reload and restart.

The type of system restart depends on the severity and type of communication fault. The types of system restarts are as follows:

- Restart warm: A restart warm de-allocates and clears temporary memory storage. A restart warm does not cause an outage for existing calls. The system records and saves current call event information. The system does not allow new call processing.
- Restart cold: A restart cold process has more serious effects on system operation than a restart warm. A restart cold de-allocates and clears temporary memory storage. A restart cold can cause an outage in existing calls if the system requires the ports that the calls are using. The system does not record and save call event information. The system does not allow new call processing.
- Restart reload: A restart reload has more serious effects on system operation than the restart warm and restart cold processes. A reload restart simulates a reload of the current software into the switch. A reload restart initializes the system software and runs tests on all hardware. A reload restart causes an outage in existing calls and does not allow new call processing.

The restart process begins with a restart warm. If the restart warm fails, a restart cold begins. If the restart cold fails, a restart reload begins. If all restart processes do not restore communication service to the MS, the XA-Core performs a system reboot.

If a restart process restores MS communication, the XA-Core MAP displays reload/restart messages on the MAP terminal. An ACTIVE message displayed

**XAC MScmm
critical** (continued)

on the MAP indicates a successful restart. All CPs and packlets that were in a manually busy (ManB) state before the restart, automatically return to service.

Note 1: A restart disables the MAP system. you cannot use the MAP system to determine the source of the fault. Use the RTIF terminal to monitor the reboot and restart reload process. You can use the MAP system if the restart is successful.

Note 2: If the restart is not successful, the system repeats the reboot procedure.

Note 3: If the restart reload is successful, all manual busy (ManB) CPs automatically return to service.

Common procedures

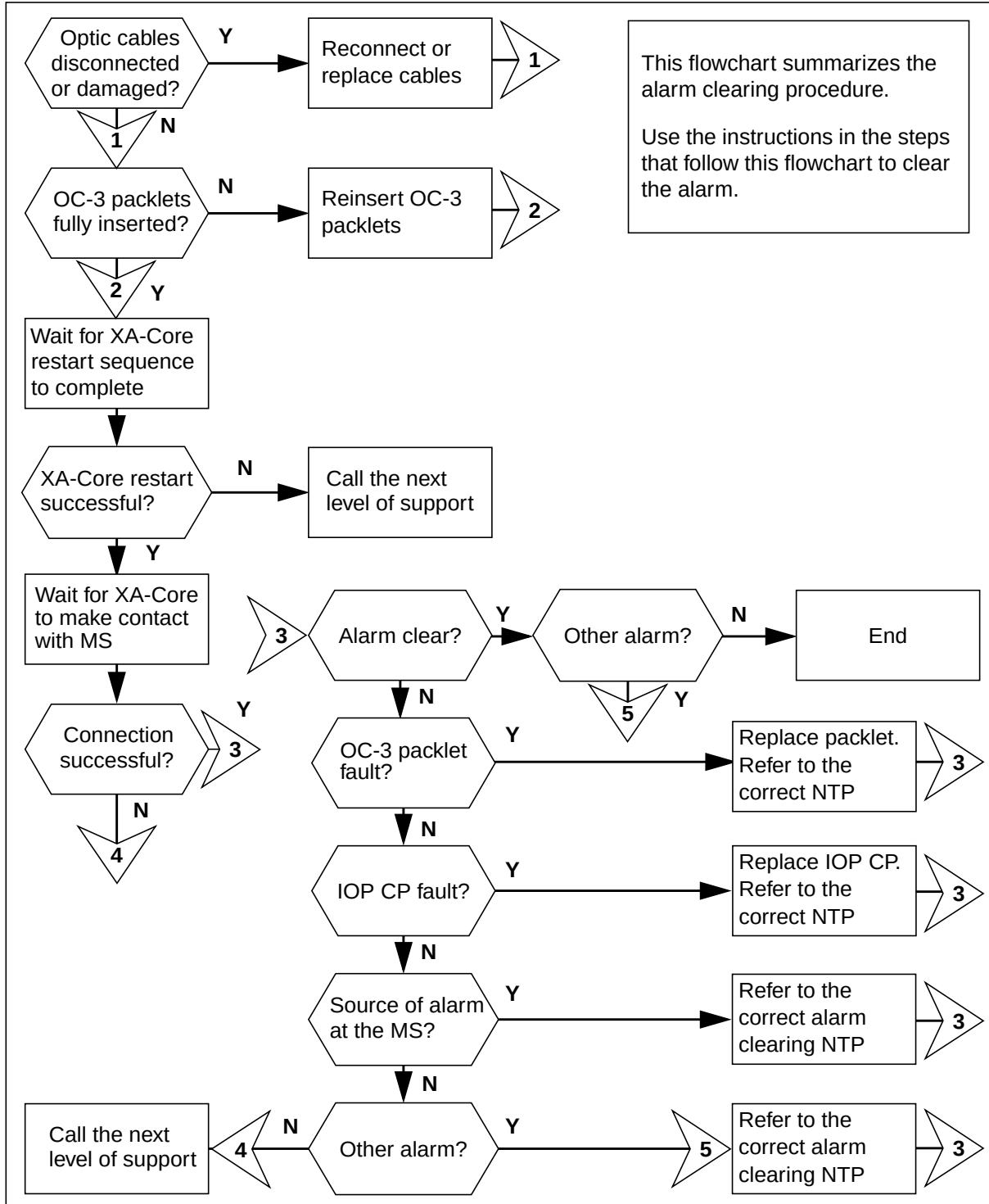
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC MScomm critical (continued)

Summary of clearing an MScomm critical alarm



**XAC MScomm
critical** (continued)**How to clear an MScomm critical alarm****ATTENTION**

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**WARNING****Possible Fiber cable damage**

Handle the fiber optic cables with care. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.

**CAUTION****Loss of service**

Do not repeat steps.

XAC MScomm critical (continued)



CAUTION

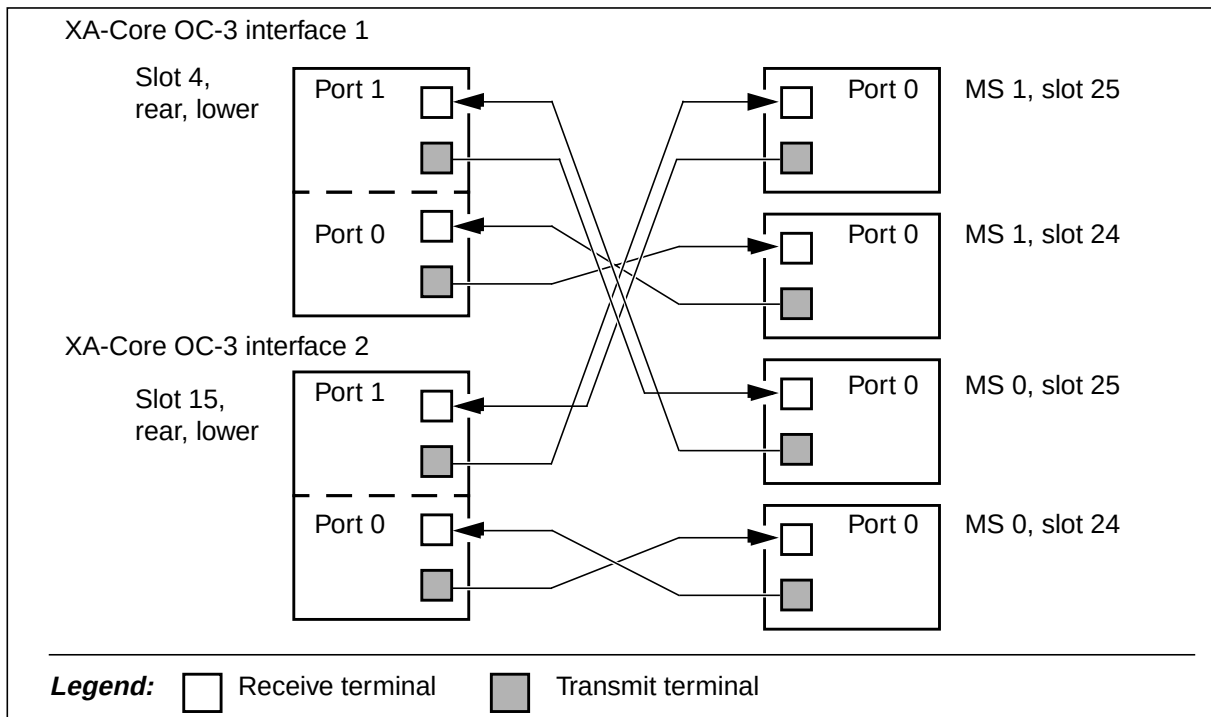
Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At the XA-Core physical shelf

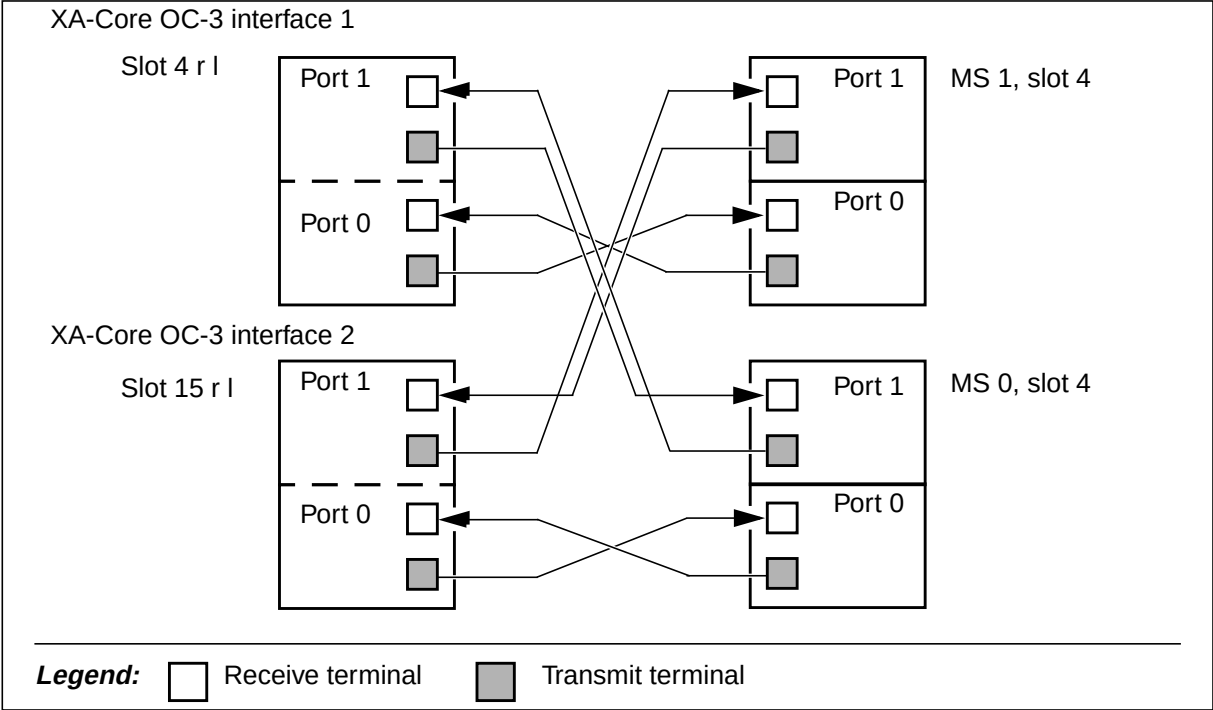
- 1 Examine the fiber optic cable connections. Make sure that the fiber optic connectors fit correctly into the OC-3 two-port interface packlet and OC-3 two-port interface paddleboard ports. Use the following diagrams to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)



XAC MScomm
critical (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)

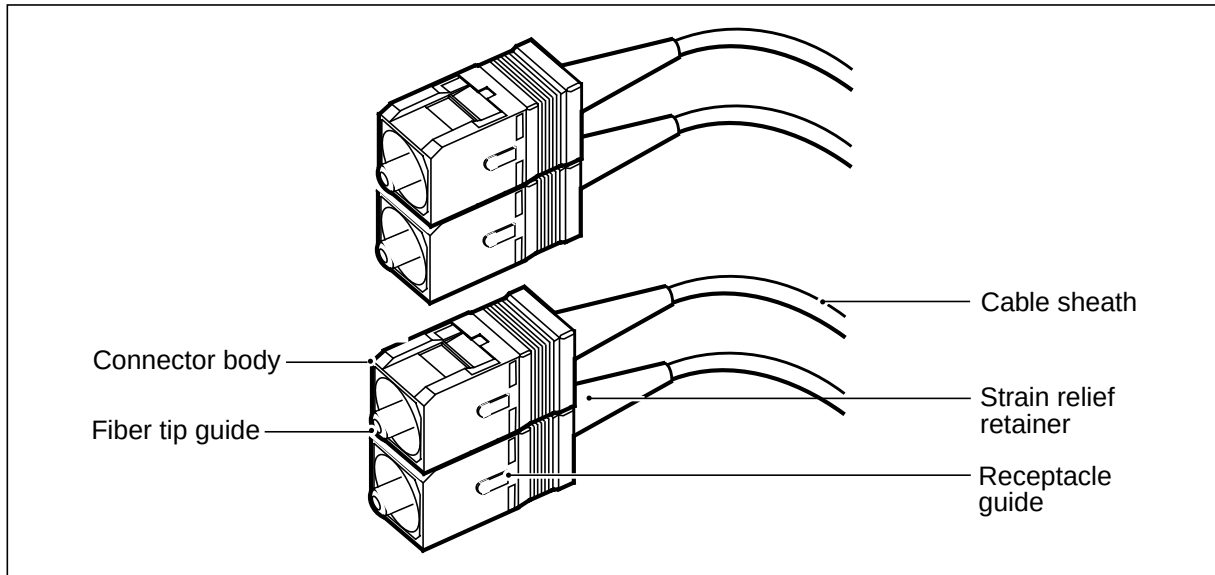


If the fiber optic cables are	Do
correctly inserted	step 2
not correctly inserted	step 3

2 Examine the fiber optic cables. Make sure that there is no damage to the fiber optic cables.

XAC MScomm critical (continued)

Paired fiber optic cable connectors

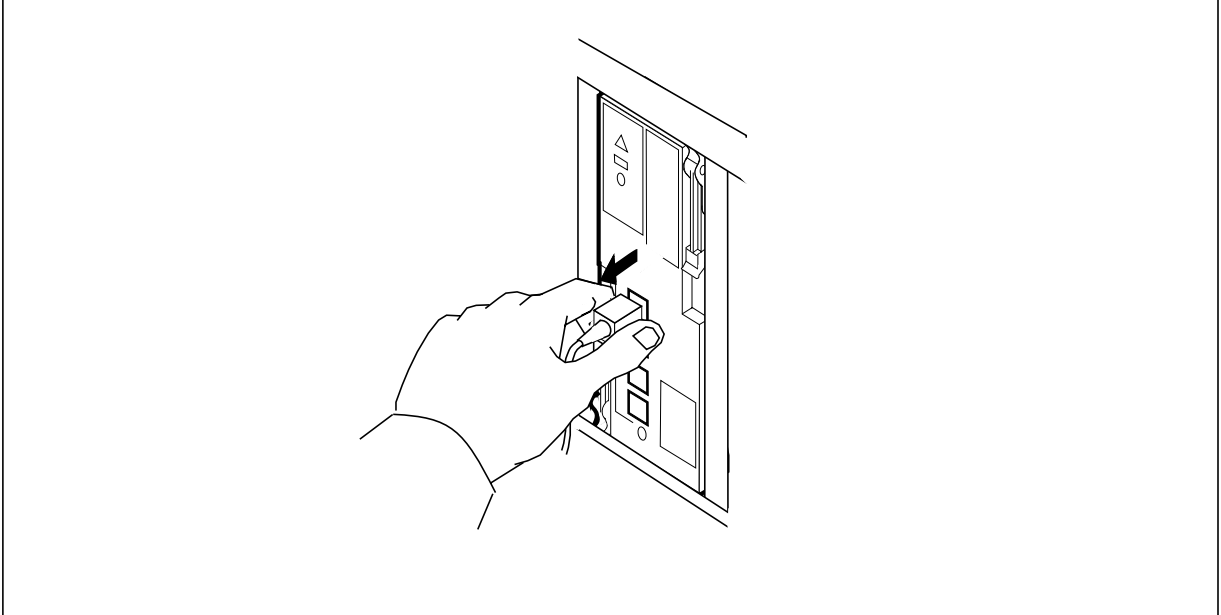


If the OC-3 fiber optic cables are	Do
visibly damaged	step 3
not visibly damaged but you suspect a fault in an OC-3 two-port interface packlet or OC-3 two-port interface paddleboard	step 4
not visibly damaged and you do not suspect a fault in an OC-3 two-port interface packlet or OC-3 two-port interface paddleboard	step 7

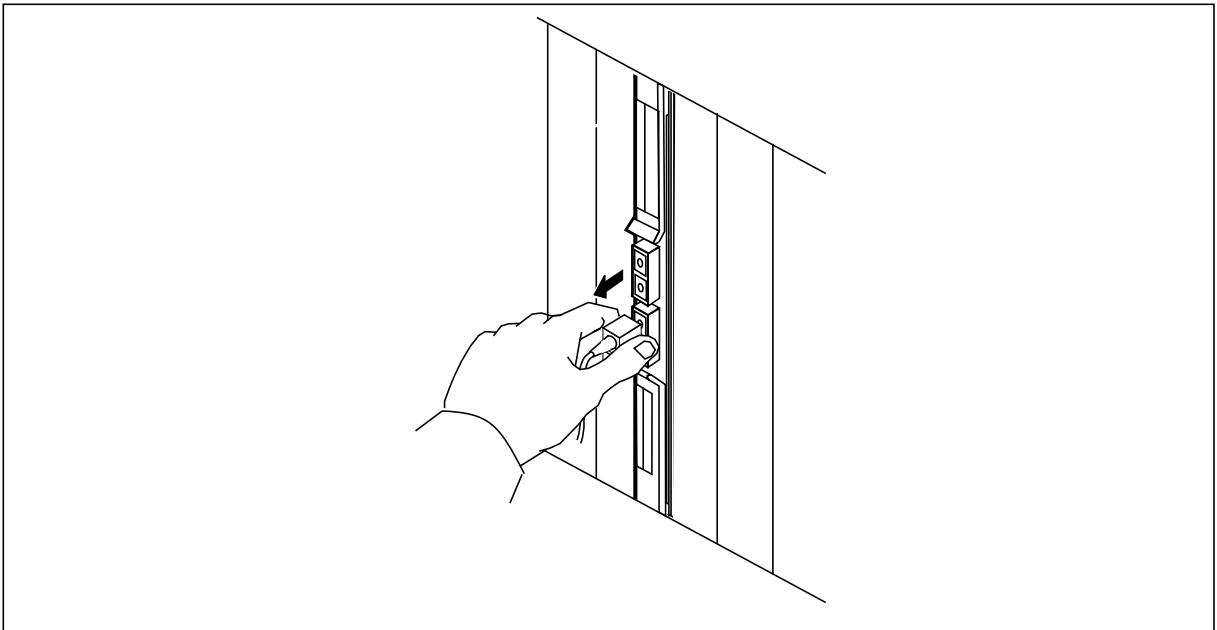
- 3** Disconnect the fiber optic cables from the OC-3 two-port interface packlets and the OC-3 two-port interface paddleboards.
- a** Hold the connector by the receptacle body only
 - b** Carefully pull the fiber optic connectors away from the port receptacles.
 - c** Cover the ends of the fiber optic cable with dust caps.
 - d** Place the fiber optic cables in a safe location away from the physical shelf.

XAC MScomm critical (continued)

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



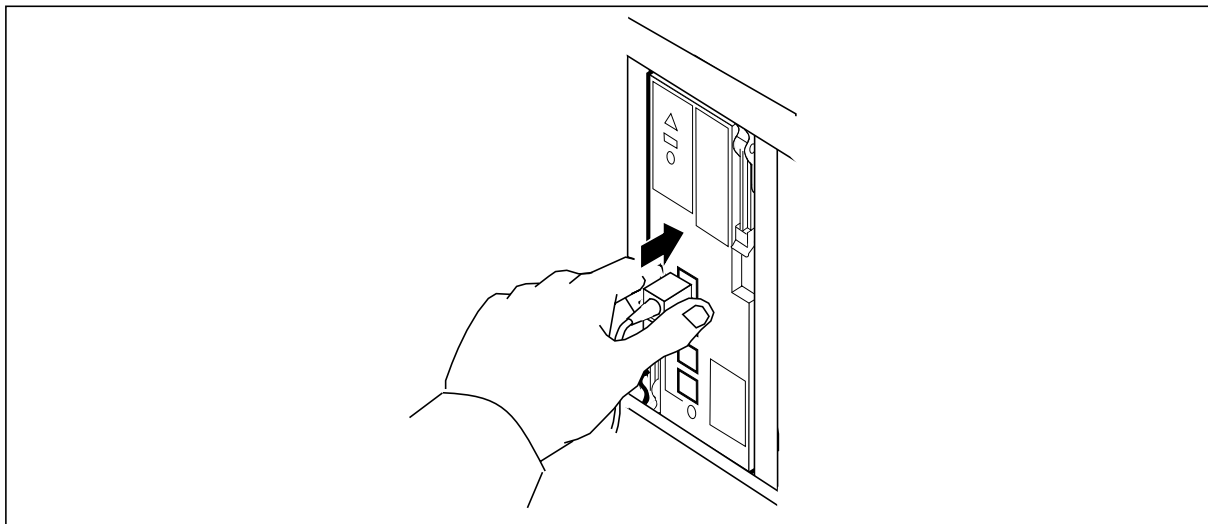
Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports



XAC MScomm critical (continued)

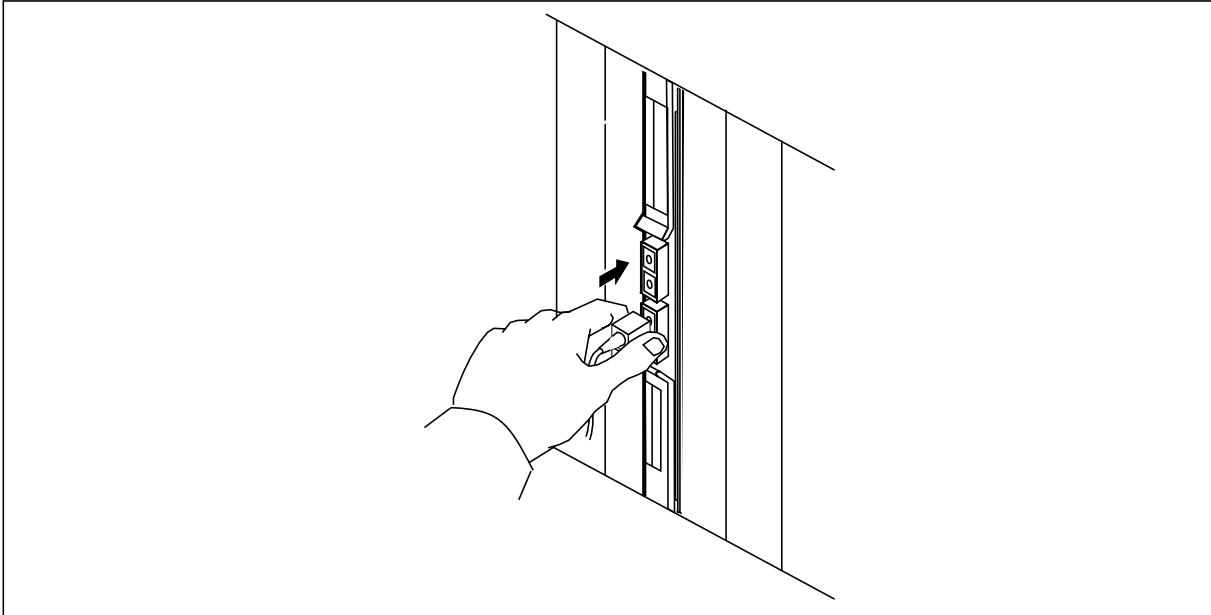
	If you are	Do
	replacing the OC-3 two-port interface packet or paddleboard	step 4
	replacing the fiber optic cables	step 5
	reconnecting the fiber optic cables to the correct port receptacles	step 6
4	Perform the correct OC-3 two port interface packet or paddleboard replacement procedure. Continue to 7 when complete.	
5	Obtain the correct, new fiber optic cables.	
6	Connect the correct fiber optic cables to the correct OC-3 two-port interface packet and OC-3 two-port interface paddleboard ports. - a Hold the fiber optic cable connectors by the body only. - b Remove the fiber optic cable dust caps. Clean the tips of the fiber optic cables. Use the recommended cleaning methods. - c Carefully insert the connectors into the correct port receptacles.	

Connect the fiber optic cables to the OC-3 two port interface packet ports



XAC MScomm critical (continued)

Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



At the XA-Core MAP

- 7 Examine the RTIF display. The RTIF display provides information on the progress of the restart or system reboot. Wait for the XA-Core system software to execute and complete a system restart. Wait for the ACTIVE message to appear on the MAP terminal display. When the ACTIVE message and CI prompt appear, the system is ready for command entry.

If the XA-Core restart is	Do
successful	step 8
unsuccessful and continues to execute the restart repeatedly	step 17

- 8 Collect log information from the log report system. The log messages provide information about the source of the alarm.
- Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - Examine and record the appropriate log reports.

If the logs indicate	Do
that all alarm events are clear	step 9
a different alarm event	step 16

- The following is a sample MAP display.

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.         .         .         .         .         .         .         .         .         .

XAC
0 Quit
2 Card_
3 XACMtc
4 SM
5 PE
6 IO
7 CMIC
8 RTIF
9 Disk
10 Tape
11
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

Front:  111111111  Rear: 111111  SM      PE      IO      PKLT
123456789012345678  456789012345  .      .      .      .
Sta:  -.------.-----  .------.  0      0      0      0
Dep:

XMAP0
Time 14:12  >

```

XAC MScomm critical (continued)

	If the MAP level indicates	Do
	a CP or packlet is ManB	step 11
	a CP or packlet is SysB	step 12
	an alarm related to one or more CP or packlet	step 16
	no alarm and all CPs are in service	step 18
11	Return out-of-service (OOS) equipment to service. Access the appropriate MAP level. Return the OOS CP or packlet to service. At the MAP level, type >RTS <nn> <s> or >RTS <nn> <s> <p> and press the Enter key. where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l) Example of command use: >RTS 4 r l <i>Example of system response:</i> RTS 4 rear lower complete	
	If the equipment is	Do
	not returned to service	step 12
	returned to service	step 18
12	Manually busy the OOS CP or packlet. At the appropriate MAP level type >BSY <nn> <s> or >BSY <nn> <s> <p> and press the Enter key	

XAC MScomm
critical (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 f

Example of system response:

BSY 4 rear lower complete

Note: *If this command reduces redundancy and produces a major alarm, you must use the Force option.*

If the CP or packlet is	Do
in a ManB state	step 13
not in a ManB state	step 17

- 13** Perform an OOS test on the ManB CP or packlet. At the appropriate MAP level type

>TST <nn> <s>

or

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>TST 4 r l

If the OOS test	Do
passed	step 14
did not pass	step 15

- 14** Return the ManB CP or packlet to service. At the appropriate MAP level type

XAC MScmm critical (end)

>RTS <nn> <s>

or

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 f

Example of system response:

RTS 4 rear lower passed

If the CP or packlet is	Do
not InSv	step 17
InSv	step 18

At your current location

- 15** Perform the correct CP or packlet replacement procedure. Return to this point when complete.

If the CP or packlet is	Do
not returned to service	step 17
returned to service	step 18

- 16** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete

If the alarm is	Do
not clear	step 17
clear	step 18

- 17** Call the next level of support.

- 18** You have completed this procedure.

XAC MScomm major

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	MScomm	.	.	.	.	.	.	.	.	.
	M									

Indication

An MScomm major alarm code appears under the XAC header of the alarm banner. The alarm code indicates a message switch (MS) communication major alarm.

Meaning

There is no communication link redundancy between the XA-Core and message switch (MS). There is a communication service outage for a single XA-Core and MS link for one of the following reasons:

- an XA-Core OC-3 two-port interface packlet working state is either system busy (SysB), out of service (OOS) CBsy or, ManB
- an OC-3 two-port interface paddleboard working state is either SysB or ManB
- an MS port circuit pack (CP) is SysB or ManB
- damage to fiber optic cables
- disconnection of fiber optic cables

Impact

There is no immediate change in subscriber service. There is a risk of a system restart if another failure occurs on one of the following:

- OC-3 two-port interface packlet
- OC-3 fiber optic cables
- MS port CP
- OC-3 two-port interface paddleboard

XAC MScomm major (continued)

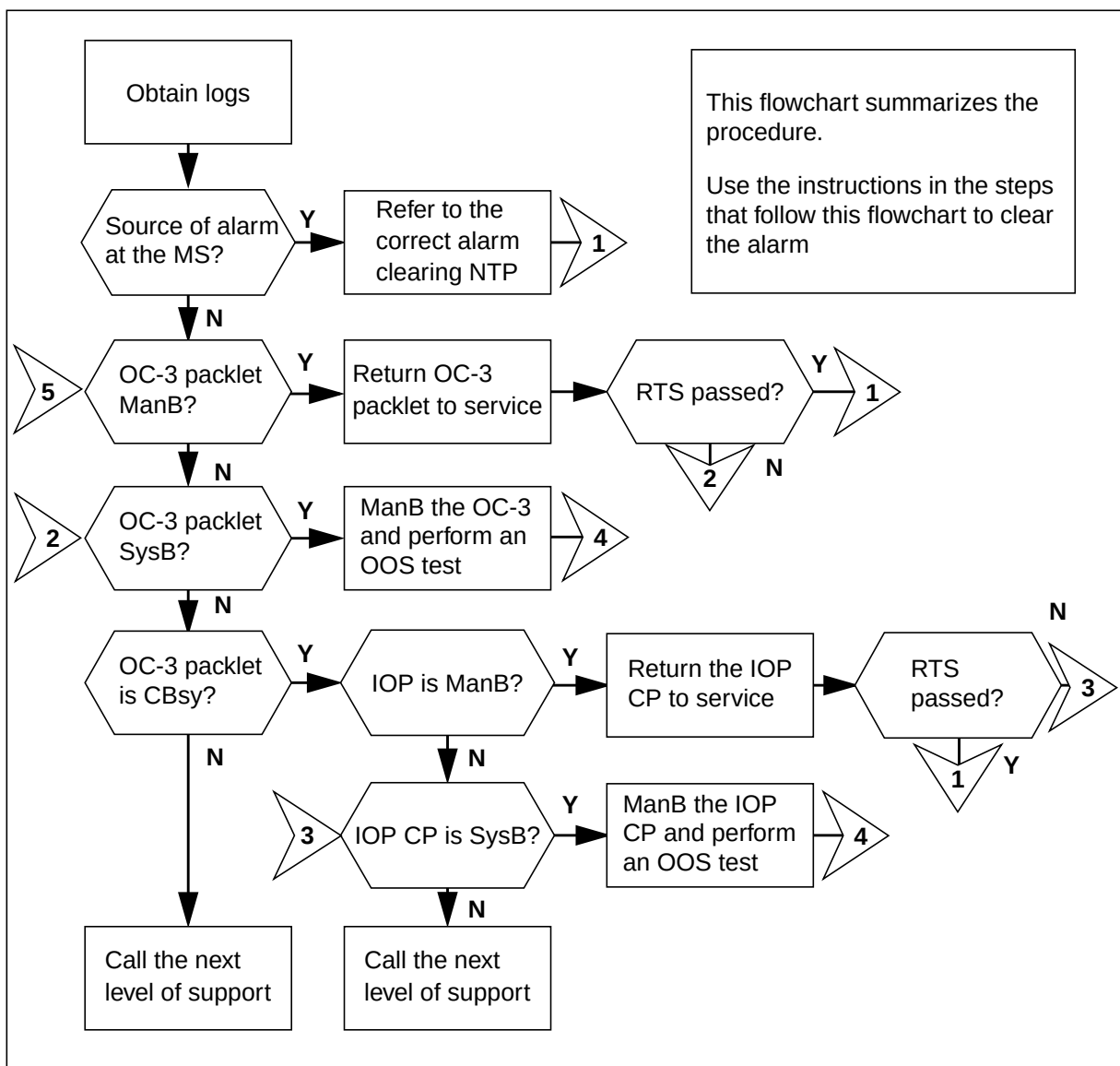
Common procedures

There are no common procedures.

Action

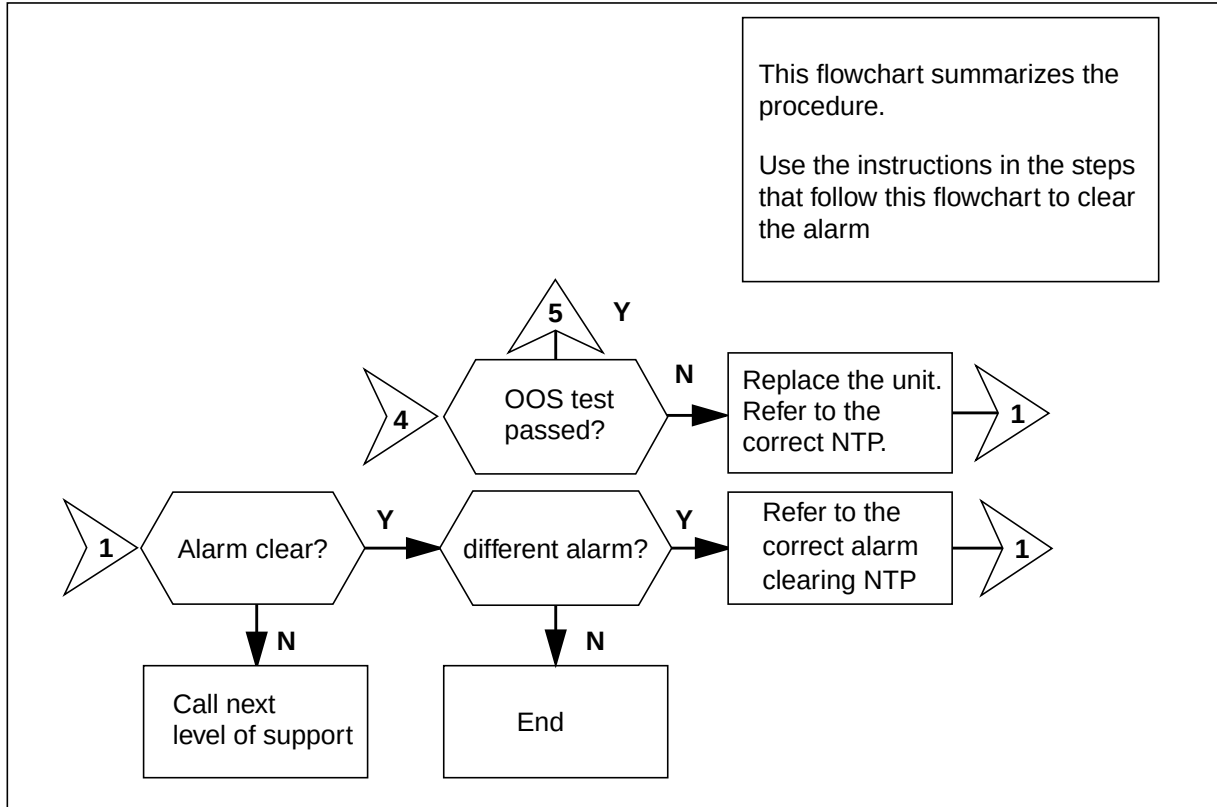
The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing an MScomm major alarm



XAC MScomm major (continued)

Summary of clearing an MScomm major alarm (continued)



How to clear an MScomm major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

XAC MScomm major (continued)



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



WARNING

Fiber cable damage

Handle the fiber optic cables with care. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC MScomm major (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
an MScomm major alarm condition	step 2
a different alarm condition	step 21
that the alarm condition is clear	step 23

- 2 Access the XA-Core CMIC MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;CMIC
and press the Enter key.
- 3 Examine the CMIC MAP level. Record the location and status of the OC-3 two port interface packlets and the IOP CPs.

Note: The CMIC MAP level can display alarms and status as follows:

- an MSComm alarm under the XAC header in the alarm banner.
- an equipment alarm under the PKLT header of the subsystem status summary field (SSSF).
- status codes appear under the Status, Link and TOD headers in the command interpreter output area

The following is a sample MAP display.

XAC MScomm major (continued)

CMIC MAP level

XAC MScomm M	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
CMIC									
0 Quit		Front: 111111111	Rear: 111111	SM	PE	IO	PKLT		
2		123456789012345678	456789012345	.	.	.	CMICfl		
3	Sta: -.-.-.-.-.-.-.-.-.-		.	0	0	0	1		
4	Dep:		F						
5	Typ:		*	*					
6 Tst_	Slot: Side: Packlet:	Status: Link0: Link1: TOD							
7 Bsy_	4 Rear Lower	S C C C							
8 RTS_	15 Rear Lower	.	.	.	.	.	.		
9	CMIC:								
10									
11									
12									
13 Route_									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the CMIC MAP level indicates	Do

an OC-3 two port interface packetlet is ManB	step 4

an OC-3 two port interface packetlet is SysB	step 5

an OC-3 two port interface packetlet is CBsy	step 7

an OC-3 link is SysB	step 13

a different alarm	step 21

no alarm and all CPs are in service	step 23

- 4 Return the OC-3 two port interface packetlet to service. At the CMIC MAP level, type
>RTS <nn> <s> <p>
 and press the Enter key.

XAC MScomm
major (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

RTS 4 rear lower passed

If the CMIC MAP level indicates	Do
the OC-3 two port interface packet is SysB	step 5
the OC-3 two port interface packet is CBsy	step 7
the OC-3 two port interface packet is InSv	step 20

- 5 Manually busy the OOS OC-3 two-port interface packet. At the CMIC MAP level type
- >BSY <nn> <s> <p>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >BSY 4 r l**
- Example of system response:*
- BSY 4 rear lower complete

Note: If needed, use the Force option to place the packet in a ManB state. Refer to the XA-Core MAP commands documentation.

XAC MScomm major (continued)

- 6 Perform an OOS test on the OC-3 two-port interface packet. At the CMIC MAP level type
- >TST <nn> <s> <p>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >TST 4 r l**
- | If the OOS test | Do |
|-----------------|---------|
| passed | step 3 |
| did not pass | step 14 |
- 7 Access the IO MAP level. At the CMIC MAP level type
- >IO**
- and press the Enter key.
- 8 Examine the IO MAP level. Record the location and status of the OOS IOP CP.
- Note:** The IO MAP level can display alarms and status as follows:
- an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
 - a status indicator appears in the state field in the shelf layout area.
 - a status indicator appears in the equipment status field in the command interpreter output area.
- The following is a sample MAP display.*

XAC MScomm major (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
MScomm	.	.	.	.	.	.	.	.	.
M									
IO		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	IOP M	XAisol
2	Sta: -	-		M -		0	0	1	2
3	Dep:			F					
4	Typ: *		*	*	*				
5	Slot:	Side:	Status:		Upper:	Middle:	Lower:		
6 Tst_	2	Front	.		Tape .		Disk .		
7 Bsy_	17	Front	.		Tape .		Disk .		
8 RTS_	4	Rear	M		RTIF C		CMIC C		
9	15	Rear	.		RTIF .		CMIC .		
10 LoadFW_	XAC:								
11	IO:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is

Do

in a ManB state

step 9

in a SysB state

step 10

in an InSv state

step 20

- 9 Return the IOP CP to service. Make sure that all related packlets are also in service.

- a At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 4 r

Example of system response:

RTS 4 rear passed

XAC MScomm major (continued)

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet status.

If the IOP CP is	Do
SysB and all related packlets are CBSy	step 10
InSv and any related packlet is ManB or SysB	step 12
InSv and all related packlets are InSv	step 20

- 10** Manually busy the OOS IOP CP. At the IO MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 4 r

Example of system response:

BSY 4 rear complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

If the IO CP is	Do
in a ManB state	step 11
not in a ManB state	step 22

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

XAC MScomm major (continued)

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 8
did not pass	step 19

- 12** Access the correct packet MAP level. Return the ManB packet to service.

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).

Example of command:

RTS 4 r u

Example of system response:

RTS 4 rear upper passed

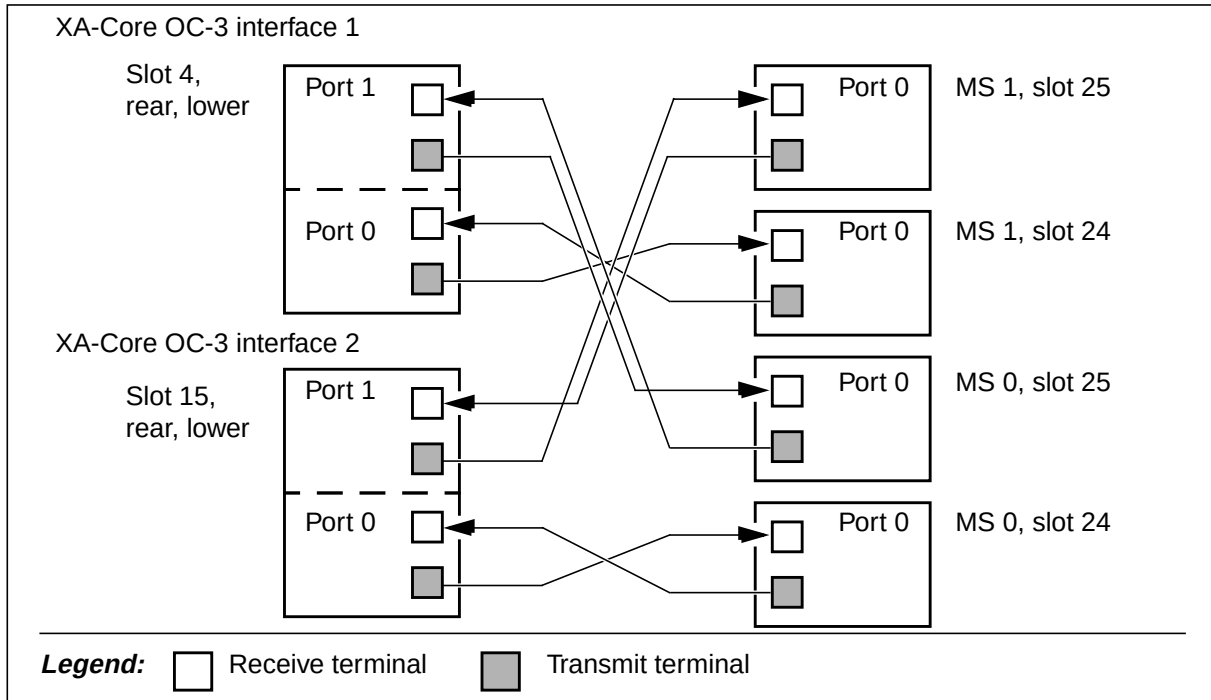
If the packet is	Do
in a SysB state	step 5
in an InSv state	step 20

At the XA-Core physical shelf

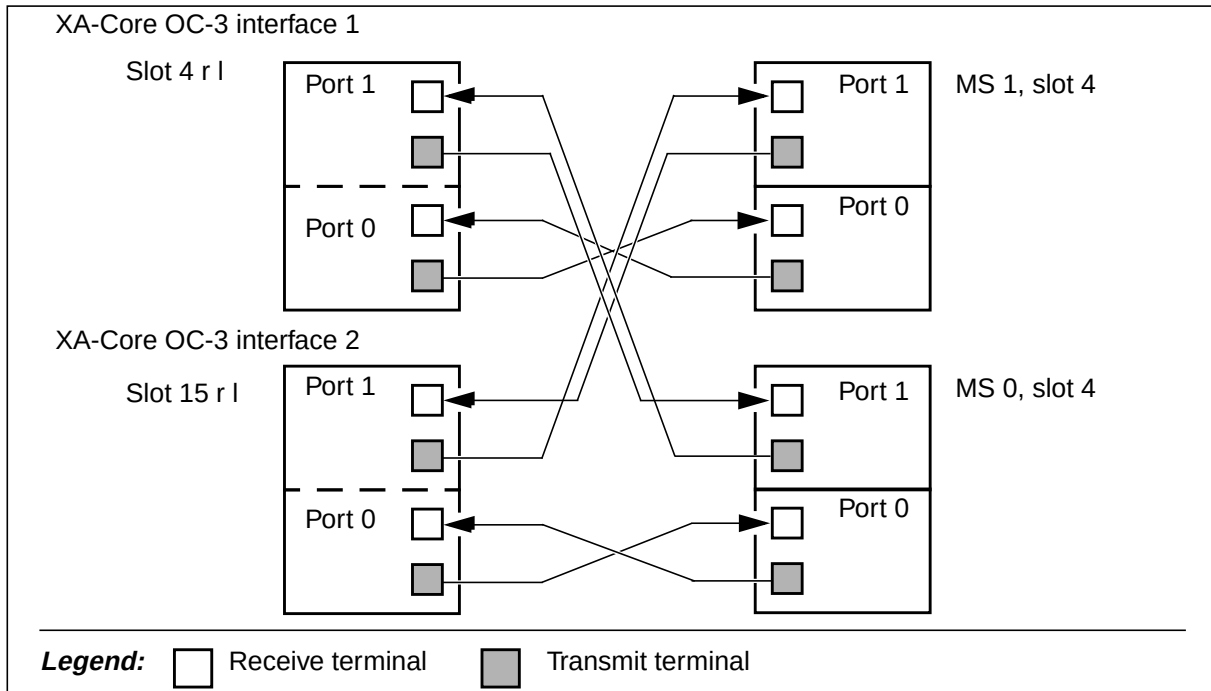
- 13** Examine the fiber optic cables and connectors. Make sure that the link connections fit into the correct OC-3 interface ports. Use the diagrams in this step to check the link connections.

XAC MScomm major (continued)

XA-Core and MS fiber optic cable connections (SuperNode)

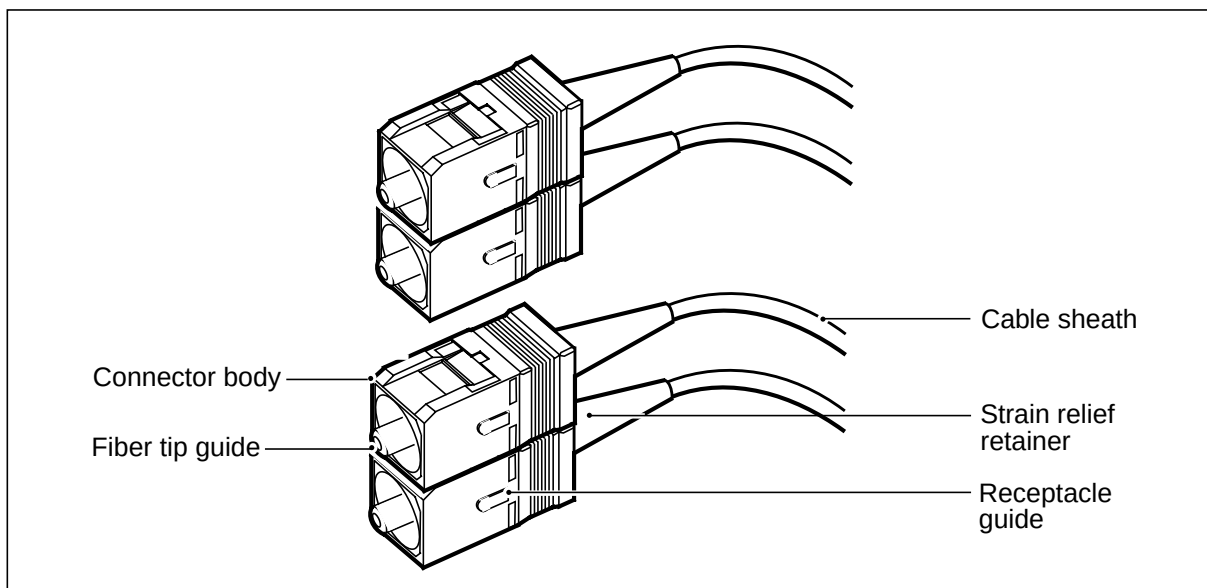


XA-Core and MS fiber optic cable connections (SuperNode SE)



XAC MScomm major (continued)

Paired fiber optic cable connectors



If the link connections are	Do
damaged or not correctly connected	step 14
not damaged and correctly connected	step 16

XAC MScomm major (continued)

At the MAP terminal

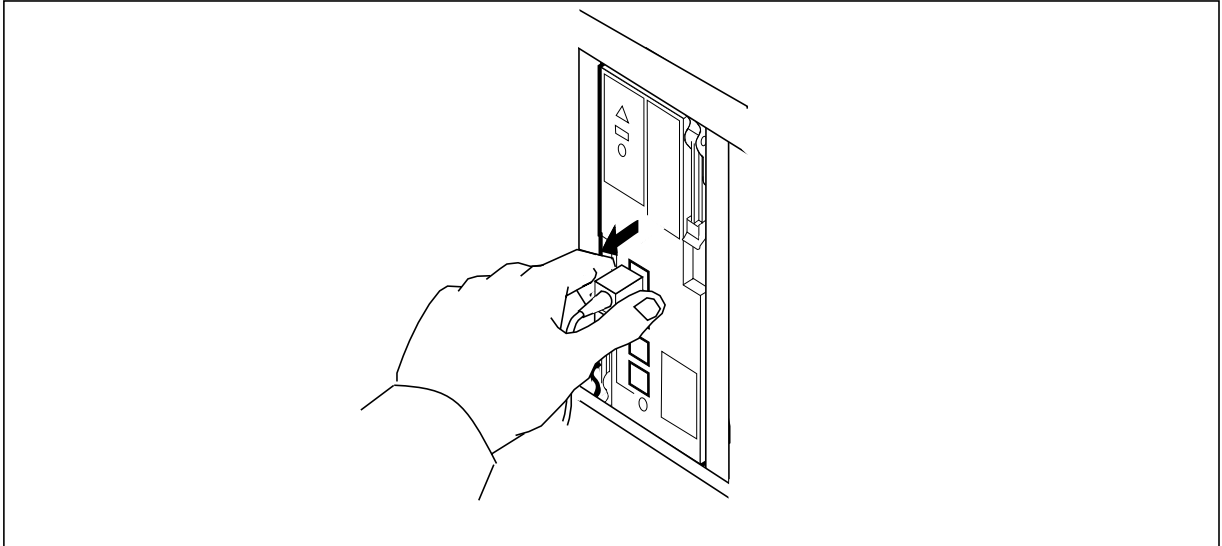
- 14 Place the OC-3 two-port interface packlet in a ManB state. Disconnect the fiber optic cables from the OC-3 two-port interface packlets and the OC-3 two-port interface paddleboards.
 - a ManB the OC-3 two-port interface packlet. At the CMIC MAP level type **>BSY <nn> <s> <p>** and press the Enter key where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>BSY 4 r l
Example of system response:
 Warning: Bsy command will take it out of service.
 Proceed (Y or N)?
 Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:
>Y
Example of system response:
 Bsy 4 rear lower complete

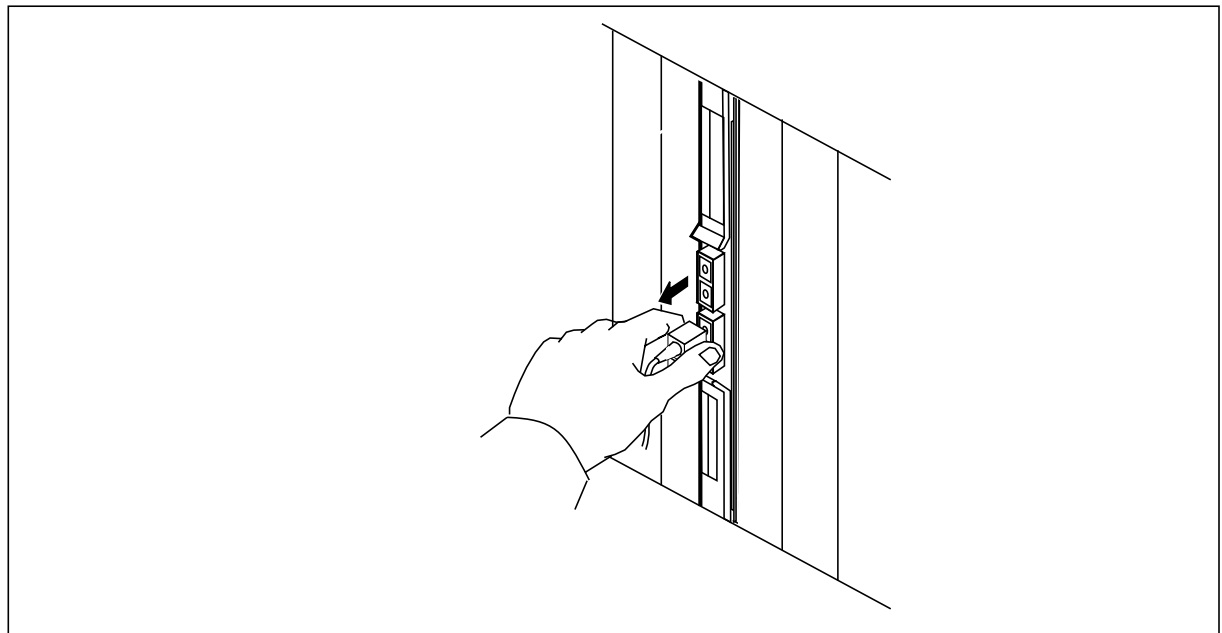
Note: If needed, use the Force option to place the packlet in a ManB state. Refer to the XA-Core MAP commands documentation.
 - b Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.
 - c Cover the ends of the fiber optic cable with dust caps.
 - d Place the fiber optic cable in a safe location away from the physical shelf

XAC MScomm major (continued)

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports



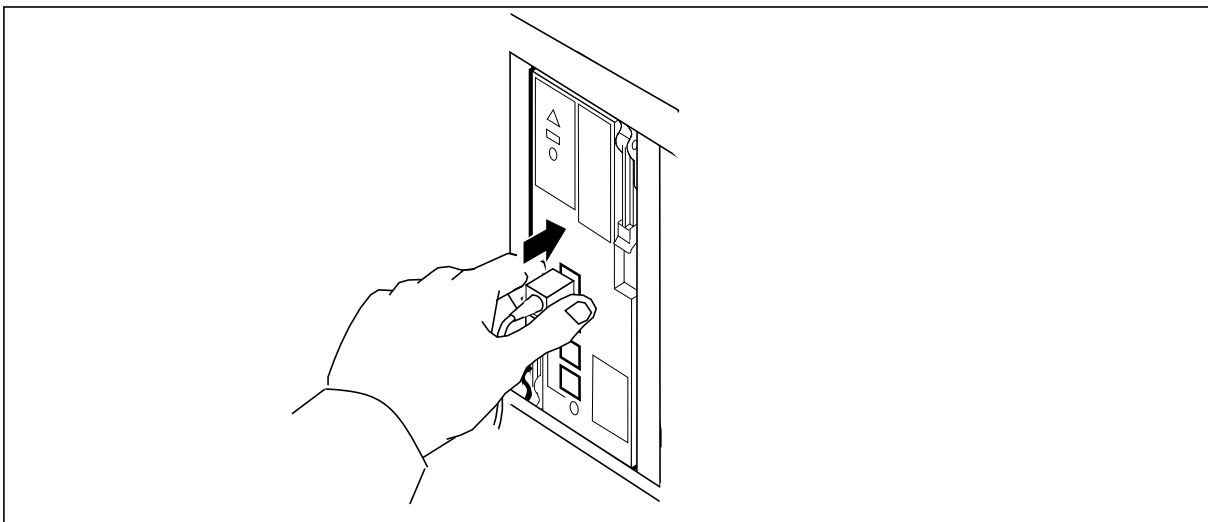
XAC MScomm major (continued)

If you are	Do
replacing the fiber optic cable	step 15
replacing the OC-3 two-port interface paddleboard	step 16
replacing the OC-3 two-port interface packet	step 19

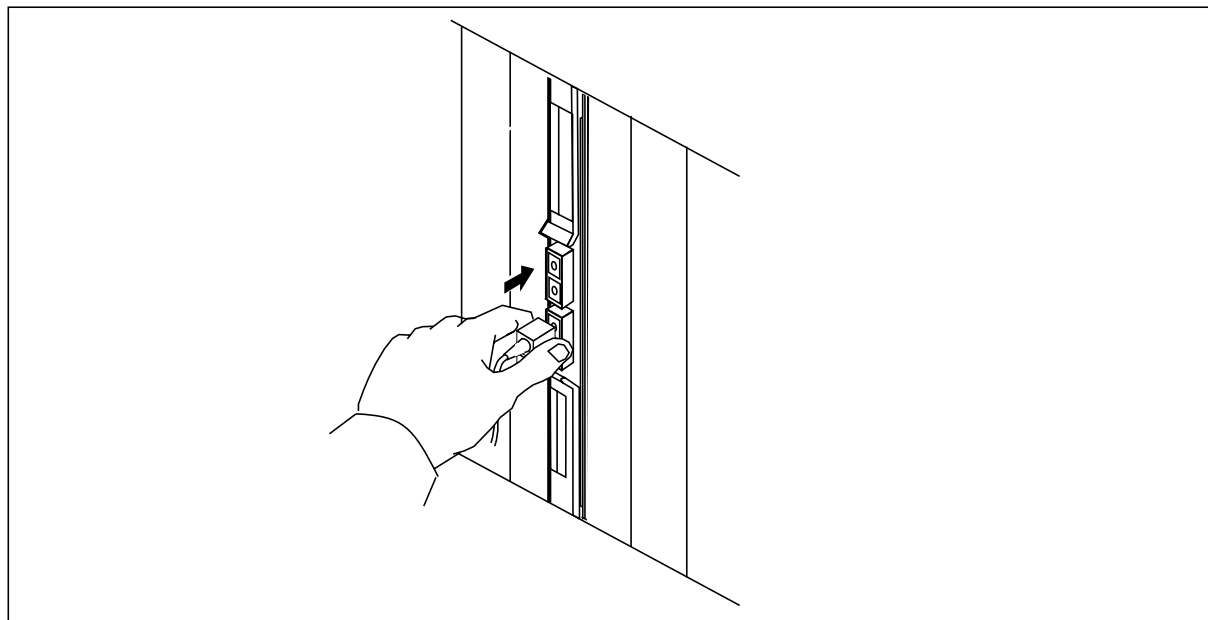
- 15** Connect the replacement fiber optic cables to the correct OC-3 two-port interface packet and OC-3 two-port interface paddleboard ports. Use the connection diagrams shown in this step.
- a** Hold the fiber optic cable connector by the body only.
 - b** Remove the dust caps from the ends of the fiber optic cable.
 - c** Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure.
 - d** Carefully insert the connector into the correct receptacle.
 - e** Return the OC-3 two port interface packet to service. At the CMIC MAP level, type
>RTS <nn> <s> <p>
 and press the Enter key.
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>RTS 4 r l

XAC MScomm major (continued)

Connect the fiber optic cables to the OC-3 two port interface packet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



If the MAP level indicates the alarm is	Do
not clear	step 19
clear	step 20

XAC MScomm
major (continued)

- 16** Examine the MS MAP. Perform the following steps:
- a** Display the MS MAP level. At the CMIC MAP level type
>MS
and press the Enter key.
 - b** Access the MS Shelf MAP level. The Shelf MAP level displays the status of all CPs in the shelf. At the MS MAP level, type
>SHELF
and press the Enter key.
 - c** Access the MS Card MAP level for the OC-3 two port interface paddleboards. The card MAP level displays the status of the OC-3 two port interface paddleboards. At the MS MAP level, type
>CARD <nn>
and press the Enter key.
where

<nn> is the slot number parameter value to indicate the number of the MS physical shelf slot - 1 to 26
Example of command:
>CARD 24
 - d** Record the status of the OC-3 two port interface paddleboards (see the MS Card MAP level diagram in this step).
The following is a sample MAP display.

XAC MScomm
major (continued)

MS Card MAP level

MS

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10 LoadMS_

11

12 SwMast

13 Shelf

14 QueryMS

15

16

17 InterMS_

18 Clock

XMAP0

Time 14:12 >

XAC
.

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

Message Switch

Clock

Shelf 0

Inter-MS Link 0 1

MS 0 .

MS 1 .

M Free

Slave

F

Shelf 0

Card 1 2 3 4 5 6 7 8 9

Chain

MS 0

MS 1

1 1 1 1 1 1 1 1 1 2 2 2 2 2 2

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

Card 24 CMIC Interface Card

Port: 0

MS 0 .

MS 1 .

S

If the MS Card MAP level indicates		Do
17	OC-3 two port interface paddleboard ports are OOS	step 17
	a different alarm	step 21
	no faults or alarms	step 23
	Perform the correct MS CP replacement procedure. Refer to the correct NTP. Return to this point when complete.	
If the alarm is		Do
changed to a different alarm		step 21
not clear		step 22
clear		step 23

XAC MScomm major (end)

- 18** Perform the correct packet OOS test procedure. Refer to the correct NTP. Return to this point when complete.

If the packet is	Do
in a SysB state	step 19
in an InSv state	step 20

- 19** Perform the correct CP or packet replacement procedure. Refer to the correct NTP. Return to this point when complete.

If the CP or packet is	Do
in an InSv state	step 20
in a SysB state	step 22

- 20** Confirm that the MScomm major alarm is clear. Examine the alarm banner on the MAP screen.

If the alarm is	Do
replaced by different alarm	step 21
not clear	step 22
clear	step 23

- 21** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete

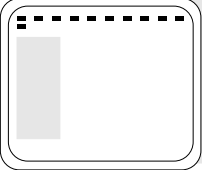
If the alarm is	Do
not clear	step 22
clear	step 23

- 22** Call the next level of support.

- 23** You have completed this procedure.

XAC MScomm minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
MScomm	.	.	.	.	.	.	.	.	.

Indication

An MScomm message appears under the XAC header of the alarm banner. The message indicates an XA-Core/message switch (MS) communication minor alarm.

Meaning

Communication link redundancy between the XA-Core and the MS is partially lost. A single, physical link cannot provide communication service. One or more of the following conditions cause the MScomm minor alarm:

- a single port on an OC-3 two-port interface packlet is out of service (SysB or CBSy)
- a single port on an OC-3 two-port interface paddleboard is out of service (SysB, Cbsy, or ManB)
- damage to, or disconnection of a fiber optic cable on a single OC-3 two-port interface

Impact

There is no immediate change to subscriber service. To minimize service degradation, wait until call traffic is low to test or replace equipment.

Common procedures

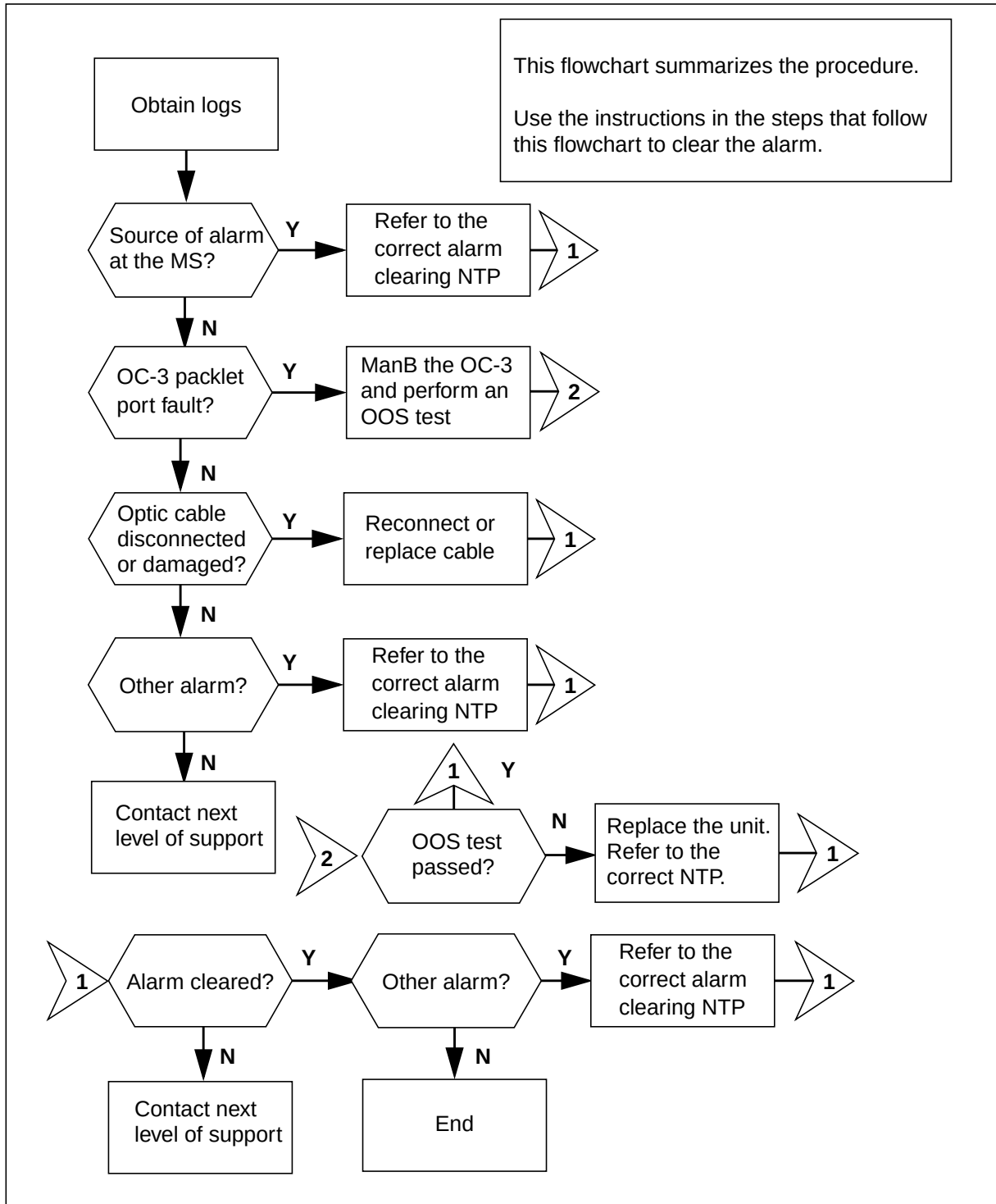
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC MScomm minor (continued)

Summary of clearing an MScomm minor alarm



XAC MScomm **minor** (continued)

How to clear an MScomm minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



WARNING

Fiber cable damage

Handle the fiber optic cables with care. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.



CAUTION

Loss of service

Do not repeat steps.

XAC MScomm minor (continued)



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates an	Do
XA-Core MScomm minor condition	step 2
MS or different alarm condition	step 20
MScomm minor condition is clear	step 22

- 2 Access the XA-Core CMIC MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;CMIC
and press the Enter key.
- 3 Examine the CMIC MAP level. Record the location and status of the OC-3 two-port interface packlets and the IOP CPs.

Note: The CMIC MAP level can display alarms and status as follows:

 - an alarm under the XAC header in the alarm banner.
 - an equipment alarm under the PKLT header of the subsystem status summary field (SSSF)
 - a status code appears under the Status or Link headers in the command interpreter output area

The following is a sample MAP display.

XAC MScomm
minor (continued)

CMIC MAP level

XAC MScomm	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

CMIC

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10

11

12

13 Route_

14 Alarm_

15

16 Trnsl_

17 Indicat_

18 Query_

Front: 111111111
123456789012345678

Rear: 111111
456789012345

SM
.

PE
.

IO
.

PKLT
LINKfl

Sta: -.-.-.-.-
0

Dep: F

Typ: * *

Slot: Side: Packlet: Status: Link0: Link1: TOD

4 Rear Lower I . S .

15 Rear Lower . . .

CMIC:

XMAP0
Time 14:12 >

If the MAP indicates	Do
a single link is OOS SysB and the OC-3 two-port interface status is IsTb	step 4
a single link is OOS CBSy and the OC-3 two-port interface packet status is InSv	step 7
a different alarm condition	step 20
no alarm and all links, packets and CPs are in service	step 22

- 4
- Manually busy the OOS OC-3 two-port interface packet. At the CMIC MAP level type
- >BSY <nn> <s> <p>
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

XAC MScomm minor (continued)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

BSY 4 rear lower complete

Note: If needed, use the Force option to place the packet in a ManB state. Refer to the XA-Core MAP commands documentation.

If the OC-3 two port interface packet is	Do
in a ManB state	step 5
not in a ManB state	step 21

- 5 Perform an OOS test on the OC-3 two-port interface packet. At the CMIC MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>TST 4 r l

If the CMIC MAP level indicates	Do
the OOS test passed and all links are InSv	step 6
a link failure and the OC-3 status is IsTb	step 16
the OOS test did not pass and the OC-3 status is OOS	step 17

- 6 Return the OC-3 two port interface packet to service. At the CMIC MAP level, type

>RTS <nn> <s> <p>

and press the Enter key.

XAC MScomm
minor (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

RTS 4 rear lower passed

If the OC-3 two port interface packlet is	Do
not in an InSv state	step 17
in an InSv state	step 19

- 7 Display the MS MAP level. At the CMIC MAP level type
>MS
and press the Enter key.
- 8 Access the MS Shelf MAP level. The Shelf MAP level displays the status of all CPs in the shelf. At the MS MAP level, type
>SHELF
and press the Enter key.
- 9 Access the MS Card MAP level for the OC-3 two port interface paddleboards. The card MAP level displays the status of the OC-3 two port interface paddleboards. At the MS MAP level, type
>CARD <nn>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the MS physical shelf slot - 1 to 26
Example of command:
>CARD 24
- 10 Record the status of the OC-3 two port interface paddleboard (see the MS MAP level diagram in this step).
The following is a sample MAP display.

XAC MScomm minor (continued)

MS Card MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.         .         .         .         .         .         .         .         .         .

MS
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10 LoadMS_
11
12 SwMast
13 Shelf
14 QueryMS
15
16
17 InterMS_
18 Clock

      Message Switch      Clock      Shelf 0      Inter-MS Link 0 1
MS 0      .      M Free
MS 1      .      Slave      F

Shelf 0
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
MS 1      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

Card 24 CMIC Interface Card      Port: 0
MS 0
MS 1      .      S

XMAP0
Time 14:12 >

```

- 11** Examine the MS Card MAP level.

If the MS MAP level indicates	Do
an OC-3 two-port interface paddleboard port is OOS (ManB)	step 12
an OC-3 two-port interface paddleboard port is OOS (SysB)	step 13
a different alarm	step 20
all OC-3 two-port interface paddleboard ports are InSv	step 22

- 12** Determine the reason why the OC-3 two-port interface paddleboard is in a ManB state. If there are no maintenance activities in progress, return the OC-3 two-port interface paddleboard port to service.

>RTS <ms_#>

and press the Enter key

where

<ms_#> is the number of the message switch

Example of command:

XAC MScomm
minor (continued)

>RTS 0

If the MS MAP level indicates	Do
the OC-3 two-port interface paddleboard is InSv and a port is SysB	step 13
the OC-3 two-port interface paddleboard is not InSv	step 18

- 13** Test the suspect message switch port. At the MS Card MAP level type

>TST <ms_#> <port_#>

and press the Enter key

where

<ms_#> is the number of the message switch

<port_#> is the number of the message switch port

Example of command:

>TST 1 0

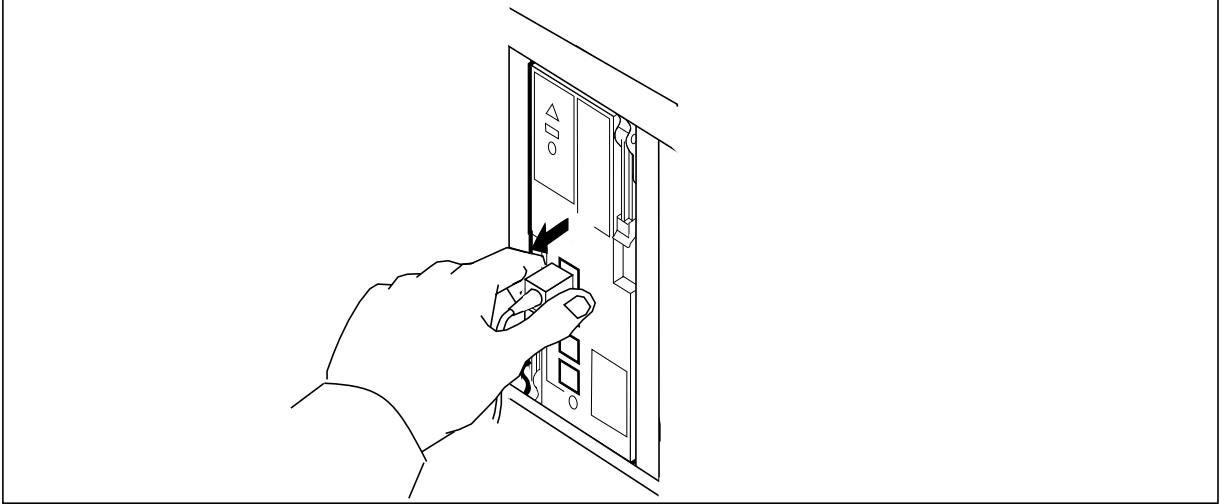
If the MS port test	Do
fails and the link is OOS	step 14
passes and all links are InSv	step 19

At the XA-Core physical shelf

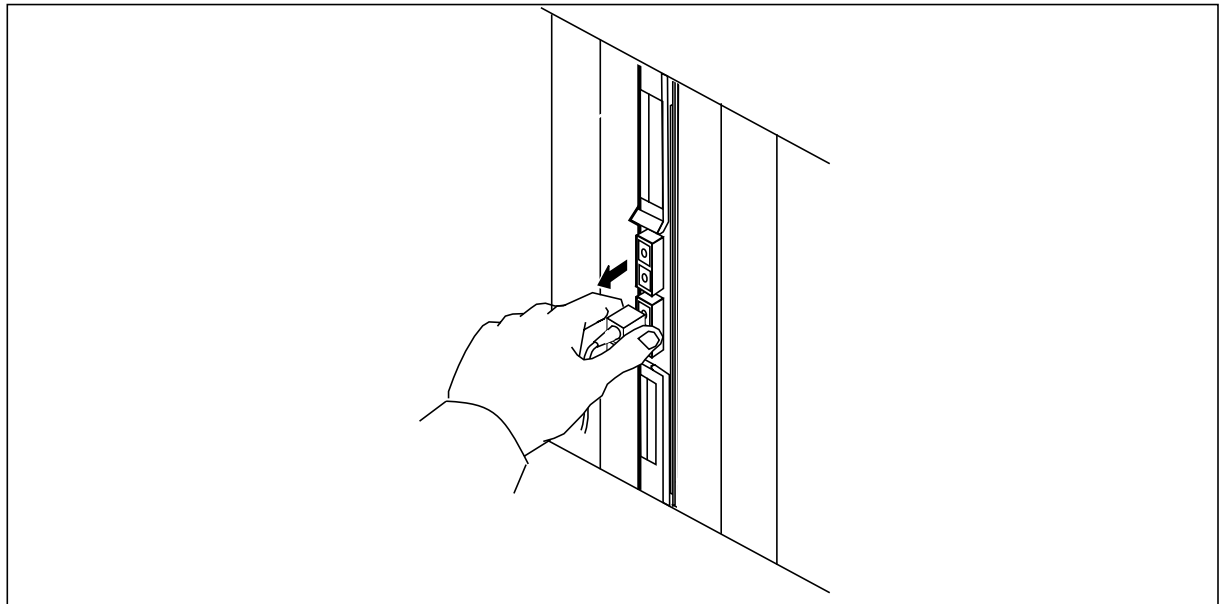
- 14** Replace the fiber optic cable that match the OOS link. Disconnect the fiber optic cable from the OC-3 two-port interface packlet and OC-3 two-port interface paddleboard. Wait until call processing volume is low.
- a** Carefully pull the fiber optic connector away from the port receptacles. Hold the connector by the body only
 - b** Cover the ends of the fiber optic cable with dust caps.
 - c** Place the fiber optic cable in a safe location away from the physical shelf.

XAC MScomm minor (continued)

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports

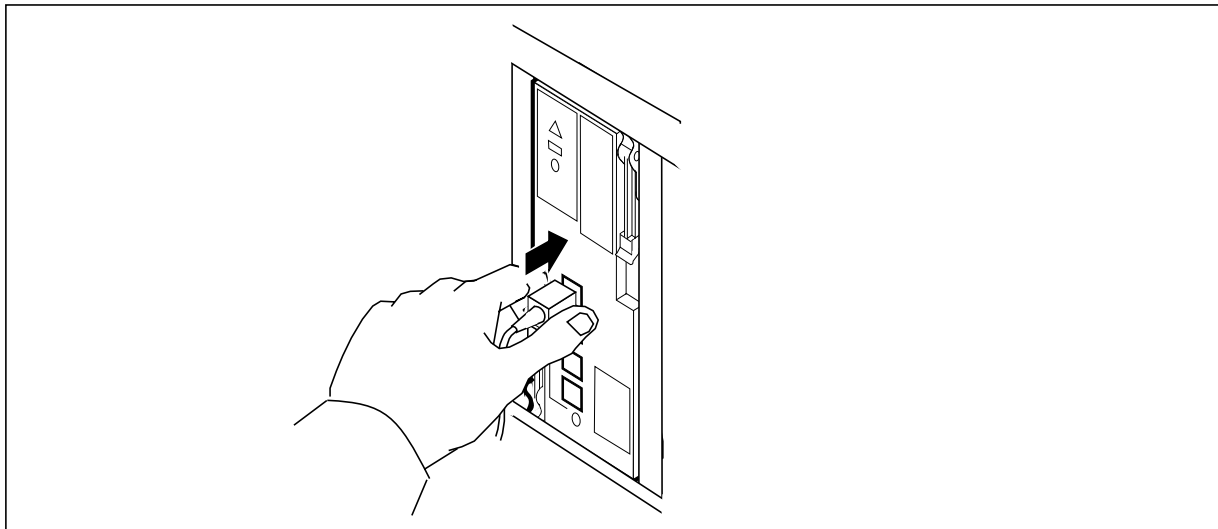


If you are	Do
replacing the fiber optic cable	step 15
replacing the OC-3 two-port interface packlet	step 16

XAC MScomm minor (continued)

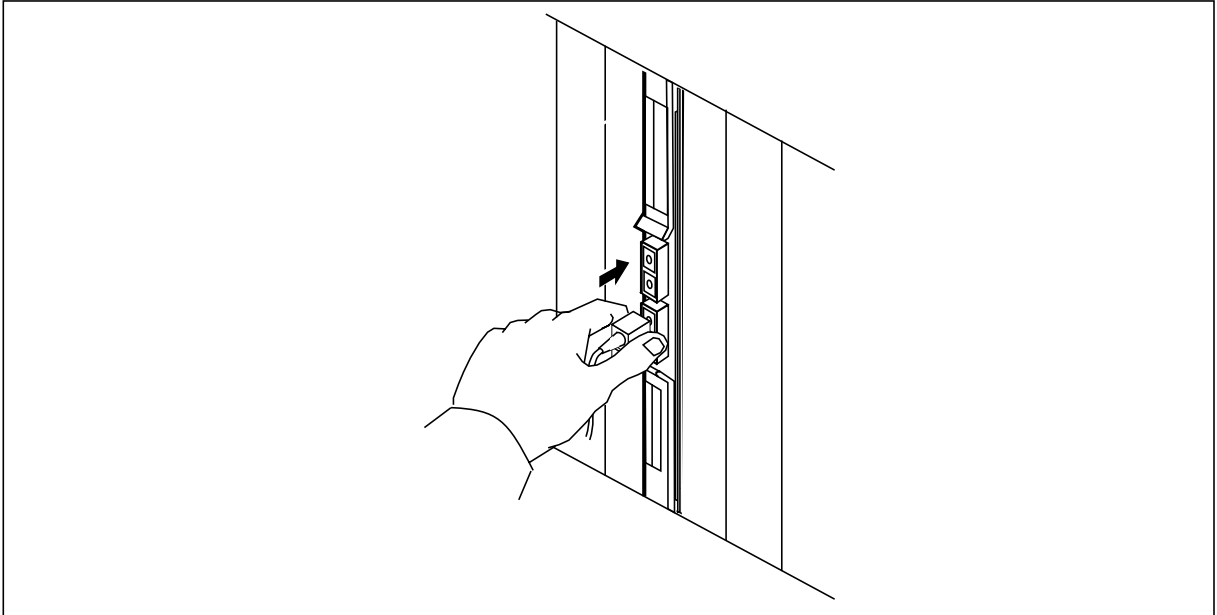
	If you are	Do
	replacing the OC-3 two-port interface paddleboard	step 18
15	Connect the replacement fiber optic cable to the correct port (see link configuration diagrams in this step).	
	- a Hold the fiber optic cable connector by the body only. - b Remove the dust caps from the ends of the fiber optic cable. - c Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure. - d Carefully insert the connectors into the correct receptacles.	

Connect the fiber optic cables to the OC-3 two port interface packlet ports

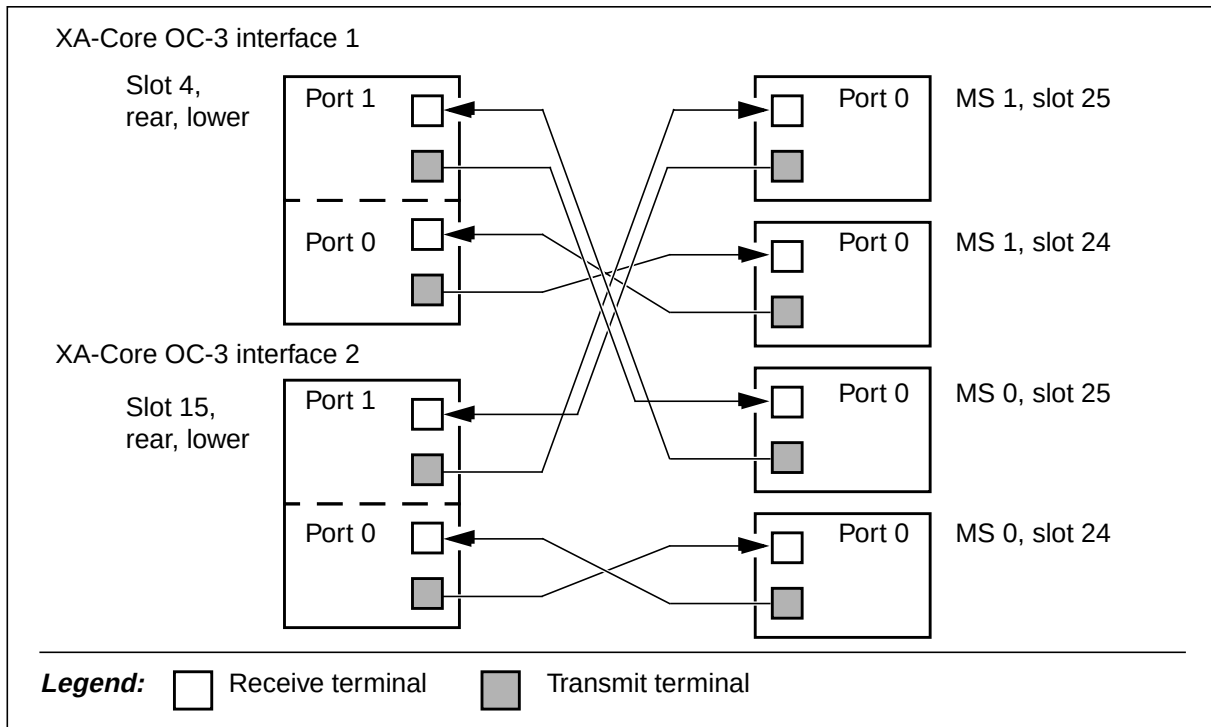


XAC MScomm minor (continued)

Connect the fiber optic cables to the OC-3 two port interface paddleboard ports

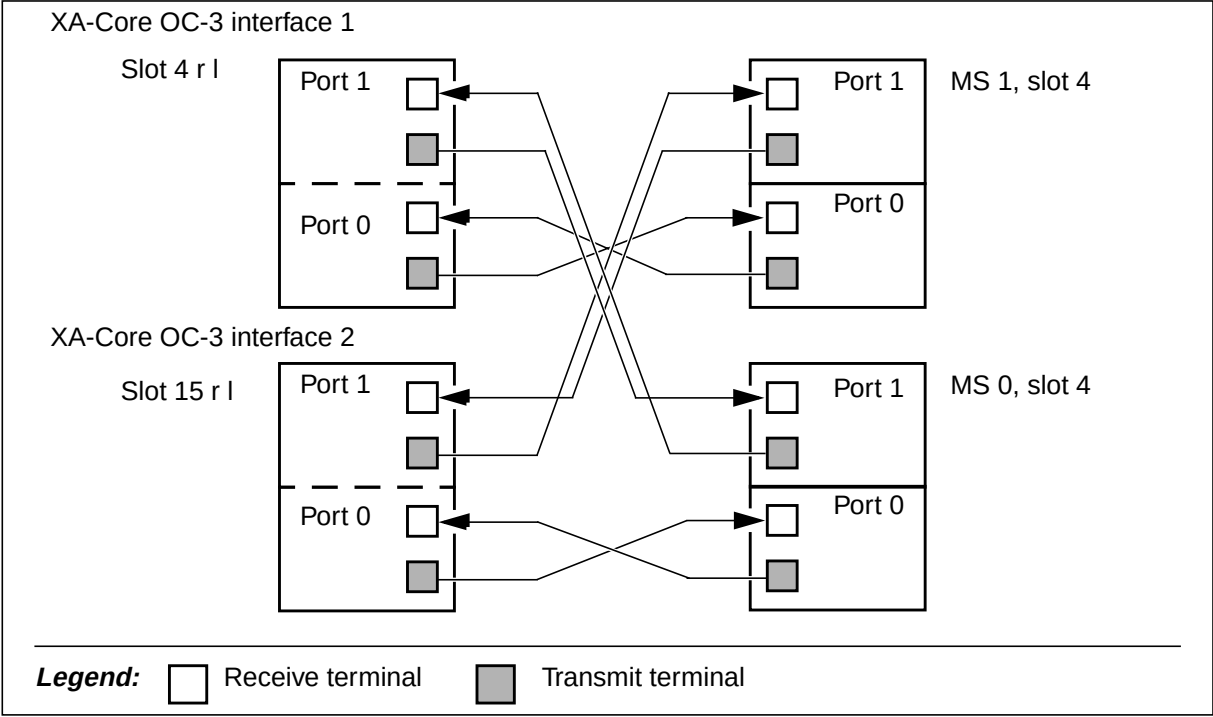


XA-Core and MS fiber optic cable connections (SuperNode)



XAC MScomm
minor (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



If the MS Card MAP level shows that the link is	Do

InSv	step 19
not InSv	step 18

At the XA-Core MAP

16 Perform the OC-3 two-port interface packet replacement procedure. Wait until call processing volume is low. Refer to the correct packet replacement procedure in this NTP. Return to this point when complete.

If the packet replacement is	Do
successful	step 19
not successful	step 21

XAC MScomm minor (end)

17	Perform the OC-3 two-port interface packet replacement procedure immediately. Refer to the correct packet replacement procedure in this NTP. Return to this point when complete.		
	If the packet replacement is	Do	
	successful	step 19	
	not successful	step 21	
18	Perform the OC-3 two-port interface paddleboard replacement procedure. Wait until call processing volume is low. Refer to the correct NTP in this document. Return to this point when complete.		
	If the OC-3 two-port interface paddleboard replacement is	Do	
	successful	step 19	
	not successful	step 21	
19	Confirm that the alarm is clear. Examine the alarm banner on the CMIC MAP level.		
	If the CMIC MAP indicates	Do	
	a different alarm	step 20	
	the alarm is not clear	step 21	
	the alarm is clear	step 22	
20	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.		
	If the alarm is	Do	
	not clear	step 21	
	clear	step 22	
21	Call the next level of support.		
22	You have completed this procedure.		

XAC PEtrbl
minor

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	PEtrbl	.	.	.	.	.	.	.	.	.

Indication

A PEtrbl minor alarm code appears under the XAC header of the alarm banner. The alarm code indicates a processor element (PE) trouble minor alarm.

An “I” (in-service trouble indicator) appears in the state field in the shelf layout area. The indicator appears directly below the number that matches the circuit pack (CP) location in the physical shelf slot.

Meaning

The state of the PE CP has changed from in-service (InSv) to in-service trouble (IsTb). The state change indicates a non-critical fault on a PE CP.

Impact

There is no change in subscriber service. To minimize service degradation, test or replace the PE CP when call traffic is low.

Common procedures

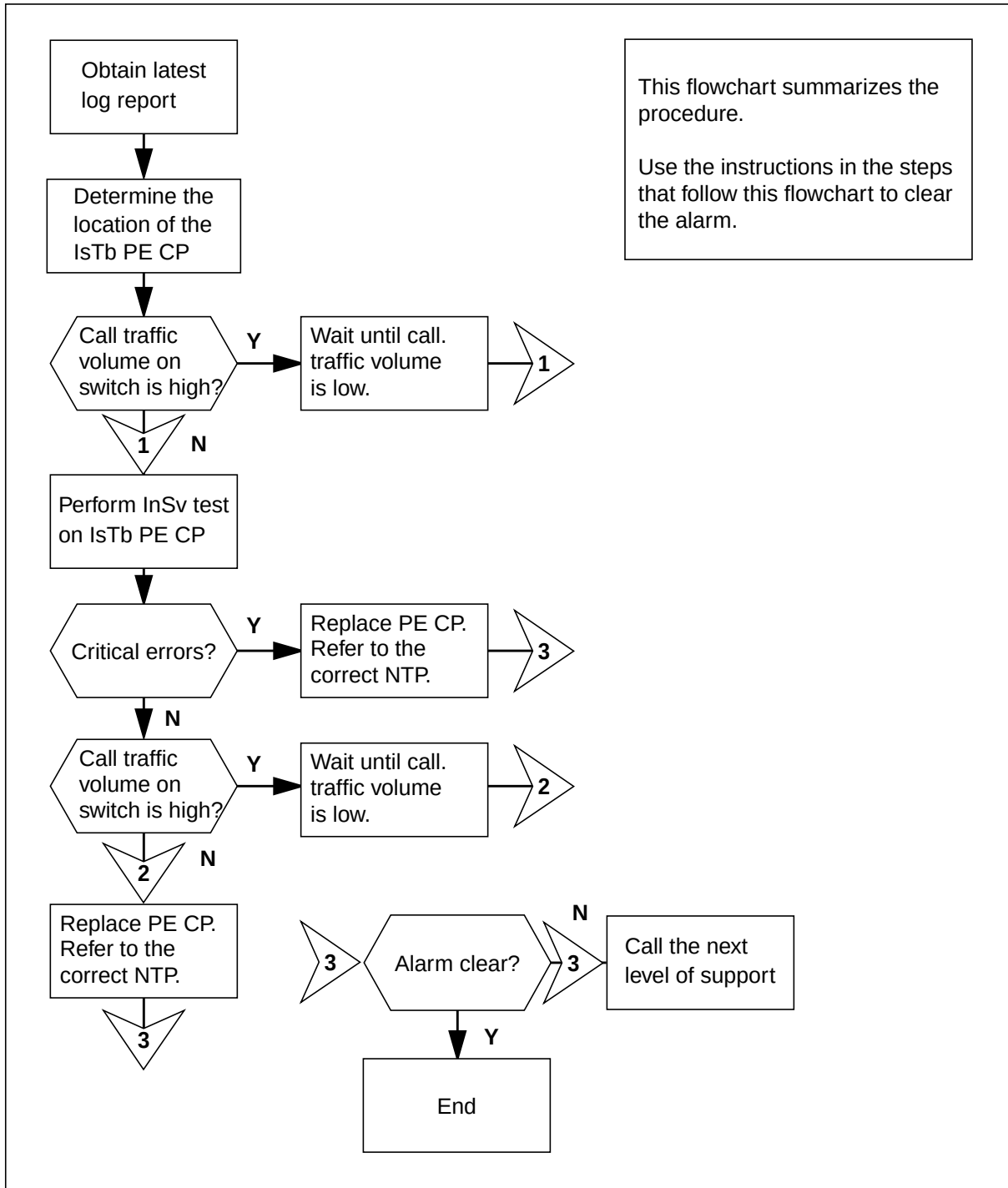
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC PEtrbl minor (continued)

Summary of clearing a PETrbl minor alarm



XAC PEtrbl **minor** (continued)

How to clear a PEtrbl minor alarm

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC PEtrbl minor (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the PEtrbl alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
 and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
 and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
 and press the Enter key.

If the log indicates	Do
a PEtrbl minor condition	4
another alarm condition	11
that the alarm condition is clear	13

- 2 Examine the shelf interface modules (SIMs). Make sure that all circuit breakers are in the ON position. Make sure that the green LEDs are lit.

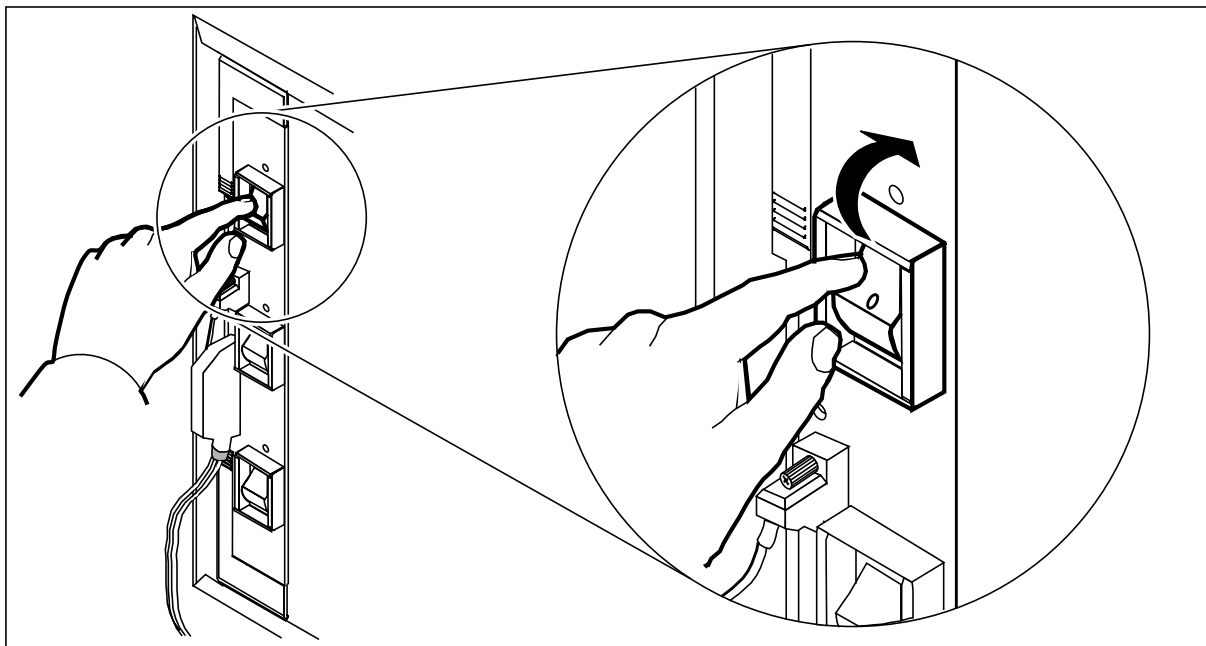
If SIM circuit breakers are	Do
in the OFF position and a red led is lit	3
in the ON position and green leds are lit	4

- 3 Set the shelf interface module (SIM) circuit breaker to the ON position (see the diagram in this step). Wait 30 sec.

Example

XAC PEtrbl minor (continued)

Set circuit breaker on the SIM to the ON (1) position



	If SIM circuit breaker	Do
	resets to the ON position	4
	does not reset to the ON position	12
4	Access the PE MAP level. At the CI MAP level, type >MAPCI;MTC;XAC;PE and press the Enter key.	
5	Examine the PE MAP level. Record the location of the IsTb PE CP. Note: The PE MAP level displays alarms and PE working states as follows: - a system alarm code appears under the XAC header in the alarm banner - an equipment alarm codes appears under the PE header in the subsystem status summary field (SSSF) - an "I" (in-service trouble indicator) appears in the state field in the shelf layout area.	

Example

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
Petrbl.	.	.	.	.	.	.	.	.	.
PE									
0 Quit		Front:	111111111	Rear:	111111	SM	PE	IO	PKLT
2		123456789012345678	456789012345	.	PEfl	.	.	.	.
3	Sta:	-.-I.-.-.-.-.-.-.-.-	.-.-.-.-.-.-.-.-	0	0	0	0	0	0
4	Dep:								
5	Typ:	**	*	*					
6 Tst_	PE:								
7 Bsy_									
8 RTS_									
9									
10 LoadFW									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

XA-Core Maintenance Manual

XAC PEtrbl minor (continued)

Example of system response:

Tst 4 front failed.

If the InSv test	Do
passed	7
did not pass	9

- 7 Return the PE CP to service. At the PE MAP level type
>RTS <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 4 f

Example of system response:

RTS 4 front passed

If the PE CP is	Do
not in an InSv state	8
in an InSv state and the IsTb alarm is active	9
in an InSv state and the IsTb alarm is clear	10

At the XA-Core physical shelf

- 8 Perform the PE CP replacement procedure immediately. Refer to the correct replacement procedure located in this document. Continue to 10 when complete.
- 9 Wait until call traffic volume is low. Perform the PE CP replacement procedure. Refer to the correct replacement procedure located in this document. Return to this point when complete.

**XAC PEtrbl
minor (end)**

- 10** Confirm that the alarm is clear. Examine the PE MAP screen.

If the PEtrbl minor alarm is	Do
changed to different alarm	11
not clear	12
clear	13

- 11** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

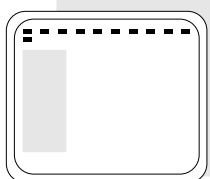
If the alarm is	Do
not clear	12
clear	13

- 12** Call the next level of support.

- 13** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC RExFlt minor

Alarm display

	XAC RExFlt	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

A RExFlt minor alarm code appears under the XAC header of the alarm banner. The alarm code indicates that during routine exercise tests, the tests run on one or more devices failed. This alarm displays until all the devices that failed are retested and pass.

Meaning

The RExFlt minor alarm indicates that during routine exercise tests (RExTst), one or more of the devices failed. The device alarms clear after the devices come back into service. The RExFlt alarm ensures that the test failures will be noticed.

The RExFlt minor alarm is displayed until all devices that failed exerciser tests are retested in a subsequent REx test and pass.

Impact

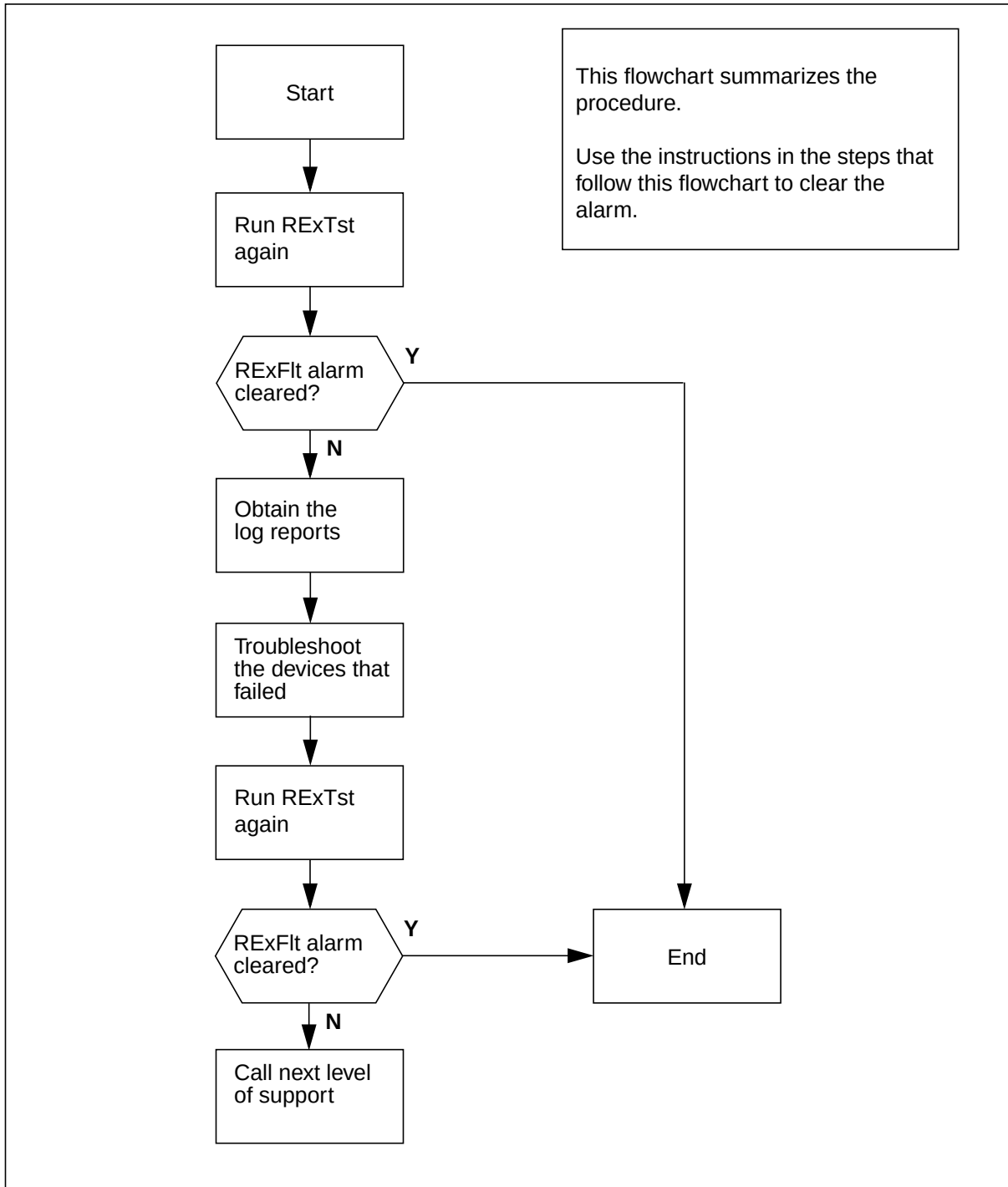
There is no change in subscriber service.

Common procedures

There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**XAC RExFlt
minor** (continued)**Summary of clearing a RExFlt minor alarm**

XAC RExFlt minor (end)

How to clear a RExFlt minor alarm

At the XA-Core MAP terminal

- 1 Run the RExTst again. At the CI MAP level, type
>MAPCI;MTC;XAC;XACMTC;REXTST RUN ALL
and press the Enter key.

If	Do
the RExFlt minor alarm is still displayed after the RExTst has completed	step 2
the RExFlt minor alarm disappears	step 6

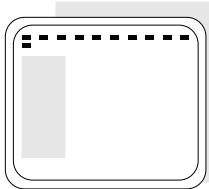
- 2 Collect information from the XA-Core log report system. Log XAC415 is the routine exercise report. It indicates which devices passed the exerciser tests, and which ones failed.
- 3 Troubleshoot each device that failed an exerciser test. Return to this point when complete.
- 4 Run the RExTst again. At the CI MAP level, type
>MAPCI;MTC;XAC;XACMTC;REXTST RUN ALL
and press the Enter key.

If	Do
the RExFlt minor alarm is still displayed after the RExTst has completed	step 5
the RExFlt minor alarm disappears	step 6

- 5 Call the next level of support.
- 6 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

XAC RExSch minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RExSch	.	.	.	.	.	.	.	.	.

Indication

A RExSch minor alarm code appears under the XAC header of the alarm banner. The alarm code indicates a routine exercise (REx) schedule minor alarm.

Meaning

The RExSch minor alarm indicates the cancellation of two, consecutive system daily REx (SREx) tests.

Each day, maintenance system software starts the REx test at 1:30am and ends at 3:30am (system time). If call volume or CPU occupancy is high at the time of the REx test, the system places critical REx test requests in a queue. The maintenance software continues to perform REx tests on non-critical subsystems. When the tests on non-critical components are complete, the maintenance software again tries to perform the critical tests. If call volume or CPU occupancy is low, the system can complete the critical REx tests. If the system cannot complete the critical tests, the RExSch minor alarm appears in the alarm banner.

The RExSch alarm notifies operating company personnel that the system is not performing the REx test maintenance function. The system must perform a system REx test to clear the RExSch minor alarm. A manual REx test won't clear the RExSch minor alarm.

The XA-Core system cancels a REx test for the following reasons:

- XACORE_REX_TEST tuple values are not correct (Table RExSched)
- processor occupancy is equal to, or greater than 40% of capacity
- failed REx pre-test check
- insufficient elapsed time between the last restart and system REx test
- a circuit pack (CP) is out of service (OOS)

XAC RExSch

minor (continued)

- memory mismatch or processor trap conditions
- inability to contact system software

Impact

There is no change in subscriber service.

Common procedures

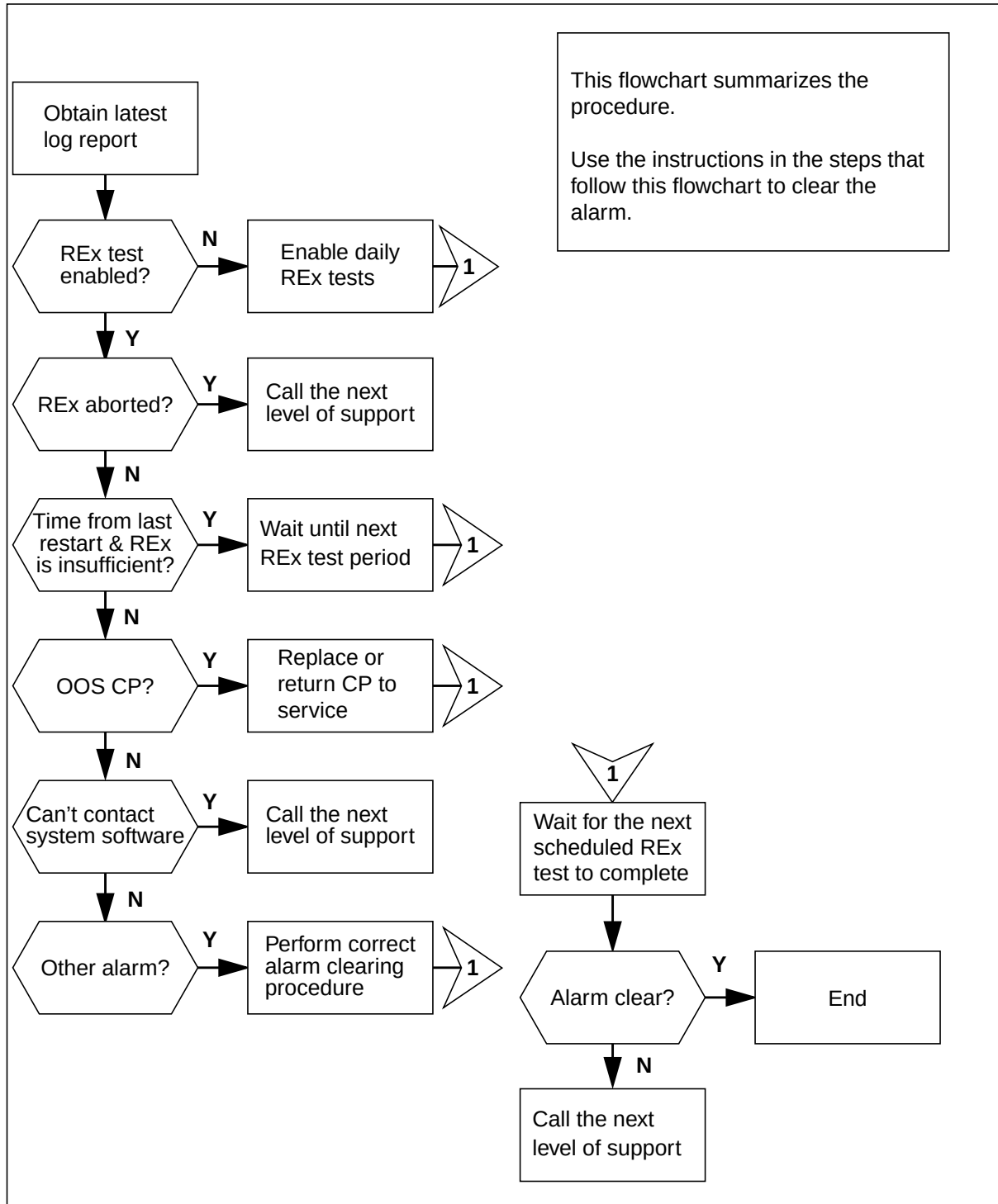
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC RExSch minor (continued)

Summary of clearing a RExSch minor alarm



XAC RExSch minor (continued)

How to clear a RExSch minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the RExSch alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a RExSch minor alarm condition because the REX test is not enabled	step 2
a RExSch minor alarm condition because the REX pre-check failed	step 7
a RExSch minor alarm condition because a CP or packet is OOS	step 8
a RExSch minor alarm condition because the time between the last restart and REX is insufficient (less than 1 day)	step 11
another alarm condition	step 13
that the alarm condition is clear	step 15

- 2 Access the XACMtc MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;XACMTC
and press the Enter key.

XAC RExSch minor (continued)

- 3 Examine the XACMtc MAP level. Record the results and date of the last run REx test. Record the location of any OOS CPs or packlets.

Note: The XACMtc MAP level displays the RExSch alarm code under the XAC header in the alarm banner.

The following is a sample MAP display.

XACMtc MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
RExSch   .       .       .       .       .       .       .       .       .

XACMtc
0 Quit          Front:  111111111  Rear: 111111  SM      PE      IO      PKLT
2              123456789012345678  456789012345  .       .       .       .
3              Sta:  -.-----  .-----  0       0       0       0
4              Dep:
5
6
7              Traps:          Per Minute:  = 0          Total = 1
8              Last Image run at:  1999/02/15 13:13
9                  restart type= reload
10                 Result  = pass
11 Image        Last XARExTst run at: 1999/03/15 14:25
12 RExTst_      Last XARExTst Type:   full
13 RExInt_      Last XARExTst Result:  notRun
14 Alarm_
15              XACMTC:
16
17 Indicatio_
18 Query_

XMAP0
Time 14:12  >

```

If the MAP indicates	Do
a RExSch minor alarm and all CPs and packlets are InSv	step 4
a RExSch minor alarm and a CP or packlet is OOS	step 8
a different alarm	step 13
no alarm	step 15

- 4 Access and examine the REXSCHED table.
- Display the CI MAP level prompt. At the XACMtc MAP level, type **>QUIT ALL** and press the Enter key.
 - Access the REXSCHED table. At the CI MAP level prompt type

XAC RExSch minor (continued)

>TABLE REXSCHED

and press the Enter key.

- c** List all of the system REx test schedule tuples. At the CI MAP prompt type

>LIST ALL

and press the Enter key.

The CI MAP level displays the system REx schedule tuples for the message switch (MS) and the XA-Core. Examine the field values in the XACORE_REX_TEST tuple (see the example system response in this step)

Example of system response:

```
TOP
REXTSTIDENABLEPERIODPARALLELDAYSDSBL
```

```
-----
-----
MS_REX_TESTY11NONE
XACORE_REX_TESTY11NONE
BOTTOM
```

Note 1: The Enable field enables or disables the ability of the REx controller to run system REx tests. The Enable field can have a value of Y (Yes) or N (No).

Note 2: The Period field controls the daily interval between system REx tests. The Period field can have a value of 1 - 7. A Period field value of 1 tells the REx controller to run the REx test one time each day. A Period field value of 2 tells the REx controller to run the system REx test one time every second day. A Period field value of 3 tells the REx controller to run the system REx test one time every third day.

Note 3: The Parallel field value controls the number of parallel REx tests to run. A Parallel field value of 1 tells the REx controller to run serial system REx tests. A Parallel field value of 2 tells the REx controller to run parallel system REx tests.

Note 4: The DAYSDSBL field value controls the day to disable a regular, system REx test. The DAYSDSBL field values are MON, TUE, WED, THU, FRI, SAT, SUN, ALL, NONE.

- 5** Make sure that all XACORE_REX_TEST field values match those in the REXSCHED table example in 4.

If the tuple field values are	Do
not the same	step 6
the same	step 7

- 6** Change the XACORE_REX_TEST field values to match those in the example in c.

- a** Edit the XACORE_REX_TEST table. At the CI MAP prompt type

**XAC RExSch
minor** (continued)

>POS XACORE_REX_TEST

and press the Enter key.

Example of system response:

XACORE_REX_TESTY11NONE

- b** At the CI MAP prompt type

>CHA

and press the Enter key.

Example of system response:

ENTER Y TO CONTINUE PROCESSING OR N TO QUIT

- c** At the CI MAP prompt type

>Y (to continue with the edit process)

and press the Enter key. The MAP displays the current Enable field value.

Example of system response:

ENABLE: Y/N

- d** Make sure the Enable field value is correct. If the Enable field has a current value of Y (Yes), press the Enter key to accept.

If the Enable field has a current value of N (No), type

>Y

and press the Enter key. The MAP displays the current Period field value.

Example of system response:

PERIOD: 1

- e** Make sure the Period field value is correct. If the Period field has a current value of 1, press the Enter key to accept.

If the Period field has a current value of 2, type

>1

and press the Enter key. The MAP displays the current Parallel field value.

Example of system response:

PARALLEL: 1

- f** Make sure the Parallel field value is correct. If the Parallel field has a current value of 1, press the Enter key to accept.

If the current Parallel field value is set to 2, type

>1

XAC RExSch
minor (continued)

and press the Enter key. The MAP displays the edit changes and a prompt to confirm, reject or edit the changes.

Example of system response:

TUPLE TO BE CHANGED:
MS_REX_TESTY11NONE
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

- g If the changes to the MS_REX_TEST tuple match the values shown in this step, type

>Y

and press the Enter key.

- 7 Examine the Maintenance Activity MAP level to determine CPU occupancy. At the CI MAP prompt, type

>MAPCI;MTC;ACTIVITY

and press the Enter key.

The following is a sample MAP display.

Maintenance activity MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RExSch	.	.	.	.	.	.	.	.	.
MTC									
0 Quit		CpOcc	BAvgDel	95%BLim	RTrip				
2 Activity		40%	36ms	275ms	----				
3									
4 SRSTATUS									
5									
6 CPSTATUS									
7									
8									
9 XAC									
10 MS									
11 IOD									
12									
13									
14									
15									
16									
17									
18 APPL									
XMAP0									
Time 14:12									>

XAC RExSch minor (continued)

	If the MAP indicates	Do
	CPU occupancy is less than 40%	step 8
	CPU occupancy is greater than or equal to 40%	step 14
	no alarm	step 15
8	Make sure that all CPs and packlets are in an InSv state.	
	If CPs and packlets are	Do
	in a ManB state	step 9
	in a SysB state	step 10
	in an InSv state	step 11
9	Return ManB CPs or packlets to service.	
	a Display the MAP level appropriate to the ManB CP or packlet type	
	b Return the ManB CP or packlet to service. At the correct MAP level type >RTS <nn> <s> (if a CP is ManB)	
	or	
	>RTS <nn> <s> <p> (if a packlet is ManB)	
	and press the Enter key	
	where	
	<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18	
	<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)	
	<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)	
	Example of command use:	
	>RTS 2 f (for a CP)	
	or	
	>RTS 2 f l (for a packlet)	

XAC RExSch
minor (end)

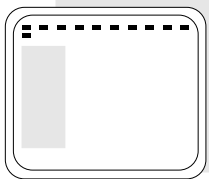
Example of system response:

RTS 2 front lower passed

	If the CP is or packet is	Do
	in a SysB state	step 10
	in an IsTb state	step 13
	in an InSv state	step 12
10	Perform the correct CP or packet replacement procedure. Refer to the correct NTP. Return to this point when complete.	
	If the CP or packet is	Do
	InSv	step 11
	not InSv	step 14
11	Wait until the system performs the next scheduled REx test.	
	If the system	Do
	performs the REx test	step 12
	does not perform the REx test	step 14
12	Confirm that the alarm is clear. Examine the XACMtc MAP level.	
	If the alarm is	Do
	changed to another alarm	step 13
	not clear	step 14
	clear	step 15
13	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.	
	If the alarm is	Do
	clear	step 11
	not clear	step 14
14	Call the next level of support.	
15	You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.	

XAC RExTst minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RExTst	.	.	.	.	.	.	.	.	.

Indication

A RExTst minor alarm code appears under the XAC header of the alarm banner. The alarm code provides notification that the XA-Core software is performing REx tests.

Meaning

The RExTst alarm tells operating company personnel that a REx test is in progress. The purpose of a REx test is to make sure that XA-Core system components are functioning correctly.

By default, the XA-Core system automatically performs a REx test as follows:

- a daily, base, in-service (InSv) tests on all circuit packs in all subsystems
- a full, out-of-service (OOS) test on one circuit pack in each subsystem each week
- an Image test each day

Impact

The REx test performs both InSv and OOS tests on selected circuit packs (CPs). The REx test takes a period of time to complete. There is no immediately change to subscriber service. There can be a reduction in device redundancy during testing.

The RExTst alarm is the highest priority of all XA-Core alarms. The RExTst alarm masks other alarms related to out-of-service (OOS) CP states. If a REx test reduces device redundancy, a major or critical alarm can occur.

A restart can occur if the XA-Core cannot communicate with the following XA-Core equipment:

- single remaining Core-MS Interconnect (CMIC) interface
- single remaining PE

XAC RExTst minor (continued)

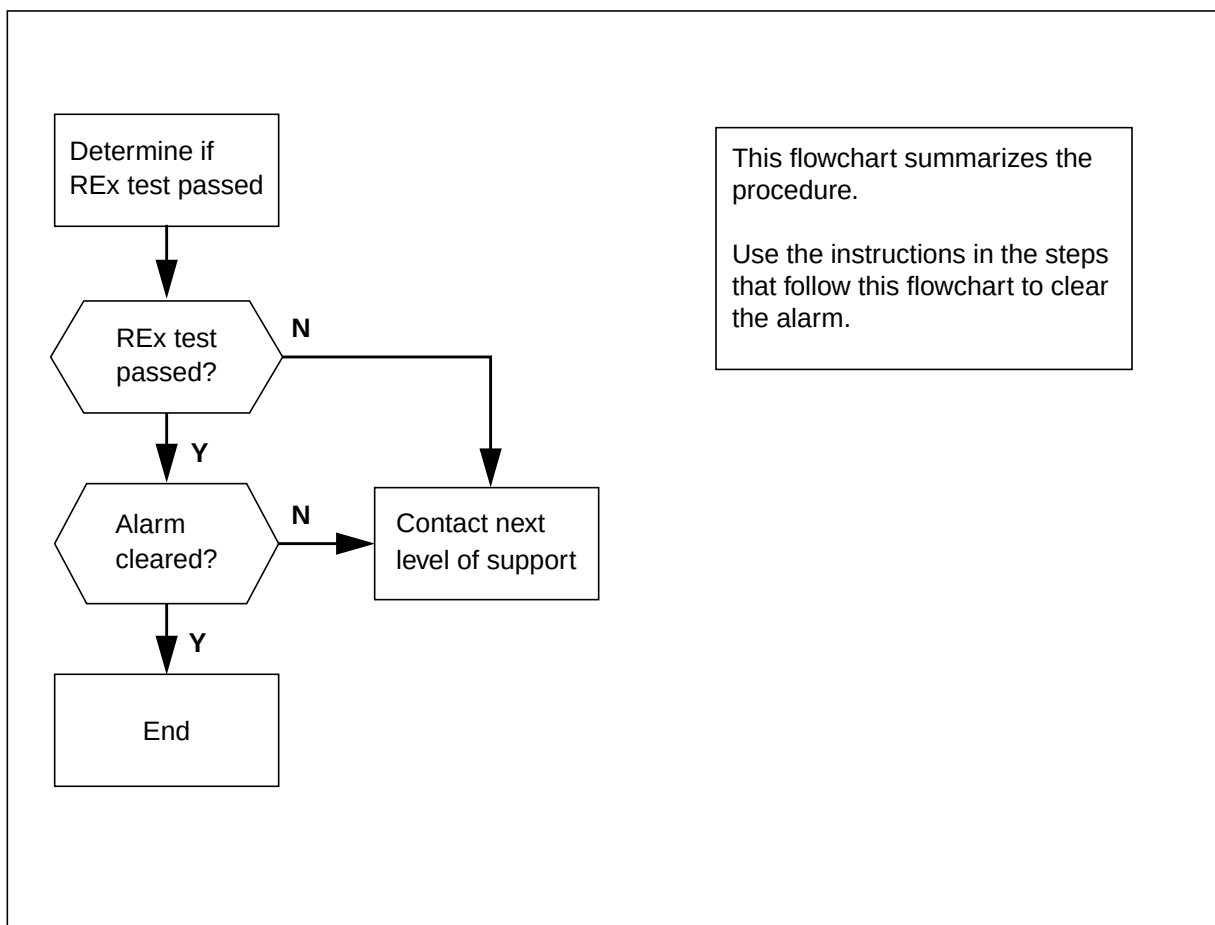
Common procedures

There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a RExTst minor alarm



XAC RExTst minor (continued)

How to clear a RExTst minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



CAUTION

Loss of service

Do not repeat steps.

At your current location

- 1 Collect information from the log report system. The log messages provide information about the source of the LowSM alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
REx started condition	step 2
another alarm event	step 6

XAC RExTst minor (continued)

	If the log indicates	Do
	the RExTst summary report	step 8
2	Access the XA-Core maintenance (XACMtc) MAP level. At the CI MAP level type MAPCI;MTC;XAC;XACMTC and press the Enter key.	
3	Examine the XACMtc MAP level. Note: The XACMtc MAP displays a RExTst alarm under the XAC header in the alarm banner	

The following is a sample MAP display.

XACMtc MAP level

XAC RExTst	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.
XACMtc									
0 Quit		Front:	111111111	Rear:	111111	SM	PE	IO	PKLT
2		123456789012345678	456789012345	.	.	.	.	.	.
3		Sta: .....	.....	0	0	0	0		
4		Dep:							
5									
6									
7		Traps:	Per Minute: = 0	Total = 1					
8		Last Image run at:	1999/02/15 13:13						
9		restart type=	reload						
10		Result =	pass						
11 Image		Last XARExTst run at:	1999/03/15 14:25						
12 RExTst_		Last XARExTst Type:	full						
13 RExInt_		Last XARExTst Result:	notRun						
14 Alarm_									
15		XACMTC:							
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12		>							

If the XA-Core XACMtc MAP indicates	Do
a RExTst alarm	step 4
a different alarm	step 6
not accessible	step 7

XAC RExTst minor (end)

- 4 Examine the MAP command interpreter output area. The MAP output area displays the subsystem now under test. Allow the REx test to complete.

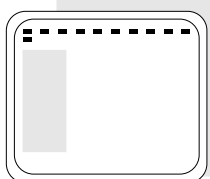
If the MAP indicates	Do
errors on completion of the REx test or the REx test terminated	step 5
a different alarm	step 6
successful completion of the REx test, no alarm and all CPs and packets are in service	step 8
- 5 Determine the reason for the REx test interruption or errors.

If the cause for REx test error is	Do
related to a trap rate threshold, clock, or subsystem equipment fault	step 6
not indicated	step 7
- 6 Perform the correct alarm clearing procedure. Refer to the correct alarm clearing NTP. Return to this point when complete.

If the alarm is	Do
not clear	step 7
clear	step 8
- 7 Call the next level of support.
- 8 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

XAC RIBkey major

Alarm display

	XAC RIBkey M	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
		.	.	.	.	.	.	.	.	.

Indication

A retrofit inactive boot key (RIBkey) major alarm code appears under the XAC header of the alarm banner. The alarm code indicates a RIBkey major alarm.

Meaning

The RIBkey major alarm indicates that both RTIF local ports have the RIBkey device attached.

A RIBkey is a device connected to the local port on each of the XA-Core reset terminal interfaces (RTIFs). The RIBkey is an installation tool used during an upgrade or cut-over process to an XA-Core system. Installation personnel remove the RIBkeys on completion of switch of activity (SWact) and when the XA-Core is in-service.

Impact

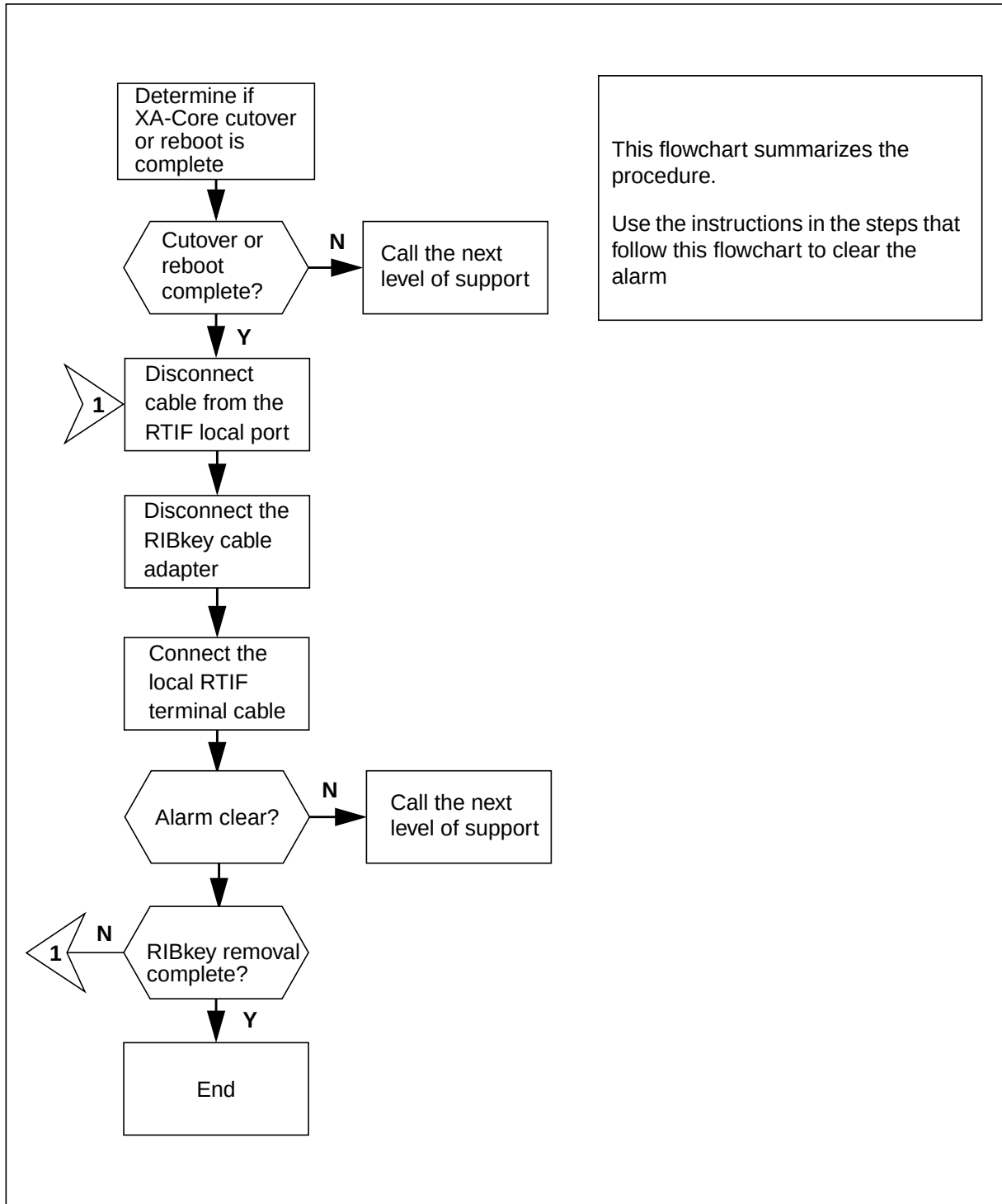
There is no immediate change in subscriber service. The XA-Core is in service after the switch activity (SWact) process is complete. The MAP displays the RIBkey major alarm. If the RIBkey devices remain installed and if an XA-Core reboot occurs, the system cannot process calls.

Common procedures

There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**XAC RIBkey
major** (continued)**Summary of clearing a RIBkey major alarm**

XAC RIBkey major (continued)

How to clear a RIBkey major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



WARNING

Terminal cable connector damage

Exercise care in handling cables. Do not bend the cable pin connectors.



CAUTION

Loss of service

Do not repeat steps.

XAC RIBkey major (continued)

At the XACore MAP

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the RIBkey alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
 and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
 and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
 and press the Enter key.

If the log indicates	Do
a RIBKey major alarm condition	step 2
another alarm condition	step 9
that the RIBkey major alarm condition is clear	step 11

- 2 Determine from office records or from maintenance or installation personnel that the XA-Core installation process is complete.

If the XA-Core installation process is	Do
complete	step 3
incomplete	step 10

- 3 Access the XA-Core RTIF MAP. At the CI MAP level type
>MAPCI;MTC;XAC;RTIF
 and press the Enter key.
- 4 Examine the RTIF MAP level. Record the location and status of the RTIFs and IOP CPs.

Note: The RTIF MAP level can display alarms as follows:

 - a RIBkey major alarm under the XAC header in the alarm banner.
 - an equipment alarm under the PKLT header of the subsystem status summary field (SSSF).
 - a RIBkey notification appears under the Local Port header in the command interpreter output area.

XAC RIBkey major (continued)

The following is a sample MAP display.

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RIBkey	.	.	.	.	.	.	.	.	.
M									
RTIF		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RIBkey
2		Sta:				0	0	0	0
3		Dep:							
4		Typ:		*	*				
5		Slot: Side: Packlet:		Local Port: Remote Port:					
6 Tst_		4 Rear Upper .		RIBkey		.			
7 Bsy_		15 Rear Upper .		RIBkey		.			
8 RTS_		XAC:							
9		RTIF:							
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12		>							

If the MAP indicates	Do
a RIBkey major alarm	step 5
a different alarm	step 9
no alarm and all CPs are in service	step 11

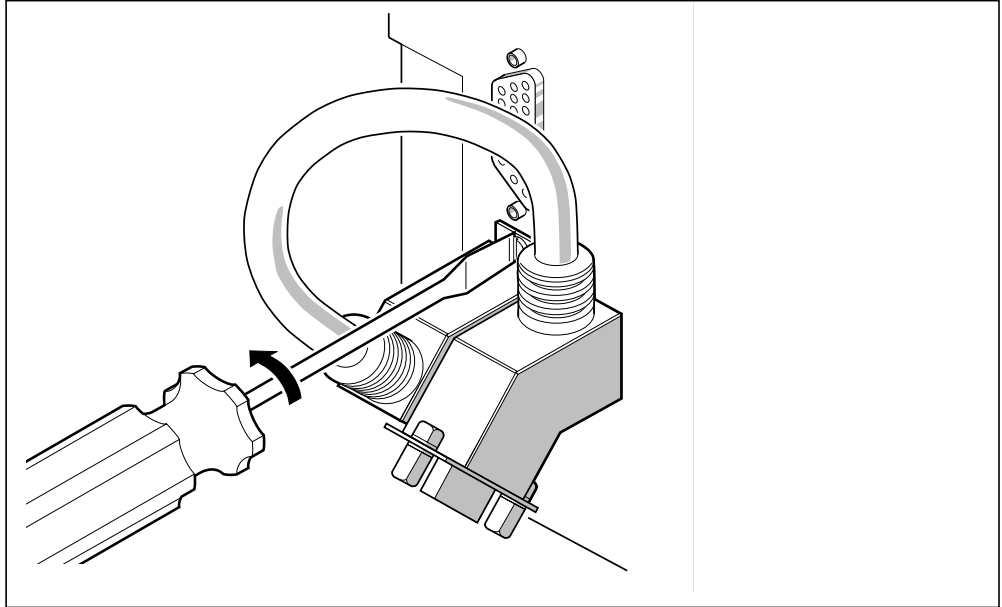
At the XA-Core physical shelf

- 5 Disconnect the terminal cable from the RIBkey device. Perform this step for all RTIF packlets.
 - a Unscrew the cable connector from the RIBkey receptacle
 - b Hold the cable connector by the body only
 - c Carefully pull the cable connector away from the RIBkey device
 - d Place the remote terminal cable in a safe location away from the physical shelf
- 6 Disconnect the RIBkey device from the RTIF ports (see the diagrams in this step). Perform this step for all RTIF packlets.
 - a Unscrew the RIBkey from the RTIF port receptacle
 - b Hold the RIBkey device by the body only

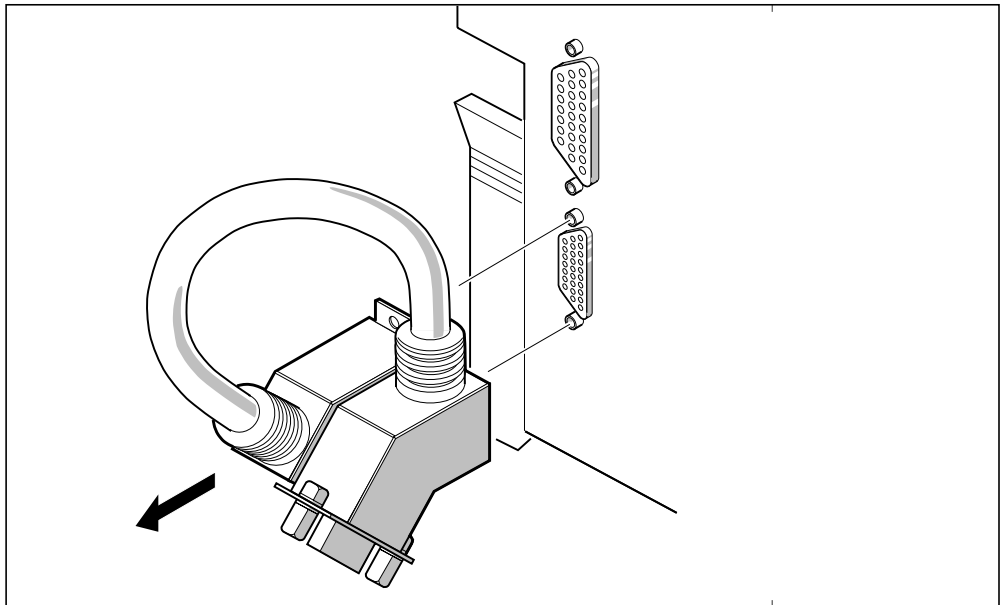
XAC RIBkey major (continued)

- c Carefully pull the RIBkey device away from the RTIF port receptacle

Unscrew the RIBkey connector



Remove the RIBkey device from the RTIF port receptacle



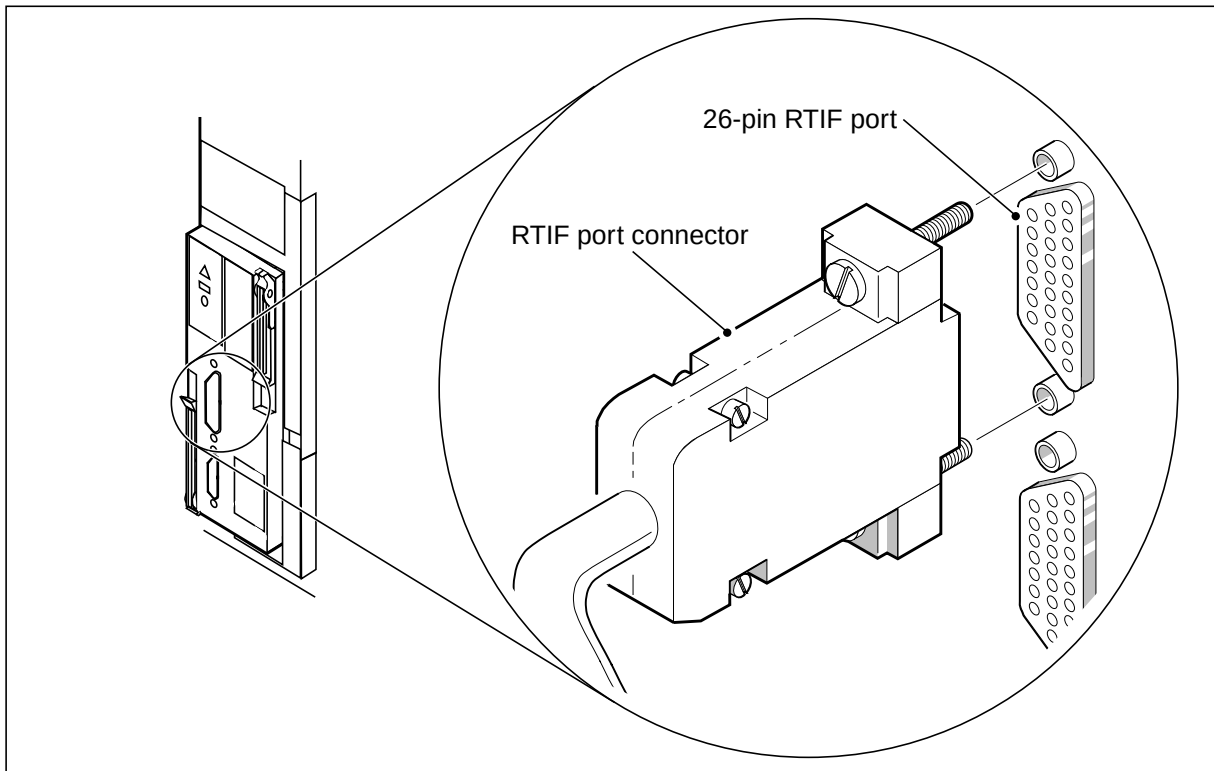
- 7 Connect the terminal cables to the RTIF port receptacles. Perform this step for all RTIF packlets.

- a Hold the terminal connector by the body only.

XAC RIBkey major (continued)

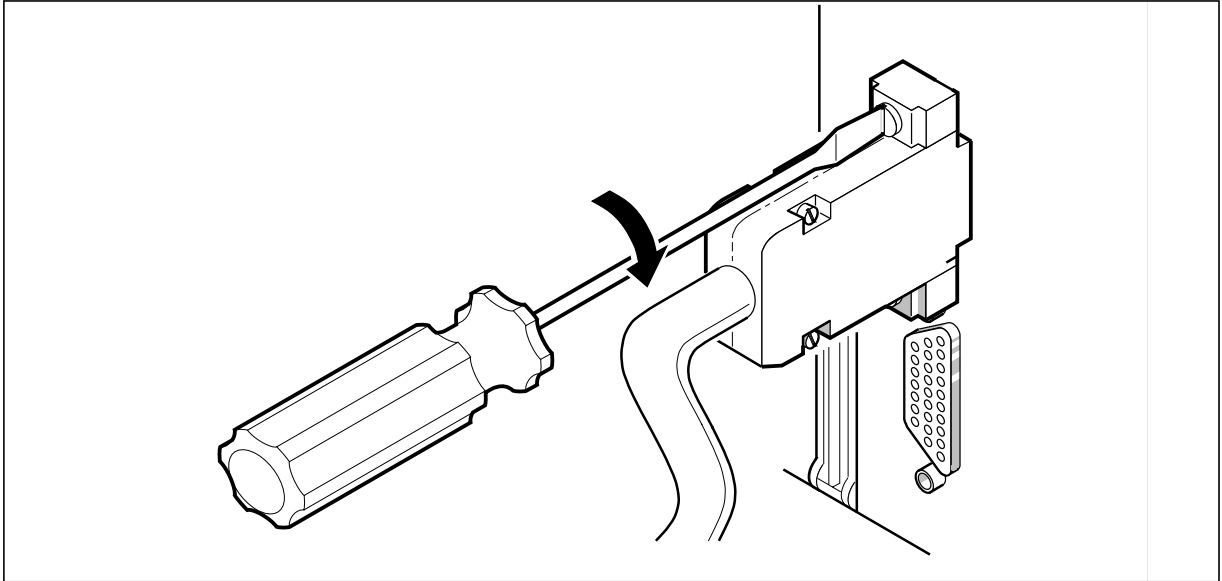
- b Carefully push the connector into the RTIF port receptacle.
- c Screw the terminal connector into the RTIF port connector.

RTIF port receptacles



XAC RIBkey major (end)

Connect the terminal cable to the RTIF port receptacle



At the XA-Core MAP

- 8** Confirm that the alarm is clear. Examine the alarm banner on the RTIF MAP level.

If the RIBkey alarm is	Do
changed to another alarm	step 9
not clear	step 10
clear	step 11

- 9** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete

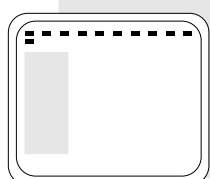
If the alarm is	Do
not clear	step 10
clear	step 11

- 10** Call the next level of support.

- 11** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

XAC RIBkey minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RIBkey	.	.	.	.	.	.	.	.	.

Indication

A retrofit inactive boot key (RIBkey) minor alarm code appears under the XAC header of the alarm banner. The alarm code indicates a RIBkey minor alarm.

Meaning

The RIBkey minor alarm indicates that a single RTIF local port has a RIBkey device attached.

A RIBkey is a device connected to the local port on each of the XA-Core reset terminal interfaces (RTIFs). The RIBkey is an installation tool used during an upgrade or cut-over process to an XA-Core system. Installation personnel remove the RIBkeys on completion of switch of activity (SWact) and when the XA-Core is in-service.

Impact

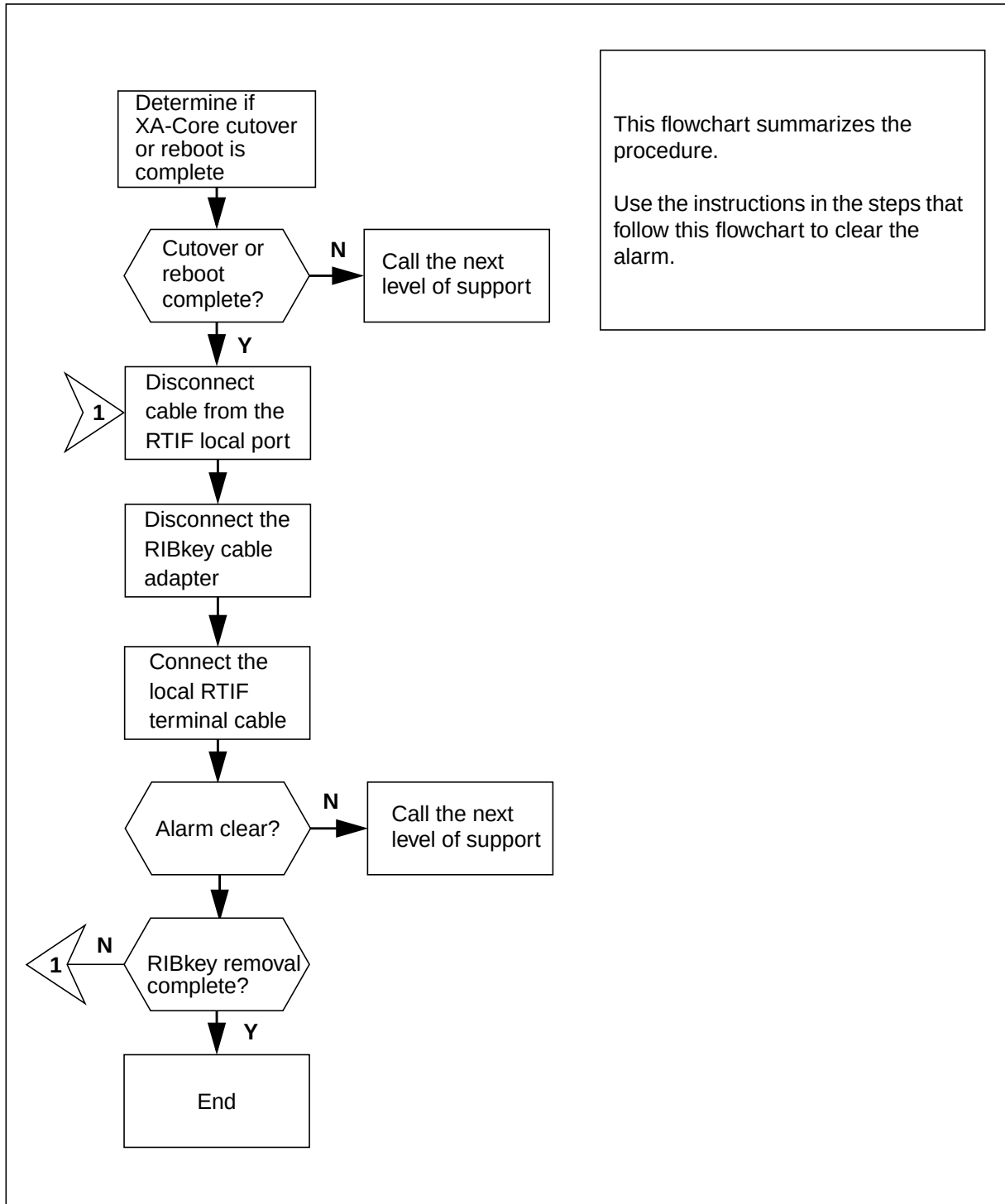
There is no immediate change in subscriber service. The XA-Core is in service after the switch activity (SWact) process is complete. The MAP displays the RIBkey minor alarm. If one RIBkey device remains installed, another RTIF goes SysB and an XA-Core reboot occurs, the system cannot process calls.

Common procedures

There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**XAC RIBkey
minor** (continued)**Summary of clearing a RIBkey minor alarm**

XAC RIBkey minor (continued)

How to clear a RIBkey minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



WARNING

Terminal cable connector damage

Exercise care in handling cables. Do not bend the cable pin connectors.



CAUTION

Loss of service

Do not repeat steps.

XAC RIBkey minor (continued)

At the XACore MAP

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the RIBkey alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
 and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
 and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
 and press the Enter key.

If the log indicates	Do
a RIBKey minor alarm condition	step 2
another alarm condition	step 9
that the RIBkey minor alarm condition is clear	step 11

- 2 Determine from office records or from maintenance or installation personnel that the XA-Core installation process is complete.

If the XA-Core installation process is	Do
complete	step 3
incomplete	step 10

- 3 Access the XA-Core RTIF MAP. At the CI MAP level type
>MAPCI;MTC;XAC;RTIF
 and press the Enter key.
- 4 Examine the RTIF MAP level. Record the working state of the system and the RTIF packlets. Record the location of the RTIFs from the MAP level.

Note: The RTIF MAP level can display alarms as follows:

 - a RIBkey minor alarm under the XAC header in the alarm banner.
 - an equipment alarm under the PKLT header of the subsystem status summary field (SSSF).
 - a RIBkey notification appears under the Local Port header in the command interpreter output area.

XAC RIBkey minor (continued)

The following is a sample MAP display.

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RIBkey	.	.	.	.	.	.	.	.	.
RTIF		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RIBkey
2		Sta: .....		.....		0	0	0	0
3		Dep:							
4		Typ:		* *					
5		Slot: Side: Packlet:		Local Port: Remote Port:					
6 Tst_		4 Rear Upper .		RIBkey		.			
7 Bsy_		15 Rear Upper .		.		.			
8 RTS_		XAC:							
9		RTIF:							
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12		>							

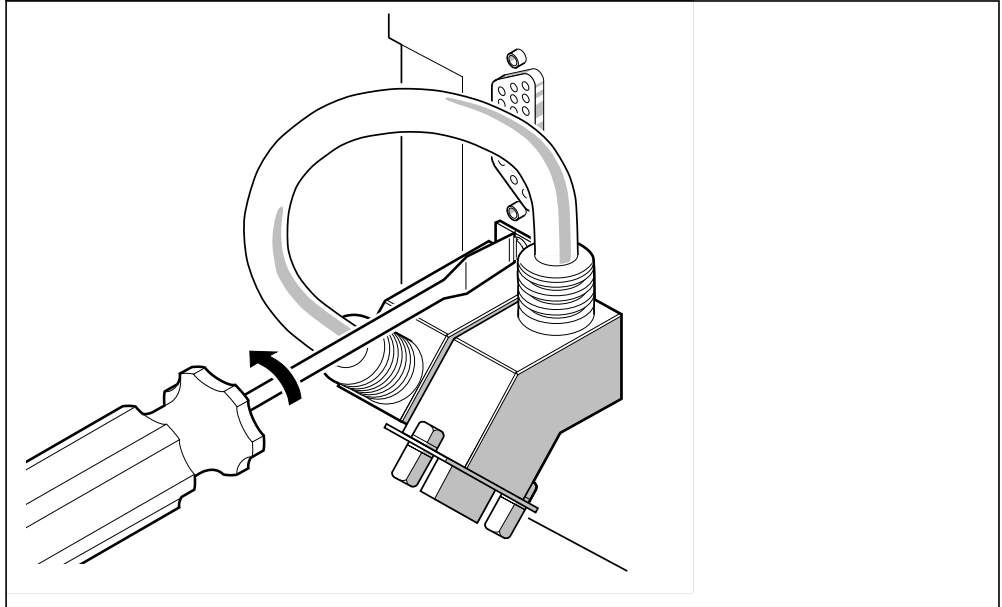
If the MAP indicates	Do
a RIBkey minor alarm	step 5
a different alarm	step 9
no alarm and all CPs are in service	step 11

At the XA-Core physical shelf

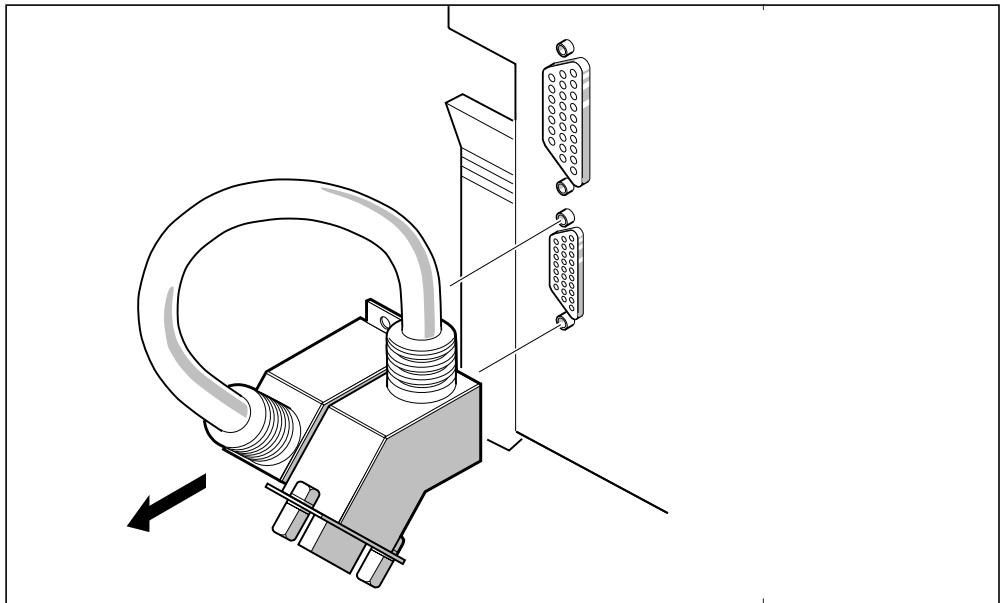
- 5 Disconnect the terminal cable from the RIBkey device.
 - a Unscrew the cable connector from the RIBkey receptacle.
 - b Hold the cable connector by the body only.
 - c Carefully pull the cable connector away from the RIBkey device.
 - d Place the remote terminal cable in a safe location away from the physical shelf.
- 6 Disconnect the RIBkey device from the RTIF local port (see the diagrams in this step).
 - a Unscrew the RIBkey from the RTIF local port receptacle.
 - b Hold the RIBkey device by the body only.
 - c Carefully pull the RIBkey device away from the RTIF local port receptacle.

XAC RIBkey minor (continued)

Unscrew the RIBkey connector



Remove the RIBkey device from the RTIF port receptacle



- 7 Connect the terminal cable to the RTIF local port.
 - a Hold the terminal connector by the body only.
 - b Carefully push the terminal connector into of the receptacle.
 - c Screw the terminal connector into the RTIF port connector.

XAC RIBkey minor (end)

At the XA-Core MAP

- 8** Confirm that the alarm is clear. Examine the alarm banner on the RTIF MAP level.

If the RIBkey alarm is	Do
changed to another alarm	step 9
not clear	step 10
clear	step 11

- 9** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete

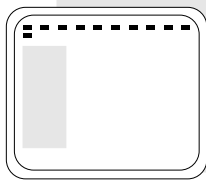
If the alarm is	Do
not clear	step 10
clear	step 11

- 10** Call the next level of support.

- 11** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

XAC RTIF critical

Alarm display



XAC RTIF *C*	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.

Indication

An RTIF critical alarm code appears under the XAC header of the alarm banner. The alarm code indicates a reset terminal interface (RTIF) critical alarm.

Meaning

All local ports on all RTIF packlets are out-of-service (OOS). The following conditions cause an RTIF critical alarm:

- all RTIF packlets are in a SysB state
- one RTIF packlet is in a ManB state and the other RTIF packlet is SysB
- one RTIF packlet is in a CBsy state and the other RTIF packlet is SysB
- one RTIF packlet is in a CBsy state and the other RTIF packlet is ManB
- all RTIF packlet local ports are in a SysB state
- one RTIF packlet local port is in a SysB state and the other RTIF packlet local port is in a Cbsy state

Impact

There is no change in subscriber service.

Common procedures

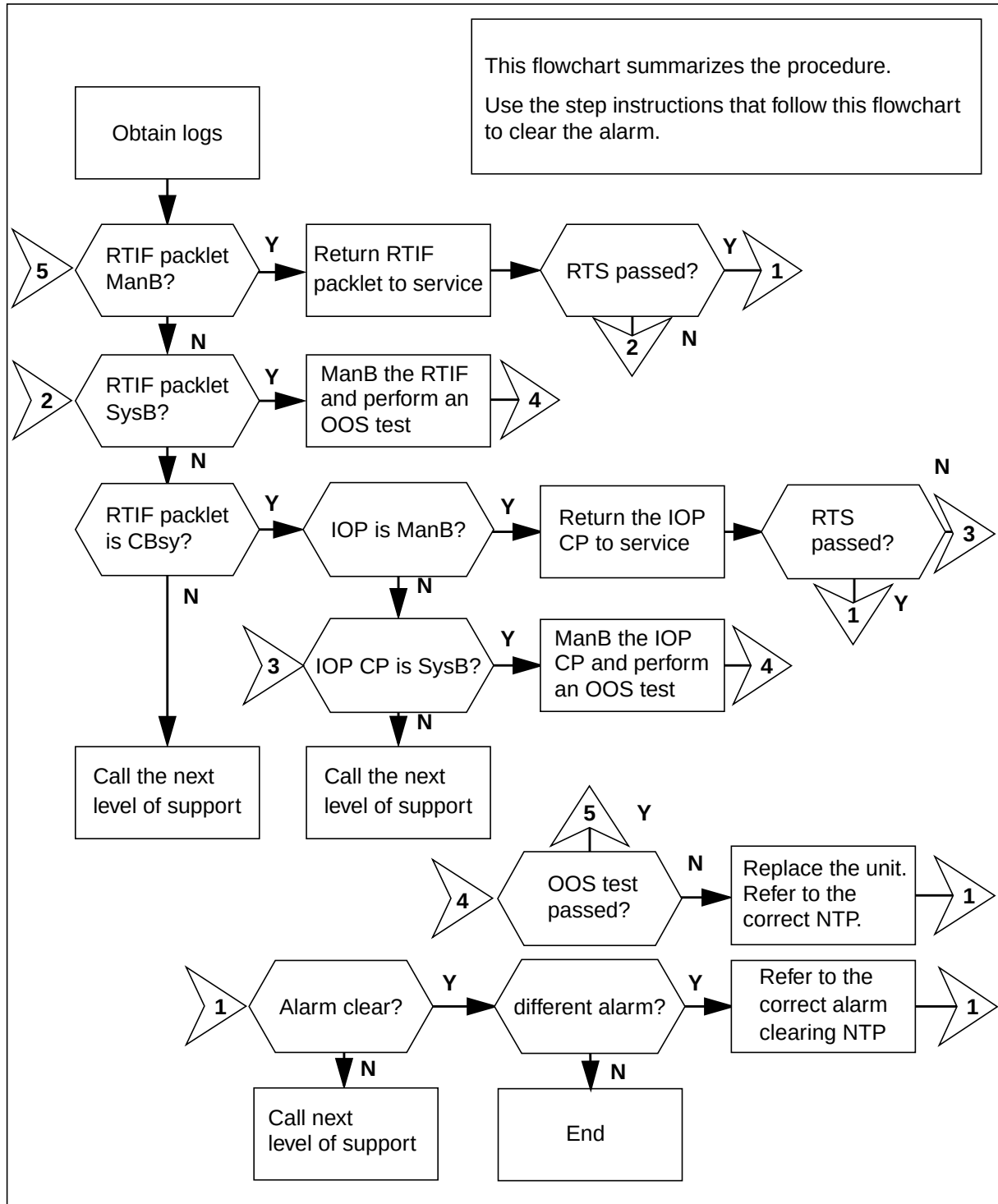
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC RTIF critical (continued)

Summary of clearing an RTIF critical alarm



XAC RTIF **critical** (continued)

How to clear an RTIF critical alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC RTIF critical (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the logs indicate	Do
an RTIF critical alarm condition	step 2
a different alarm condition	step 17
that the RTIF critical alarm condition is clear	step 19

- 2 Access the XA-Core RTIF MAP level by typing
MAPCI;MTC;XAC;RTIF
and pressing the Enter key.
- 3 Examine the RTIF MAP level. Record the location and status of the RTIF packets and the IOP CPs.

Note: The RTIF MAP level can display alarms and status as follows:

- a system alarm code appears under the XAC header in the alarm banner.
- an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC RTIF
critical (continued)

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RTIF	.	.	.	.	.	.	.	.	.
C									
RTIF		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RTIFfl
2	Sta:	-----		-----		0	0	0	1
3	Dep:			F					
4	Typ:			*	*				
5	Slot:	Side:	Packlet:	Local Port:	Remote Port:				
6 Tst_	4	Rear	Upper S	C	C				
7 Bsy_	15	Rear	Upper .	S	.				
8 RTS_	XAC:								
9	RTIF:								
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the RTIF MAP level indicates	Do
an RTIF packetlet is in a ManB state	step 4
an RTIFpacketlet is in a SysB state	step 5
an RTIF packetlet is in a CBsy state	step 8
a different alarm	step 17
no alarm and all CPs and packetlets are InSv	step 19

4

Return the RTIF packetlet to service. At the RTIF MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packetlet in an input/output processor (IOP).

Example of command:

XAC RTIF

critical (continued)

RTS 4 r u

Example of system response:

RTS 4 rear upper passed

If the RTIF packlet is	Do
in a CBsy state	step 8
in a SysB state	step 14
in an InSv state	step 16

- 5 Manually busy the OOS RTIF packlet. At the RTIF MAP level type
>BSY <nn> <s> <p>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
Example of command use:
>BSY 4 r u
Example of system response:
BSY 4 rear upper complete

Note: If needed, use the Force option to place the packlet in a ManB state. Refer to the XA-Core MAP commands documentation.

- 6 Perform an OOS test on the RTIF packlet. At the RTIF MAP level type
>TST <nn> <s> <p>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
Example of command use:

XAC RTIF critical (continued)

>TST 4 r u

If the OOS test	Do
passed	step 3
did not pass	step 14

7 Access the IO MAP level. At the RTIF MAP level type

>IO

and press the Enter key.

8 Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RTIF	.	.	.	.	.	.	.	.	.
C									
IO									
0 Quit		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
2		123456789012345678		456789012345		.	.	IOP M	RTIF C
3		Sta:-----		M-----		0	0	1	3
4		Dep:-----		F-----					
5		Typ: *		*		*			
6 Tst_		Slot: Side: Status:				Upper:	Middle:	Lower:	
7 Bsy_	2	Front	.			Tape .		Disk .	
8 RTS_	17	Front	.			Tape .		Disk .	
9	4	Rear	M			RTIF C		CMIC C	
10 LoadFW_	15	Rear	.			CMIC S		CMIC .	
11	XAC:								
12 Uneq_	IO:								
13									
14 Alarm_									
15									
16									
17 Indicatt_									
18 Query_									
XMAP0									
Time 14:12	>								

XAC RTIF
critical (continued)

	If the IOP CP is	Do
	in a ManB state	step 9
	in a SysB state	step 15
	in an InSv state	step 16
9	Return the IOP CP to service. Make sure that all related packlets are also in service.	
	a At the IO MAP level type >RTS <nn> <s> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) Example of command: >RTS 4 r <i>Example of system response:</i> RTS 4 rear passed	
	b Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.	
	If the IOP CP is	Do
	InSv and any related packlet is ManB	step 12
	InSv and any related packlet is SysB	step 14
	SysB and all related packlets are CBSy	step 10
	InSv and all related packlets are InSv	step 16
10	Manually busy the OOS IOP CP. At the IO MAP level type >BSY <nn> <s> and press the Enter key where	

XAC RTIF critical (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 4 r

Example of system response:

BSY 4 rear complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 8
did not pass	step 15

- 12** Access the correct packet MAP level. Return the ManB packet to service.

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).

Example of command:

RTS 4 r u

XAC RTIF
critical (continued)

Example of system response:

RTS 4 rear upper passed

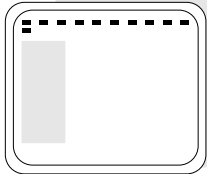
		If the packet is	Do
		in a SysB state	step 14
		in an InSv state	step 16
13	Perform the correct packet OOS test procedure. Refer to the correct NTP. Return to this point when complete.		
		If the packet is	Do
		in a SysB state	step 14
		in an InSv state	step 16
14	Perform the correct packet replacement procedure. Refer to the correct NTP. Return to this point when complete.		
		If the packet is	Do
		in an InSv state	step 16
		in a SysB state	step 18
15	Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.		
		If the IOP CP is	Do
		in an InSv state	step 16
		in a SysB state	step 18
16	Confirm that the alarm is clear. Examine the alarm banner on the RTIF MAP level.		
		If the RTIF major alarm is	Do
		changed to a different alarm	step 17
		not clear	step 18
		clear	step 19
17	Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.		
		If the alarm is	Do
		not clear	step 18

**XAC RTIF
critical (end)**

	If the alarm is	Do
	clear	step 19
18	Call the next level of support.	
19	You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.	

**XAC RTIF
major**

Alarm display

	XAC RTIF M	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

An RTIF major alarm code appears under the XAC header of the alarm banner. The alarm code indicates a reset terminal interface (RTIF) major alarm.

Meaning

One of the following conditions cause an RTIF major alarm:

- a single RTIF local port is out-of-service (OOS)
- all RTIF remote ports are out-of-service (OOS)
- one RTIF packlet is in a ManB state
- one RTIF packlet is in a SysB state
- one RTIF packlet is in a CBSy state

Impact

There is no change in subscriber service.

Common procedures

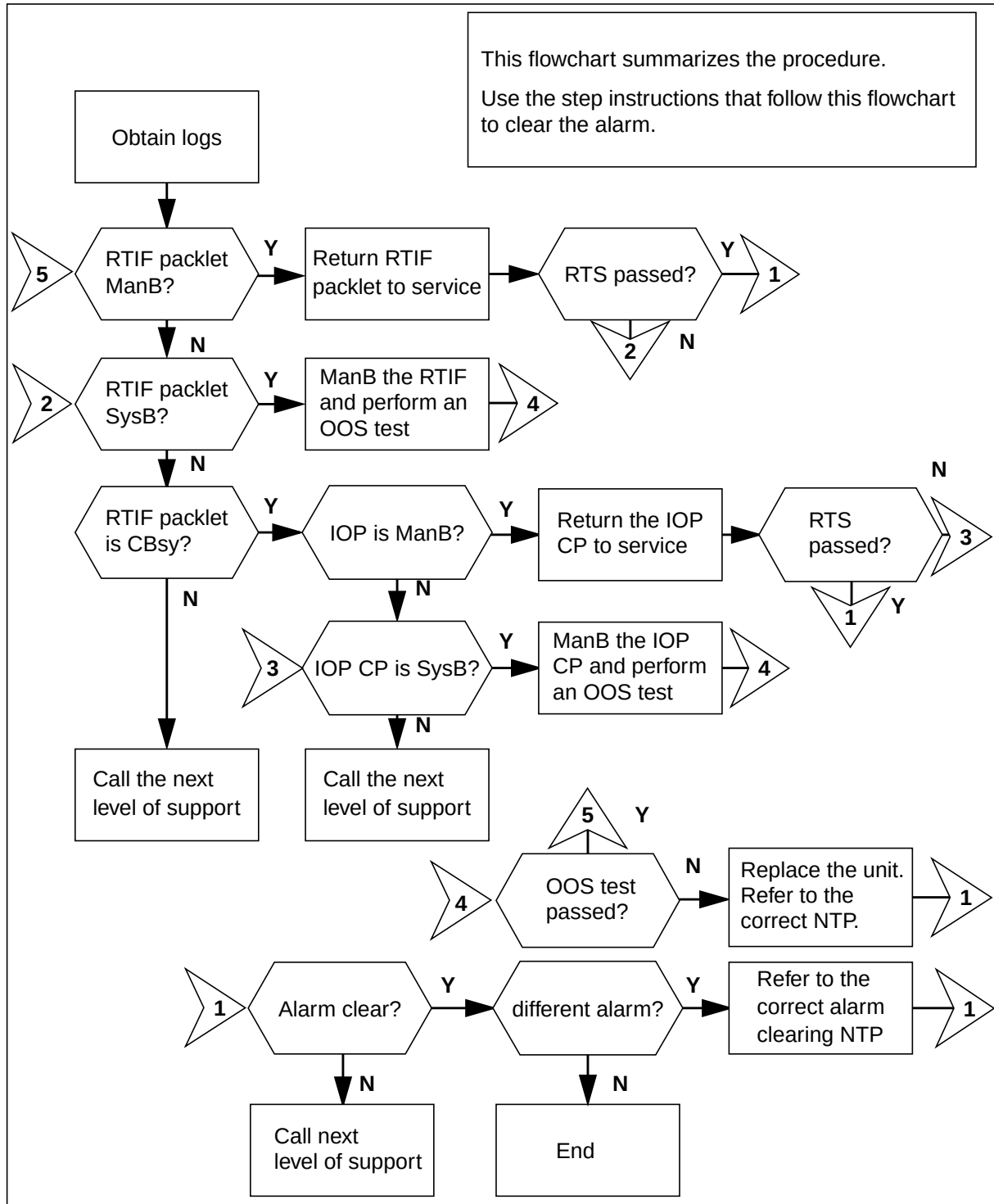
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC RTIF major (continued)

Summary of clearing an RTIF major alarm



XAC RTIF

major (continued)

How to clear an RTIF major alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC RTIF major (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
an RTIF major alarm condition	step 2
a different alarm condition	step 17
that the RTIF major alarm condition is clear	step 19

- 2 Access the XA-Core RTIF MAP. At the CI MAP level, type
MAPCI;MTC;XAC;RTIF
and press the Enter key.
- 3 Examine the RTIF MAP level. Record the location and status of the RTIF packets and IOP CPs. Record the status of the local/remote RTIF ports.

Note: The RTIF MAP level displays working states as follows:

 - a system alarm code appears under the XAC header in the alarm banner.
 - an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).
 - a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC RTIF major (continued)

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RTIF	.	.	.	.	.	.	.	.	.
M									
RTIF		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RTIFfl
2	Sta: .....			.....		0	0	0	1
3	Dep:			F					
4	Typ:			*	*				
5	Slot: Side: Packlet:			Local Port: Remote Port:					
6 Tst_	4	Rear	Upper S	C		C			
7 Bsy_	15	Rear	Upper .	.		.			
8 RTS_	XAC:								
9	RTIF:								
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indic_									
18 Query_									
XMAP0									
Time 14:12	>								

If the RTIF MAP level indicates	Do

an RTIF packlet is in a SysB state	step 4
an RTIF packlet is in a ManB state	step 6
an RTIF packlet is in a CBsy state	step 7
an RTIF packlet local port is in a SysB state	step 14
a different alarm	step 17
no alarm and all CPs and packlets are InSv	step 19

- 4 Manually busy the OOS RTIF packlet. At the RTIF MAP level type
>BSY <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

XAC RTIF major (continued)

Example of command use:

>BSY 4 r u

Example of system response:

BSY 4 rear upper complete

Note: If needed, use the Force option to place the packlet in a ManB state. Refer to the XA-Core MAP commands documentation.

If the packlet is	Do
in a ManB state	step 5
not in a ManB state	step 18

- 5 Perform an OOS test on the RTIF packlet. At the RTIF MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>TST 4 r u

If the OOS test	Do
passed	step 6
did not pass	step 14

- 6 Return the RTIF packlet to service. At the RTIF MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command:

XAC RTIF major (continued)

RTS 4 r u

Example of system response:

RTS 4 rear upper passed

If the RTIF packet is	Do
in a SysB state	step 4
in a CBsy state	step 7
in an InSv state	step 16

- 7 Access the IO MAP level. At the RTIF MAP level type

>IO

and press the Enter key.

- 8 Examine the IO MAP level. Record the status and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC RTIF major (continued)

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RTIF	.	.	.	.	.	.	.	.	.
M									
IO		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	IOP M	LocP C
2	Sta:-----			M-----		0	0	1	2
3	Dep:			F					
4	Typ: *		*	*	*				
5	Slot: Side: Status:					Upper:	Middle:	Lower:	
6	2 Front .					Tape .		Disk .	
7 Tst_ 17 Front .						Tape .		Disk .	
8 Bsy_ 4 Rear M						RTIF C		CMIC C	
9 RTS_ 15 Rear .						RTIF .		CMIC .	
10 LoadFW_ XAC:									
11 IO:									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is

Do

in a ManB state

step 9

in a SysB state

step 10

in an InSv state

step 16

- 9 Return the IOP CP to service. Make sure that all related packlets are also in service.

- a At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 4 r

Example of system response:

RTS 4 rear passed

XAC RTIF
major (continued)

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related packlet is ManB	step 12
InSv and any related packlet is SysB	step 14
SysB and all related packlets are CBsy	step 15
InSv and all related packlets are InSv	step 16

- 10** Manually busy the OOS IOP CP. At the IO MAP level type
>BSY <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
Example of command use:
>BSY 4 r
Example of system response:
BSY 4 rear complete
Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

If the IOP CP is	Do
in a ManB state	step 11
not in a ManB state	step 18

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type
>TST <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

XAC RTIF major (continued)

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 8
did not pass	step 15

- 12** Access the correct packlet MAP level. Return the ManB packlet to service.

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command:

RTS 4 r u

Example of system response:

RTS 4 rear upper passed

If the packlet is	Do
in a SysB state	step 13
in an InSv state	step 16

- 13** Perform the correct packlet OOS test procedure. Refer to the correct NTP. Return to this point when complete.

If the packlet OOS test	Do
did not pass	step 14
passed	step 16

- 14** Perform the correct packlet replacement procedure. Refer to the correct NTP. Return to this point when complete.

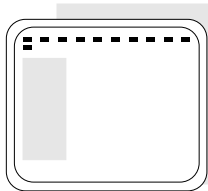
If the packlet is	Do
in an InSv state	step 16
in a SysB state	step 18

XAC RTIF major (end)

- 15** Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.
- | If the IOP CP is | Do |
|-------------------------|-----------|
| in an InSv state | step 16 |
| in a SysB state | step 18 |
- 16** Confirm that the alarm is clear. Examine the alarm banner on the RTIF MAP level.
- | If the RTIF major alarm is | Do |
|-----------------------------------|-----------|
| changed to a different alarm | step 17 |
| not clear | step 18 |
| clear | step 19 |
- 17** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.
- | If the alarm is | Do |
|------------------------|-----------|
| not clear | step 18 |
| clear | step 19 |
- 18** Call the next level of support.
- 19** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

**XAC RTIF
minor**

Alarm display

	XAC RTIF	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

An RTIF message appears under the XAC header of the alarm banner. The message indicates a remote terminal interface (RTIF) minor alarm.

Meaning

A single RTIF local or remote port is out-of-service (OOS).

Impact

There is no change in subscriber service.

Common procedures

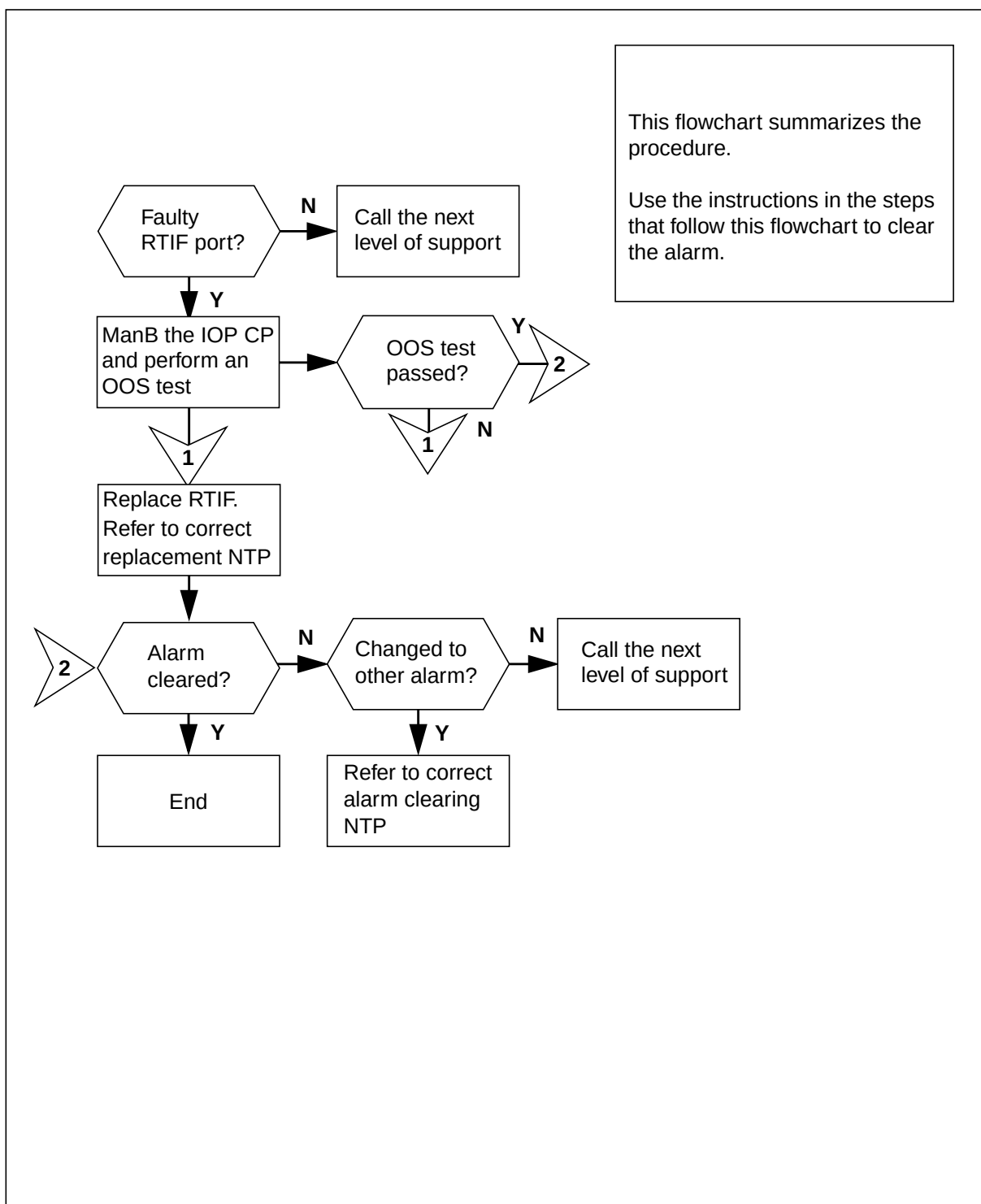
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC RTIF minor (continued)

Summary of clearing an RTIF minor alarm



XAC RTIF minor (continued)

How to clear an RTIF minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC RTIF minor (continued)

At your current location

- 1 Collect log information from the log report system. The log messages provide information about the source of the alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
an RTIF minor alarm condition	step 2
a different alarm condition	step 9
that the RTIF minor alarm condition is clear	step 11

- 2 Examine the RTIF MAP level. At the MAP terminal, type
MAPCI;MTC;XAC;RTIF
and press the Enter key.
- 3 Examine the RTIF MAP level. Record the working state of the system and the RTIF packlets. Also record the RTIF packet location on the physical shelf, side and slot.

Note: The RTIF MAP level can display alarms as follows:

- an RTIF minor alarm code appears under the XAC header in the alarm banner.
- an equipment alarm code appears under the PKLT header of the subsystem status summary field (SSSF).

The following is a sample MAP display.

XAC RTIF
minor (continued)

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RTIF	.	.	.	.	.	.	.	.	.
RTIF		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RemPfl
2	Sta:	-----		-----		0	0	0	1
3	Dep:								
4	Typ:			*	*				
5	Slot:	Side:	Packlet:	Local Port:	Remote Port:				
6 Tst_	4	Rear	Upper .	.	S				
7 Bsy_	15	Rear	Upper .	.	.				
8 RTS_	XAC:								
9	RTIF:								
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the RTIF MAP level indicates	Do
an RTIF minor alarm	step 7
a different alarm	step 9
no alarm and all CPs are in service	step 11

- 4
- Manually busy the RTIF packlet. At the RTIF MAP level type
>BSY <nn> <s> <p>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).
Example of command use:
>BSY 4 r u
Example of system response:
BSY 4 rear upper complete

XAC RTIF minor (continued)

***Note:** If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.*

If the RTIF packlet is	Do
in a ManB state	step 5
not in a ManB state	step 10

- 5** Perform an OOS test on the ManB RTIF packlet. At the RTIF MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command use:

>TST 4 r u

If the OOS test	Do
passed	step 6
did not pass	step 7

- 6** Return the RTIF packlet to service. At the RTIF MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command:

>RTS 4 r u

XAC RTIF minor (end)

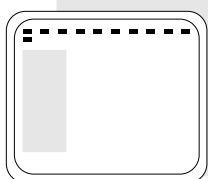
Example of system response:

RTS 4 rear upper passed

	If the RTIF packet is	Do
	in a SysB state	step 7
	in an InSv state	step 8
- 7** Perform the correct packet replacement procedure. Refer to the correct NTP. Return to this point when complete.
- 8** Confirm that the alarm is clear. Examine the alarm banner on the RTIF MAP level.
- | | If the RTIF alarm is | Do |
|--|-----------------------------|-----------|
| | changed to different alarm | step 9 |
| | not clear | step 10 |
| | clear | step 11 |
- 9** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete
- | | If the alarm is | Do |
|--|------------------------|-----------|
| | not clear | step 10 |
| | clear | step 11 |
- 10** Call the next level of support.
- 11** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

XAC SMtrbl minor

Alarm display

	XAC SMtrbl	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .

Indication

An SMtrbl alarm code appears under the XAC header of the alarm banner. The alarm code indicates a shared memory (SM) trouble minor alarm.

An “I” (in-service trouble indicator) appears in the state field in the shelf layout area. The indicator appears directly below the number that matches the circuit pack (CP) location in the physical shelf slot.

Meaning

The state of the SM CP has changed from in-service (InSv) to in-service trouble (IsTb). The state change indicates a non-critical fault on an SM CP.

Impact

There is no change in subscriber service. To minimize service degradation, test or replace the SM CP when call traffic is low.

Common procedures

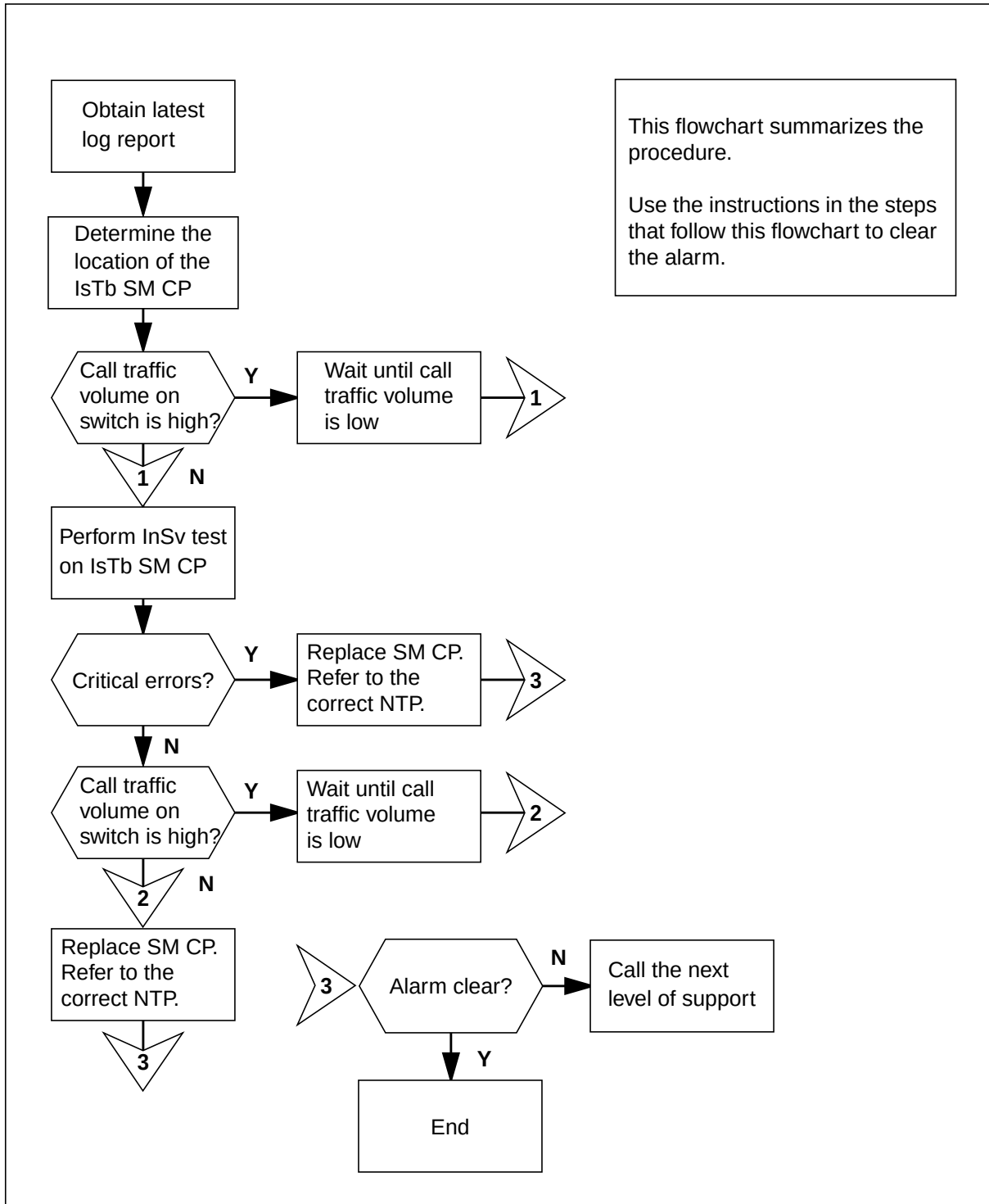
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC SMtrbl minor (continued)

Summary of clearing an SMtrbl minor alarm



XAC SMtrbl **minor** (continued)

How to clear an SMtrbl minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC SMtrbl minor (continued)

At the XA-Core MAP

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the SMtrbl alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
 and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
 and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
 and press the Enter key.

If the log indicates	Do
an SMtrbl minor condition	step 2
another alarm condition	step 10
that the alarm condition is clear	step 12

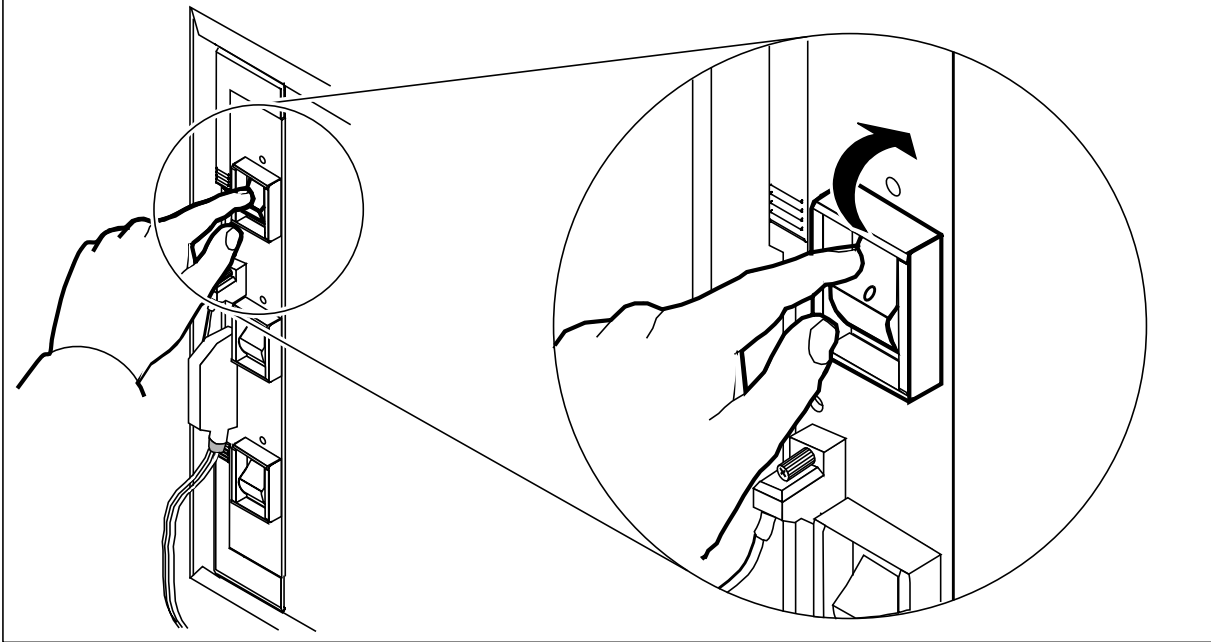
- 2 Examine the shelf interface modules (SIMs). Make sure that all circuit breakers are in the ON position. Make sure that the green LEDs are lit.

If SIM circuit breakers are	Do
in the OFF position and a red led is lit	step 3
in the ON position and green leds are lit	step 4

- 3 Set the shelf interface module (SIM) circuit breaker to the ON position (see the diagram in this step). Wait 30 sec.

XAC SMtrbl minor (continued)

Set circuit breaker on the SIM to the ON (1) position



	If SIM circuit breaker	Do
	resets to the ON position	step 4
	does not reset to the ON position	step 11
4	Access the SM MAP level. At the CI MAP level type MAPCI;MTC;XAC;SM and press the Enter key.	
5	Examine the SM MAP level. Record the location of the IsTb SM CP. Note: The SM MAP level displays alarms and SM working states as follows: • a system alarm code appears under the XAC header in the alarm banner • an equipment alarm code appears under the SM header in the subsystem status summary field (SSSF) • an "I" (in-service trouble indicator) appears in the state field in the shelf layout area. <i>The following is a sample MAP display.</i>	

XAC SMtrbl minor (continued)

SM MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
SMtrbl	.	.	.	.	.	.	.	.	.
SM									
0 Quit		Front: 111111111	Rear: 111111	SM	PE	IO	PKLT		
2		123456789012345678	456789012345	SMtb	.	.	.		
3		Sta: -.-.-.-.-.-.-.-.-	.-.-I-.-.-.-.-.-.-	0	0	0	0		
4		Dep:							
5		Typ:	** ** *						
6 Tst_		Physical: 1920	Useable: 1920			Available: 960			
7 Bsy_		SYNC State: triplex							
8 RTS_		SM:							
9									
10									
11									
12									
13									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									
>									

If the SM MAP level indicates

Do

an SM CP is in an IsTb state step 6

a different alarm step 10

no alarm and all CPs are in service step 12

- 6 Perform an in-service test on the IsTb SM CP. Wait until traffic call volume is low. At the SM MAP level type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>TST 7 r

XAC SMtrbl minor (end)

Example of system response:

Tst 7 rear failed.

If the test shows the SM CP has	Do
critical errors	step 7
non-critical errors	step 8
no errors	step 9

At the XA-Core physical shelf

- 7** Perform the SM CP replacement procedure immediately. Refer to the correct replacement procedure. Continue to 9 when complete.
- 8** Wait until call traffic volume is low. Perform the SM CP replacement procedure. Refer to the correct replacement procedure located in this document. Return to this point when complete.

At the SM MAP level

- 9** Confirm that the alarm is clear. Examine the SM MAP level.

If the SMtrbl minor alarm is	Do
changed to a different alarm	step 10
not clear	step 11
clear	step 12

- 10** Perform the correct alarm clearing procedure. Refer to the correct alarm clearing procedure in this document. Return to this point when complete.

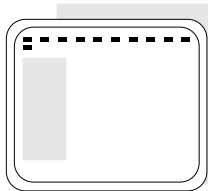
If the alarm is	Do
not clear	step 11
clear	step 12

- 11** Call the next level of support.

- 12** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

**XAC Split
minor**

Alarm display

	XAC Split	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

A Split alarm code appears under the XAC header of the alarm banner. The alarm code indicates that the state of the system is now in split mode.

Meaning

There is an upgrade to the operating system software in progress. Maintenance software has configured processor and shared memory to allow two images to run at the same time. One part of the XA-Core switch continues to process call traffic. The remaining part of the system is ready to receive, or is receiving new operating software. You can access all MAP levels for the subsystems that are processing calls.

Impact

There is no change to subscriber service.

Common procedures

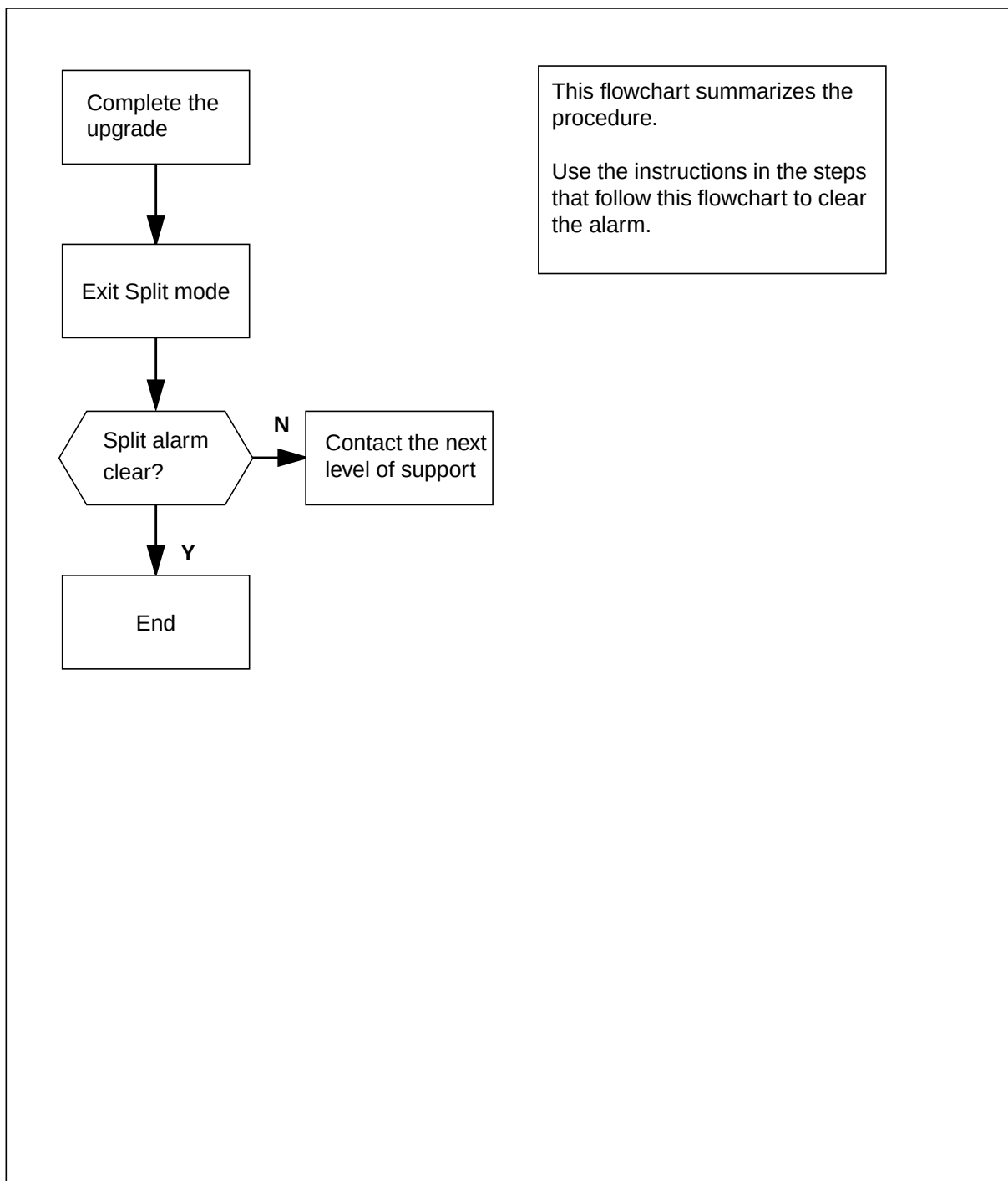
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC Split minor (continued)

Summary of clearing a Split minor alarm



XAC Split minor (continued)

How to clear a Split minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

At the XA-Core MAP

- 1 Collect information from the XA-Core log report system. The log messages provide more information about the split mode.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a Split minor condition	step 2
another alarm condition	step 5
that the alarm condition is clear	step 7

- 2 Access the XAC MAP level. At the CI MAP level type
>MAPCI;MTC;XAC
and press the Enter key.
- 3 Examine the XAC MAP level. Record the working state of the system (refer to the XAC MAP level example shown in this step).

Note: The XAC MAP level displays system, CP and packet working states as follows:

 - an alarm code appears under the XAC header in the alarm banner
 - an equipment alarm code appears under the SM and PE headers in the subsystem status summary field (SSSF)

XAC Split minor (continued)

- the SSSF shows the number of CPs that are not processing calls
- an “X” (split indicator) appears in the state field in the shelf layout area. The split indicator tells you that the CP is not part of the system that is processing calls

The following is a sample MAP display.

XAC MAP level

XAC Split	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.
XAC		Front:	111111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345	Splt	Splt	.	.	.	.
2 Card_		Sta: -.-.-X.-.-.-X.-	.-X-.-.-.-.-	2	1	0	0		
3 XACMtc		Dep:							
4 SM		XAC:							
5 PE									
6 IO									
7 CMIC									
8 RTIF									
9 Disk									
10 Tape									
11									
12									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12 >									

If the MAP indicates		Do
a Split alarm		step 4
a different alarm		step 5
no alarm and all CPs are in service		step 7
4 Complete the upgrade process. Examine the XAC MAP after the upgrade process is complete.		
If the alarm is		Do
not clear		step 6
clear		step 7

**XAC Split
minor (end)**

- 5** Perform the correct alarm clearing procedure described in this document.

If the alarm is**Do**

not clear

step 6

clear

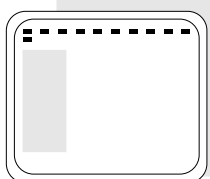
step 7

- 6** Call the next level of support.

- 7** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

XAC Tape minor

Alarm display

	XAC TAPE	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

A Tape message appears under the XAC header of the alarm banner. This message indicates a tape minor alarm.

Meaning

An input/output processor (IOP) CP or tape packlet fault is creating access problems between the XA-Core and the tape device. A Tape minor alarm condition is a result of one or more of the following conditions:

- an XA-Core tape packlet is manual busy (ManB)
- an XA-Core tape packlet is system busy (SysB)
- an XA-Core tape packlet is OOS Cbsy because an IOP CP is in a SysB or ManB state

Impact

There is no change to subscriber service.

Common procedures

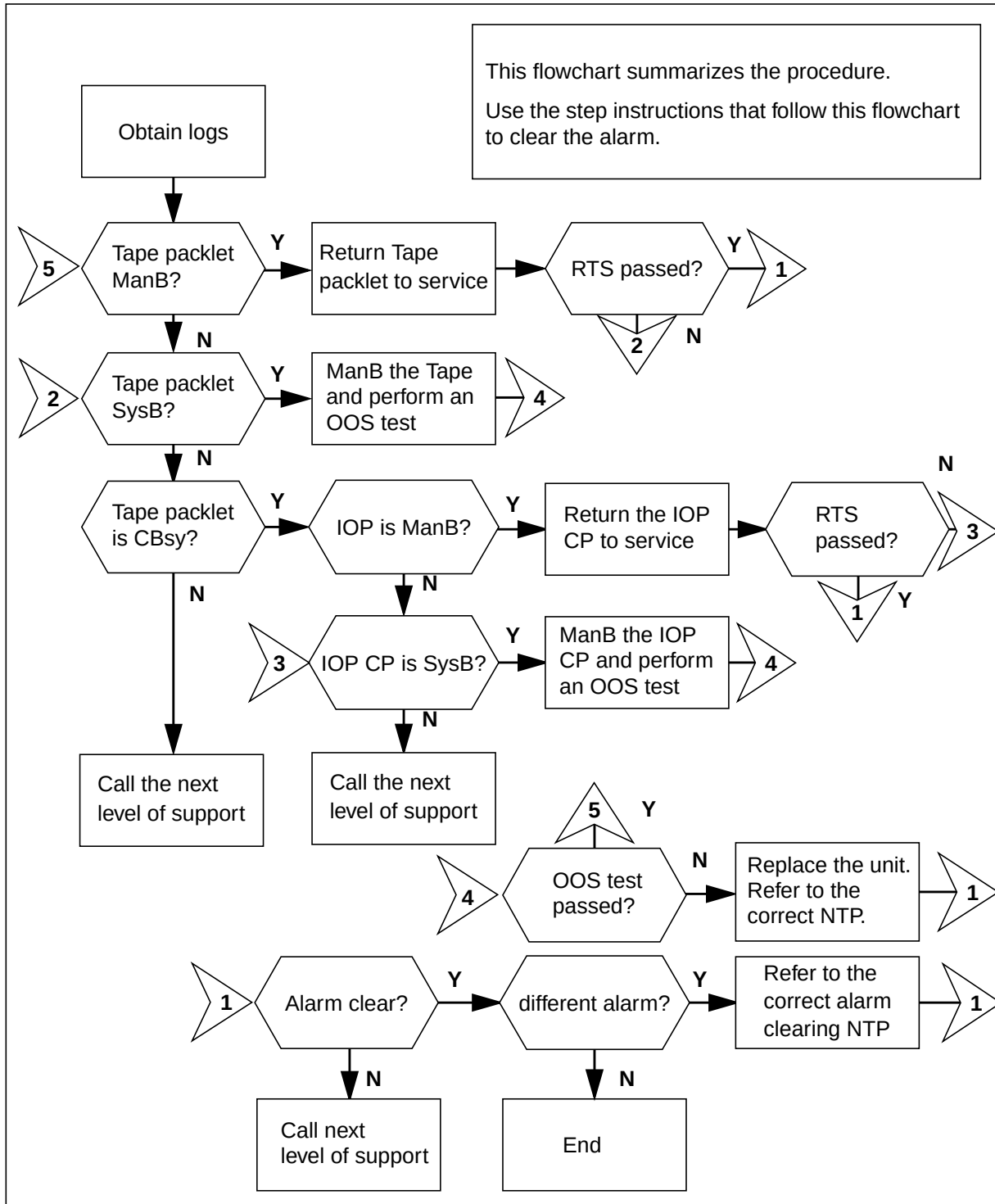
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the steps that follow the flowchart to clear the alarm.

XAC Tape minor (continued)

Summary of clearing a Tape minor alarm



XAC Tape minor (continued)

How to clear a Tape minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC Tape minor (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the Tape alarm.

- a Access the log utility feature. At the CI MAP level, type

>LOGUTIL

and press the Enter key.

- b Access the XA-Core logs. At the Logutil prompt type

>OPEN XAC

and press the Enter key.

- c Examine and record the appropriate log reports.

- d Return to the CI MAP prompt. At the Logutil prompt type

>QUIT

and press the Enter key.

If the log indicates	Do
a Tape minor condition	step 2
a different alarm condition	step 17
that the alarm condition is clear	step 19

- 2 Access the Tape MAP level. At the CI MAP level, type

MAPCI;MTC;XAC;TAPE

and press the Enter key.

- 3 Examine the Tape MAP level. Record the status of the Tape packlets and the IOP CPs. Record the location of any out of service (OOS) CPs or packlets.

Note: The Tape MAP level displays alarms and Tape packlet status as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the PKLT header in the subsystem status summary field (SSSF)
- a status code appears under the Status header in the command interpreter output area

The following is a sample MAP display.

XAC TAPE	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .
Tape		Front: 111111111	Rear: 111111	SM	PE	IO	PKLT		
0 Quit		123456789012345678	456789012345	.	.	.	TAPE C		
2	Sta: -.-.-.-.-.-.-.-.-.-M-	.	0	0	0	1			
3	Dep: F								
4	Typ: *								
5	Slot: *								
6 Tst_	Slot: 2	Side: Front	Packlet: Upper	Status: .	User Name: .	Drive: Unmounted			
7 Bsy_	17	Front	Upper	C	.	Unmounted			
8 RTS_									
9	TAPE:								
10									
11									
12									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the MAP indicates	Do
a Tape packlet is in a SysB state	step 4
a Tape packlet is in a ManB state	step 6
a Tape packlet is in a Cbsy state	step 7
a different alarm	step 17
no alarm and all CPs and packlets are in service	step 19

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XAC Tape minor (continued)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 17 f u

Example of system response:

BSY 17 front upper complete

Note: If needed, use the Force option to place the packet in a ManB state. Refer to the XA-Core MAP commands documentation.

If the packet is	Do
in a ManB state	step 5
not in a ManB state	step 18

- 5 Perform an OOS test on the Tape packet. At the Tape MAP level type.

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).

Example of command:

>TST 17 f u

Example of system response:

TST 17 front upper passed

If the OOS test	Do
passed	step 6
did not pass	step 14

- 6 Return the Tape packet to service. At the Tape MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

XAC Tape minor (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command:

>RTS 17 f u

Example of system response:

RTS 17 front upper passed

If the Tape packlet is	Do
in a SysB state	step 4
in a CBsy state	step 7
in an InSv state	step 16

- 7 Access the IO MAP level. At the Tape MAP level type

>IO

and press the Enter key.

- 8 Examine the IO MAP level. Record the working state and location of the OOS IOP CP.

Note: The IO MAP level displays IOP CP and packlet working states as follows:

- an alarm code appears under the XAC header in the alarm banner
- an equipment alarm code appears under the IO header in the subsystem status summary field (SSSF)
- a status indicator appears in the state field in the shelf layout area.
- a status indicator appears in the equipment status field in the command interpreter output area.

The following is a sample MAP display.

XAC Tape minor (continued)

IO MAP level

XAC Tape	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IO									
0 Quit		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
2		123456789012345678		456789012345		.	.	IOP M	Tape C
3	Sta: .-.M-			..		0	0	1	2
4	Dep: F								
5	Typ: *			*	*				
6 Tst_	Slot: 2	Side: Front	Status: .		Upper: Tape .	Middle: .	Lower: Disk .		
7 Bsy_	17	Front	M		Tape C		Disk C		
8 RTS_	4	Rear	.		RTIF .		CMIC .		
9	15	Rear	.		CMIC .		CMIC .		
10 LoadFW_	XAC:								
11	IO:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the IOP CP is

Do

in a ManB state

step 9

in a SysB state

step 10

in an InSv state

step 16

- 9 Return the IOP CP to service. Make sure that all related packlets are also in service.

- a At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 17 f

Example of system response:

RTS 17 front passed

XAC Tape

minor (continued)

- b** Make sure that all related packlets are in service. Examine the IO MAP level to determine the packlet working states.

If the IOP CP is	Do
InSv and any related packlet is ManB	step 12
InSv and any related packlet is SysB	step 14
SysB and all related packlets are CBSy	step 15
InSv and all related packlets are InSv	step 16

- 10** Manually busy the OOS IOP CP. At the IO MAP level type
>BSY <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
Example of command use:
>BSY 17 f
Example of system response:
BSY 17 front complete

Note: If needed, use the Force option to place the CP in a ManB state. Refer to the XA-Core MAP commands documentation.

If the IOP CP is	Do
in a ManB state	step 11
not in a ManB state	step 18

- 11** Perform an OOS test on the ManB IOP CP. At the IO MAP level type
>TST <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

XAC Tape minor (continued)

Example of command use:

>TST 17 f

If the OOS test	Do
passed	step 8
did not pass	step 15

- 12** Access the correct packlet MAP level. Return the ManB packlet to service.

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command:

RTS 17 f u

Example of system response:

RTS 17 front upper passed

If the packlet is	Do
in a SysB state	step 13
in an InSv state	step 16

- 13** Perform the correct packlet OOS test procedure. Refer to the correct NTP. Return to this point when complete.

If the packlet OOS test	Do
did not pass	step 14
passed	step 16

- 14** Perform the correct packlet replacement procedure. Refer to the correct NTP. Return to this point when complete.

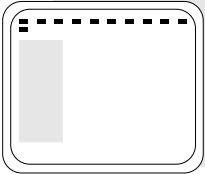
If the packlet is	Do
in an InSv state	step 16
in a SysB state	step 18

XAC Tape minor (end)

- 15** Perform the correct IOP CP replacement procedure. Refer to the correct NTP. Return to this point when complete.
- | If the IOP CP is | Do |
|-------------------------|-----------|
| in an InSv state | step 16 |
| in a SysB state | step 18 |
- 16** Confirm that the alarm is clear. Examine the alarm banner on the MAP screen.
- | If the Tape minor alarm is | Do |
|-----------------------------------|-----------|
| changed to a different alarm | step 17 |
| not clear | step 18 |
| clear | step 19 |
- 17** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.
- | If the alarm is | Do |
|------------------------|-----------|
| not clear | step 18 |
| clear | step 19 |
- 18** Call the next level of support.
- 19** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

**XAC TOD
critical**

Alarm display

	XAC TOD *C*	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

A TOD critical alarm code appears under the XAC header of the alarm banner. The alarm code indicates the time-of-day (TOD) critical alarm.

Meaning

There is no accurate time of day. The XA-Core system has detected clock signal faults on all message switch (MS) links. The XA-Core system sets the value of the TOD clocks to zero. A hardware fault can exist as one or more of the following:

- all XA-Core OC-3 two port interface packet TOD devices are OOS
- all MS OC-3 two port interface paddleboards cannot send TOD clock signals

Impact

The switch needs time-of day clocks to record billing information (automatic message accounting) and produce log reports. There is a change in subscriber billing service and logs.

Common procedures

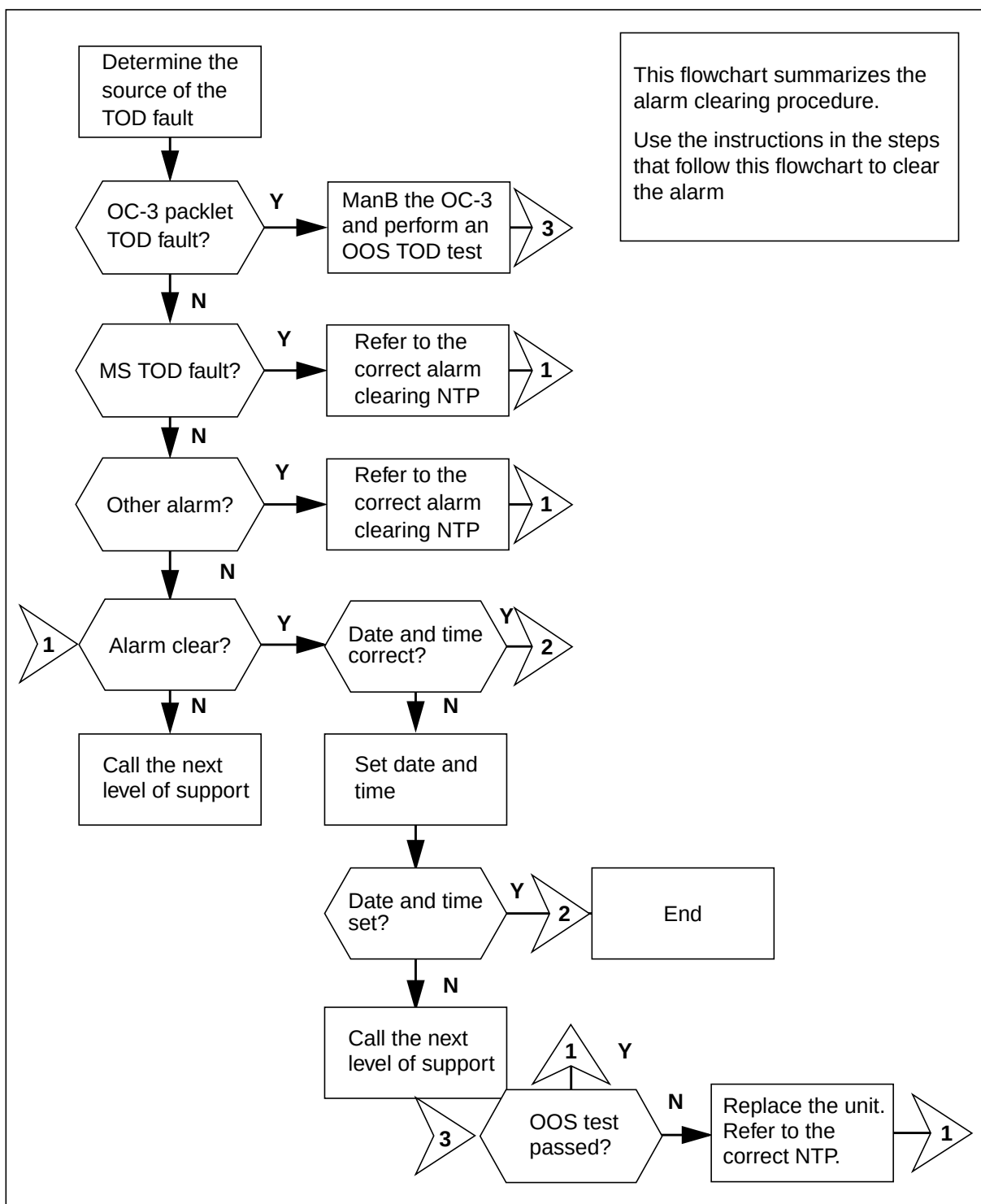
There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC TOD critical (continued)

Summary of clearing a TOD critical alarm



XAC TOD **critical** (continued)

How to clear a TOD critical alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage - electric static discharge (ESD)

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC TOD

critical (continued)

At the XA-Core MAP terminal

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the loss of TOD.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a TOD critical alarm condition	step 2
a different alarm condition	step 10
the TOD critical alarm condition is clear	step 14

- 2 Access the XA-Core CMIC MAP level. At the CI MAP level prompt type
>MAPCI;MTC;XAC;CMIC
and press the Enter key.
- 3 Examine the CMIC MAP level. Record the location and status of the OC-3 two port interface packlets the links and the IOP circuit packs (CPs).

Note: The CMIC MAP level displays alarms and TOD status as follows:

 - an alarm under the XAC header in the alarm banner
 - an equipment alarm under the PKLT header of the subsystem status summary field (SSSF)
 - a status code appears under the TOD header in the command interpreter output area

The following is a sample MAP display.

XAC TOD critical (continued)

CMIC MAP level

XAC TOD C	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
CMIC			Front: 111111111		Rear: 111111	SM	PE	IO	PKLT
0 Quit			123456789012345678		456789012345	.	.	.	TODflt
2			Sta: -.-.-.-.-.-.-.-.-		.-.-.-.-.-.-.-.-.-	0	0	0	0
3			Dep:		F	F			
4			Typ:		*	*			
5			Slot: Side: Packlet:		Status: Link0: Link1: TOD:				
6 Tst_			4 Rear Lower		.	.	.	S	
7 Bsy_			15 Rear Lower		.	.	.	S	
8 RTS_			CMIC:						
9									
10									
11									
12									
13 Route_									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									

If the CMIC MAP level indicates	Do

XA-Core TODs are in a SysB state and the alarm code under the SSSF PKLT header is TODflt	step 4

XA-Core TODs are in a CBsy state and the alarm code under the SSSF PKLT header is MSTOD	step 8

a different alarm	step 10

no alarm and all CPs and TODs are in service	step 14

- 4 ManB the OC-3 two port interface packet that displays a TOD fault. At the CMIC MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

XAC TOD

critical (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

Warning: Bsy command will take it out of service.
 Proceed (Y or N)
 Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

BSY 4 rear upper completed

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the packlet is	Do
in a ManB state	step 5
not in a ManB state	step 13

- 5 Perform an OOS test on the ManB OC-3 two port interface packlet. At the CMIC MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>TST 4 r l

If the OOS test	Do
passed	step 6
did not pass	step 7

XAC TOD critical (continued)

- 6 Confirm that the TOD critical alarm is clear. Examine the CMIC MAP level.

If the TOD alarm is	Do
changed to different alarm	step 10
clear	step 11
not clear	step 13

- 7 Perform the OC-3 two port interface packet replacement procedure. Refer to the correct NTP. Replace one OC-3 two port interface packet at a time. Use the location information from 3. Return to this point when complete.

If the OC-3 two port interface packets and TODs are	Do
in an InSv state	step 6
in a SysB state	step 13

- 8 Confirm that the OC-3 two port interface paddleboard TODs are OOS. Perform the following steps:.

- a Display the MS MAP level. At the CMIC MAP level type
>MS
and press the Enter key.
- b Access the MS Shelf MAP level. The Shelf MAP level displays the status of all CPs in the shelf. At the MS MAP level, type
>SHELF
and press the Enter key.
- c Access the MS Card MAP level for the OC-3 two port interface paddleboards. The card MAP level displays the status of the OC-3 two port interface paddleboards. At the MS MAP level, type
>CARD <nn>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the MS physical shelf slot - 1 to 26
Example of command:
>CARD 24
- d Record the status of the OC-3 two port interface paddleboards (see the MS Card MAP level diagram in this step).
The following is a sample MAP display.

XAC TOD
critical (continued)

MS Card MAP level

MS

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10 LoadMS_

11

12 SwMast

13 Shelf

14 QueryMS

15

16

17 InterMS_

18 Clock

XMAP0

Time 14:12 >

XAC
.

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

Message Switch

Clock

Shelf 0

Inter-MS Link 0 1

MS 0 .

MS 1 .

M Free

Slave

F

Shelf 0

Card 1 2 3 4 5 6 7 8 9

Chain

MS 0

MS 1

1 1 1 1 1 1 1 1 1 2 2 2 2 2 2

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

Card 24 CMIC Interface Card

Port: 0

MS 0 .

MS 1 .

S

If the MS Card MAP level indicates		Do
OC-3 two port interface paddleboard ports are OOS		step 9
a different alarm		step 10
no faults or alarms		step 13
9	Perform the OC-3 two port interface paddleboard replacement procedure. Return to this point when complete.	
If the TOD alarm is		Do
changed to a different alarm		step 10
clear		step 11
not clear		step 13

XAC TOD critical (continued)

- 10** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

If the alarm is	Do
clear	step 11
not clear	step 13

- 11** Set the system date. Exit the CMIC or MS Card MAP level and display the CI MAP prompt. At the CMIC MAP level, type

>QUIT all

and press the Enter key.

- a** Set the system date. At the CI prompt type

>SETDATE <dd> <mm> <yyyy>

and press the Enter key.

where

<dd> is the day (01 to 31)

<mm> is the month (01 to 12)

<yyyy> is the current year

Example of command use:

>SETDATE 14 04 1999

Example of system response:

Date is WED. 14/APR/1999 08:16:45

If the system date is	Do
set	step 12
not set	step 13

- 12** Set the XA-Core system time.

- a** At the CI prompt type

>SETTIME <hh> <mm> [timezone]

and press the Enter key.

<hh> is the hour (00 to 23)

<mm> is the minutes (00 to 59)

[Timezone] is the offset time (in minutes) relative to Greenwich Mean Time (GMT). The default value is zero minutes.

Example of command use:

>SETTIME 08 24 1999

XAC TOD

critical (end)

Example of system response:

Time is 08:24:00 on WED. 1999/04/14
Timezone is 0 minutes from GMT

If the system time is	Do
not set	step 13
set	step 14

- 13** Call the next level of support.
- 14** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC TOD major

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	TOD	.	.	.	.	.	.	.	.	.
	M									

Indication

A TOD major alarm code appears under the XAC header of the alarm banner. The alarm code indicates the time-of-day (TOD) major alarm.

Meaning

There is no TOD clock redundancy. A single OC-3 two port interface packlet cannot receive TOD information from the message switch (MS). A hardware fault can exist as one or more of the following:

- a single XA-Core OC-3 two port interface packlet TOD device is OOS
- an MS OC-3 two port interface paddleboard cannot send TOD clock signal
- a single XA-Core OC-3 two port interface packlet is in a SysB, ManB or Cbsy state

Impact

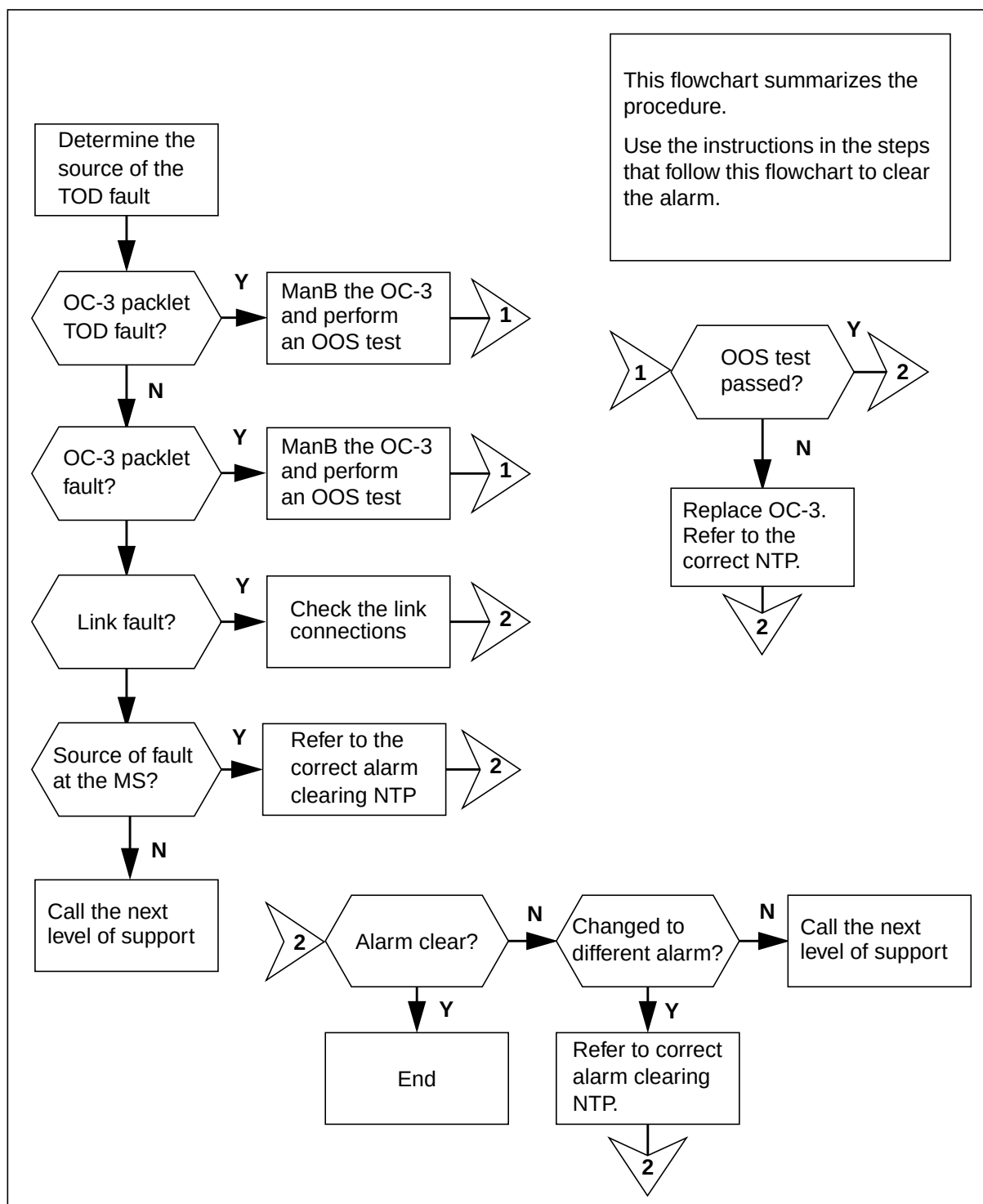
There is no immediate change in subscriber service. An OC-3 two port interface packlet is isolated from the XA-Core system.

Common procedures

There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC TOD**major** (continued)**Summary of clearing a TOD major alarm**

XAC TOD
major (continued)**How to clear a TOD major alarm****ATTENTION**

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**WARNING****Possible fiber cable damage**

Handle the fiber optic cables with caution. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface reduces communication performance.

**CAUTION****Loss of service**

Do not repeat steps.

**CAUTION****Loss of service**

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC TOD

major (continued)

At the XA-Core MAP terminal

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the loss of TOD.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a TOD major alarm condition	step 2
a different alarm condition	step 15
the TOD major alarm condition is clear	step 17

- 2 Access the CMIC MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;CMIC
and press the Enter key.
- 3 Examine the CMIC MAP level. Record the location and state of the OC-3 two port interface packlets, the links and the IOP circuit packs (CPs).

Note: The CMIC MAP level displays alarms and TOD status as follows:

 - an alarm under the XAC header in the alarm banner
 - an equipment alarm under the PKLT header of the subsystem status summary field (SSSF)
 - a status code appears under the TOD header in the command interpreter output area

The following is a sample MAP display.

XAC TOD major (continued)

CMIC MAP level

XAC TOD M	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
CMIC									
0 Quit		Front: 111111111			Rear: 111111	SM	PE	IO	PKLT
2		123456789012345678			456789012345	.	.	.	TODfl
3		Sta: -.-.-.-.-.-.-.-.-.-			.-.-.-.-.-.-.-.-.-.-	0	0	0	0
4		Dep:							
5		Typ:			*	*			
6 Tst_		Slot: Side: Packlet:			Status:	Link0:	Link1:	TOD	
7 Bsy_		4 Rear Lower			.	.	.	s	
8 RTS_		15 Rear Lower			.	.	.	.	
9		CMIC:							
10									
11									
12									
13 Route_									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									>

	If the MAP indicates	Do
	an XA-Core TOD is SysB	step 4
	an XA-Core OC-3 two port interface packlet TOD is CBsy	step 6
	a different alarm	step 15
	no alarm and all OC-3 XA-Core and MS TODs are in service	step 17
4	Manually busy the OOS OC-3 two-port interface packlet. At the CMIC MAP level type >BSY <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)	

XAC TOD

major (continued)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

BSY 4 rear lower complete

Note: If needed, use the Force option to place the packet in a ManB state. Refer to the XA-Core MAP commands documentation.

If the packet is	Do
in a ManB state	step 5
not in a ManB state	step 16

- 5 Perform an OOS test on the OC-3 two-port interface packet. At the CMIC MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

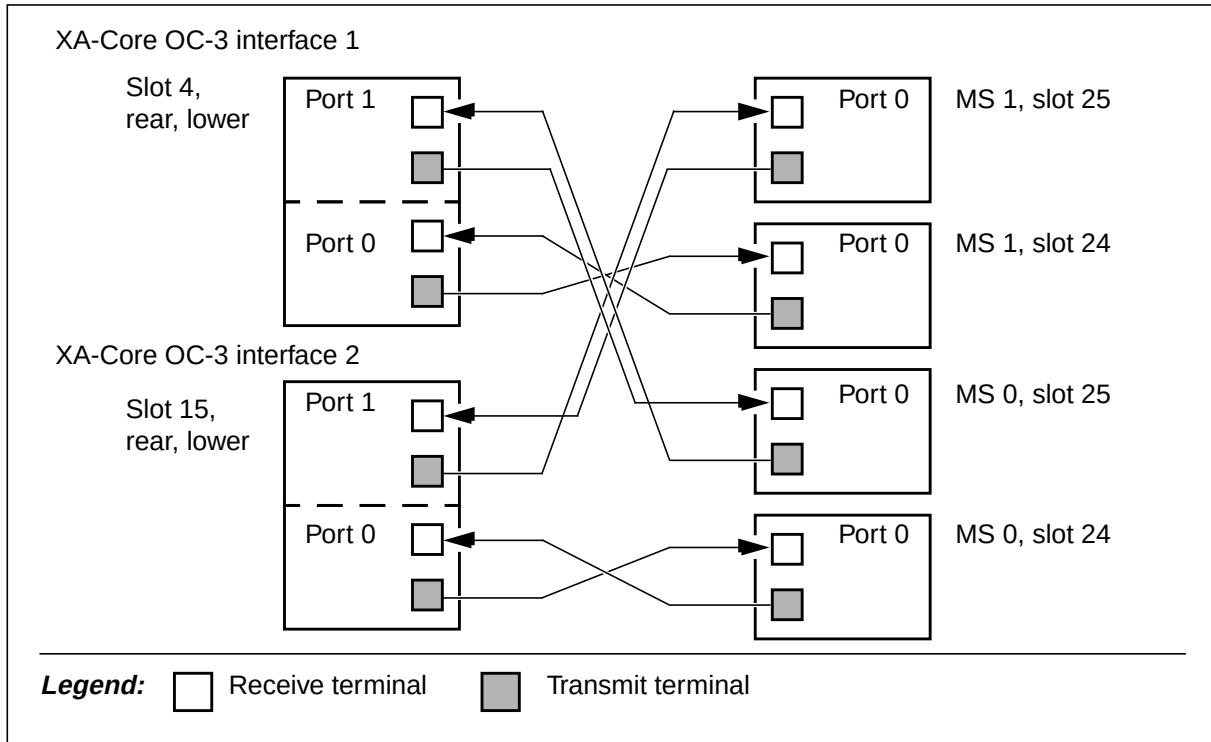
Example of command use:

>TST 4 r l

If the OOS test	Do
did not pass	step 9
passed	step 11

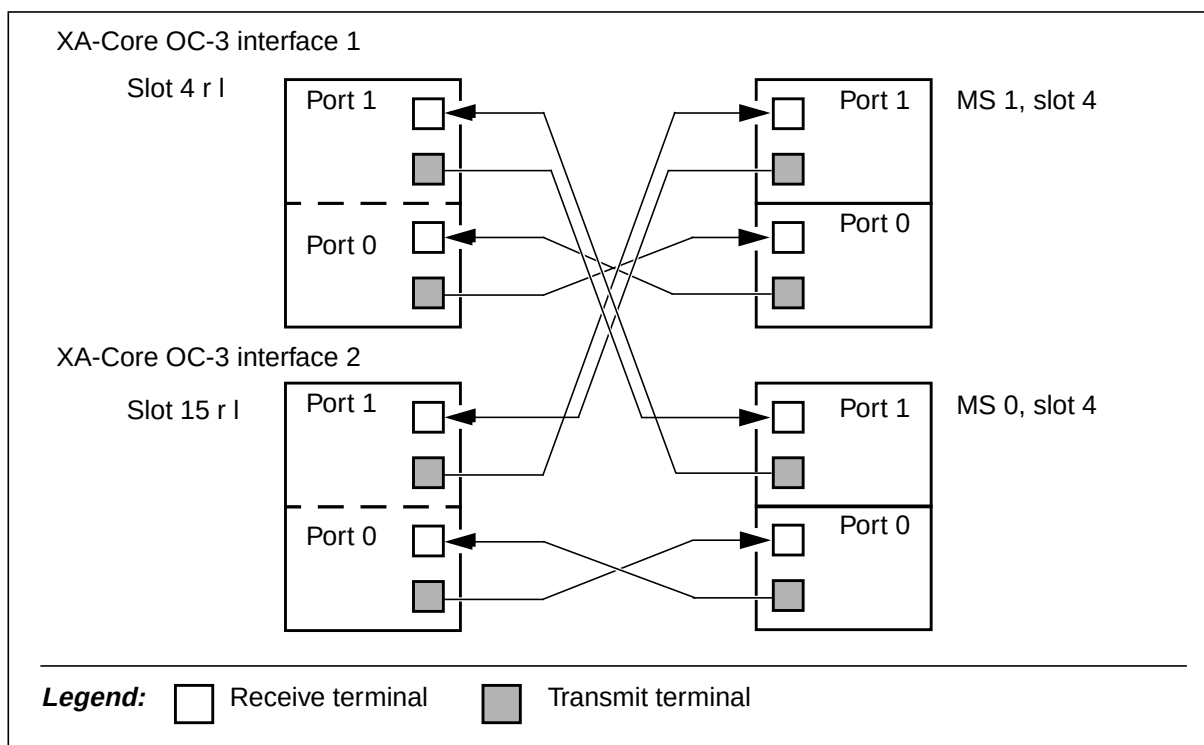
At the XA-Core physical shelf

- 6 Locate the OC-3 two port interface packet on the physical shelf. Use the packet location information from 3.
- 7 Examine the fiber optic cables on the OC-3 two port interface packet. Look for visible damage or disconnection of the cables or cable connectors. Make sure that the link connections fit into the correct OC-3 interface and MS interface paddleboard ports. Use the following diagrams to check the link connections.

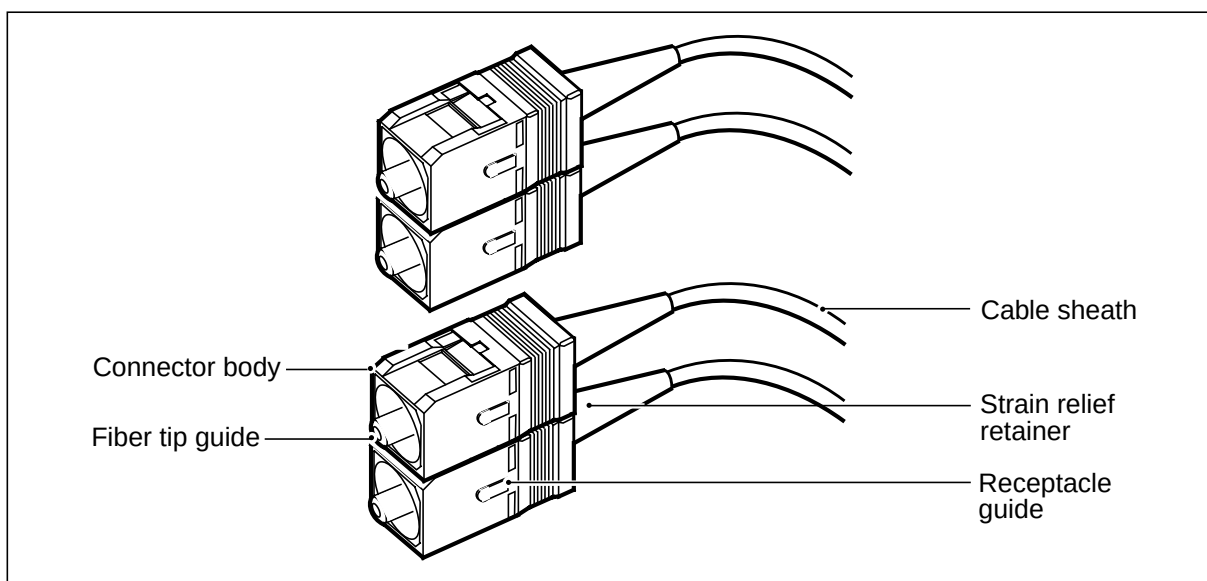
XAC TOD
major (continued)**XA-Core and MS fiber optic cable connections (SuperNode)**

XAC TOD major (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



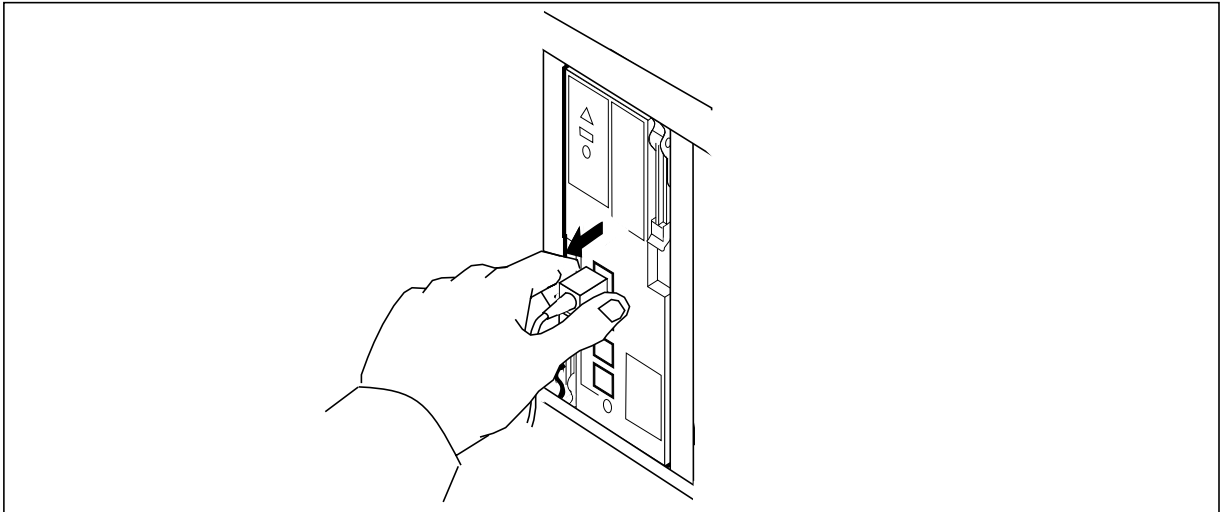
Paired fiber optic cable connectors



XAC TOD
major (continued)

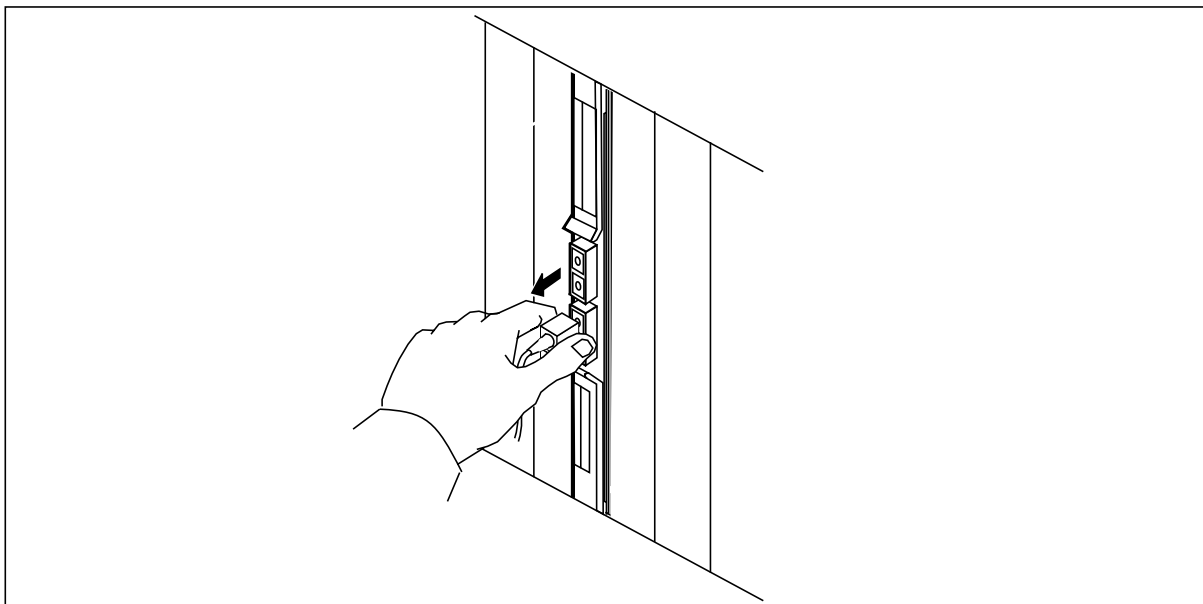
If OC-3 fiber optic cables or connectors are	Do
damaged	step 8
not visibly damaged or disconnected	step 9
not correctly connected to the MS	step 10

- 8** Disconnect the fiber optic cables from the OC-3 two port interface packet and the OC-3 two-port interface paddleboard as follows:
- Hold the connector by the receptacle body only
 - Carefully pull the fiber optic connector away from the receptacle.
 - Cover the ends of the fiber optic cable with dust caps.
 - Place the cables in a safe location away from the packet

Disconnect the fiber optic cables from the OC-3 two port interface packet ports

XAC TOD major (continued)

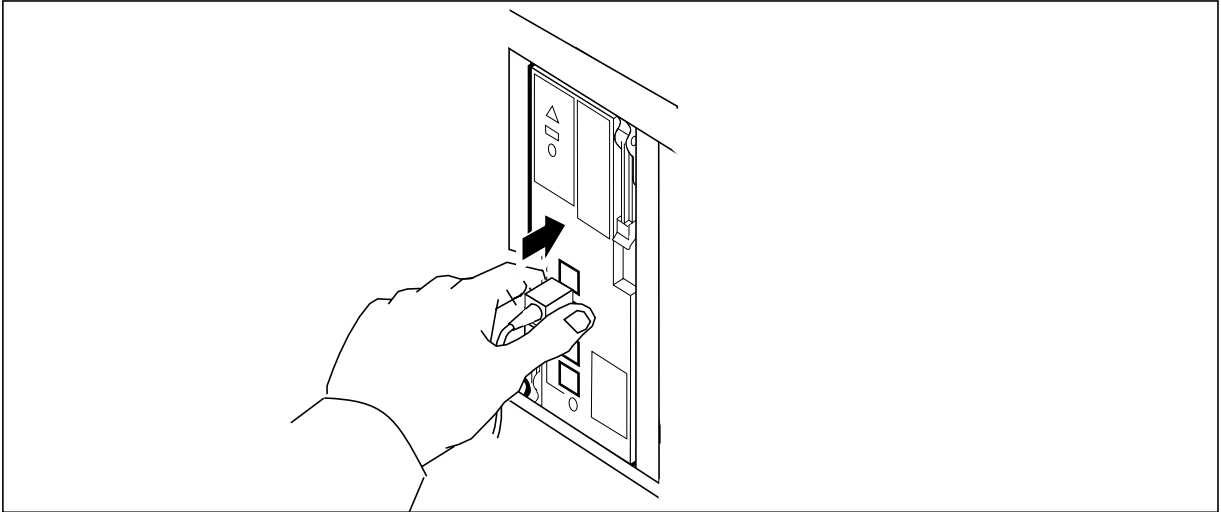
Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports



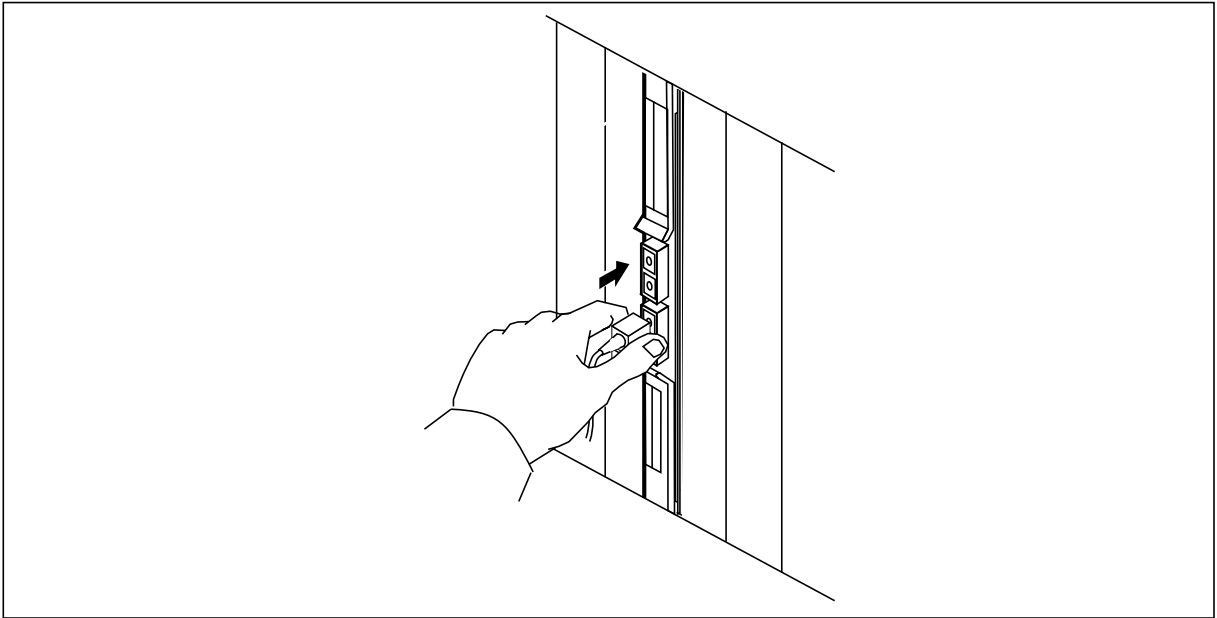
	If you are	Do
	replacing the OC-3 two port interface packet	step 9
	replacing the fiber optic cables	step 10
9	Perform the OC-3 two interface packet replacement procedure. Refer to the correct NTP located in this document. Return to this point when complete.	
10	Connect the replacement fiber optic cables to the correct OC-3 two-port interface packet and OC-3 two-port interface paddleboard ports. Use the link connection diagrams shown in this step.	
	a	Hold the connector by the body only.
	b	Remove the fiber optic cable dust caps.
	c	Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure.
	d	Push the connector into the correct receptacle until the connector is fit into position.

XAC TOD major (continued)

Connect the fiber optic cables to the OC-3 two port interface packet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



- 11 Return the OC-3 two port interface packet to service. At the CMIC MAP level, type
>RTS <nn> <s> <p>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

XAC TOD

major (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

RTS 4 rear upper passed

At the XA-Core MAP terminal

- 12** Confirm that the alarm is clear. Examine the CMIC MAP level.

If the TOD major alarm is	Do
changed to a different alarm	step 15
not clear	step 16
clear	step 17

- 13** Examine the MS MAP. Perform the following steps:

- a Display the MS MAP level. At the CMIC MAP level type
>MS
and press the Enter key.
- b Access the MS Shelf MAP level. The Shelf MAP level displays the status of all CPs in the shelf. At the MS MAP level, type
>SHELF
and press the Enter key.
- c Access the MS Card MAP level for the OC-3 two port interface paddleboards. The card MAP level displays the status of the OC-3 two port interface paddleboards. At the MS MAP level, type
>CARD <nn>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the MS physical shelf slot - 1 to 26
Example of command:
>CARD 24
- d Record the status of the OC-3 two port interface paddleboards (see the MS Card MAP level diagram in this step).
The following is a sample MAP display.

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.        .        .        .        .        .        .        .        .        .

MS
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10 LoadMS_
11
12 SwMast
13 Shelf
14 QueryMS
15
16
17 InterMS_
18 Clock

      Message Switch      Clock      Shelf 0      Inter-MS Link 0 1
MS 0      .      M Free
MS 1      .      Slave      F      - -
      Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . - - - - - - - - - - - - - - - . . . .
MS 1      . . . - - - - - - - - - - - - - - - . . . .

Card 24 CMIC Interface Card      Port: 0
MS 0      .
MS 1      .      S

XMAP0
Time 14:12 >

```

XA-Core Maintenance Manual

XAC TOD

major (end)

- 15** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

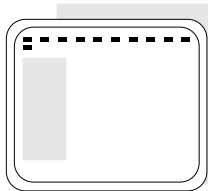
If the alarm is	Do
not clear	step 16
clear	step 17

- 16** Call the next level of support.

- 17** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC TOD
minor

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	TOD	.	.	.	.	.	.	.	.	.

Indication

A TOD alarm code appears under the XAC header of the alarm banner. The alarm code indicates the time-of-day (TOD) minor alarm.

Meaning

An OC-3 two port interface packetlet has lost TOD clock synchronization for the following reasons:

- an XA-Core OC-3 two port interface packetlet TOD device cannot synchronize TOD signals from the message switch (MS).
- a single MS OC-3 TOD device on single message switch is out of service.

Impact

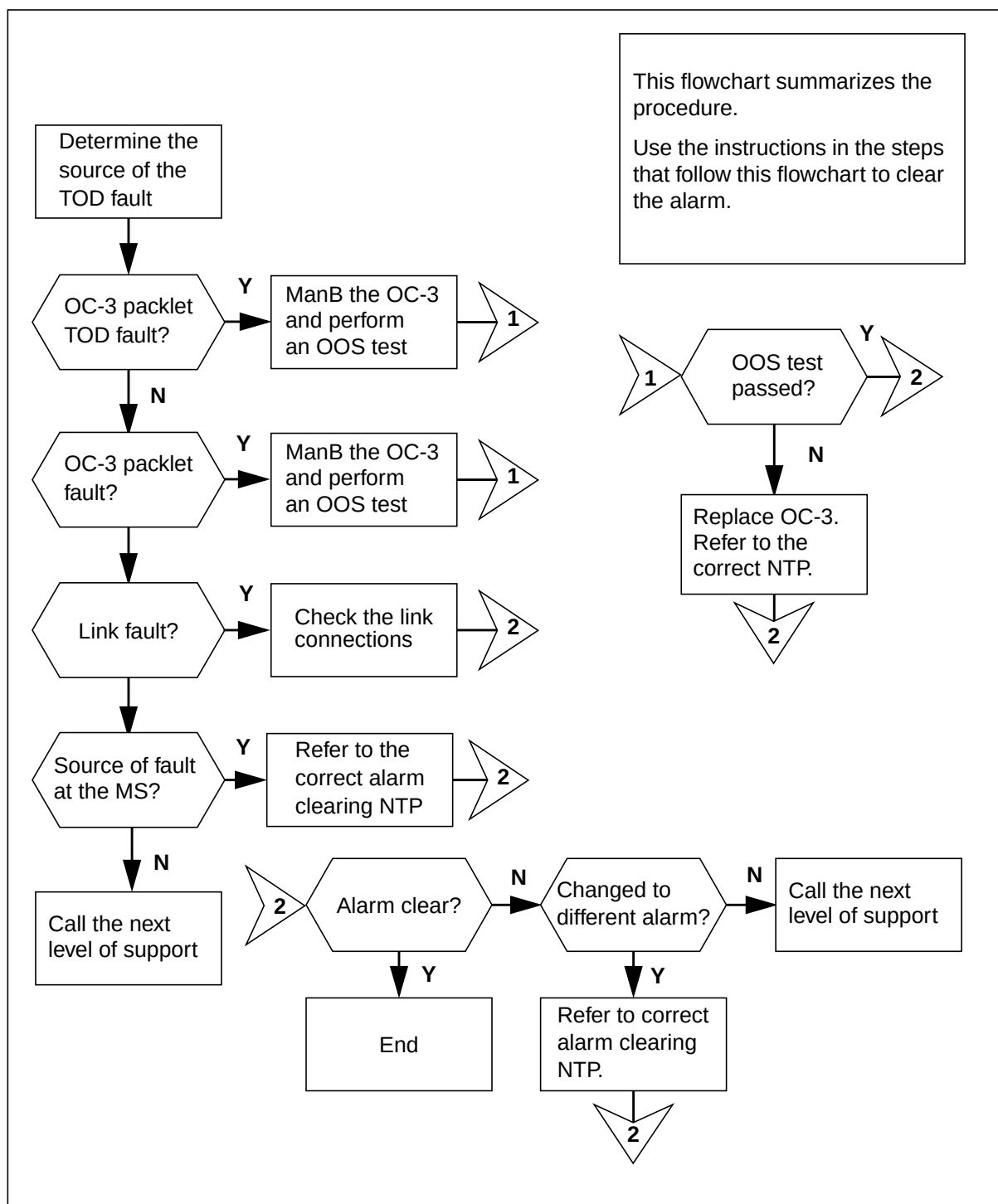
There is no immediate change in subscriber service. An OC-3 two port interface packetlet cannot obtain an accurate TOD signal.

Common procedures

There are no common procedures.

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC TOD**minor** (continued)**Summary of clearing a TOD minor alarm**

XAC TOD
minor (continued)**To clear a TOD minor alarm****ATTENTION**

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**WARNING****Possible fiber cable damage**

Handle the fiber optic cables with caution. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface reduces communication performance.

**CAUTION****Loss of service**

Do not repeat steps.

**CAUTION****Loss of service**

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

XAC TOD

minor (continued)

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the loss of TOD.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a TOD minor alarm condition	step 2
a different alarm condition	step 15
that the TOD minor alarm condition is clear	step 17

- 2 Access the CMIC MAP level. At the CI MAP level, type
>MAPCI;MTC;XAC;CMIC
and press the Enter key.
- 3 Examine the CMIC MAP level. Record the location and state of the OC-3 two port interface packlets, the links and the IOP circuit packs (CPs).

Note: The CMIC MAP level displays alarms and TOD status as follows:

 - an alarm under the XAC header in the alarm banner
 - an equipment alarm under the PKLT header of the subsystem status summary field (SSSF)
 - a status code appears under the TOD header in the command interpreter output area

The following is a sample MAP display.

XAC TOD minor (continued)

CMIC MAP level

XAC TOD	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
CMIC									
0 Quit		Front: 111111111	Rear: 111111	SM	PE	IO	PKLT		
2		123456789012345678	456789012345	.	.	.	TODfl		
3	Sta: -.-.-.-.-.-.-.-.-.-		.	0	0	0	0		
4	Dep:								
5	Typ:		*	*					
6 Tst_	Slot: Side: Packlet:	Status: Link0: Link1: TOD							
7 Bsy_	4 Rear Lower	.	.	.	S				
8 RTS_	15 Rear Lower	.	.	.	.				
9	CMIC:								
10									
11									
12									
13 Route_									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

	If the MAP indicates	Do
	an XA-Core TOD is SysB	step 4
	an XA-Core OC-3 two port interface packlet TOD is CBsy	step 6
	a different alarm	step 15
	no alarm and all OC-3 XA-Core and MS TODs are in service	step 17
4	Manually busy the OOS OC-3 two-port interface packlet. At the CMIC MAP level type >BSY <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)	

XAC TOD

minor (continued)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

BSY 4 rear lower complete

Note: If needed, use the Force option to place the packet in a ManB state. Refer to the XA-Core MAP commands documentation.

If the packet is	Do
in a ManB state	step 5
not in a ManB state	step 16

- 5 Perform an OOS test on the OC-3 two-port interface packet. At the CMIC MAP level type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

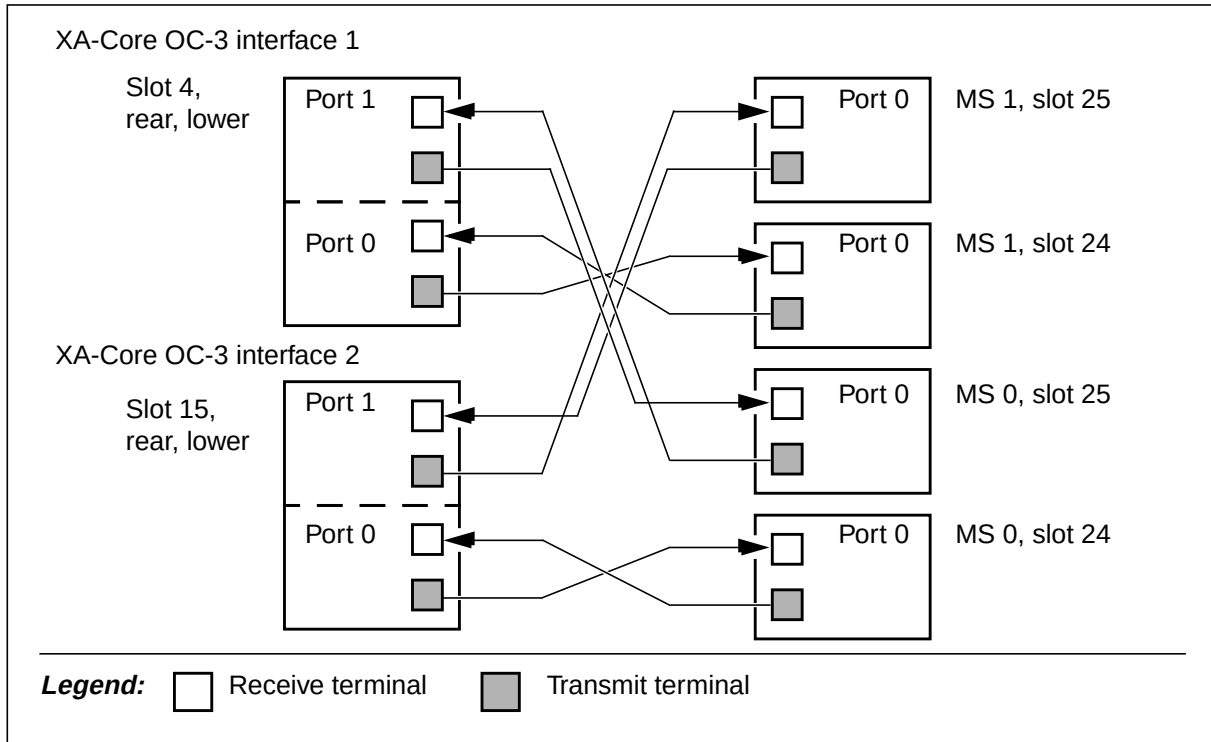
Example of command use:

>TST 4 r l

If the OOS test	Do
did not pass	step 9
passed	step 11

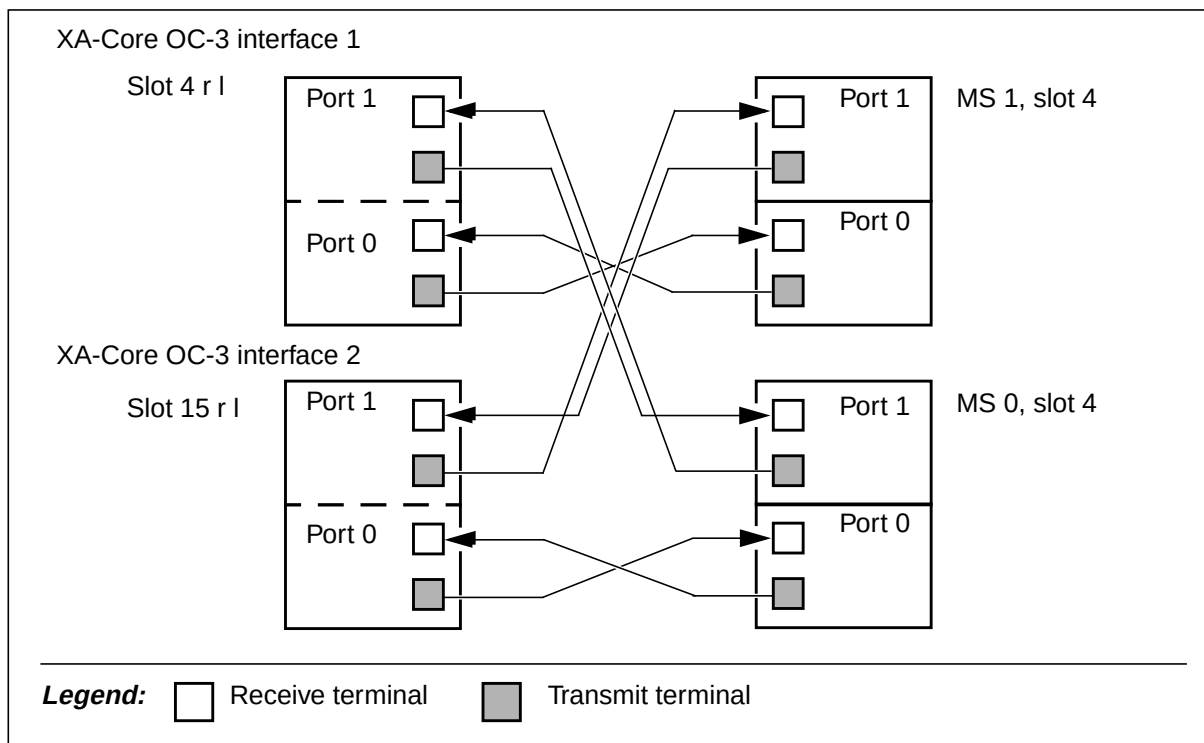
At the XA-Core physical shelf

- 6 Locate the OC-3 two port interface packet on the physical shelf. Use the packet location information from 3.
- 7 Examine the fiber optic cables on the OC-3 two port interface packet. Look for visible damage or disconnection of the cables or cable connectors. Make sure that the link connections fit into the correct OC-3 interface and MS interface paddleboard ports. Use the following diagrams to check the link connections.

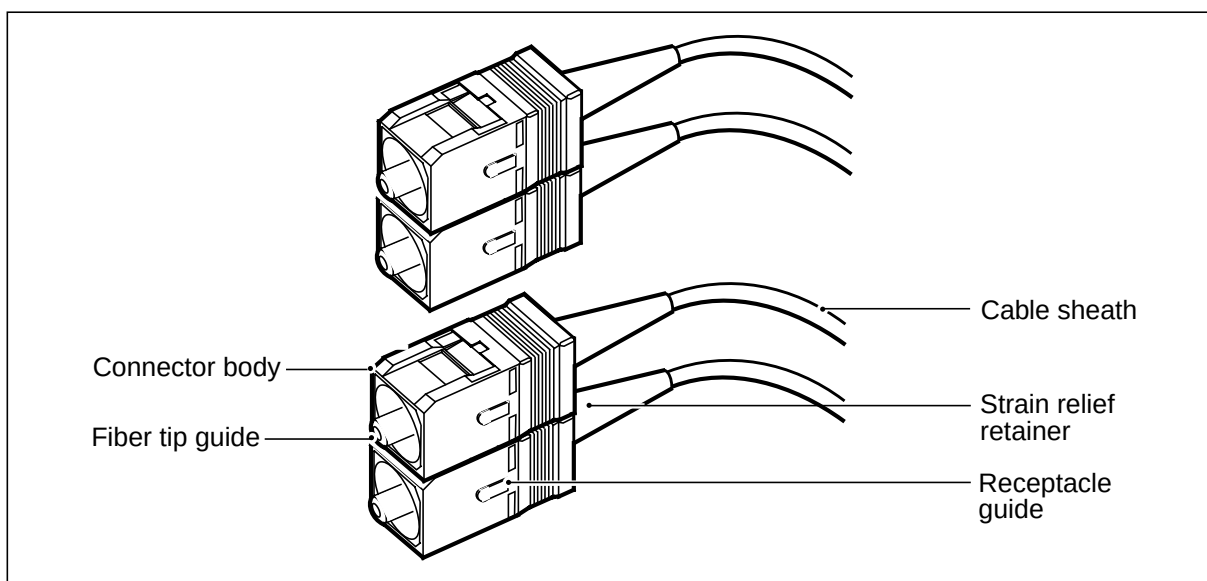
XAC TOD
minor (continued)**XA-Core and MS fiber optic cable connections (SuperNode)**

XAC TOD minor (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



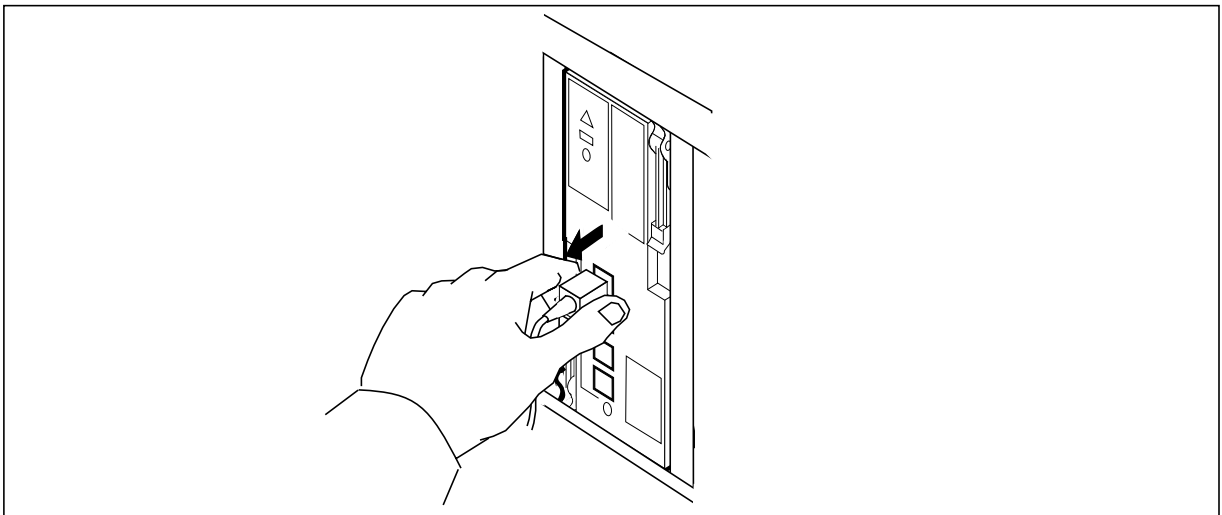
Paired fiber optic cable connectors



XAC TOD
minor (continued)

If OC-3 fiber optic cables or connectors are	Do
damaged	step 8
not visibly damaged or disconnected	step 9
not correctly connected to the MS	step 10

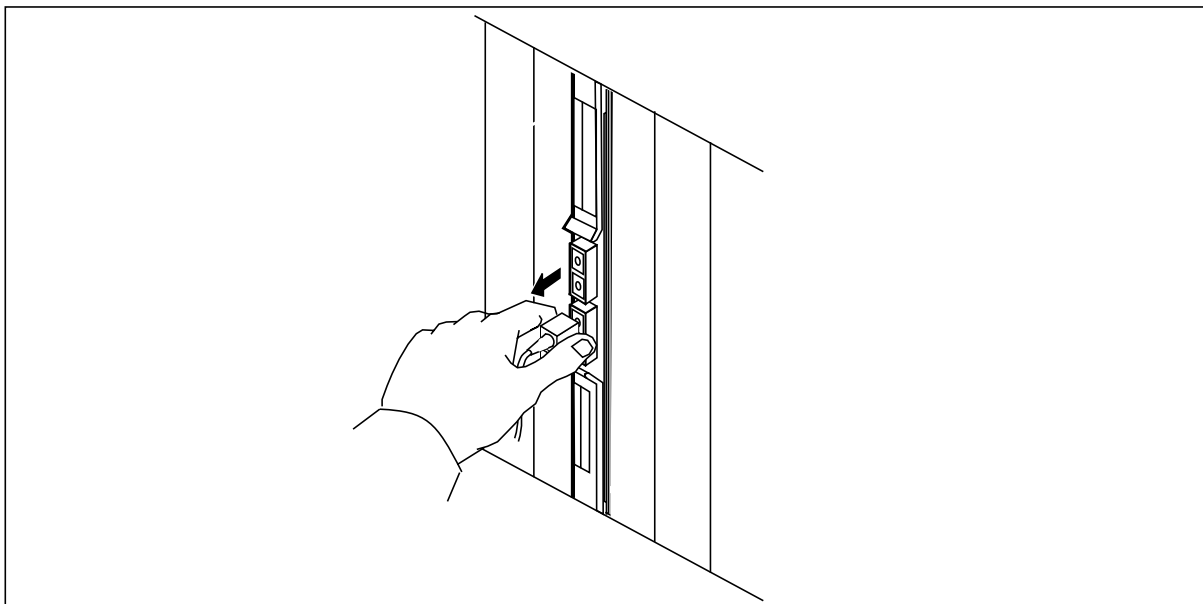
- 8** Disconnect the fiber optic cables from the OC-3 two port interface packet and the OC-3 two-port interface paddleboard as follows:
- Hold the connector by the receptacle body only
 - Carefully pull the fiber optic connector away from the receptacle.
 - Cover the ends of the fiber optic cable with dust caps.
 - Place the cables in a safe location away from the packet

Disconnect the fiber optic cables from the OC-3 two port interface packet ports

XAC TOD

minor (continued)

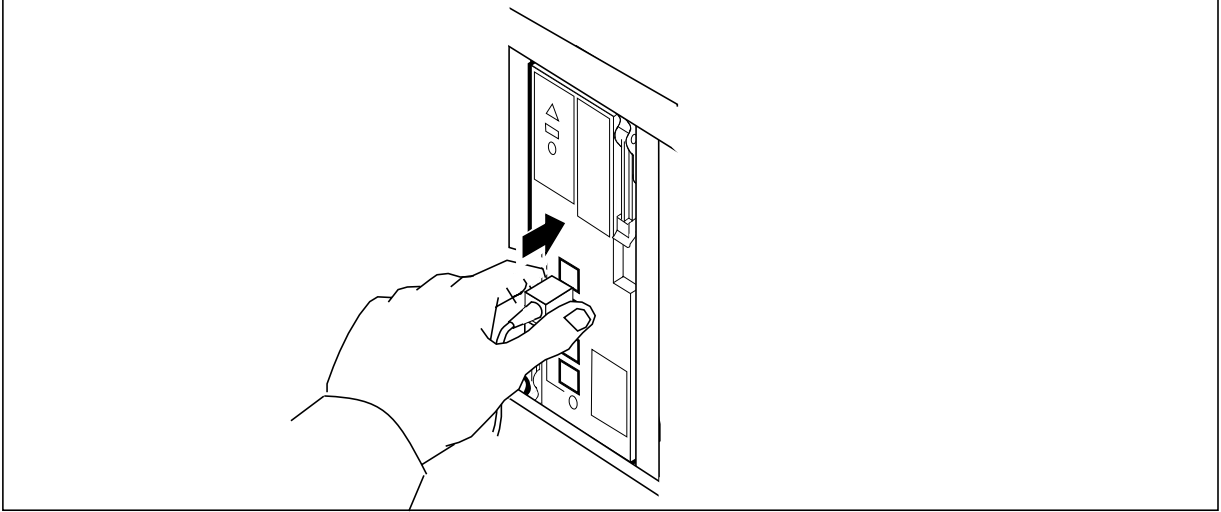
Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports



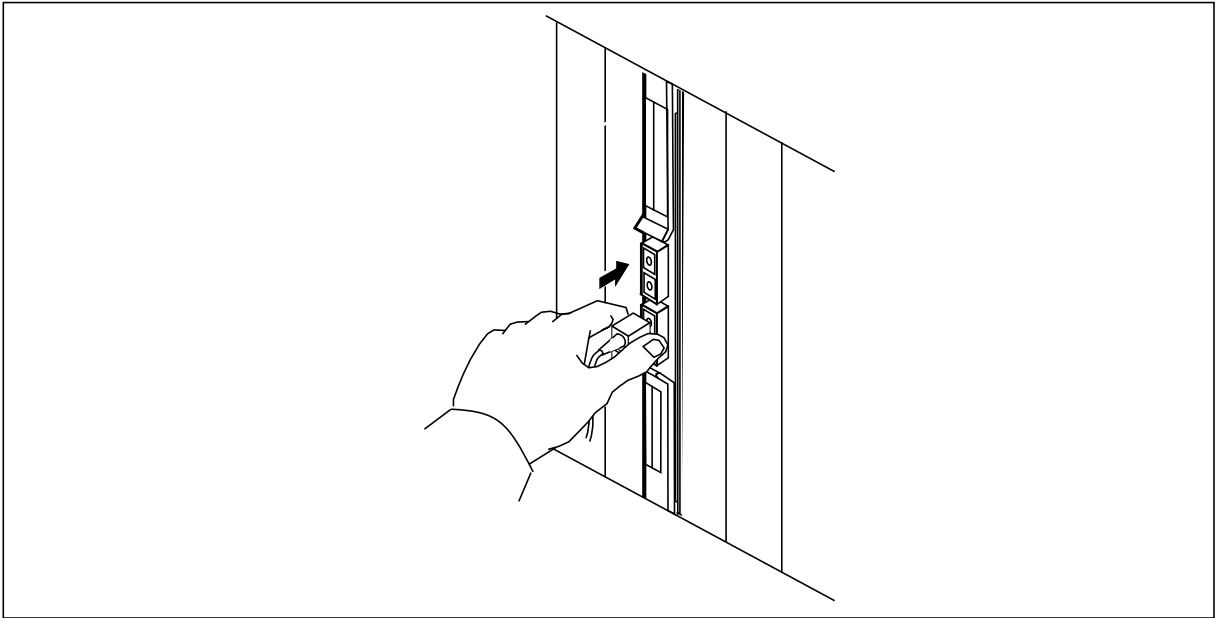
	If you are	Do
	replacing the OC-3 two port interface packet	step 9
	replacing the fiber optic cables	step 10
9	Perform the OC-3 two port interface packet replacement procedure. Refer to the correct NTP located in this document. Return to this point when complete.	
10	Connect the replacement fiber optic cables to the correct OC-3 two-port interface packet and OC-3 two-port interface paddleboard ports. Use the link connection diagrams shown in this step.	
	a	Hold the connector by the body only.
	b	Remove the fiber optic cable dust caps.
	c	Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure.
	d	Push the connector into the correct receptacle until the connector is fit into position.

XAC TOD minor (continued)

Connect the fiber optic cables to the OC-3 two port interface packet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



- 11 Return the OC-3 two port interface packet to service. At the CMIC MAP level, type
>RTS <nn> <s> <p>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

XAC TOD

minor (continued)

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

RTS 4 rear upper passed

At the XA-Core MAP terminal

- 12** Confirm that the alarm is clear. Examine the CMIC MAP level.

If the TOD Minor alarm is	Do
changed to a different alarm	step 15
not clear	step 16
clear	step 17

- 13** Examine the MS MAP. Perform the following steps:

- a** Display the MS MAP level. At the CMIC MAP level type
>MS
and press the Enter key.
- b** Access the MS Shelf MAP level. The Shelf MAP level displays the status of all CPs in the shelf. At the MS MAP level, type
>SHELF
and press the Enter key.
- c** Access the MS Card MAP level for the OC-3 two port interface paddleboards. The card MAP level displays the status of the OC-3 two port interface paddleboards. At the MS MAP level, type
>CARD <nn>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the MS physical shelf slot - 1 to 26
Example of command:
>CARD 24
- d** Record the status of the OC-3 two port interface paddleboards (see the MS Card MAP level diagram in this step).
The following is a sample MAP display.

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.        .        .        .        .        .        .        .        .        .

MS
0 Quit
2      Message Switch      Clock      Shelf 0      Inter-MS Link 0 1
3      MS 0      .      M Free      .      - -
4      MS 1      .      Slave      F      - -
5      Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
6      Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
7      Chain
8      MS 0      . . . . . . . . . . . . . . . . . . . .
9      MS 1      . . . . . . . . . . . . . . . . . . . .

10 LoadMS_      Card 24 CMIC Interface Card      Port: 0
11      MS 0      .
12 SwMast      MS 1      .      S
13 Shelf
14 QueryMS
15
16
17 InterMS_
18 Clock

XMAP0
Time 14:12  >

```

XA-Core Maintenance Manual

XAC TOD

minor (end)

- 15** Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

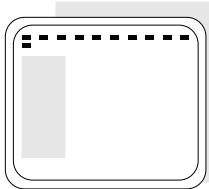
If the alarm is	Do
not clear	step 16
clear	step 17

- 16** Call the next level of support.

- 17** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

XAC WgSlot minor

Alarm display



XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
Wgslot	.	.	.	.	.	.	.	.	.

Indication

A WgSlot (wrong slot) minor alarm message appears under the XAC header of the alarm banner. The message indicates a wrong slot minor alarm.

The system generates the WgSlot alarm if either of the following conditions occurs:

- system software detects one or more CPs in the wrong XA-Core shelf slot positions.
- system software detects that a shelf slot configured for a CP is empty.

If there are no existing alarms, the alarm banner displays the WgSlot alarm. An existing alarm condition masks the WgSlot alarm banner message if the alarm condition is higher in the alarm hierarchy. You can perform an alarm query to review active alarms. The subsystem status summary field (SSSF) displays a BadPEC notice.

Meaning

The message indicates that a circuit pack (CP) is in a wrong physical shelf slot. The XA-Core system software detects a mismatch between the circuit pack product engineering code (PEC) now in the physical slot and the PECINV table.

Impact

The circuit pack type cannot operate in the physical shelf slot. Operating company personnel must insert the circuit pack in the physical shelf slot matched for the circuit pack type.

Common procedures

There are no common procedures.

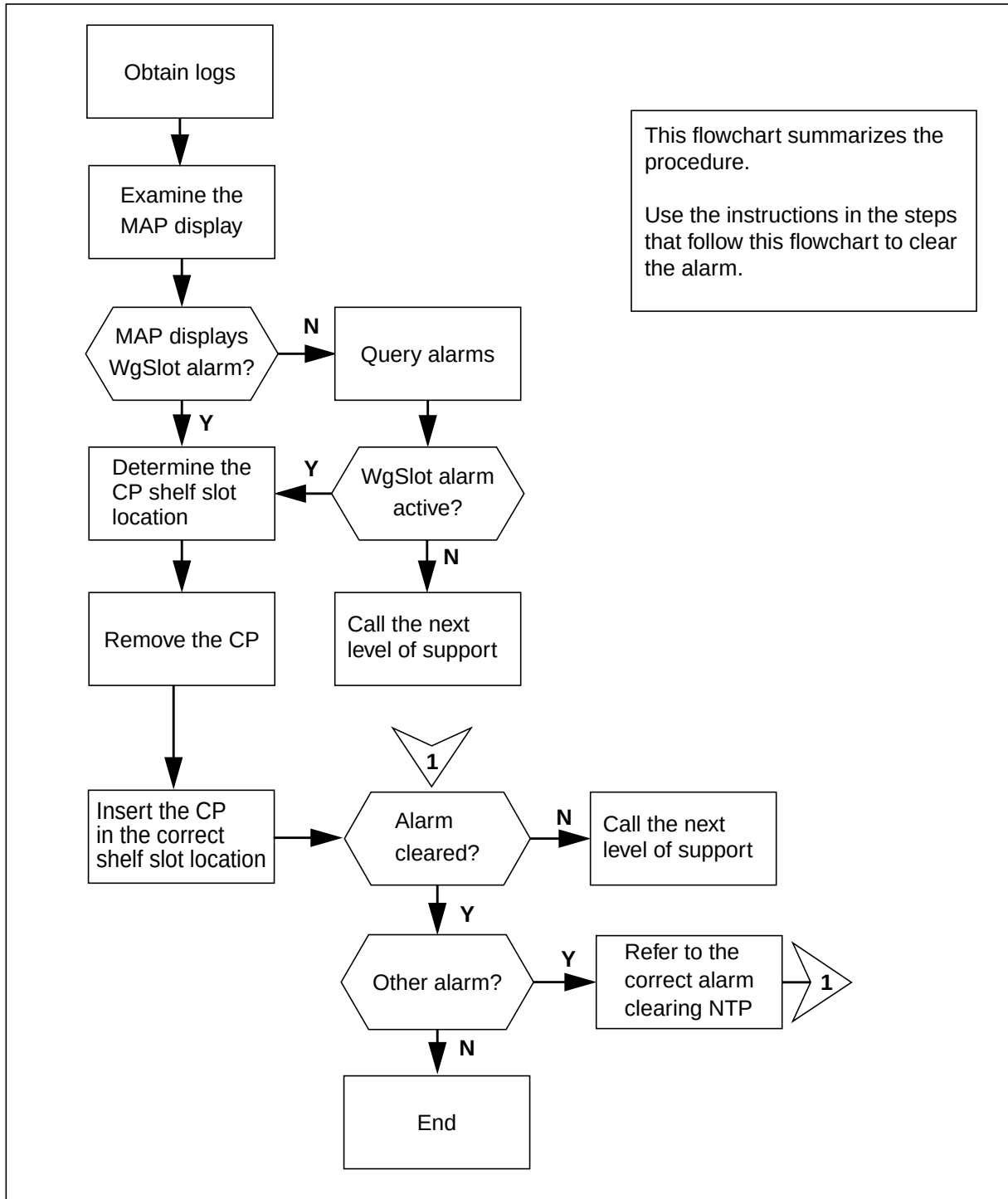
XAC WgSlot minor (continued)

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC WgSlot minor (continued)

Summary of clearing a WgSlot minor alarm



XAC WgSlot minor (continued)

How to clear a WgSlot minor alarm

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



CAUTION

Loss of service

Do not repeat steps.

At your current location

- 1 Collect information from the XA-Core log report system. The log messages provide information about the source of the Tape alarm.
 - a Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c Examine and record the appropriate log reports.
 - d Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the MAP indicates	Do
a WgSlot condition	step 2
another alarm event	step 7
that the WgSlot condition is clear	step 9

XAC WgSlot minor (continued)

- 2 Access the correct XA-Core MAP level using the information from 1. Examine the state and location of the CP or packet.

Note: The MAP terminal can display alarms as follows:

- a WgSlot minor alarm appears under the XAC header in the alarm banner
- an equipment alarm appears under an equipment header in the subsystem status summary field (SSSF)

The following is a sample MAP display.

PE MAP level

XAC WgSlot	MS	TOD	Net	PM	CCS	Lns	Trks	Ext	APPL
PE									
0 Quit		Front: 111111111	Rear: 111111	SM	PE	IO	PKLT		
2		123456789012345678	456789012345	.	badPEC	.	.		
3	Sta:	--S--	0	1	0	0	0		
4	Dep:								
5	Typ:	*	*						
6 Tst_	PE:								
7 Bsy_									
8 RTS_									
9									
10									
11									
12									
13									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the MAP level indicates

Do

a WgSlot alarm

step 3

a different alarm

step 7

the alarm is clear and all CPs and
packets are in service

step 9

- 3 Find the correct CP physical slot location. Perform a query by typing

>QUERY <type> <subsystem_name>

and press the Enter key. The MAP level displays the correct physical slot location for the subsystem type.

where

XAC WgSlot minor (end)

<type> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<subsystem_name> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

Example of command use:

>QUERY type pe

The Type field displays an asterisk (*) to indicate the correct slot locations for the CP.

- 4 Remove the CP from the incorrect physical shelf slot.
- 5 Insert the CP in the correct physical shelf slot.
- 6 Confirm that the alarm is clear. Examine the alarm banner on the MAP screen.

If the Wgslot alarm is	Do
changed to another alarm	step 7
not clear	step 8
clear	step 9

- 7 Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

If the alarm is	Do
not clear	step 8
clear	step 6

- 8 Call the next level of support.
- 9 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

**XAC XATrap
major**

Alarm display

	XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	XATrap	.	.	.	.	.	.	.	.	.
	M									

Indication

An XATrap major alarm code appears under the XAC header of the alarm banner. The alarm code indicates a XATrap major alarm.

Meaning

The XATrap major alarm indicates that the frequency and number of processor interruptions exceeds threshold values. A trap is a report of an interruption or change in the normal flow of system software processing. The processor cannot completely execute a command because of a software fault. The XATrap major alarm does not have a matching equipment alarm.

Impact

There is a change in subscriber service. There is a reduction in subscriber service response time because fault detection software is using system resources and processor time to correct faults. A restart is imminent.

Common procedures

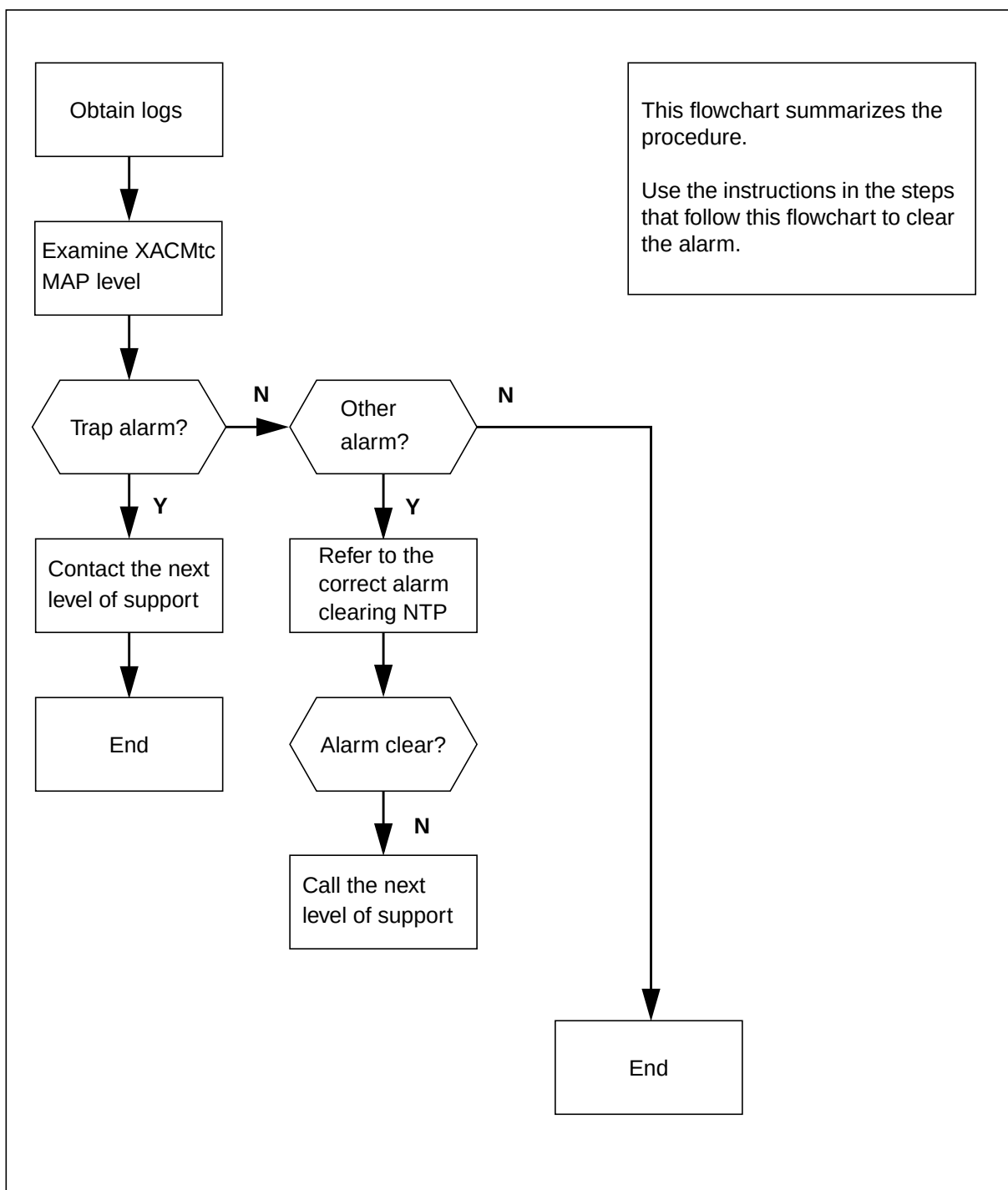
There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC XATrap major (continued)

Summary of clearing an XATrap major alarm



XAC XATrap major (continued)

How to clear an XATrap major alarm

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.



CAUTION
Loss of service
Do not repeat steps.

At your current location

- 1** Collect information from the XA-Core log report system. The log messages provide information about the source of the XATrap alarm.
 - a** Access the log utility feature. At the CI MAP level, type
>LOGUTIL
and press the Enter key.
 - b** Access the XA-Core logs. At the Logutil prompt type
>OPEN XAC
and press the Enter key.
 - c** Examine and record the appropriate log reports.
 - d** Return to the CI MAP prompt. At the Logutil prompt type
>QUIT
and press the Enter key.

If the log indicates	Do
a trap major condition	step 2
a different alarm condition	step 5
the XATrap major alarm condition is clear	step 6

XAC XATrap major (continued)

- 2 Access the XACMtc MAP level. At the CI MAP level, type **MAPCI;MTC;XAC;XACMTC** and press the Enter key.

If the XA-Core XACMtc MAP is	Do
accessible	step 3
not accessible	step 6
- 3 Examine the XACMtc MAP level. Record the rate and total number of traps. The trap rate indicates the frequency of faults that occur per minute. The trap total is the number of faults over a period of time.
The following is a sample MAP display.

XACMtc MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
XATrap   .       .       .       .       .       .       .       .       .
M

XACMtc
0 Quit
2
3
4
5
6
7
8
9
10
11 Image
12 RExTst_
13 RExInt_
14 Alarm_
15
16
17 Indicat_
18 Query_

      Front: 111111111      Rear: 111111      SM      PE      IO      PKLT
      123456789012345678      456789012345      .       .       .       .
Sta: -.-.-.-.-.-.-.-.-.-      .-.-.-.-.-.-.-      0       0       0       0
Dep:
Typ: ***MTC*****          ***MTC*****

Traps:      Per Minute: = 0          Total = 1
AutoLdev:    Primary      = Slot 2 front, Lower Packlet
              Secondary    = Slot 17 rear, Upper Packlet
Image:       Restartable = No image test
              Next image test restart type = WARM
Last XARExTst: executed at hh:mm:ss on mmm dd yyyy

XACMTC:

XMAP0
Time 14:12 >

```

If the MAP indicates that there is	Do
a different alarm	step 4
an XATrap major alarm	step 5
no alarm	step 6

**XAC XATrap
major (end)**

- 4** Perform the correct alarm clearing procedure. Refer to the correct NTP.
Return to this point when complete.

If the alarm is	Do
not clear	step 5
clear	step 6

- 5** Call the next level of support.
- 6** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

2 Introduction to card replacement

Chapter summary

This chapter contains procedures for replacing circuit packs (CPs) and packlets in XA-Core shelves in SuperNodes and SuperNode SEs (SNSEs). It also contains procedures for adding and removing PE circuit packs and Ethernet packlets.

Each procedure provides the following information:

- application information
- common procedures
- summary flowchart
- step-action instructions

Application information

The Application information section describes when to use the procedure. The Application information section also lists the versions of the CP or packlet.

Common procedures

The common procedures section refers you to another set of instructions located elsewhere in the documentation. The common procedures describe how to perform related maintenance activities.

Summary flowchart

The summary flowchart shows the primary activities, decision points, and paths to correctly replace the CP or packlet. Use the summary flowchart to preview the replacement activities and to prepare for the replacement procedure.

Step-action instructions

The step instructions are a sequence of activities that describe how to replace a CP or packlet. The instructions also provide examples of MAP command syntax and MAP terminal responses.

On occasion, a step instruction can refer to a common procedure or to another document. After completion of the common or related procedure, return to the original point in the step-action instructions and continue.

XA-Core hardware components

This section provides a short description of the major XA-Core hardware components.

XA-Core has the following major hardware components:

- C42 equipment cabinet
- shelf module
- circuit packs and packlets
- cooling unit

C42 equipment cabinet

The C42 equipment cabinet contains the XA-Core shelf module, CPs, packlets and cooling unit. All cabinet versions have a frame supervisory panel (FSP), four shelf units and a cooling unit.

XA-Core is available in one of three cabinet configurations:

- SuperNode-XA cabinet
- SuperNode SE (SNSE) cabinet
- XA-Extension cabinet

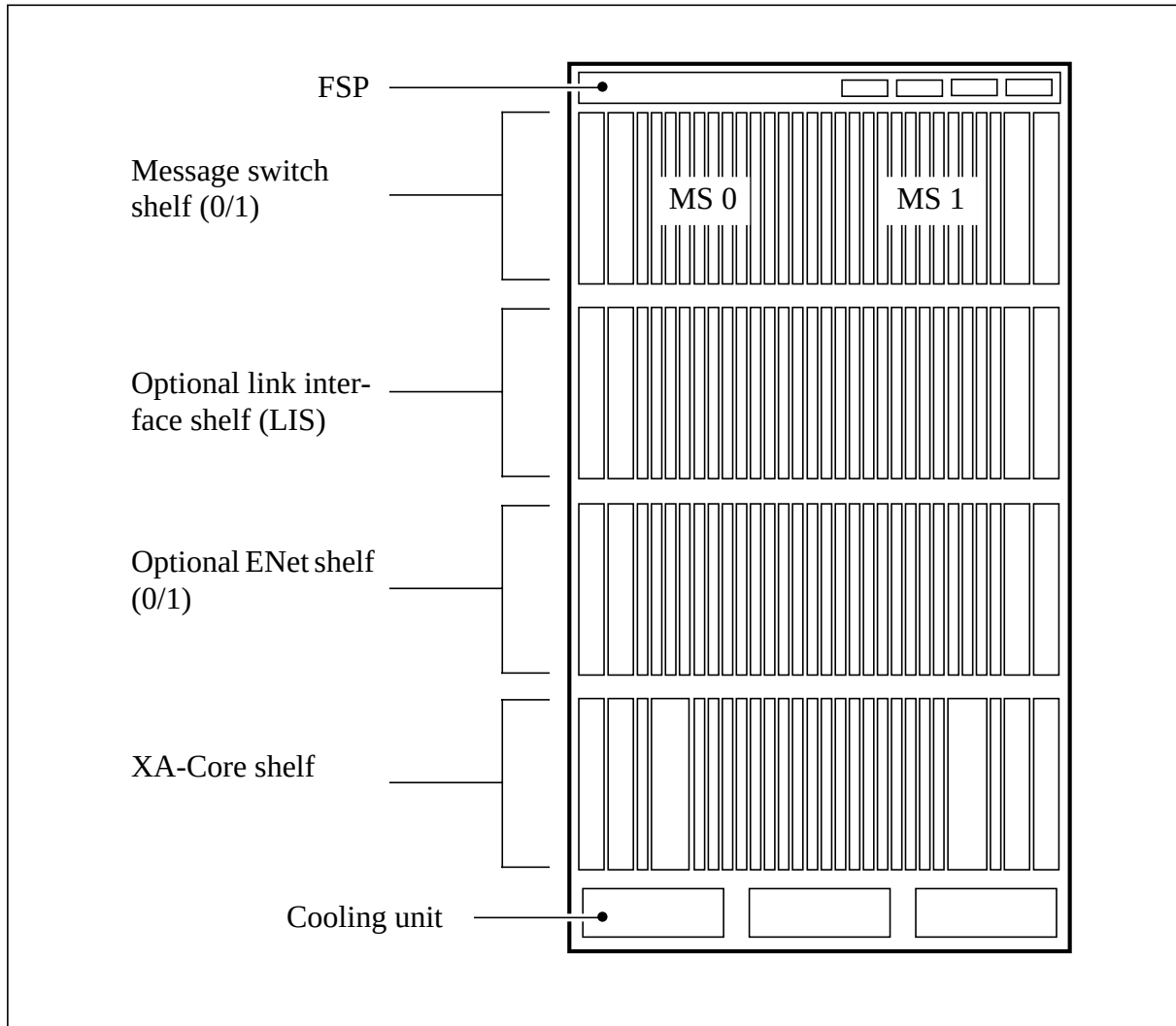
Figure 2-1 C42 SuperNode-XA cabinet layout

Figure 2-2 C42 SNSE-XA cabinet layout

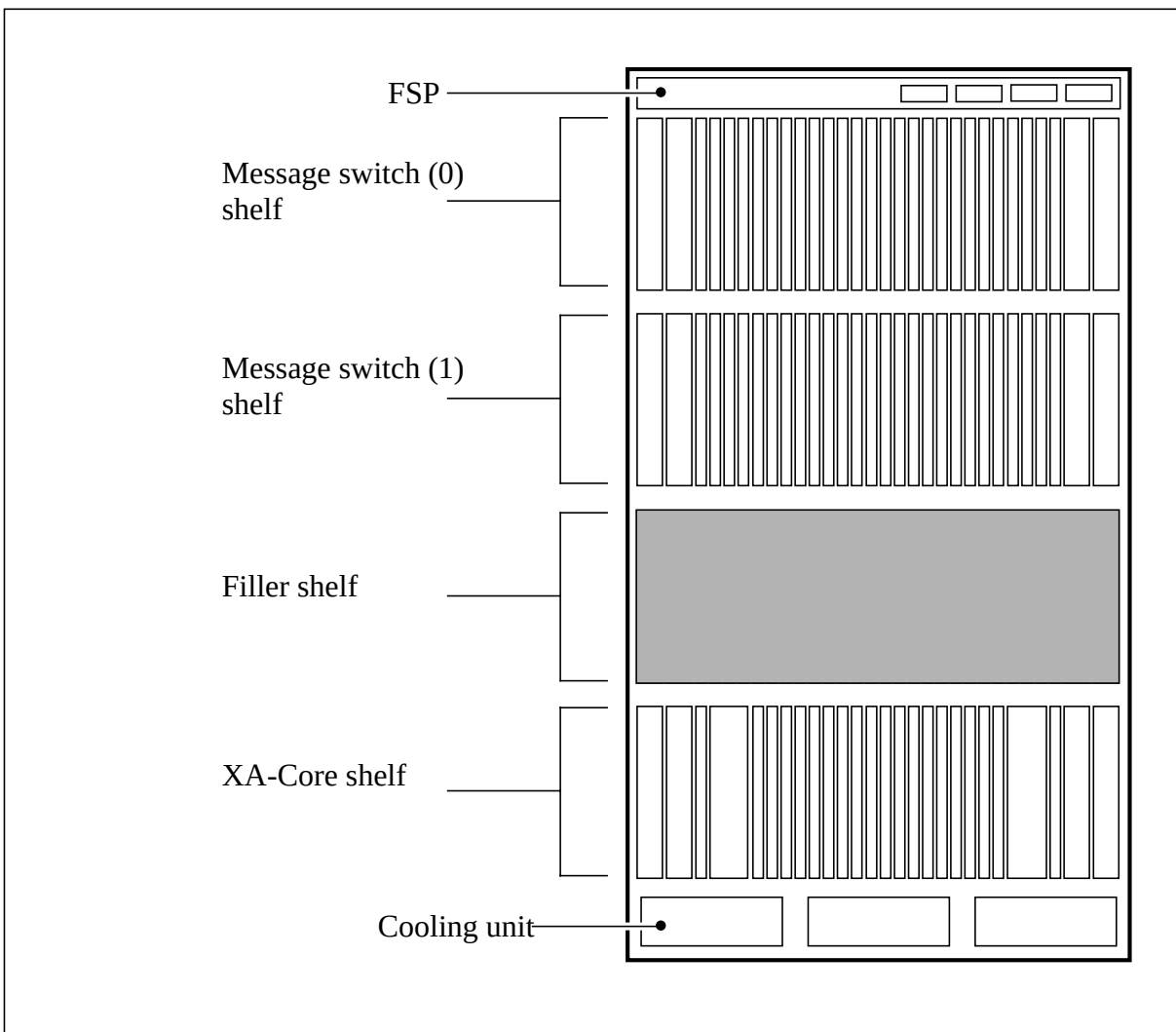
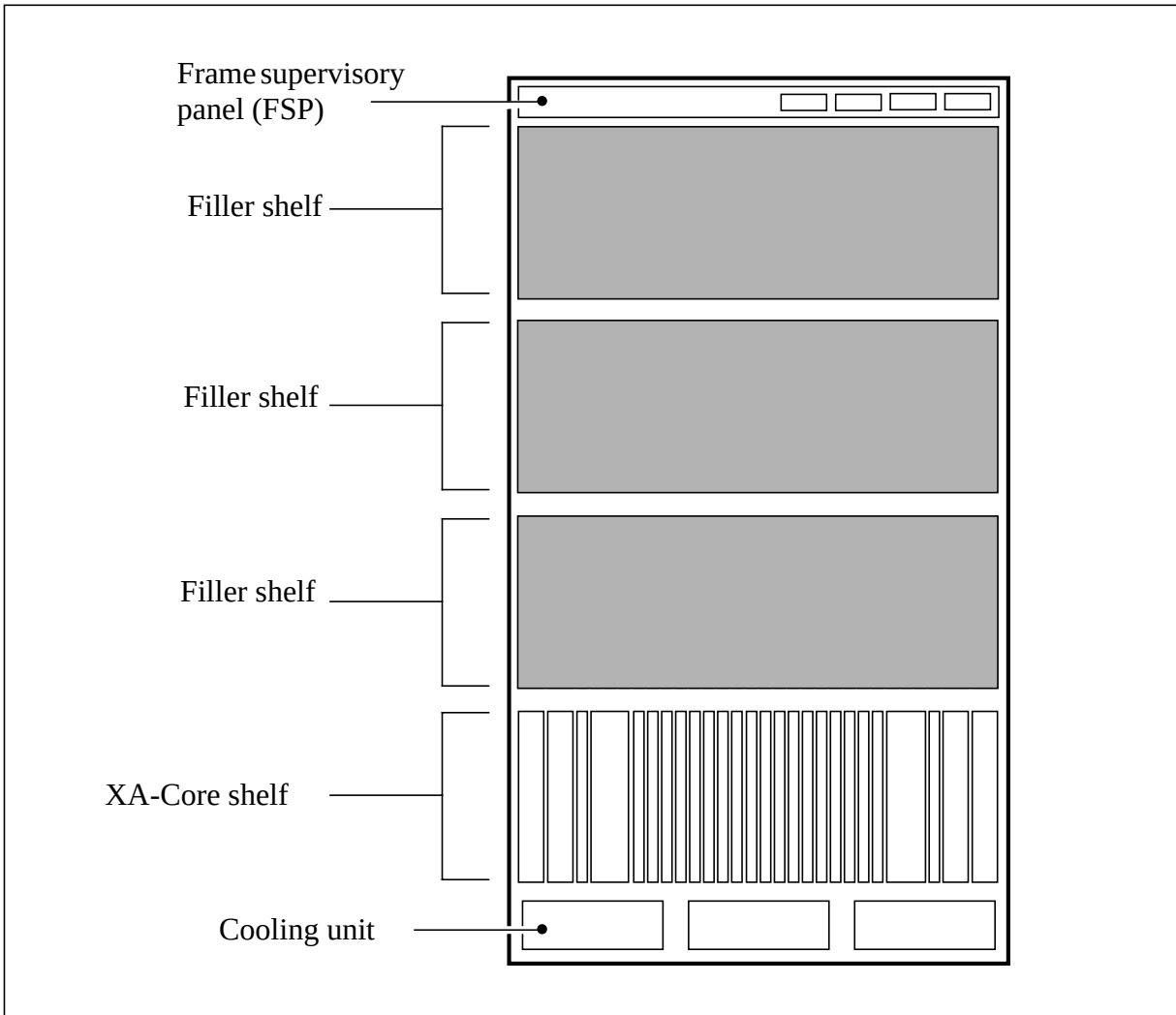


Figure 2-3 C42 XA-Extension cabinet layout**XA-Core shelf module**

The XA-Core shelf module houses all CPs and packlets. The CPs connect to a midplane connector.

The shelf has two sides:

- front (primary)
- rear (secondary)

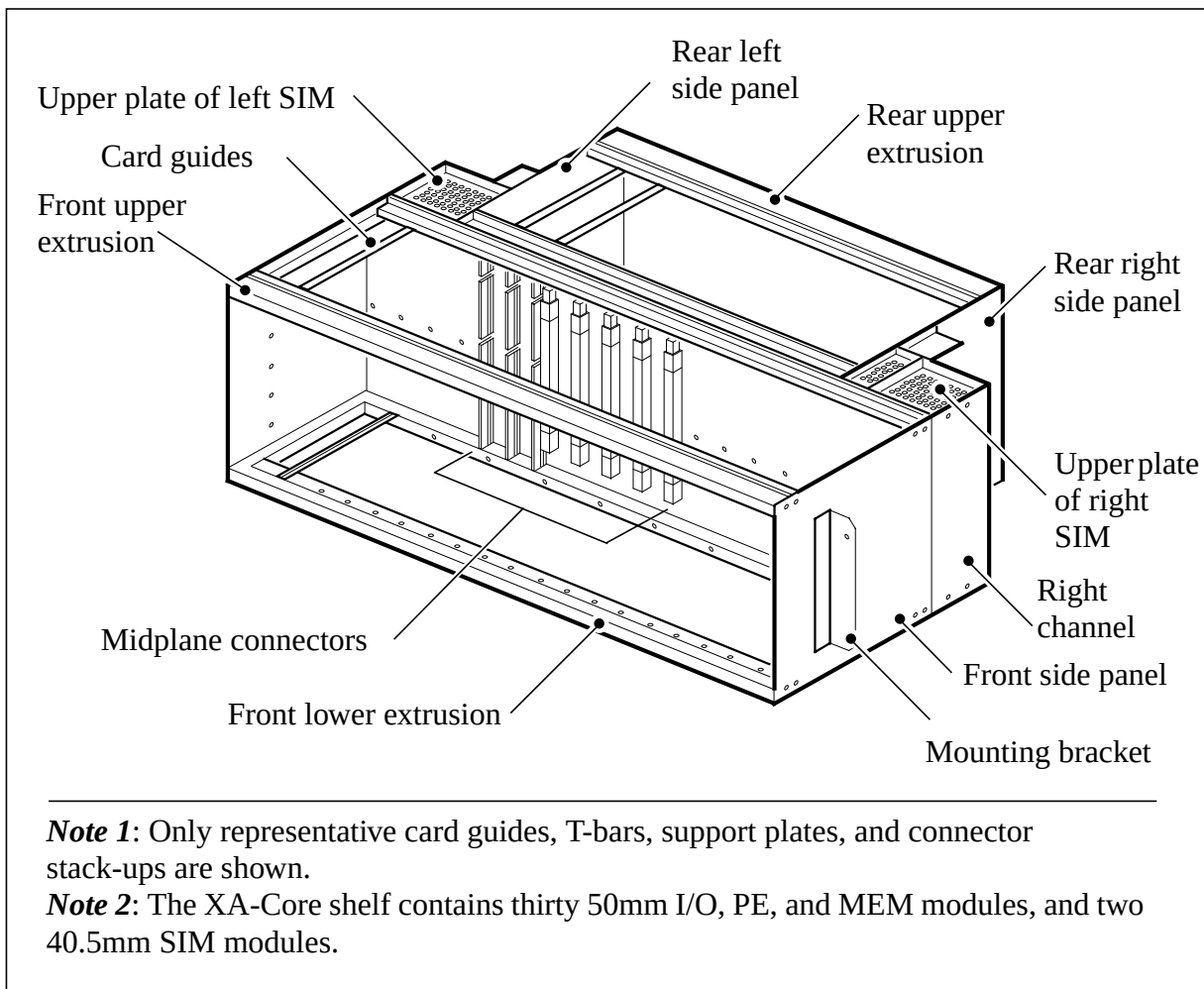
The front side houses IOP CPs that contain non-cable supporting packlets such as the Disk and Tape. The rear side contains IOP CPs that contain all cable-supporting packlets such as the OC-3 dual port interface and the RTIF.

Each CP installs into a vertical slot integrated within the shelf. Each slot holds one type of CP. The CPs plug into a series of connectors placed along the interior axis of the shelf. Together, these connectors form the midplane connector level.

The midplane is a printed circuit board (PCB) assembly that provides the inter-connection between the processor elements (PEs) and peripheral devices. The midplane is not a field replaceable unit (FRU). Any failures traceable to the midplane requires replacement of the XA-Core shelf.

Slots at the front (primary side) of the shelf are numbered as (left to right) 01F to 18F. Slots at the rear (secondary side) of the shelf are numbered as (left to right) 03R to 16R. There are a total of 30 slots for both front and rear sides.

Figure 2-4 XA-Core shelf



Circuit packs and packlets

Each replacement procedure in this chapter applies to a single CP or packlet. There are two different types of slots that contain three types of circuit packs and packlets:

1. **Shared memory slots:** contain the shared memory (SM) CPs
2. **Element slots:** contain the processor element (PE) and IOP circuit packs. The IOP CPs contain the disk, tape, OC-3 dual port interface, reset terminal interface (RTIF) packlets.

Two shelf interface modules (SIMs) provide a power interface to the shelf. The SIMs are an extension of the midplane and are removable for maintenance purposes.

Shelf layout

This section describes CP and packlet placement for both the SuperNode and SuperNode SE (SNSE) configurations.

Shelf provisioning depends on the configuration and office requirements. In both SuperNode and SNSE versions, the primary side contains non-cable bearing (disk/tape) circuit packlets. The secondary side contains slots for SM, cable/non-cable bearing IOPs and up to five slots for additional PEs or IOPs.

Special termination filler modules electrically terminate empty slots at the midplane. Filler modules help to dissipate heat within the C42 cabinet.

There are two sizes of circuit packs:

- **Single-width:** IOP CPs occupy one slot width and have a single slot location number. These IOP CPs contain packlets such as the OC-3 dual port interface and RTIF packlets.
- **Dual-width:** IOP CPs occupy two slot widths and have more than one slot location number. These IOP CPs typically contain the Disk and Tape packlets.

The following table shows a summary of the CP and packlet version and descriptions.

Table 2-1 Equipment provisioning summary

PEC	Version	Name	Description
NTLX02	AA/ CA	Processor element (PE) circuit pack	256 MByte processor element
NTLX03	AA/AB	Input/output processor (IOP) circuit pack	Single-width IOP for OC-3 & RTIF packlets
NTLX03	BA/BB	Input/output processor (IOP) circuit pack	Dual-width IOP for Disk & Tape packlets
NTLX04	AA	High performance input/output processor (HIOP) circuit pack	Occupies one slot. Does not take packlets. In CSP16, supports ethernet links only.
NTLX05	AA/AB	OC-3 two port interface CMIC packlet	XA-Core to message switch interconnect (CMIC) packlet
NTLX05	BA	OC-3 two port interface AMDI packlet	ATM multi-mode data interface (AMDI) packlet--interfaces to the ATM edge switch
NTLX06	AA/ AB	Disk packlet	4 GByte disk drive packlet (AA)
			8 GByte disk drive packlet (AB)
NTLX07	AA	Tape packlet	1.3 GByte digital audio tape (DAT) drive packlet
NTLX08	AA/AB	Reset terminal interface (RTIF) packlet	RS232/422 serial interface packlet
NTLX09	AA	Ethernet single port interface (ETHR) packlet	Ethernet packlet-core to LAN hub/IP network
NTLX11	AA	Fan drawer	Cooling unit fan drawer
NTLX12	AA	Shelf interface module (SIM) circuit pack	Power supply and power filter. Two are always provided.
NTLX14	CA	Shared memory (SM) circuit pack	384 MBytes
NTLX20	AA	Filler circuit pack	Single-width slot filler circuit pack
NTLX20	BA	Terminating filler circuit pack	Single-width plug-in module

Shelf layout: XA-Core in a SuperNode

This section describes the shelf layout for an XA-Core shelf in a SuperNode.

In CSP16, the XA-Core shelf supports the following PE configurations: 2+1, 3+1, 5+1 and 7+1.

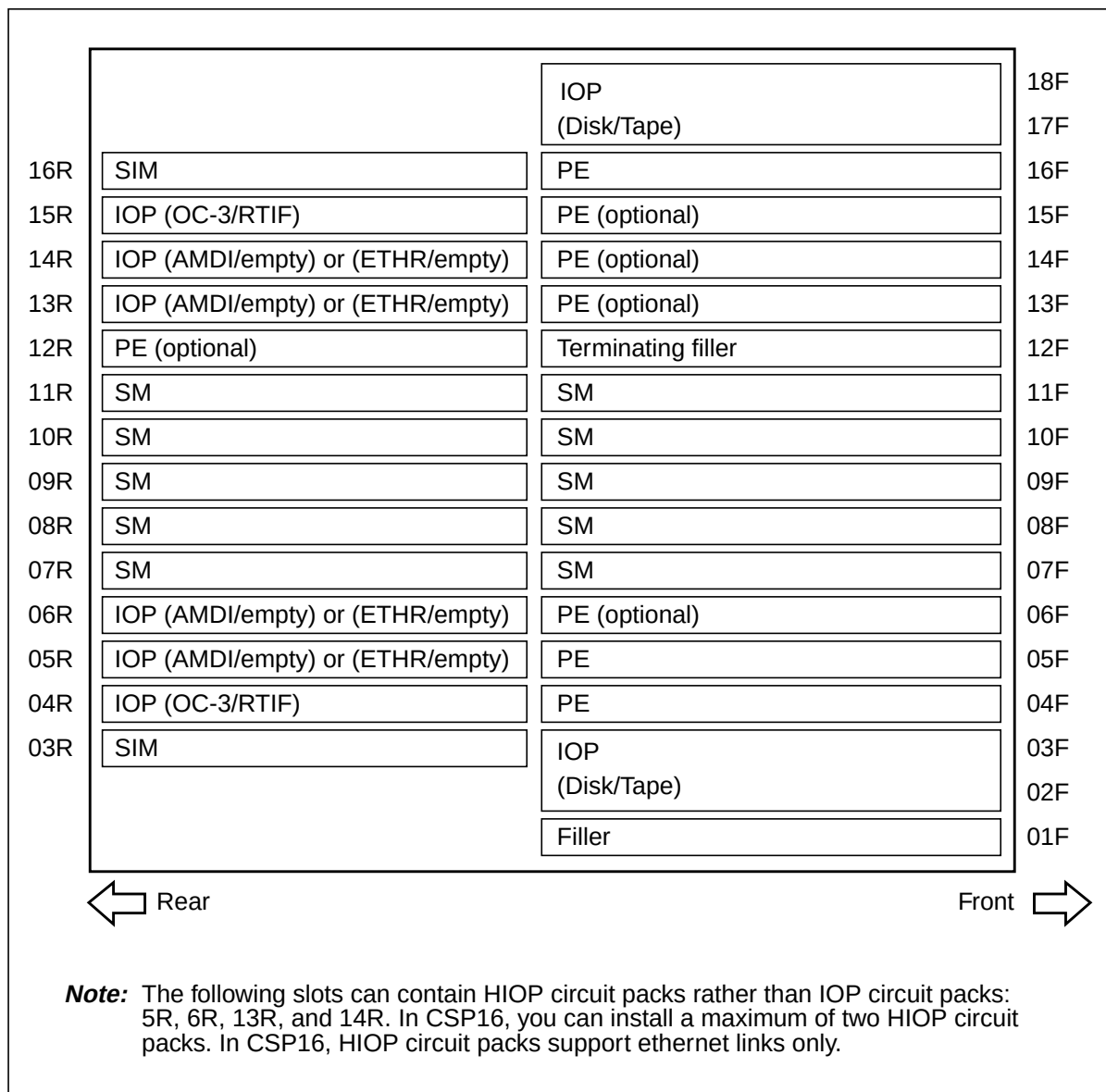
- In the 2+1 configuration, there are PE circuit packs in slots 4 front, 5 front, and 16 front. All three PE circuit packs operate in a load sharing mode.
- In the 3+1 configuration, there are PE circuit packs in slots 4 front, 5 front, 13 front, and 16 front. All four PE circuit packs operate in a load sharing mode.
- In the 5+1 configuration, there are PE circuit packs in slots 4 front, 5 front, 6 front, 12 front, 13 front, and 16 front. All six PE circuit packs operate in a load sharing mode.
- In the 7+1 configuration, there are PE circuit packs in slots 4 front, 5 front, 6 front, 13 front, 14 front, 15 front, and 16 front, and 12 rear. All eight PE circuit packs operate in a load sharing mode.

Note: In each PE configuration, the spare processing power is the equivalent of one PE unit. A PE unit is the processing power of a PE circuit pack that uses PowerPC 604 processors. The NTLX02AA and the NTLX02CA use such processors.

In CSP16, the XA-Core can contain from five to ten SM circuit packs. Supported SM configurations are: 4+1, 5+1, 6+1, 7+1, 8+1, and 9+1. The minimum configuration is 4+1. You can install SM circuit packs in slots 7 to 11 on the front, and slots 7 to 11 on the rear. If you install fewer than the maximum number of SM circuit packs, you can install them in any of the ten available slots.

The cards in slots 5R, 6R, 13R, and 14R are optional. These slots can contain single-width IOP circuit packs. In CSP16 you can use two of these slots for HIOP circuit packs.

The following figure shows the shelf layout for an XA-Core shelf in a SuperNode. The shelf has the 7+1 PE configuration and the 9+1 SM configuration.

Figure 2-5 Shelf layout for an XA-Core in a SuperNode

Shelf layout: XA-core in a single-cabinet SuperNode SE (SNSE)

This section describes the XA-Core configured on a SuperNode SE (SNSE) shelf layout. In this scenario, the XS-Core is configured in an SNSE cabinet, not in an extension cabinet.

In CSP16, the XA-Core shelf supports the following PE configurations: 2+1, 3+1, 5+1, and 7+1.

- In the 2+1 configuration, there are PE circuit packs in slots 4 front, 5 front, and 16 front. All three PE circuit packs operate in a load sharing mode.
- In the 3+1 configuration, there are PE circuit packs in slots 4 front, 5 front, 13 front, and 16 front. All four PE circuit packs operate in a load sharing mode.
- In the 5+1 configuration, there are PE circuit packs in slots 4 front, 5 front, 13 front, 14 front, 16 front, and 12 rear. All six PE circuit packs operate in a load sharing mode.
- In the 7+1 configuration, there are PE circuit packs in slots 4 front, 5 front, 6 front, 13 front, 14 front, 15 front, and 16 front, and 12 rear. All eight PE circuit packs operate in a load sharing mode.

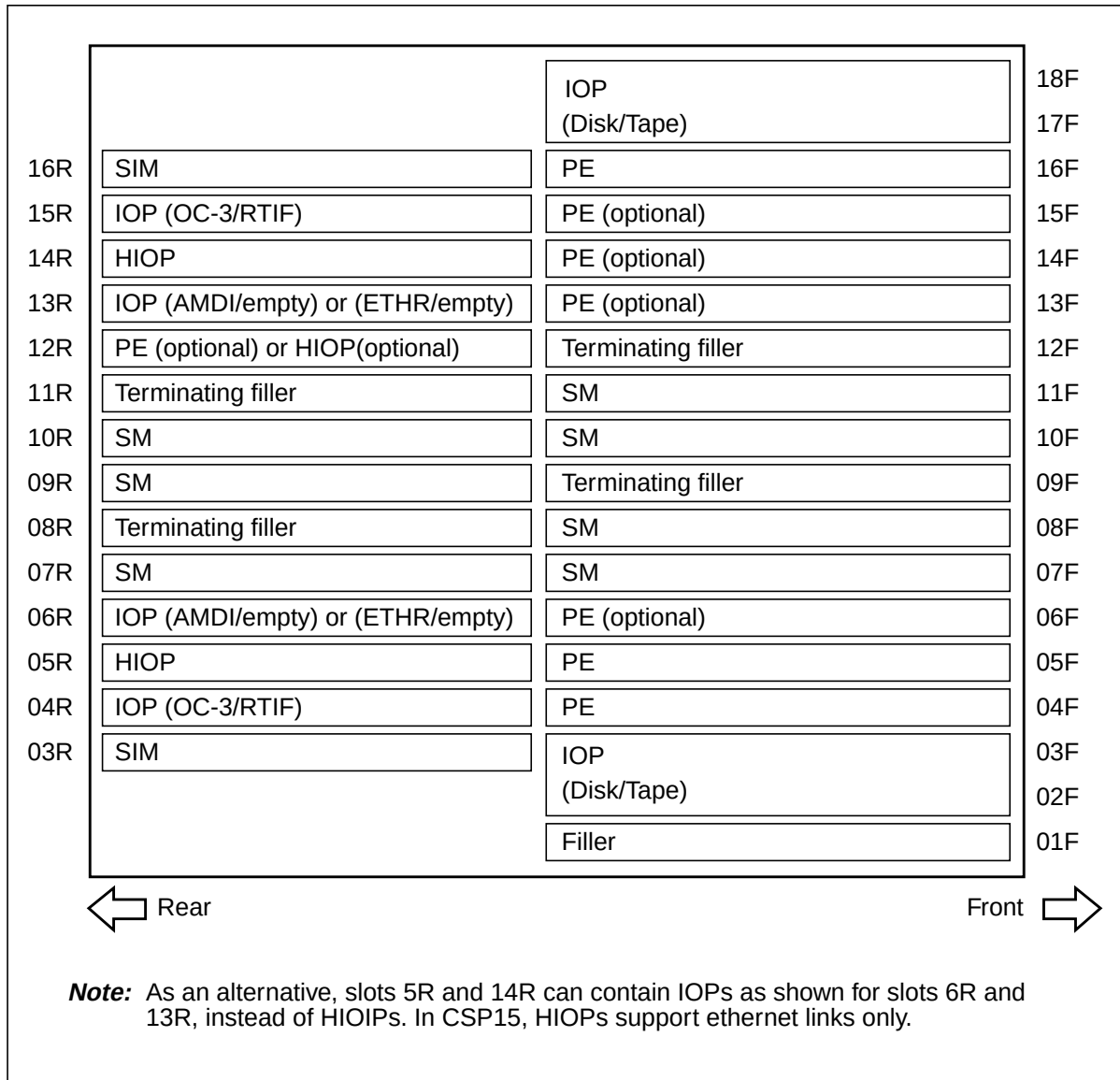
Note: In each PE configuration, the spare processing power is the equivalent of one PE unit. A PE unit is the processing power of a PE circuit pack that uses PowerPC 604 processors. The NTLX02AA and the NTLX02CA use such processors.

In CSP16, an XA-Core in a single-cabinet SuperNode SE can contain from five to seven SM circuit packs. Supported SM configurations are: 4+1, 5+1, and 6+1. The minimum configuration is 4+1. You can install SM circuit packs in slots 7, 9, 10, and 11 on the front, and slots 7, 9, and 10 on the rear. If you install fewer than the maximum number of SM circuit packs, you can install them in any of the seven available slots.

The IOP cards in slots 5R, 6R, 13R, and 14R are optional.

In CSP16, an XA-Core in a single-cabinet superNode SE, can have two HIOP circuit packs, in slots 5R and 14R. Alternatively, one of the two HIOPs can be in slot 12R, if that slot does not contain a PE.

The following figure shows the shelf layout for an XA-Core shelf in the main cabinet in a SuperNode SE. This shelf has the 7+1 PE configuration, the 6+1 SM configuration, and has HIOP circuit packs in slots 5R and 14R.

Figure 2-6 Example of XA-Core shelf layout in SuperNode SE

Addition, removal, and replacement of circuit packs and packlets

We use the terms addition and removal to indicate actions that increase or decrease the capabilities of the XA-Core shelf. In CSP15 the shelf supports multiple PE configurations (2+1, 3+1, 5+1, and 7+1). Also, the shelf can contain four Ethernet packlets, or two, or none. Addition and removal refer to changing the number of PE circuit packs or Ethernet packlets in the shelf.

The most common reasons for replacing a CP or packlet are for repair, or for XA-Core system upgrade. If you are going to remove an item for the purpose of replacing it, you must evaluate the effect that the removal will have on the

system. For example, removing the last remaining and active PE terminates all system processes and causes an outage. If a task can cause an outage, the XA-Core MAP terminal displays a warning message. You can either continue, end the task or refer to a second level of support.

The XA-Core fault detection system software notifies you of hardware fault events. You can determine a suitable course of action based on instructions or notifications provided by the system. When the XA-Core system detects a fault, one or more of the following activities automatically take place:

- the operational measurement (OM) system records the frequency or duration of the event(s)
- the alarm system provides audible and visual notification
- the MAP terminal displays the source of the fault as determined by software
- the log system provides a log report for the event

Remove and replace a CP if it shows the following behavior:

- it cannot be brought into, or returned to service
- the red triangular light emitting diode (LED) on the faceplate remains lit despite all attempts to correct the problem
- the MAP terminal displays notice of a critical or major hardware alarm

Light emitting diode (LED) interpretation

The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Generally, the LEDs show that the CP is working or not working or if it is safe to remove the CP.

All CPs have two LEDs: red and green. On the OC-3 CMIC and AMDI packlets, the RTIF packlet, and the ETHR packlet, there are three LEDs: red, green, and yellow.

The combination of lit or unlit LEDs indicate the CP's working status. Table 2-2 summarizes the LED interpretation for CPs equipped with two LEDs. Table 2-3 summarizes the LED interpretation for CPs equipped with three LEDs.

The LEDs also indicate a trouble condition that can be unique to the function of the CP. The LED interpretation tables are included in each of the replacement procedures and are indicative of the CP's role in the XA-Core system.

Table 2-2 Two-LED visual indicator interpretation

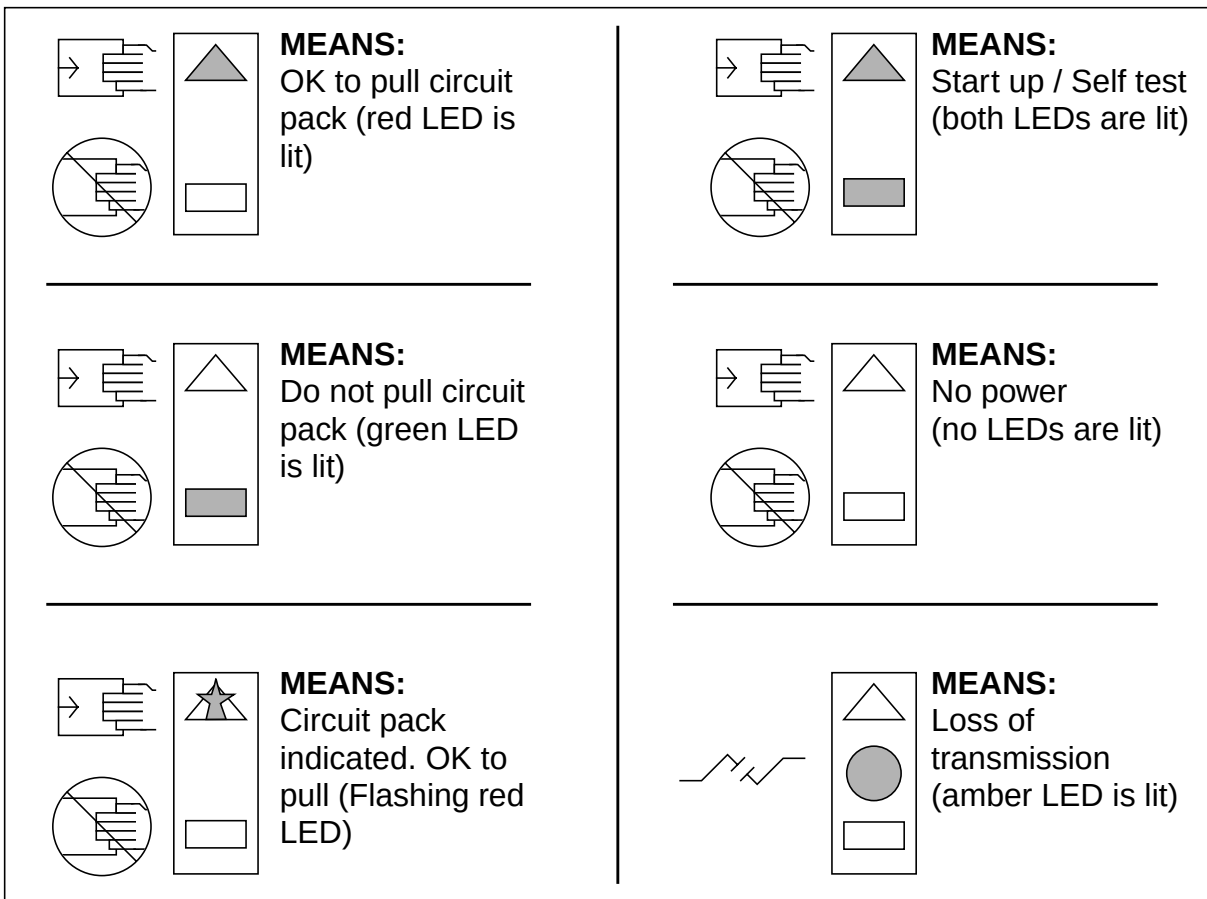
LED Status		Reason	Action	Safe to Remove?
Green	Red			
Off	Off	Dual-primary power failure	Call the next level of support. Do not remove the CP.	No
		CP power failure	Examine alarm status on the MAP terminal. Replace the CP.	Yes
		LED failure on one or two LEDs	Examine alarm status on the MAP terminal. Replace the CP.	Yes
		CP not properly inserted	Examine CP working status on MAP. Re-insert the CP.	Yes
Off	On	Self-test failure	Examine alarm status on the MAP terminal. Replace the CP.	Yes
		Maintenance software rejects the CP	Examine alarm status on the MAP terminal. Replace the CP.	Yes
On	Off	The CP is functioning properly	Verify CP working status on MAP. Do not remove the CP.	No
On	On	CP undergoing self test	Examine the MAP terminal. Wait for a change in LED status. Do not remove the CP.	No
Off	Wink	Indicate command issued	Locate CP on the physical shelf. The CP can be removed.	Yes

Table 2-3 Three-LED visual indicator strategy

LED Status			Reason	Action	Safe to Remove?
Green	Red	Amber			
Off	Off	Off	LED fault on one or more LEDs	Determine the working status from the MAP terminal. Do not remove the CP if the MAP terminal shows active status.	No
			Dual-primary power fault	Call the next level of support. Do not remove the CP.	No
			Improperly inserted	Determine the working status from the MAP terminal. Re-insert the CP.	Yes
			Packlet power fault	Examine MAP alarm status and replace the CP.	Yes
Off	Off	On	External communication fault	Check input links or refer to next level of support. Do not remove the CP.	No
Off	On	Off	Self-test fault	Examine MAP alarm status and replace the CP.	Yes
			Rejected by Maintenance software	Examine MAP alarm status and replace the CP.	Yes
Off	On	On	Self-test fault	Examine MAP alarm status and replace the CP.	Yes
			Rejected by Maintenance software	Examine MAP alarm status and replace the CP	Yes
			Communication fault	Check input links. Replace the CP.	Yes
On	Off	Off	Packlet is functioning properly	Verify working status on MAP. Do not remove the CP.	No
On	Off	On	External communication fault	Check input links. Do not remove the CP.	No
On	On	On	Self test	Examine the MAP terminal. Do not remove the CP.	No
On	Wink	Off	Indicate command issued	Examine physical shelf. Locate and remove the CP.	Yes

The following diagram shows how to determine the meaning of the LED labels.

Figure 2-7 LED label interpretation



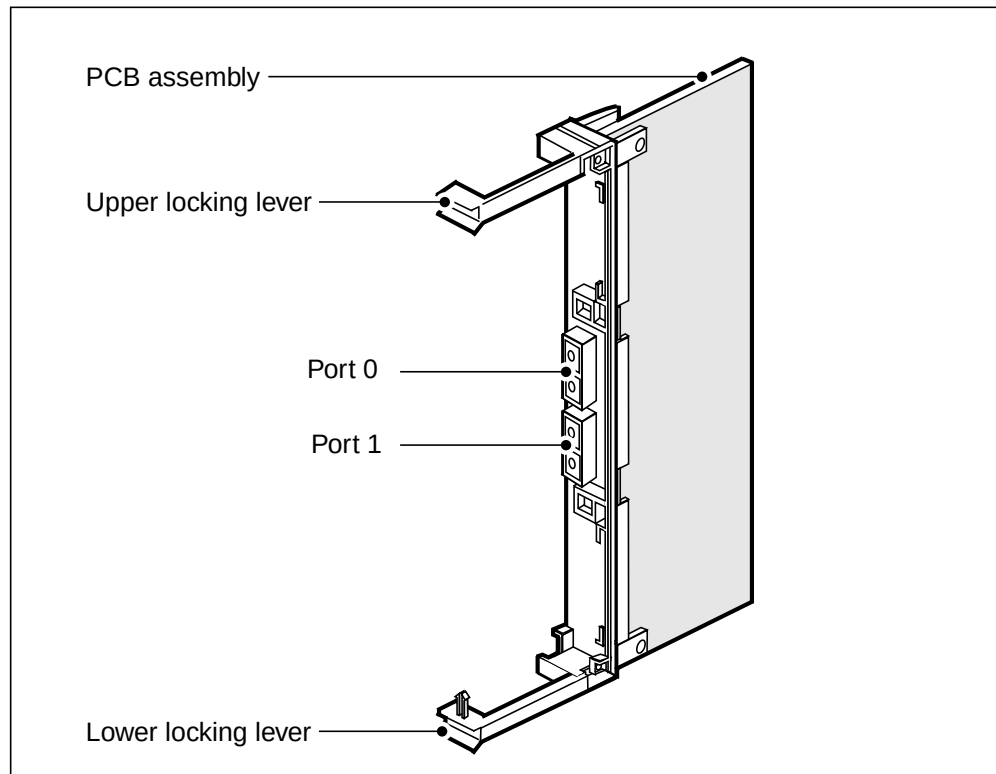
NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch

Application

Use this procedure to replace the NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch shelf. Use this procedure for circuit pack (CP) versions shown in the following table.

PEC	Suffix	Card name
NT9X63	AA	OC-3 two port interface paddleboard
NT9X63	AB	OC-3 two port interface paddleboard

OC-3 two port interface paddleboard front and side view



NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

Common procedures

The OC-3 two port interface paddleboard replacement procedure refers to the Failure to switch clock mastership common procedure.

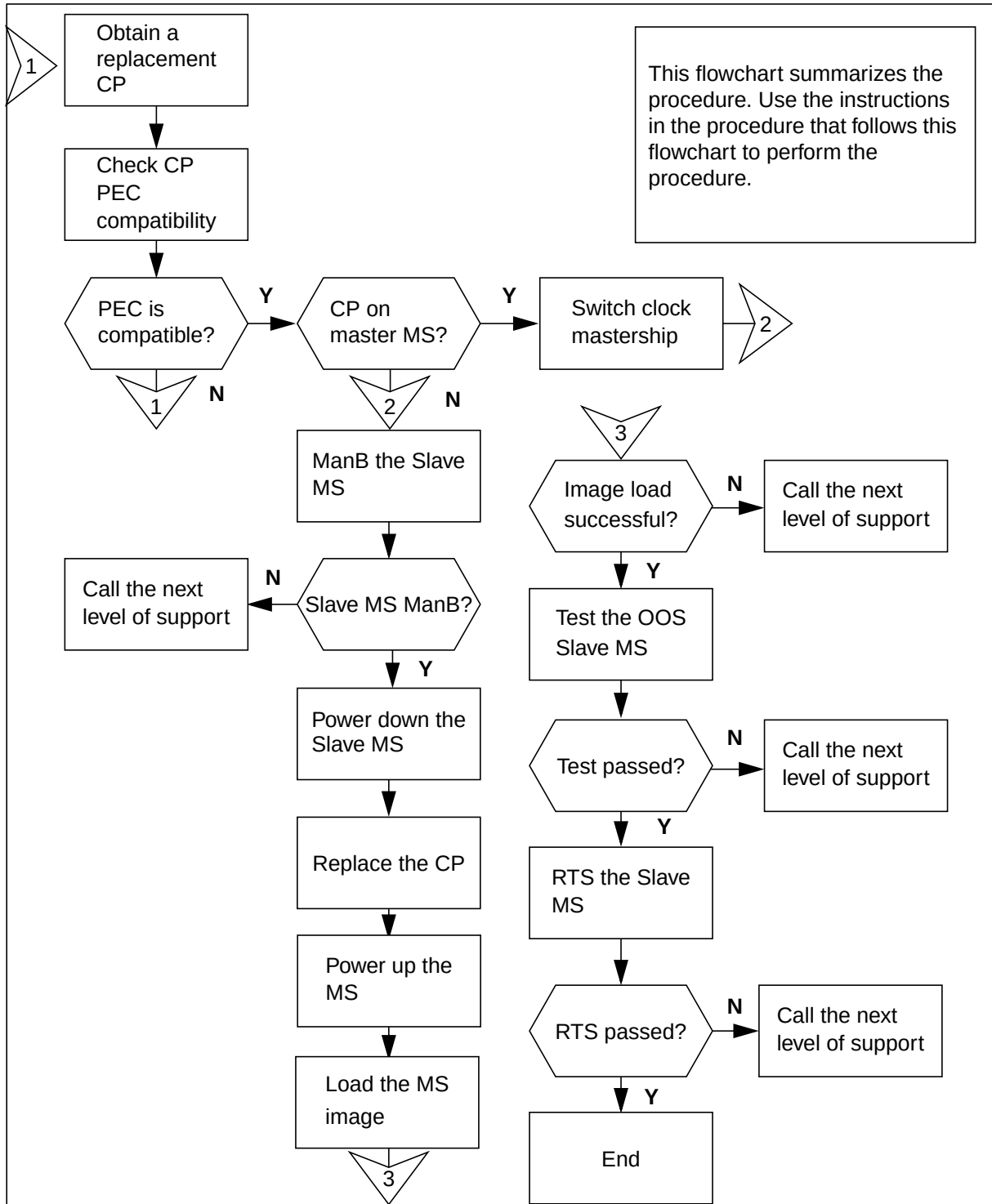
Do not go to a common procedure unless indicated in the step-action procedure.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

Summary of OC-3 paddleboard replacement in a SuperNode or SuperNode SE Message Switch



NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

How to replace an NT9X63 OC-3 paddleboard

ATTENTION

Use this procedure as indicated from a step in a maintenance procedure or by your maintenance support group.

At the MAP terminal

- 1 Get a replacement OC-3 two port interface paddleboard CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.
- 2 Access the MS MAP level. At the MAP terminal type
>MAPCI;MTC;MS
and press the Enter key.
The following is a sample MAP display.

MS MAP level

XAC
.

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

MS
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10 LoadMS_
11
12 SwMast
13 Shelf
14 QueryMS
15
16
17 InterMS_
18 Clock

Message Switch

Clock

Shelf 0

Inter-MS Link 0 1

MS 0

S

M Free

- -

MS 1

S

Slave

- -

MS:

XMAP0

Time 14:12 >

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

- 3** Examine the MS MAP level. Record the MS clock configuration displayed under the Clock header. Determine if the CP that you must replace is in the Slave or Master MS. The Master MS controls the clocking for the Slave MS. The following text displayed under the Clock header indicates the Slave MS unit:

- Slave
- S Flt
- S OOS
- S Free

The following text displayed under the Clock header indicates the Master MS unit:

- Master
- M Free
- M Flt

If the MS that contains the CP is	Do
the Master MS	step 4
the Slave MS	step 8

- 4** Switch clock mastership. At the MS MAP level type

>SWMAST

and press the Enter key

Example of system response:

Request to Switch Clock Mastership MS: 0 submitted.

Request to Switch Clock Mastership MS: 0 passed.

If the SWMAST command is	Do
successful	step 5
not successful	step 6

- 5** Wait 10 min. to make sure that the change in MS mastership does not cause any alarm.

If the MS is	Do
stable	step 7
not stable	step 22

- 6** Perform the procedure Failure to switch clock mastership in this document. Complete the procedure and return to this point.

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

- 7 Determine if the slave MS is in a ManB state. Examine the MS MAP level.

Note: The letter M on the right of the MS 0 or MS 1 header on the MS MAP level identifies a ManB MS.

If the MS is	Do
not ManB	step 8
ManB	step 9

- 8 ManB the Slave MS. At the MS MAP level type

>BSY <ms_number>

and press the Enter key

where

<ms_number> is the number of the slave MS (0 or 1).

If the MS is	Do
in a ManB state	step 9
not in a ManB state	step 22

At the MS shelf:

9



WARNING

Risk of equipment damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

Examine the Slave MS shelf. Determine if the red LED on the NT9X13 CPU is lit.

If the CPU LED is	Do
lit	step 10
not lit	step 22

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

10

**CAUTION****Risk of loss of service**

Make sure that you only power down the Slave MS. If you power down the Master MS, an outage occurs.

Power down the Slave MS as follows:

- a Locate the NT9X30 power converter CP in slot 4F. Press down and release the power switch located on the faceplate of the MS NT9X30 power converter.
 - b Locate the NT9X31 power converter CP in slot 1F. Press down and release the power switch located on the faceplate of the MS NT9X31 power converter.
 - c Locate the power converter CPs in slots 33F and 36F. Press down at the same time and release the power switches located on the faceplates of the MS power converters.
- 11 Locate the OC-3 two port interface paddleboard CP on the Slave MS shelf.
- 12 Label the OC-3 fiber optic cable connections on the OC-3 two port interface paddleboard CP. Label the cable pair in the transmit port in accordance with office standards. Label the cable pair in the receive port in accordance with office standards.

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

13



WARNING

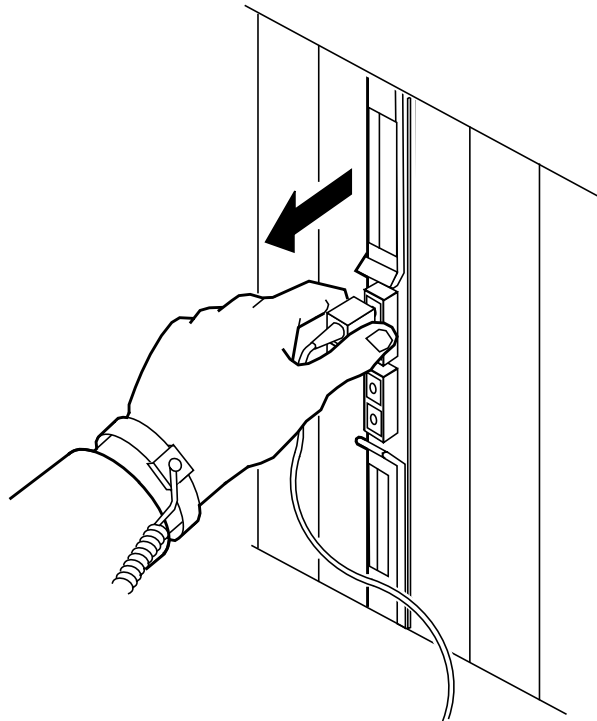
Risk of fiber cable damage

Handle the fiber optic cables with caution. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface reduces communication performance.

Disconnect the fiber optic cables from the faceplate of the OC-3 two port interface paddleboard CP. Use the diagrams shown in this step.

- a Hold the connector by the receptacle body only.
- b Carefully pull the fiber optic connector away from the receptacle.
- c Place the fiber optic cable in a safe location away from the physical shelf.

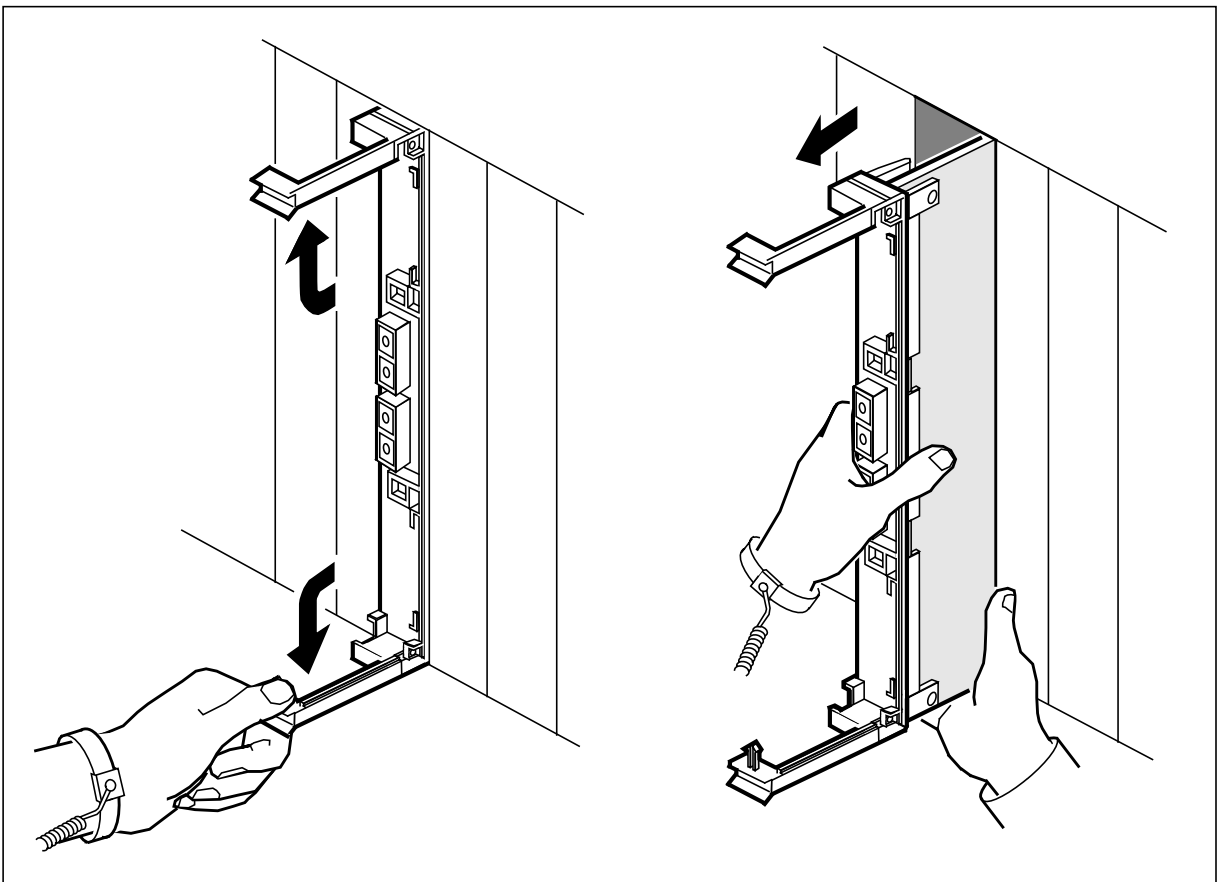
Disconnect the fiber optic cable from the OC-3 two port interface paddleboard



NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

- 14** Remove the OC-3 two port interface paddleboard from the MS shelf. Use the diagrams shown in this step.
- Open the locking levers on the CP
 - Carefully pull the CP toward you by the locking levers until it extends half way from the shelf opening
 - Hold the CP by the faceplate with one hand and support the bottom edge with the other hand. Remove the CP completely from the shelf.

Remove the OC-3 two port interface paddleboard from the Slave MS shelf

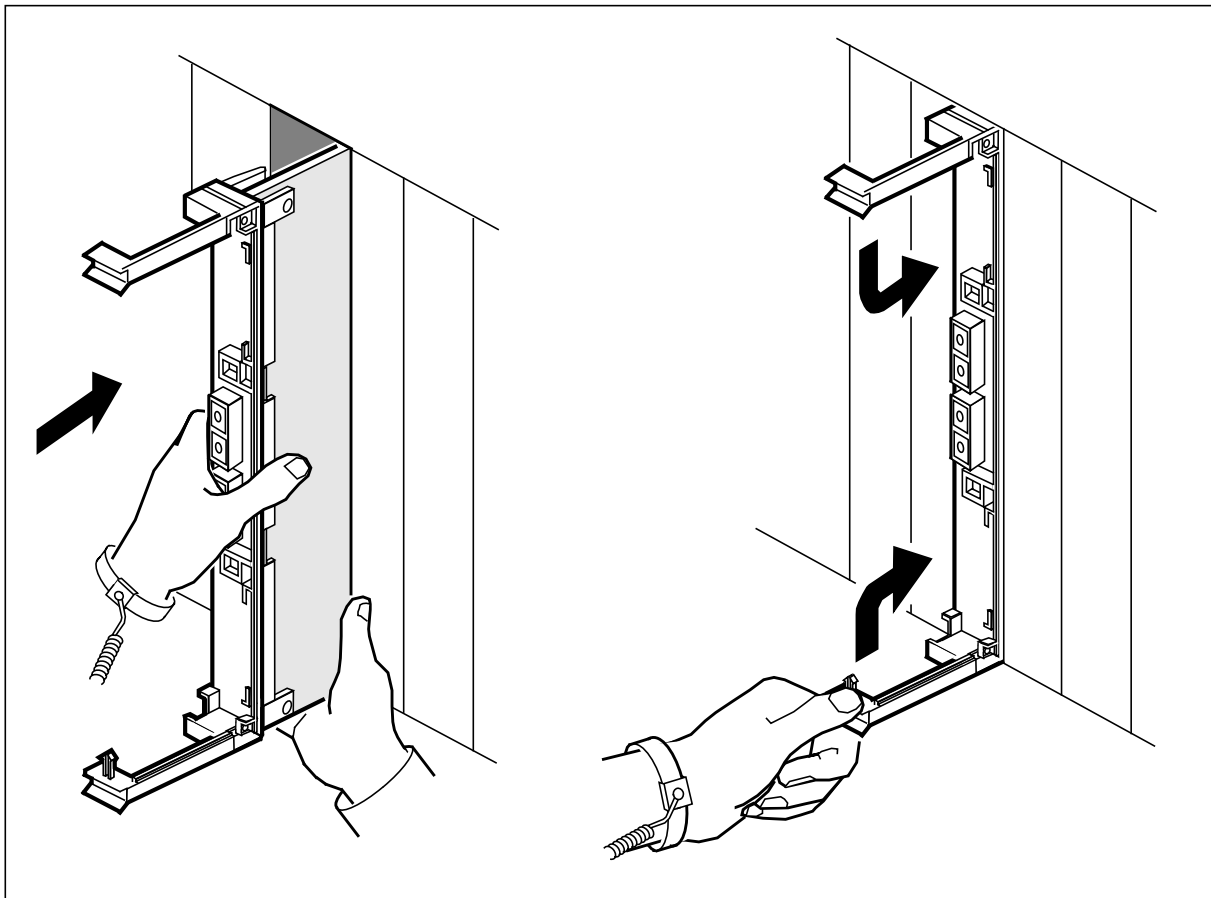


- 15** Place the OC-3 two port interface paddleboard CP in ESD protective packaging.

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

- 16** Insert the replacement OC-3 two port interface paddleboard CP into the slot. Use the diagrams shown in this step.
- a** Remove the replacement OC-3 dual port interface packlet from the ESD protective packaging.
 - b** Open the upper and lower locking levers on the packlet.
 - c** Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
 - d** Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
 - e** Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
 - f** Close the locking levers to secure the CP. Do not force the locking levers to close.

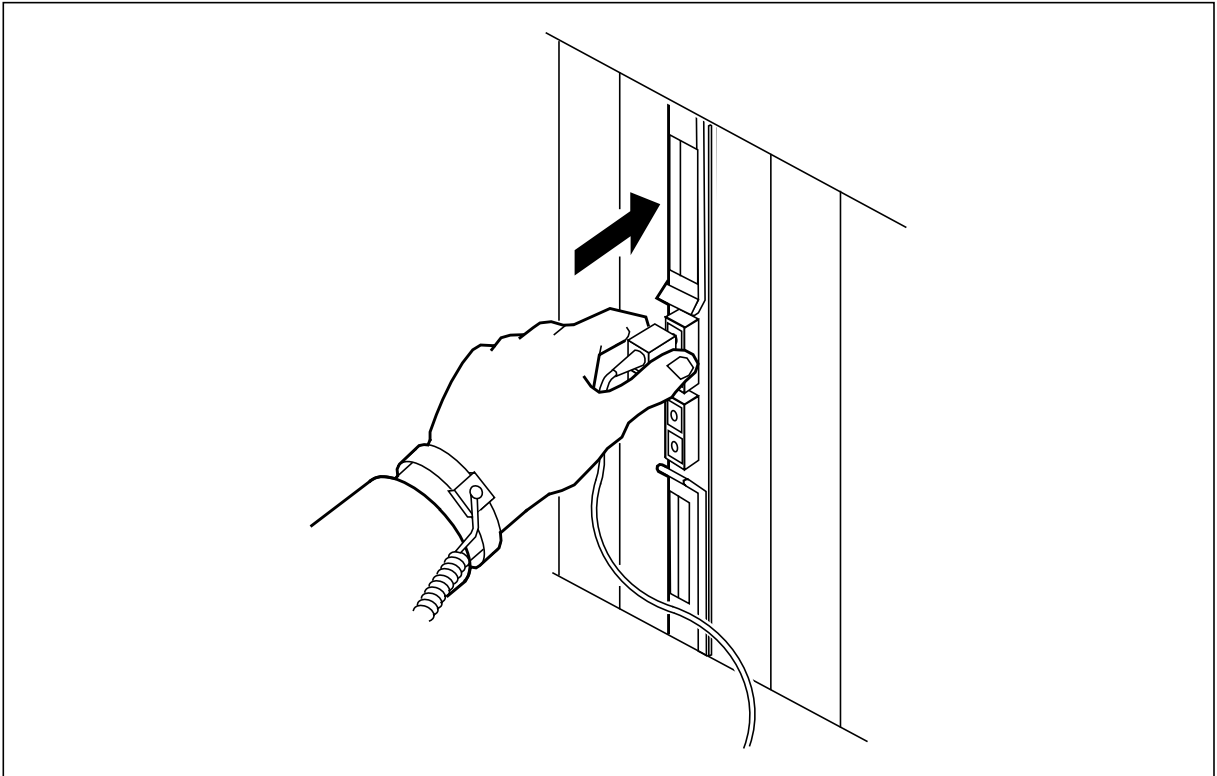
Insert the OC-3 two port interface paddleboard into the Slave MS shelf



NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

- 17 Connect the fiber optic cables to the OC-3 two port interface paddleboard CP. Use the diagrams shown in this step.
- a Hold the connector by the receptacle body only.
 - b Carefully insert the fiber optic connector into the correct receptacle.

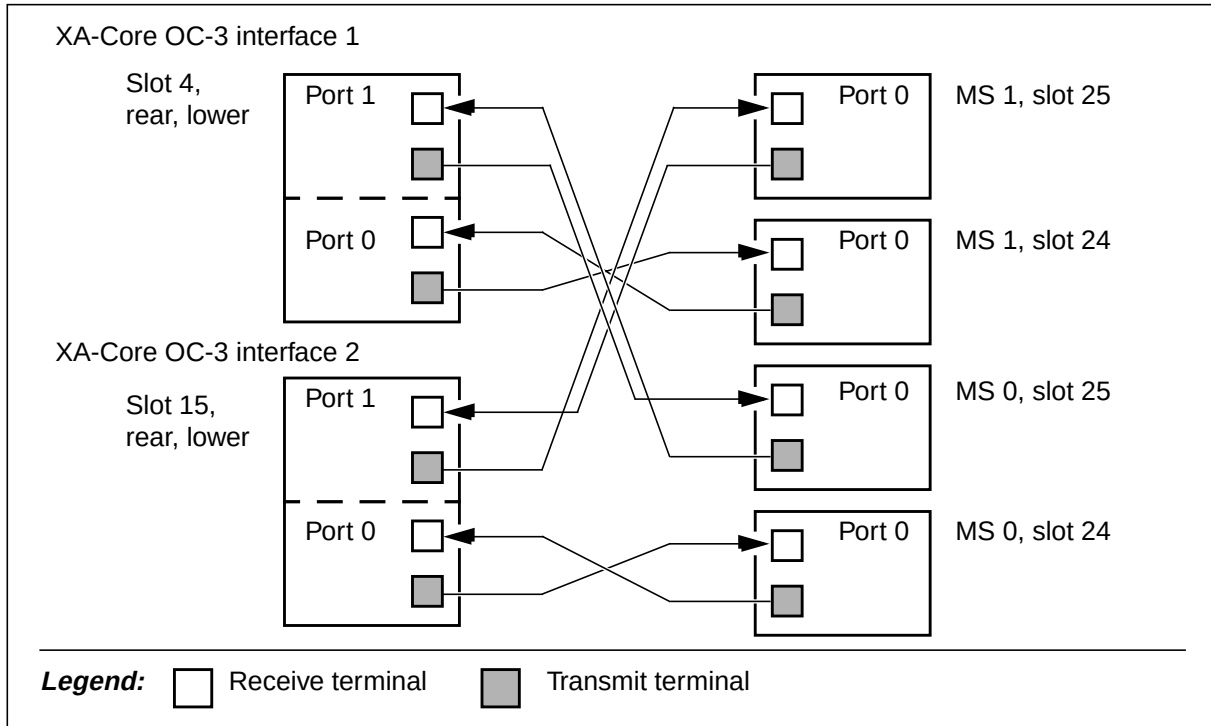
Connect the fiber optic cable to the OC-3 two port interface paddleboard



NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

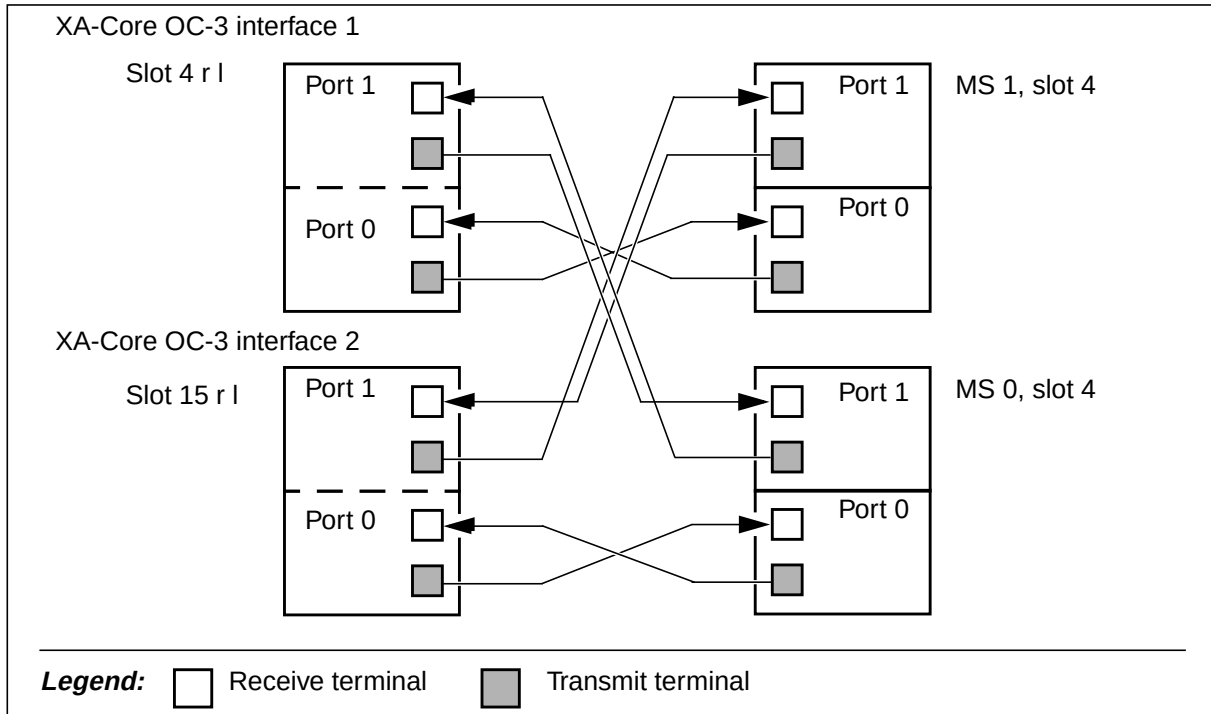
- 18** Examine the fiber optic cable connections. Make sure that the fiber optic connectors fit correctly into the OC-3 two-port interface packet and OC-3 two-port interface paddleboard ports. Use the diagrams in this step to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)



NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



19 Power up the Slave MS as follows:

- a** Locate the power converters in slots 33F and 36F. Lift and release the power switches at the same time. The power switches are on the faceplates of the MS power converters.
- b** Locate the NT9X31 power converter CP in slot 1F. Lift and release the power switch located on the faceplate of the MS NT9X31 power converter CP.
- c** Locate the NT9X30 power converter CP in slot 4F. Lift and release the power switch located on the faceplate of the MS NT9X30 power converter CP.

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (continued)

At the MAP terminal

20 Reload the image on the Slave MS. At the MS MAP perform the following:

- a** Reload the most recent MS image file. At the MS MAP level type:

>LOADMS <ms_number>

and press the Enter key

where

<ms_number> is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

Active boot file CSP04AX_MS from S01DVOL1 on DISK
will be loaded

Do you want to proceed with loading?

Please confirm ("YES", "Y", "NO", or "N"):

- b** Confirm the image load command. At the MS MAP level type

>YES

and press the Enter key

Example of a MAP response

Request to Load MS: 0 submitted.

Request to Load MS: 0 passed.

Loading completed, entry point is #0604FC0

If the LOADMS command	Do
passed	step 21
failed	step 22

NT9X63 OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch (end)

- 21** Return the Slave MS to service. At the MS MAP level type
>RTS <ms_number>
and press the Enter key
where
<ms_number> is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

Request to RTS MS: 0 submitted.
Request to RTS MS: 0 passed.
No node faults were found on MS 0.
No cards were found to be faulty on MS 0.

If the RTS command	Do
failed	step 22
passed	step 23

- 22** Call the next level of support.
- 23** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core

Application

This section contains the procedure for replacing an NTLX02AA, CA, or DA processor element (PE) circuit pack, with a replacement of the same product engineering code and version (that is, AA for AA, CA for CA, or DA for DA).

The following table lists the correct XA-Core PE CP versions.

PEC	Suffix	Circuit pack name
NTLX02	AA	Processor Element PPC604/256MB Module
NTLX02	CA	Processor Element PPC604/256MB Module
NTLX02	DA	Processor Element MPC7410/512MB Module

Note 1: In releases following CSP13, the NTLX02AA version of the PE circuit pack is not supported.

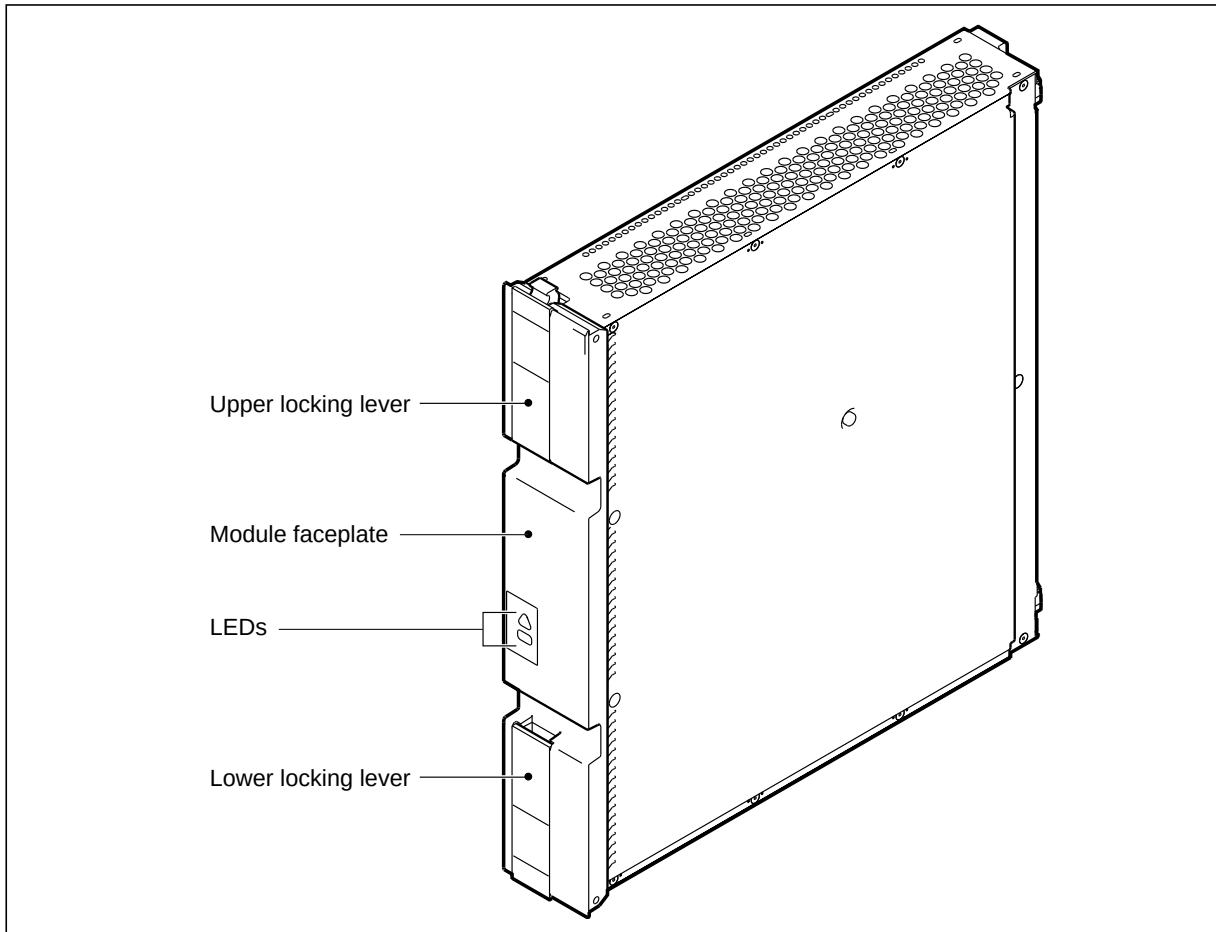
Note 2: The NTLX02DA PE circuit pack is scheduled for availability at some time following the initial release of CSP17.

Note 3: For instructions on upgrading from model NTLX02CA to model NTLX02DA, see installation method (IM) 65-6161, which is available from Nortel Networks.

Note 4: For instructions on increasing or decreasing the number of PE circuit packs in the XA-Core, see installation method (IM) number 35-6176, which is available from Nortel Networks.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

NTLX02 Processor element (PE) CP front and side views



Common procedures

There are no common procedures.

Light emitting diode (LED) visual indicators

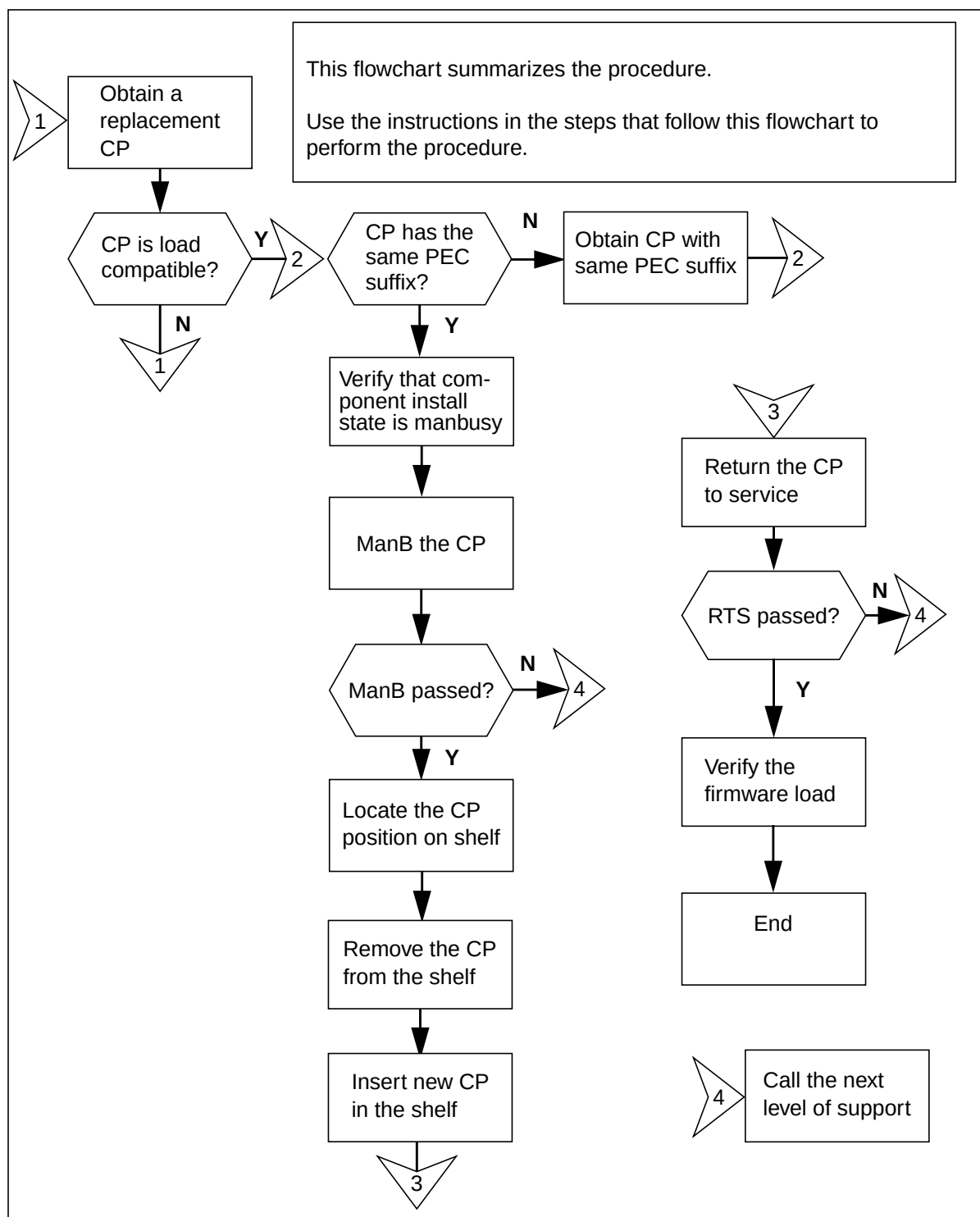
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action: replacing a PE circuit pack

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX02 PE CP replacement procedure



NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX02 PE CP

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of equipment damage**

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**CAUTION****Loss of service**

Do not repeat steps.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location

- 1 Get a replacement CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.
- 2 Access the XA-Core PE MAP level. At the MAP terminal type
>MAPCI;MTC;XAC;PE
and press the Enter key.
- 3 Before installing any new circuit packs, check that the XA_COMPONENT_INSTALL_STATE office parameter has the value MANBUSY, and edit the value if necessary. Proceed as follows.

- a Start the table editor. Type

>TABLE OFCENG

and press the Enter key

Example of system response:

TABLE: OFCENG

- b Display the value of the XA_COMPONENT_INSTALL_STATE office parameter. Type

>POS XA_COMPONENT_INSTALL_STATEL

and press the Enter key.

Example of system response:

XA_COMPONENT_INSTALL_STATE <parameter-value>

where

<parameter-value> is INSERVICE or MANBUSY

If the parameter value is	Do
INSERVICE	step 4
MANBUSY	substep c

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- c** Change the value of the office parameter. Type

>CHA

and press the Enter key.

Example of system response:

PARMVAL: INSERVICE

- d** Type the new parameter value. Type

>MANBUSY

and press the Enter key.

Example of system response:

TUPLE TO BE CHANGED
XA_COMPONENT_INSTALL_STATE MANBUSY
ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.

- e** Confirm the change. Type

>Y

and press the Enter key.

Example of system response:

TUPLE CHANGED

- f** Exit from the table editor. Type

>QUIT

and press the Enter key.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 4 Examine the PE MAP display. Record the status and the shelf location of the PE CP that you need to replace.

The following is a sample MAP display.

PE MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.
PE		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		1234567890	12345678	456789012345	.	PEfl	.	.	.
2		Sta:	-----	-----	0	0	0	0	0
3		Dep:							
4		Typ:	**	* *					
5		PE:							
6 Tst_									
7 Bsy_									
8 RTS_									
9									
10 LoadFW									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									

- 5 ManB the PE CP. At the PE MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 4 f

Example of system response:

Warning: Bsy command will take it out of service.
Please confirm ("YES", "Y", "NO", or "N")

To confirm the command type:

>Y

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response

Bsy 4 front complete

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

- 6 Indicate the ManB PE CP. At the PE MAP type

>INDICAT card <nn> <s>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>INDICAT card 4 f

Example of system response:

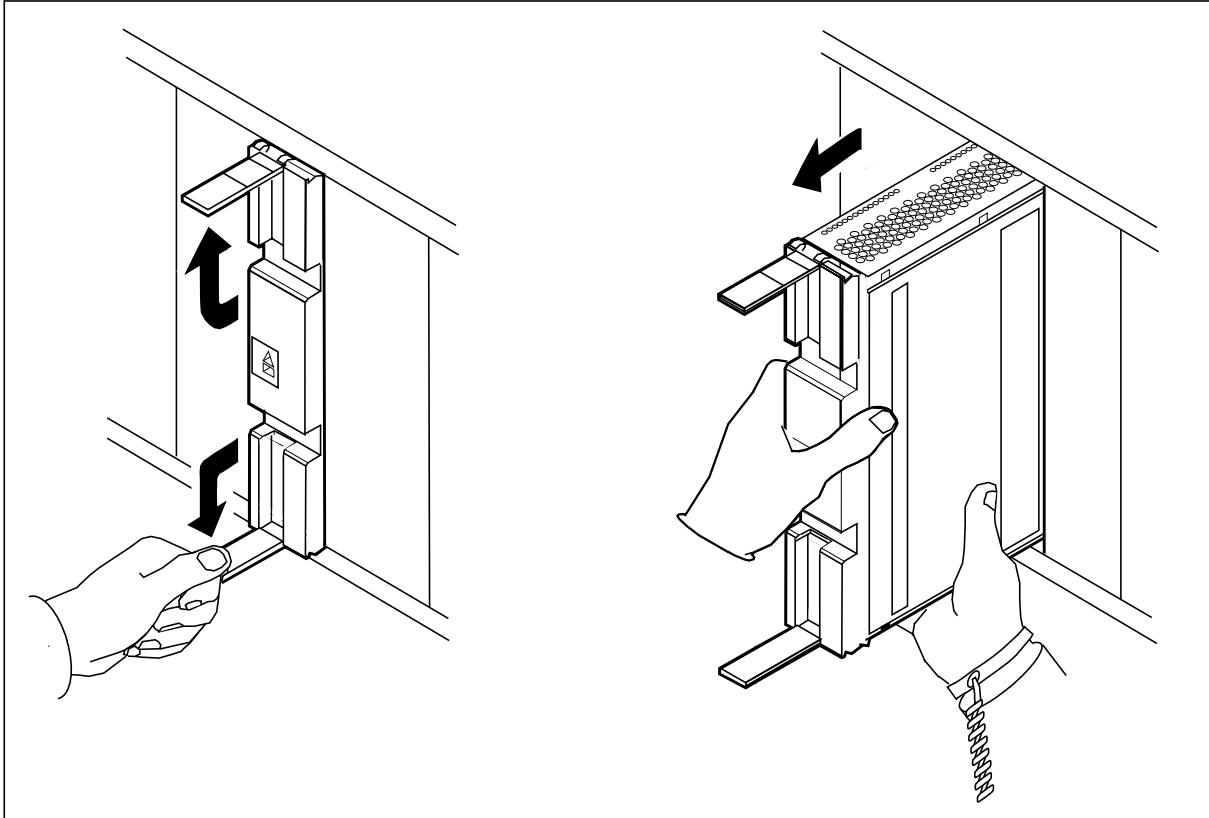
Indicate 4 front passed

At the XA-Core physical shelf

- 7 Locate the PE CP on the XA-Core physical shelf. Use the CP location information recorded from the PE MAP in step 4. Look for a winking, red triangular LED (from step 6).
- 8 Remove the PE CP from the physical shelf. Use the diagrams shown in this step.
 - a Open the locking levers on the CP.
 - b Hold the CP by the locking levers. Pull the CP half way from the shelf opening toward you.
 - c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

NTLX02 PE removal from the XA-Core shelf



- 9 Place the CP in ESD protective packaging.
- 10 Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.

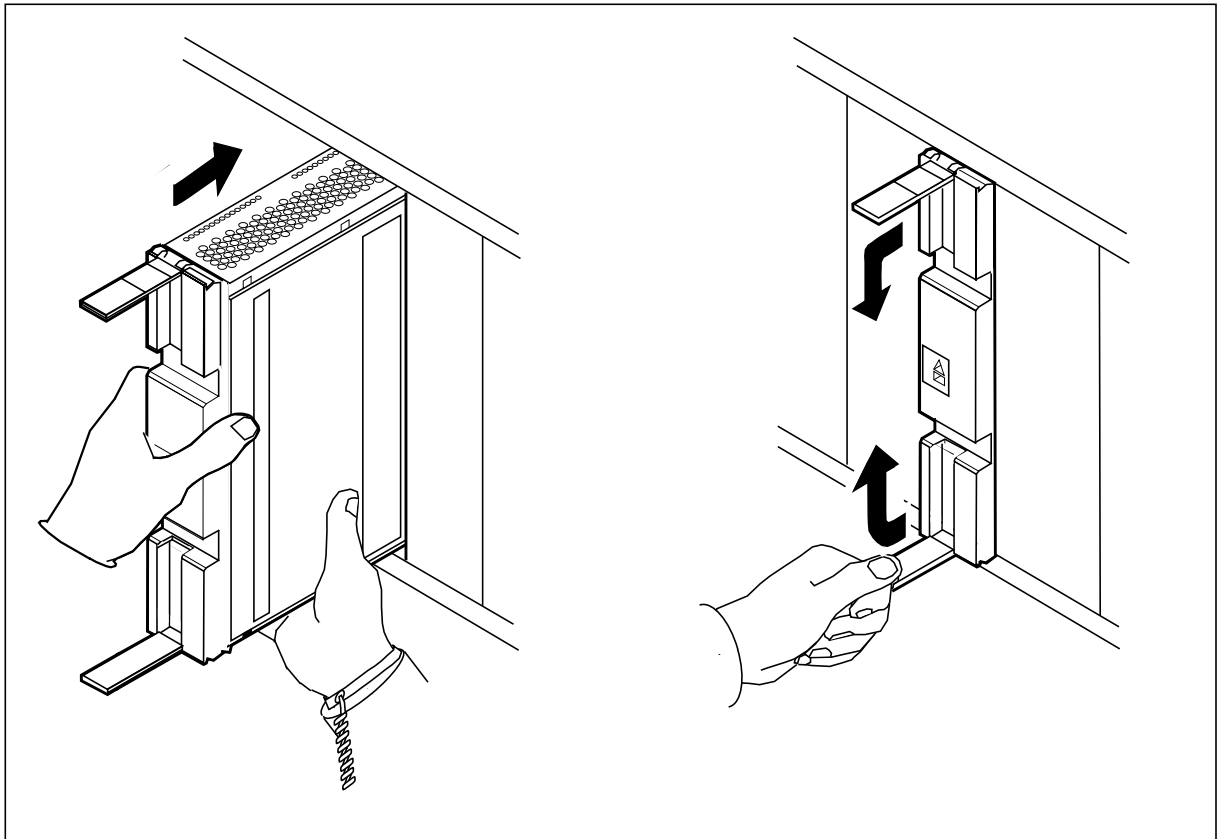
If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.
- 11 Insert the replacement PE CP into the physical shelf slot. Use the diagrams shown in this step.
 - a Open the locking levers on the replacement PE CP.
 - b Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - c Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.
 - d Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the faceplate until the CP is fit into position.

NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- e Close the locking levers to lock the CP in the physical shelf. Do not force the locking levers to close.

NTLX02 PE CP insertion in the XA-Core shelf



At the MAP terminal

- 12 Return the PE CP to service. At the PE MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command:

>RTS 4 f

**NTLX02 PE circuit pack
in a SuperNode and SuperNode SE XA-Core (end)**

Example of system response:

RTS 4 front passed

If the replacement PE CP is	Do
not returned to service	step 13
returned to service	step 14

13 Call the next level of support.

14 Check that the newly installed circuit pack contains the proper firmware load.
At the PE MAP level type

>QUERY CARD <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the
physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP location in the physical
shelf - front (f) or rear (r)

Example of command:

>QUERY CARD 4 f

The system displays several items of information, including the firmware
version.

Example of system response:

Query 4 front completed

.

.

Firmware Ver.: EP16C023

.

.

If the firmware version	Do
is the proper version	step 16
is not the proper version	step 15

15 Perform the procedure to upgrade the firmware. The procedure is in this
document, in the chapter "Introduction to routine maintenance procedures".
Return to this point when complete.

16 You have completed this procedure. Return to the main procedure that sent
you to this procedure and continue as instructed.

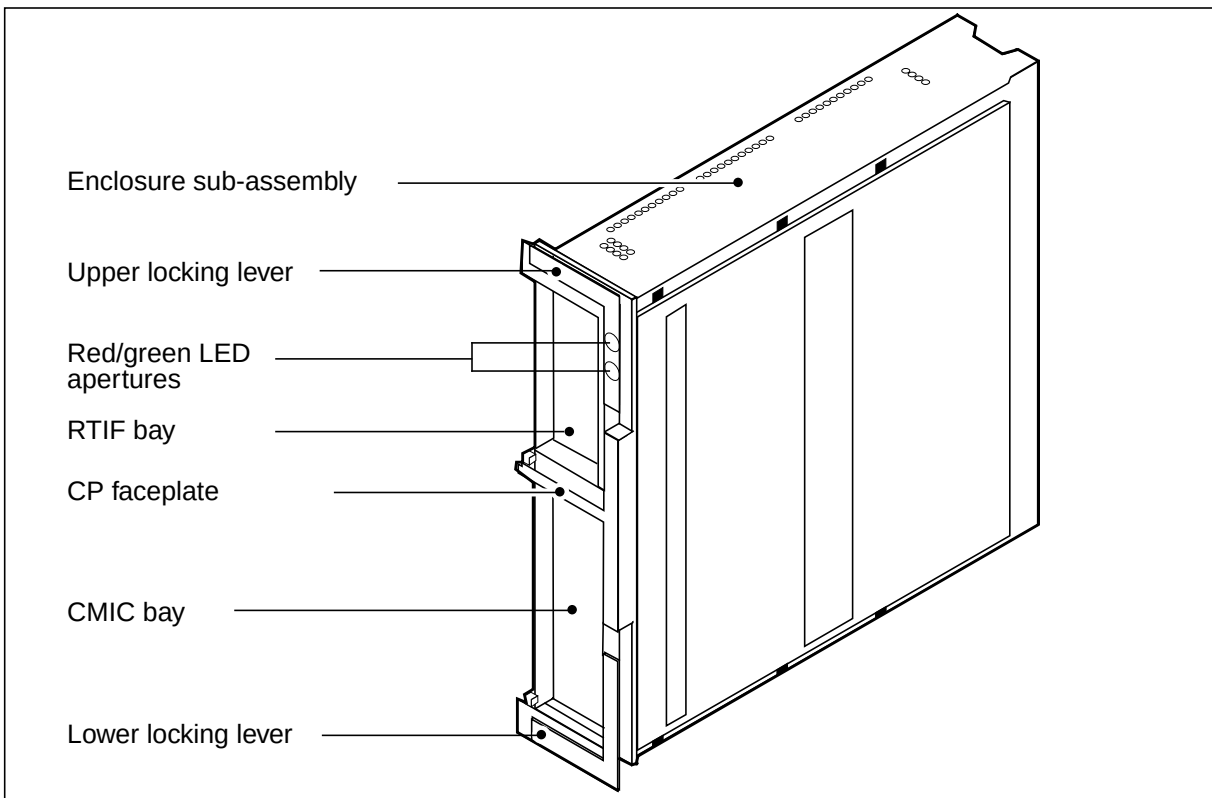
NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core

Application

This section contains the procedure for replacing an NTLX03AA or AB single-width Input/Output processor (IOP) circuit pack (CP) with a replacement of the same product engineering code and version (that is, AA for AA or AB for AB). The single-width IOP CP contains the reset terminal interface (RTIF) and OC-3 two port interface packlets (dependent packlets). When not equipped with CMIC or RTIF packlets, the lower position is available for AMDI packlets and Ethernet packlets. Remove the packlets from the NTLX03 first. The following table lists the correct single-width IOP CP versions.

PEC	Suffix	CP name
NTLX03	AA, AB	Single width Input/Output Processor (IOP) CP

NTLX03AA single width IOP CP front and side views



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

There are no common procedures.

Light emitting diode (LED) visual indicators

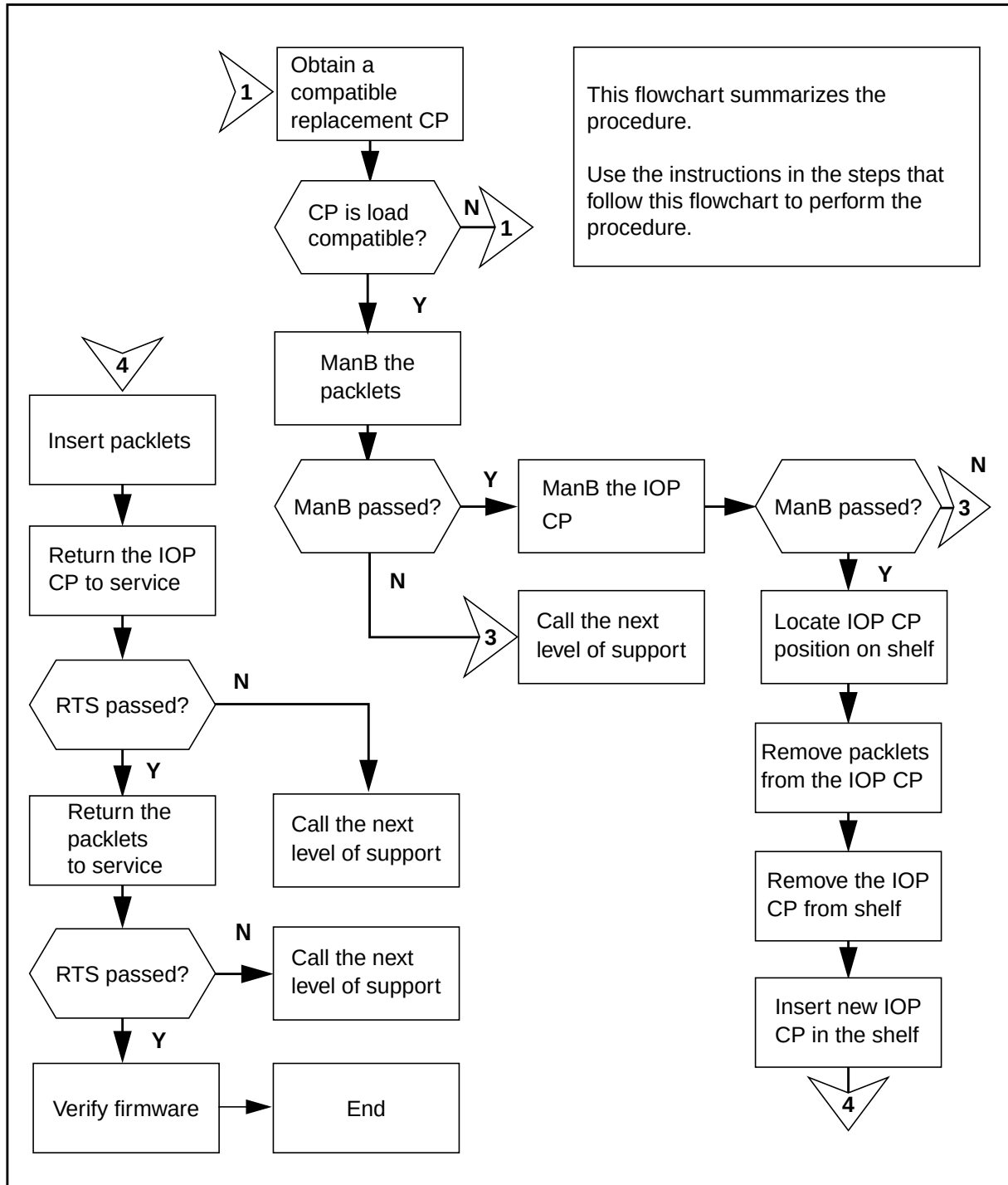
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX03 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX03 single width IOP CP



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location

- 1 Get a replacement CP. The replacement CP must have the product engineering code (PEC) NTLX03AA or NTLX03AB. (The AA and AB versions can coexist in the XA-Core, so you can replace an AA with an AB or vice versa.)

At the XA-Core MAP

- 2 Access the XA-Core IO MAP level. At the MAP terminal type
>MAPCI;MTC;XAC;IO
and press the Enter key.
- 3 Examine the IO MAP level. Determine the location of the IOP CP that you need to replace. Record the IOP CP location on the physical shelf, side and slot. Make sure that redundant components are InSv before removing the IOP CP that you need to replace.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOPflt	.	.	.	.	.	.	.	.	.
IO		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	IOPfl	.
2		Sta:--	-----	S--	-----	0	0	1	2
3		Dep:							
4		Typ: *		*	*	*			
5		Slot:	Side:	Status:		Upper:	Middle:	Lower:	
6 Tst_	2	Front	.			Tape .		Disk .	
7 Bsy_	17	Front	.			Tape .		Disk .	
8 RTS_	4	Rear	S			RTIF C		CMIC C	
9	15	Rear	.			RTIF .		CMIC .	
10 LoadFW_	XAC:								
11	IO:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

	If the redundant IOP, OC-3 or RTIF are	Do
	in a ManB state	step 4
	in an InSv state	step 5
	in a SysB state	step 29
4	Return the redundant IOP CP or packlets to service. At the correct MAP level type >RTS <nn> <s> or >RTS <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l) Example of command use: >RTS 2 f <i>Example of system response:</i> RTS 2 front completed	
	If the redundant IOP, OC-3 and RTIF are	Do
	in service	step 5
	not in service	step 29
5	ManB the OC-3 two port interface packlet contained in the IOP CP. Perform the following steps. a Exit from the IO MAP level and access the CMIC MAP level. At the IO MAP level type >CMIC and press the Enter key.	

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- b** ManB the OC-3 two port interface packlet. At the CMIC MAP level type

>BSY <nn> <s> <p>

or

>BSY <nn> <s> <p> FORCE

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

or

>BSY 4 r l FORCE

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

BSY 4 rear upper completed

If the packlet is	Do
in a ManB state	step 6
not in a ManB state	step 29

- 6** ManB the RTIF packlet contained in the IOP CP. Perform the following steps.

- a** Exit from the CMIC MAP level and access the RTIF MAP level. At the CMIC MAP level type

>RTIF

and press the Enter key.

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- b ManB the RTIF packet. At the RTIF MAP level type

>BSY <nn> <s> <p>

or

>BSY<nn> <s> <p> FORCE

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r u

or

>BSY 4 r u FORCE

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

BSY 4 rear upper completed

If the packet is	Do
in a ManB state	step 7
not in a ManB state	step 29

- 7 ManB the IOP CP that is set for replacement. Perform the following steps
- a Exit from the RTIF MAP level and access the IO MAP level. At the RTIF MAP level type
- >IO
- and press the Enter key.

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- b ManB the IOP CP. At the IO MAP level type

>BSY <nn> <s>

or

>BSY<nn> <s> FORCE

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 4 r

or

>BSY 4 r FORCE

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

BSY 4 rear completed

If the IOP CP is	Do
in a ManB state	step 8
not in a ManB state	step 29

- 8 Indicate the ManB IOP CP. At the IO MAP level, type

>INDICAT card <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of command use:

>INDICAT card 4 r

Example of system response:

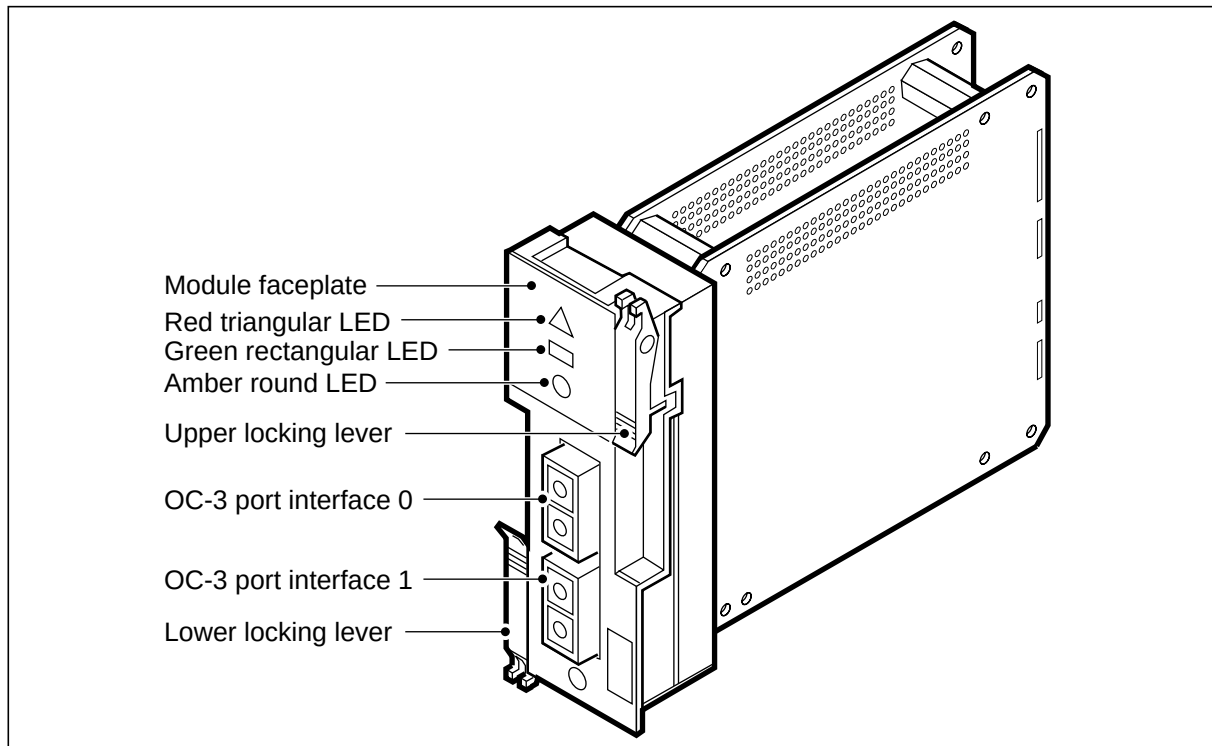
Indicate 4 rear complete

At the XA-Core physical shelf:

- 9 Locate the IOP CP on the XA-Core physical shelf. Refer to the IOP CP location recorded from 3. Examine the CP faceplates on the XA-Core physical shelf.

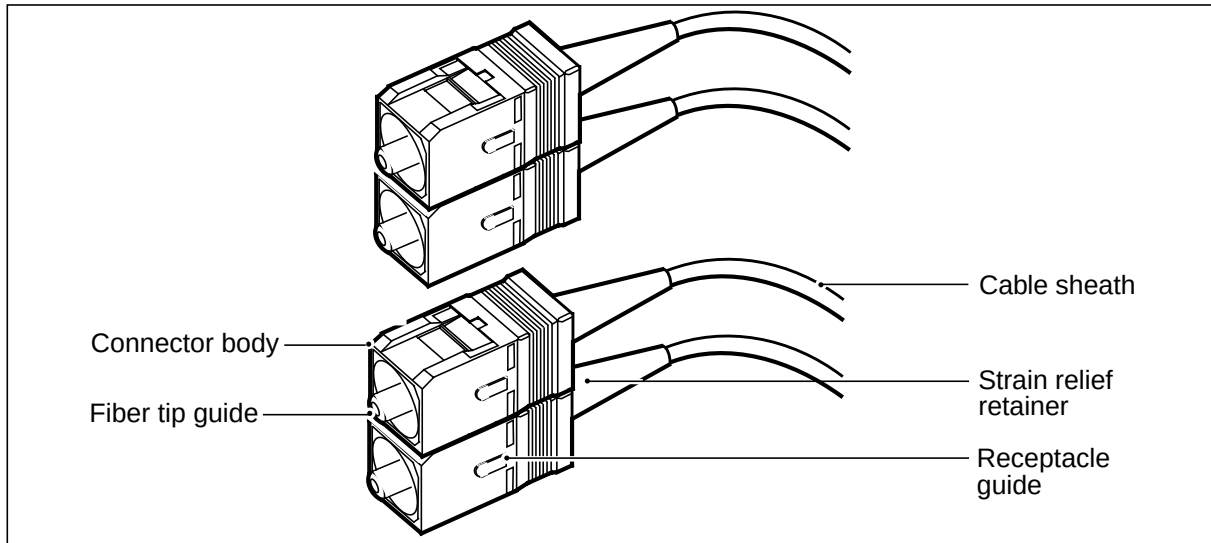
Look for a flashing, red triangular LED on the IO CP. Look for lit red LEDs on the related packlets.
- 10 Locate the OC-3 two port interface packlet in the IOP CP. Label the OC-3 fiber optic cable connections on the OC-3 two port interface packlet in accordance with office standards.

OC-3 two port interface packlet



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Paired fiber optic cable connectors

**11****WARNING****Fiber cable damage**

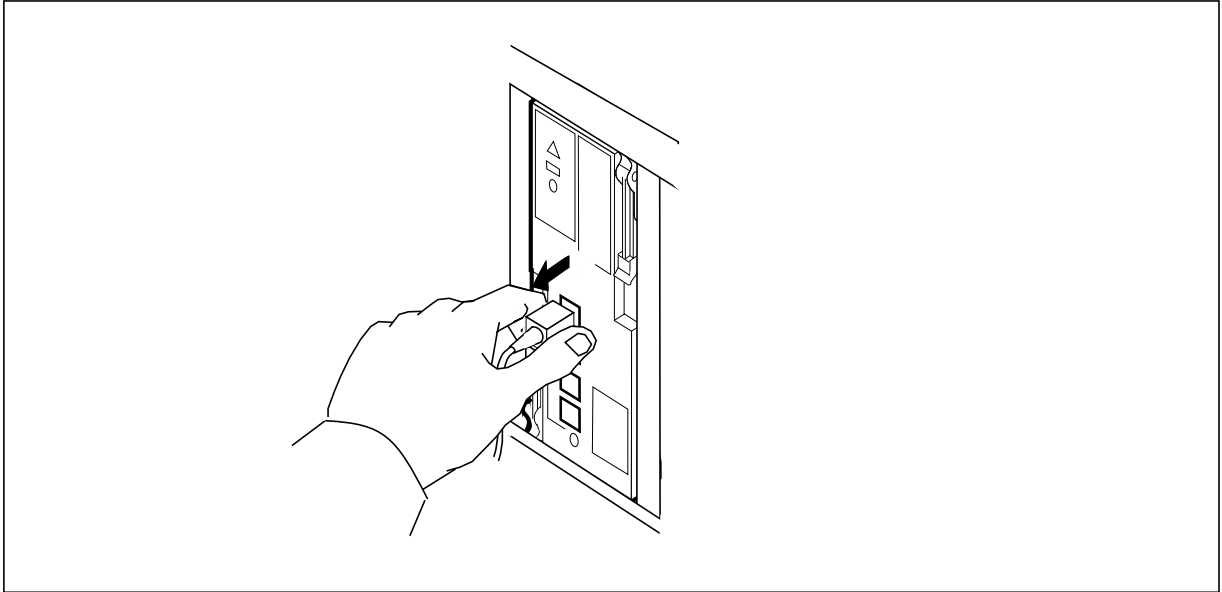
Handle the fiber optic cables with caution. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface reduces communication performance.

Disconnect the fiber optic cables from the faceplate of the OC-3 two port interface packet.

- a** Hold the connector by the receptacle body only.
- b** Carefully pull the fiber optic connector away from the receptacle.
- c** Place the fiber optic cable in a safe location away from the physical shelf.

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

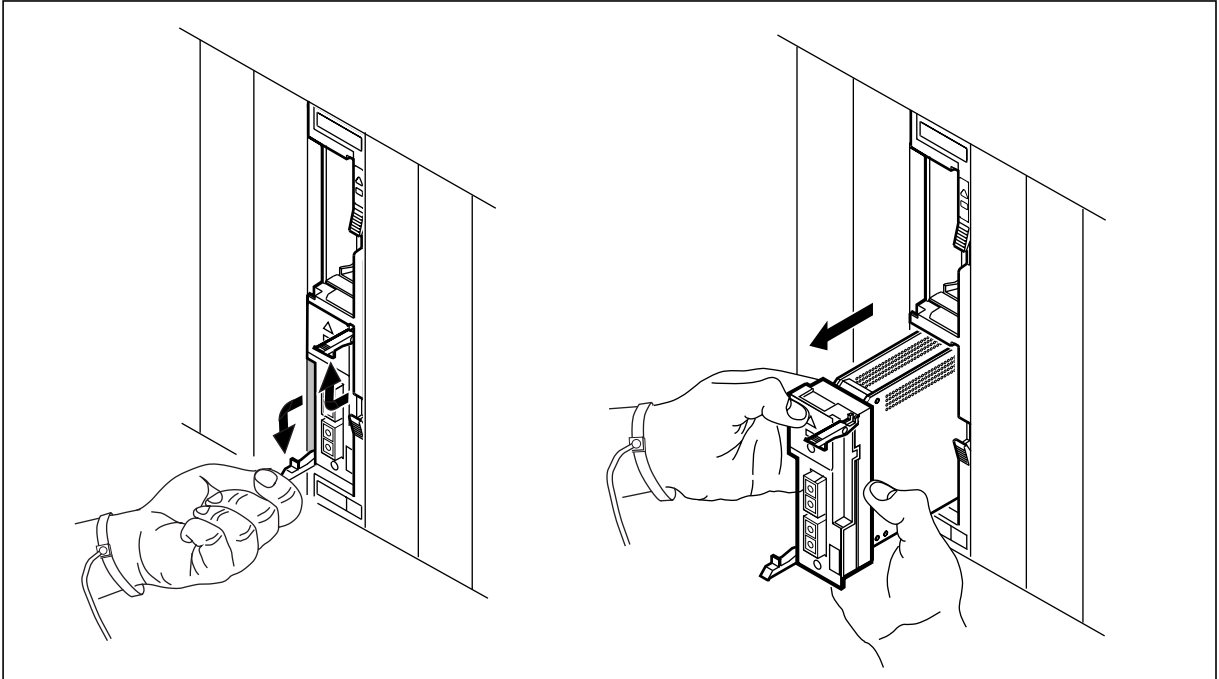
Disconnect the fiber optic cables from the OC-3 two port interface packlet



- 12** Remove the OC-3 two port interface packlet from the IOP CP. Perform the following steps:
- a** Open the upper and lower locking levers on the packlet.
 - b** Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.
 - c** Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.
 - d** Place the packlet in ESD protective packaging.

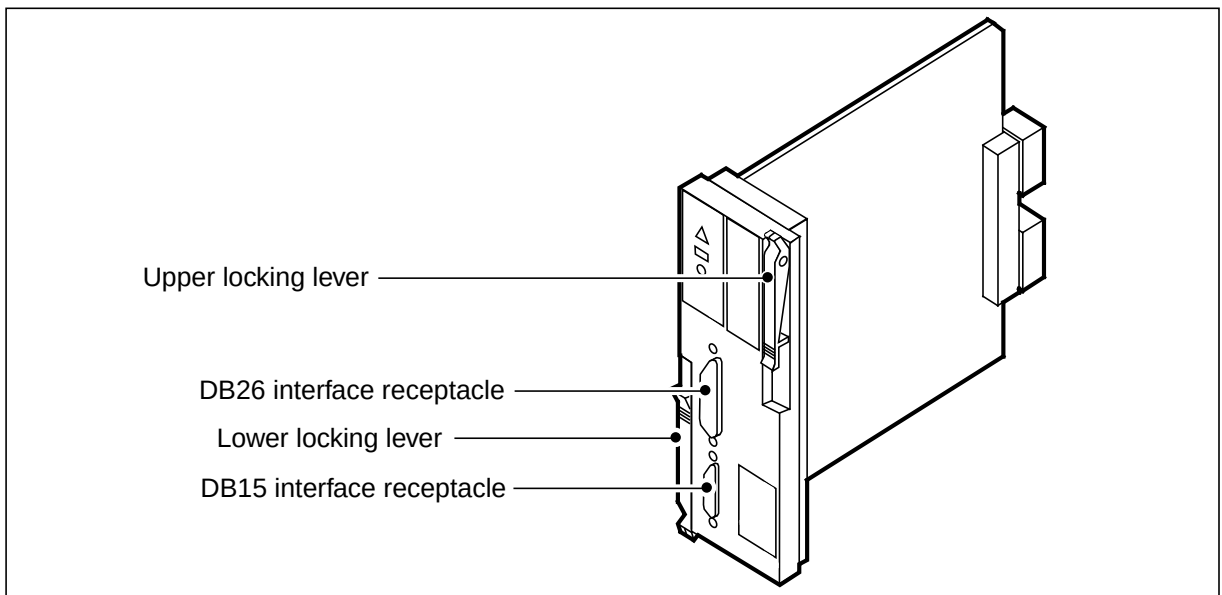
NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Remove the OC-3 two port interface packlet from the IOP CP



- 13** Locate the RTIF packlet in the IOP CP. Label the local and remote port cable connections on the RTIF packlet in accordance with office standards.

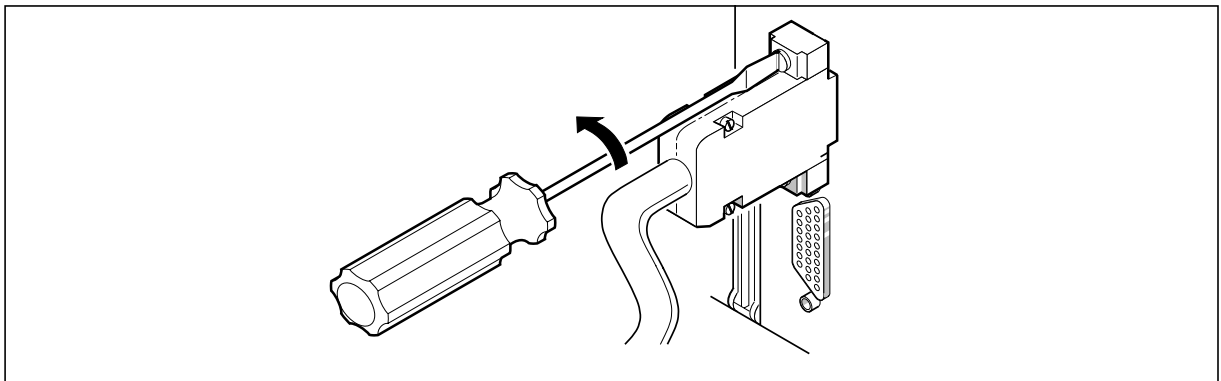
Reset terminal interface (RTIF) packlet



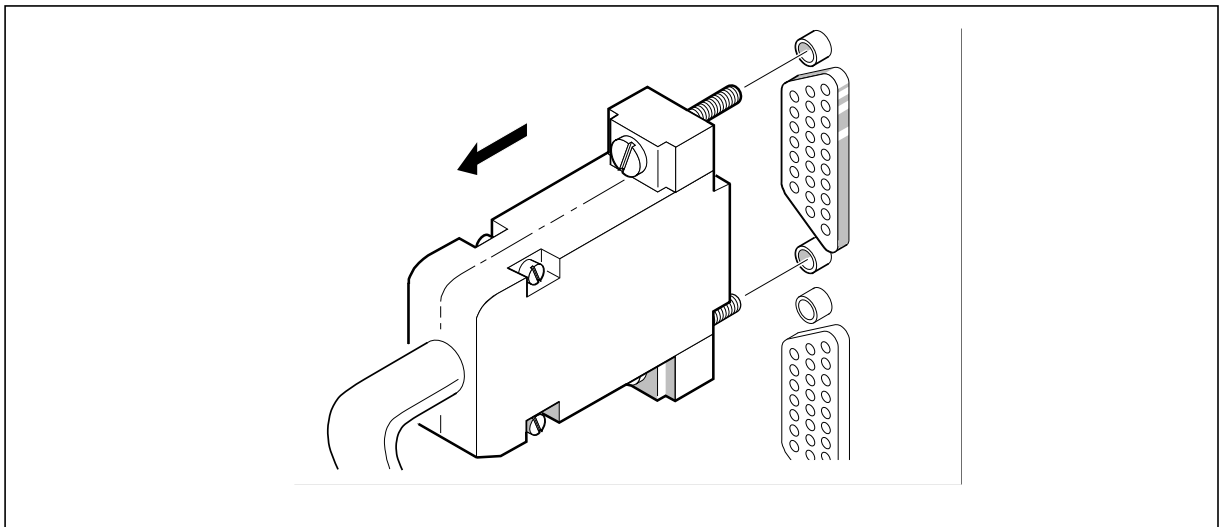
NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 14 Disconnect the remote port cable from the RTIF packlet (see illustrations in this step).
 - a Loosen the connector retaining screws from the RTIF ports.
 - b Hold the connector by the body only.
 - c Carefully pull the connectors away from the port receptacles.
 - d Place the cables in a safe location away from the packlet.

Loosen the RTIF port connectors from the RTIF ports



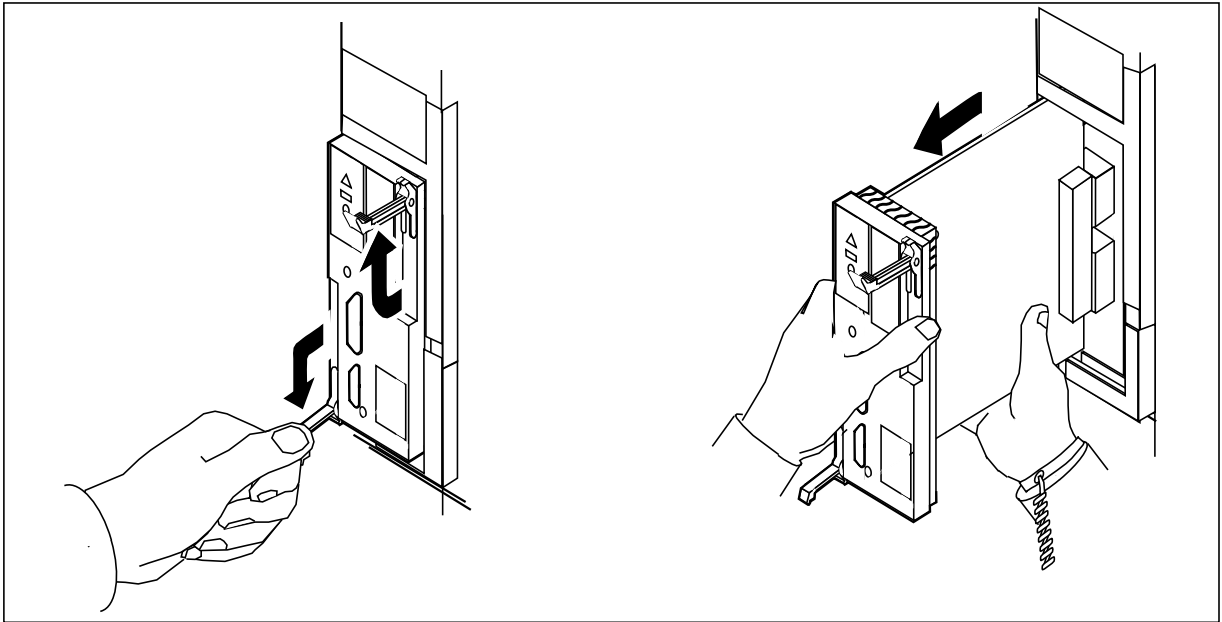
Remove all RTIF port connectors from the RTIF ports



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 15 Disconnect the local port cable from the RTIF packet.
 - a Loosen the connector retaining screws from the RTIF ports.
 - b Hold the connector by the body only.
 - c Carefully pull the connectors away from the port receptacles.
 - d Place the cables in a safe location away from the packet.
- 16 Remove the RTIF packet from the IOP CP. Perform the following steps:
 - a Open the locking levers on the RTIF packet.
 - b Carefully pull the packet toward you by the locking levers until it extends half way from the shelf opening.
 - c Hold the packet by the faceplate with one hand and support the bottom edge with the other. Remove the packet completely from the shelf.
 - d Place the packet in ESD protective packaging.

Remove the RTIF packet from the IOP CP



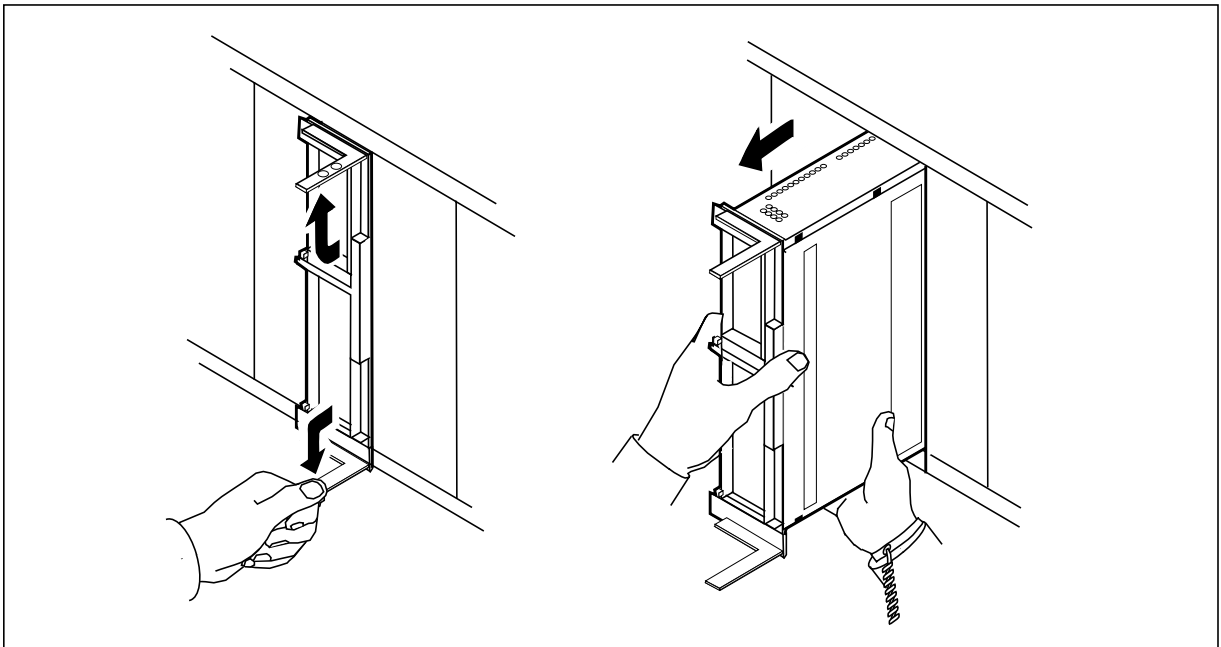
NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 17 Remove the IOP CP from the physical shelf.

Note: Make sure that you remove all packlets from the IOP CP before you perform this step.

- a Open the upper and lower locking levers on the CP.
- b Carefully pull the CP toward you by the locking levers until it extends half way from the shelf opening.
- c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.
- d Place the CP in ESD protective packaging.

Remove the IOP CP from the XA-Core shelf



- 18 Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.

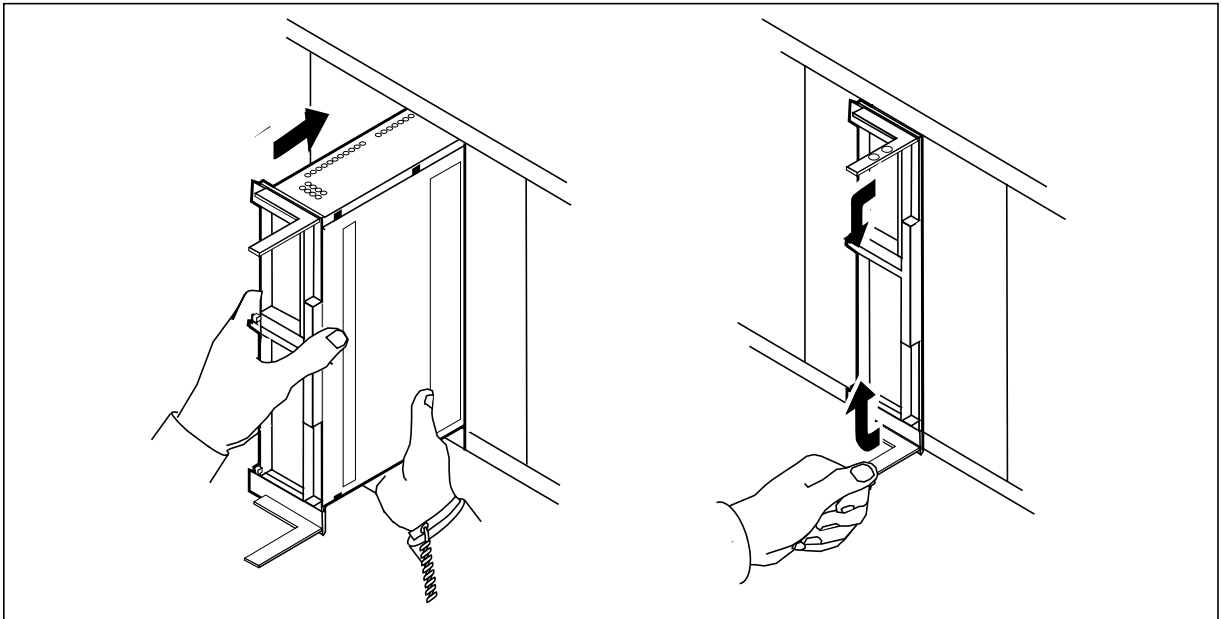
If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 19** Insert the replacement IOP CP in the physical shelf.
- a** Open the upper and lower locking levers on the replacement CP.
 - b** Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - c** Align the CP with the slot in the shelf. Carefully slide the CP into the physical slot.
 - d** Use your fingers or thumbs and push on the upper and lower edges of the faceplate.
 - e** Close the upper and lower locking levers to secure the CP in the physical shelf.

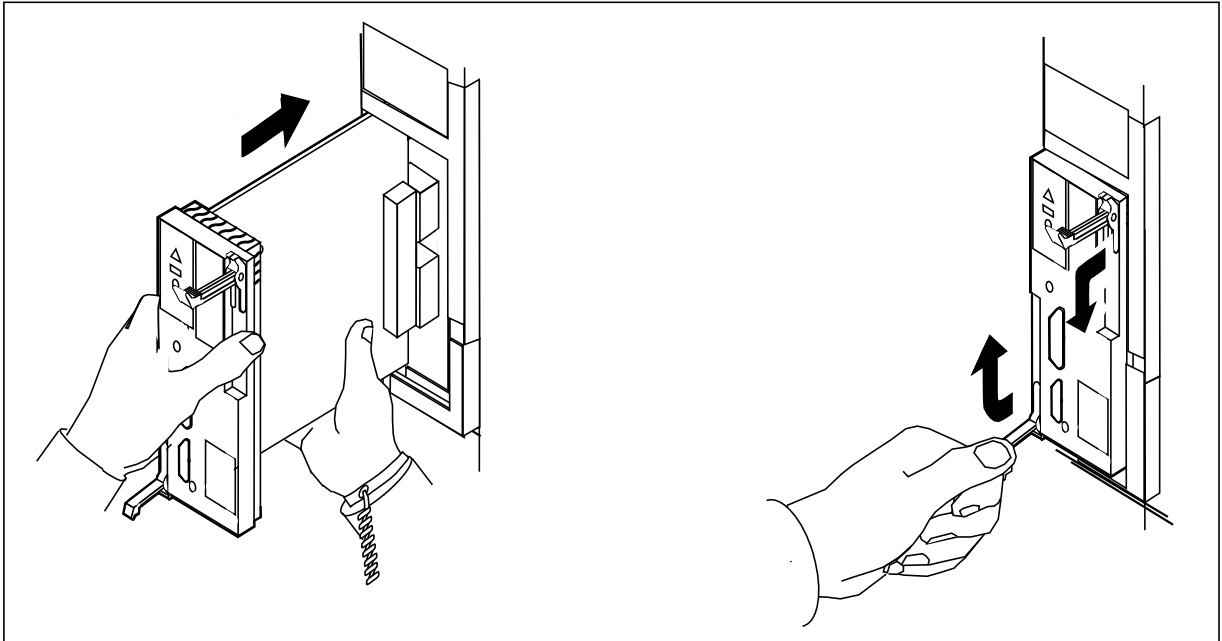
Insert the IOP CP in the XA-Core shelf



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 20** Insert the original RTIF packlet in the upper slot of the replacement IOP CP.
- a** Remove the original RTIF packlet from the ESD protective packaging.
 - b** Open the locking levers on the RTIF packlet.
 - c** Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
 - d** Align the RTIF packlet with the upper IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
 - e** Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
 - f** Close the locking levers to secure the circuit packlet. Do not force the locking levers to close.

Insert the RTIF packlet into the IOP CP

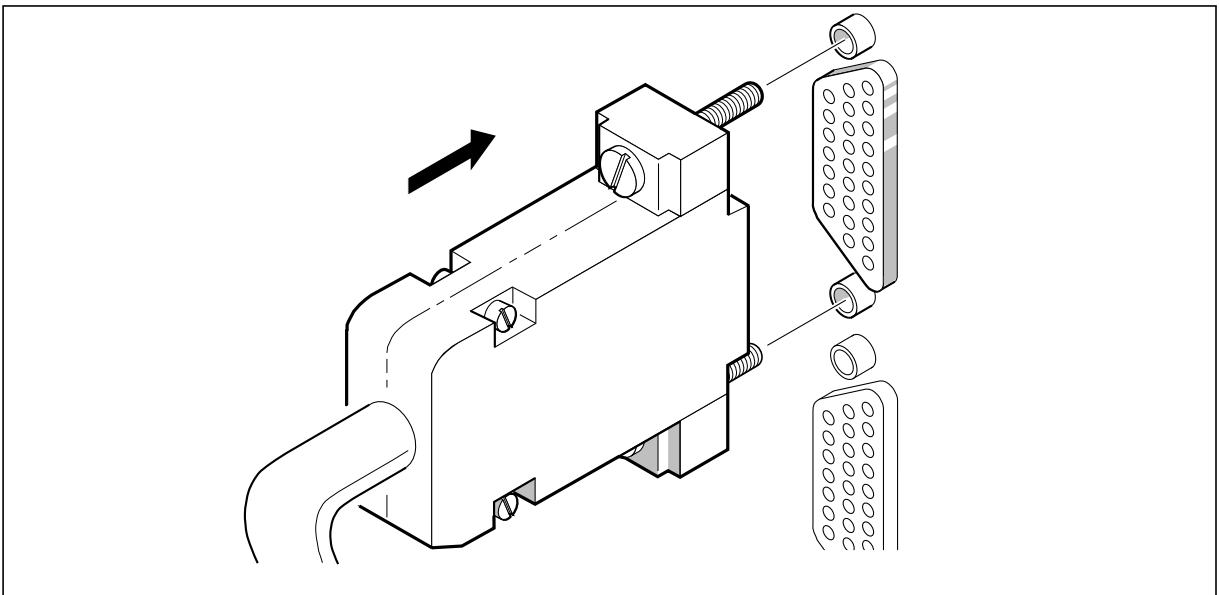


- 21** Connect the local cable to the correct RTIF port receptacle.
- a** Hold the connector by the receptacle body only.
 - b** Align the connector to the correct RTIF port receptacle.
 - c** Push the connector into the receptacle.
 - d** Tighten the connector retaining screws.

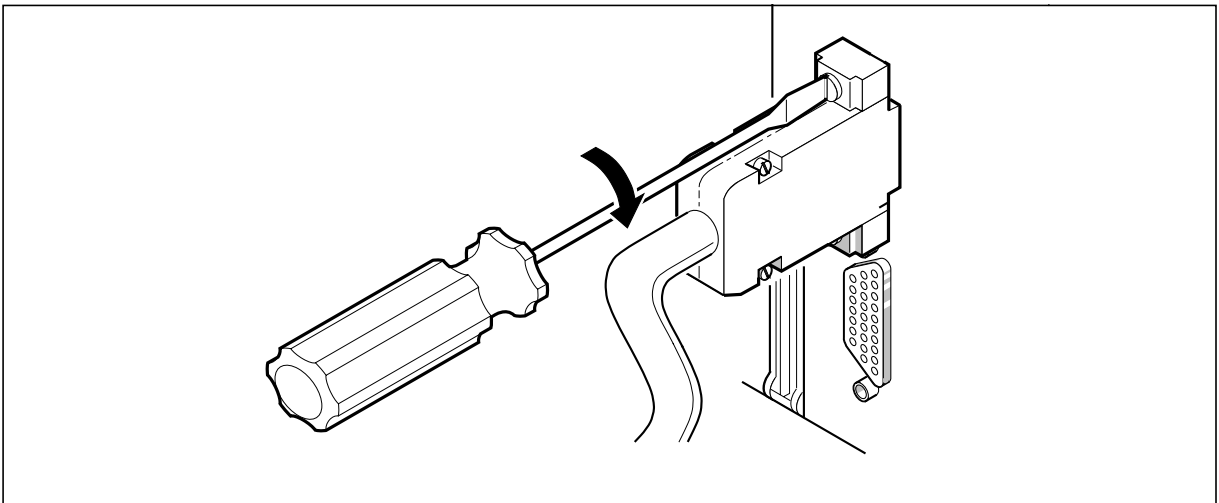
NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 22 Connect the remote cable to the correct RTIF port receptacle (see illustrations in this step).
- Hold the connector by the receptacle body only.
 - Align the connector to the correct RTIF port receptacle.
 - Push the connector into the receptacle.
 - Tighten the connector retaining screws.

Insert the RTIF port connectors in the RTIF port receptacles



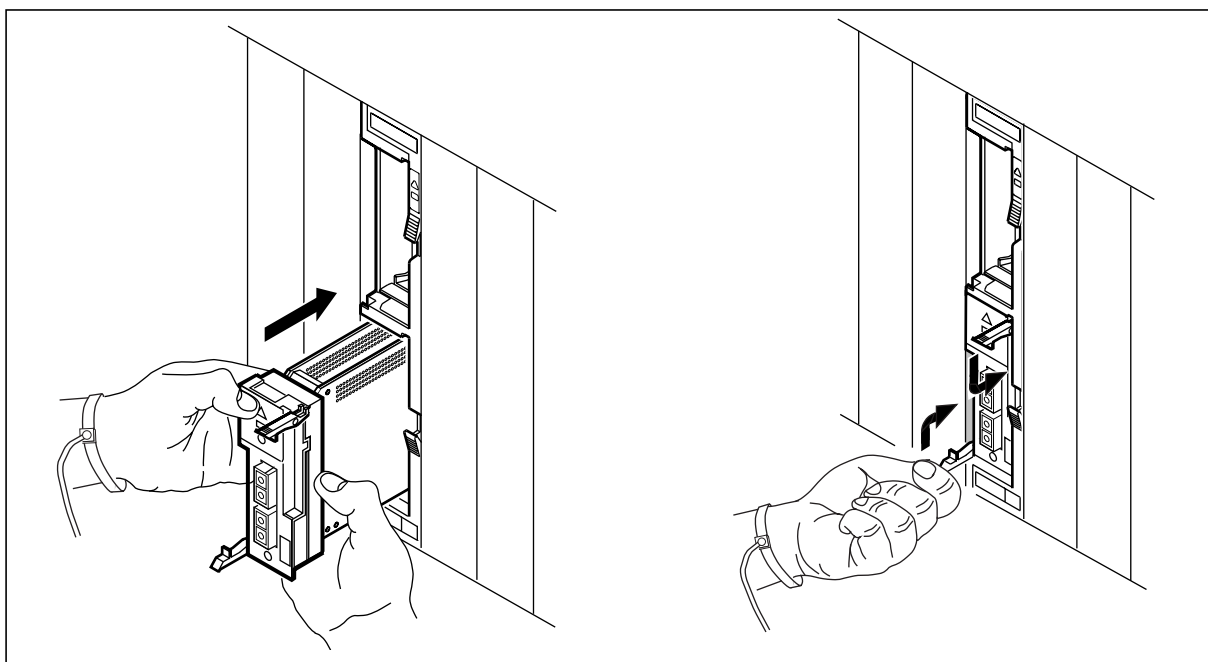
Tighten the RTIF port connectors to the RTIF port receptacles



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 23** Insert the original OC-3 two port interface packlet in the lower IOP CP slot (see the illustrations in this step).
- a** Remove the original packlet from the ESD protective packaging.
 - b** Open the upper and lower locking levers on the packlet.
 - c** Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
 - d** Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
 - e** Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
 - f** Close the locking levers to secure the packlet. Do not force the locking levers to close.

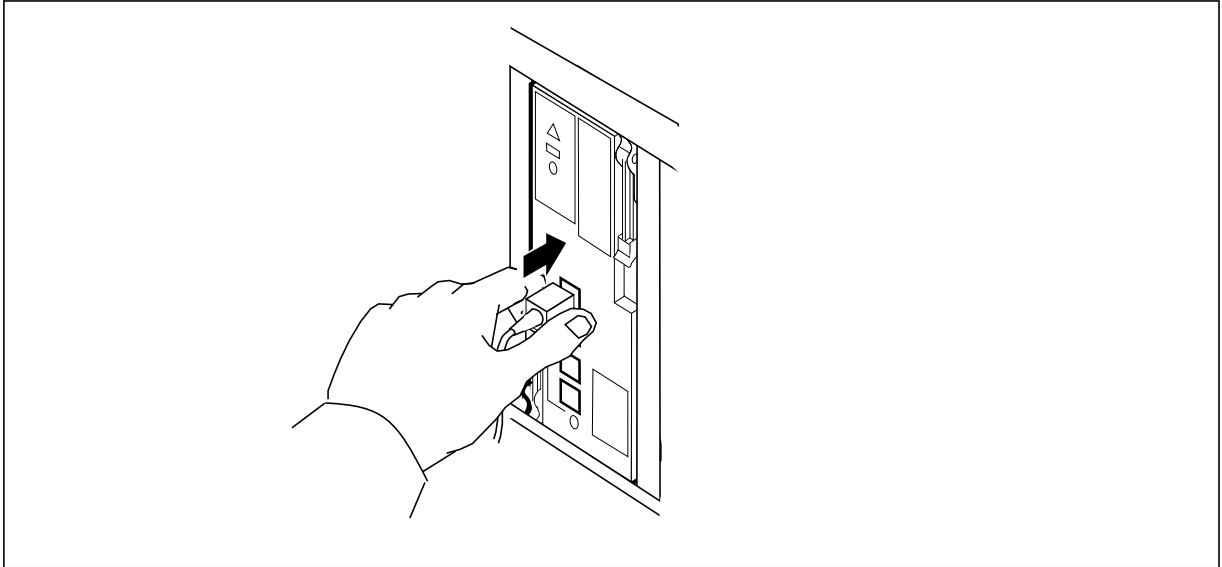
Insert the OC-3 two port interface packlet into the IOP CP



- 24** Connect the fiber optic cables to the correct OC-3 two port interface ports (see the illustration in this step).
- a** Remove the dust caps from the fiber optic cable.
 - b** Clean the fiber optic cables in accordance with office standards.
 - c** Hold the fiber optic cable connector by the body only.
 - d** Carefully insert the fiber optic cable connector into the correct receptacle.

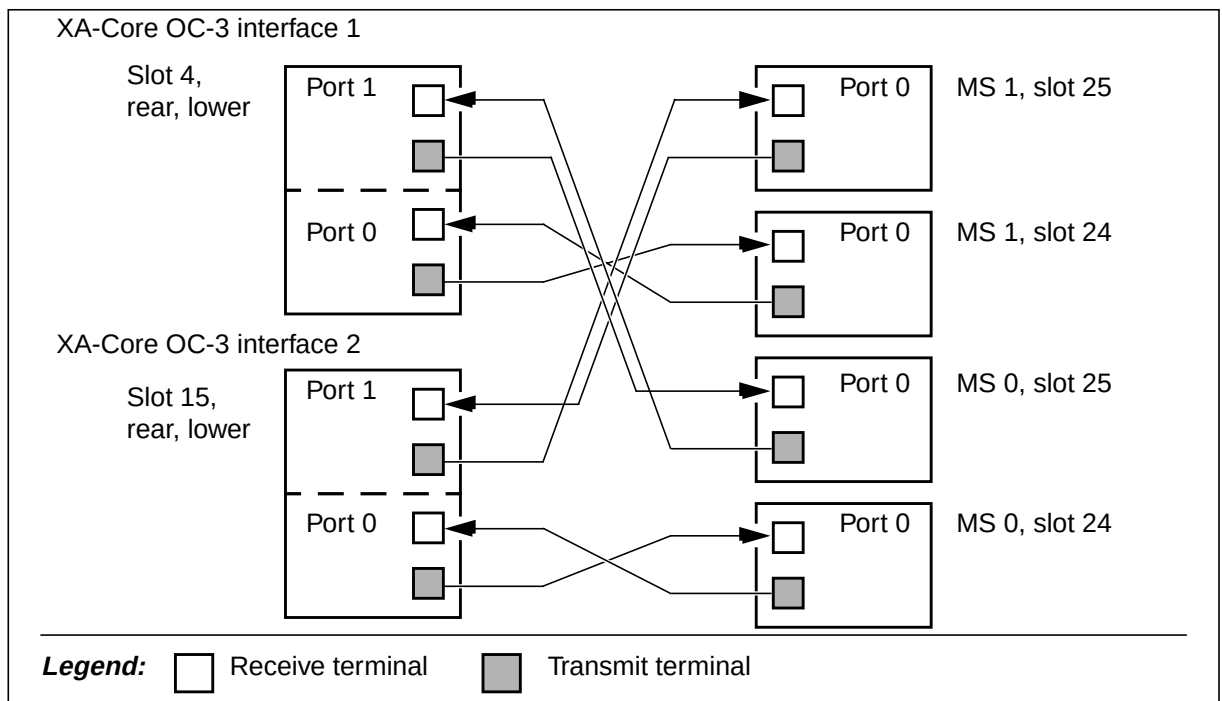
NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Connect the OC-3 two port interface fiber optic cable



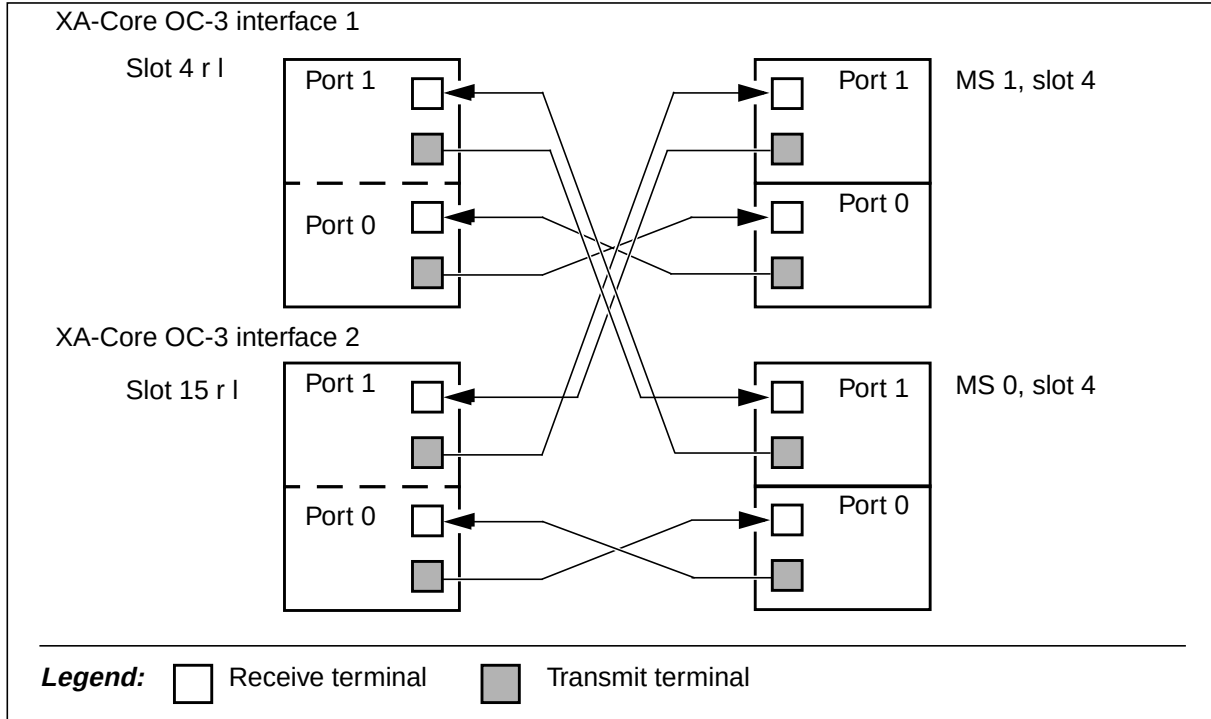
- 25** Examine the fiber optic cables and connectors. Make sure that the link connections fit into the correct OC-3 interface ports. Use the diagrams in this step to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)



NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



At the XA-Core MAP

- 26** Return the IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the
 physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packet location in the
 physical shelf - front (f) or rear (r)
 Example of command use:
>RTS 4 r

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

RTS 4 rear passed

If the IOP CP is	Do
in service	step 27
not in service	step 29

- 27** Return the OC-3 two port interface packlet to service. Perform the following steps.

- a** Exit from the IO MAP level and access the CMIC MAP level. At the IO MAP level type

>CMIC

and press the Enter key.

- b** Return the OC-3 two port interface packlet to service. At the CMIC MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

RTS 4 rear lower passed

If the OC-3 two port interface packlet is	Do
in service	step 28
not in service	step 29

**NTLX03 single width IOP circuit pack
in a SuperNode and SuperNode SE XA-Core** (continued)

- 28** Return the RTIF packet to service. Perform the following steps.
- a** Exit from the CMIC MAP level and access the RTIF MAP level. At the CMIC MAP level type
>RTIF
and press the Enter key.
 - b** Return the RTIF packet to service. At the RTIF MAP level type
>RTS <nn> <s> <p>
and press the Enter key
where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:
>RTS 7 r l

Example of system response:

RTS 4 rear upper passed

If the RTIF packet is	Do
not in service	step 29
in service	step 30

- 29** Call the next level of support

NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (end)

- 30** Check that the newly installed circuit pack contains the proper firmware load.
At the PE MAP level type

>QUERY CARD <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)

Example of command:

>QUERY CARD 7 r

The system displays several items of information, including the firmware version.

Example of system response:

```
Query 7 rearcompleted
.
.
Firmware Ver.: EP16C023
.
.
```

If the firmware version	Do
is the proper version	step 32
is not the proper version	step 31

- 31** Perform the procedure to upgrade the firmware. The procedure is in this document, in the chapter "Introduction to routine maintenance procedures". Return to this point when complete.
- 32** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

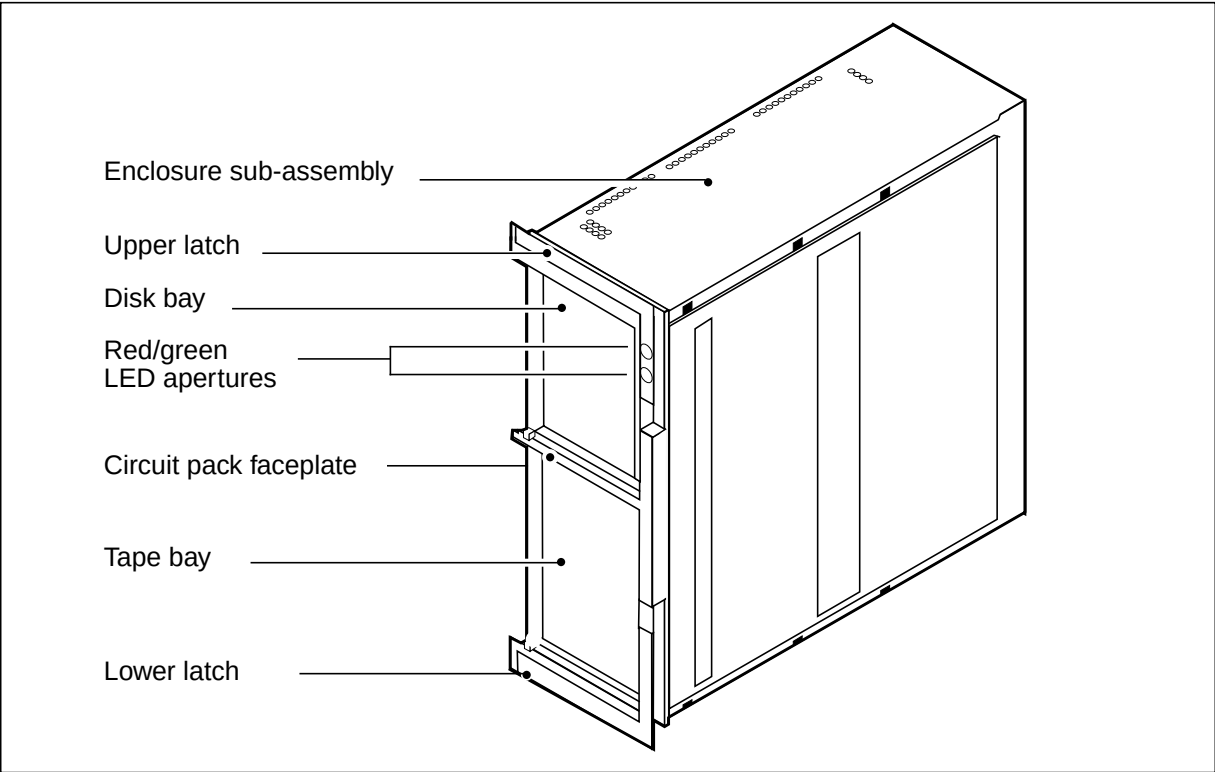
NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core

Application

This section contains the procedure for replacing an NTLX03BA or BB dual-width Input/Output processor (IOP) circuit pack (CP) with a replacement of the same product engineering code and version (that is, BA for BA or BB for BB). The dual-width IOP CP contains tape and disk packlets. Remove the packlets from the NTLX03 first. The following lists the valid XA-Core dual-width IOP CPs.

PEC	Suffix	Circuit pack name
NTLX03	BA, BB	Dual width Input/Output Processor (IOP) circuit pack

NTLX03BA dual-width IOP CP front and side views



NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

There are no common procedures.

Light emitting diode (LED) strategy

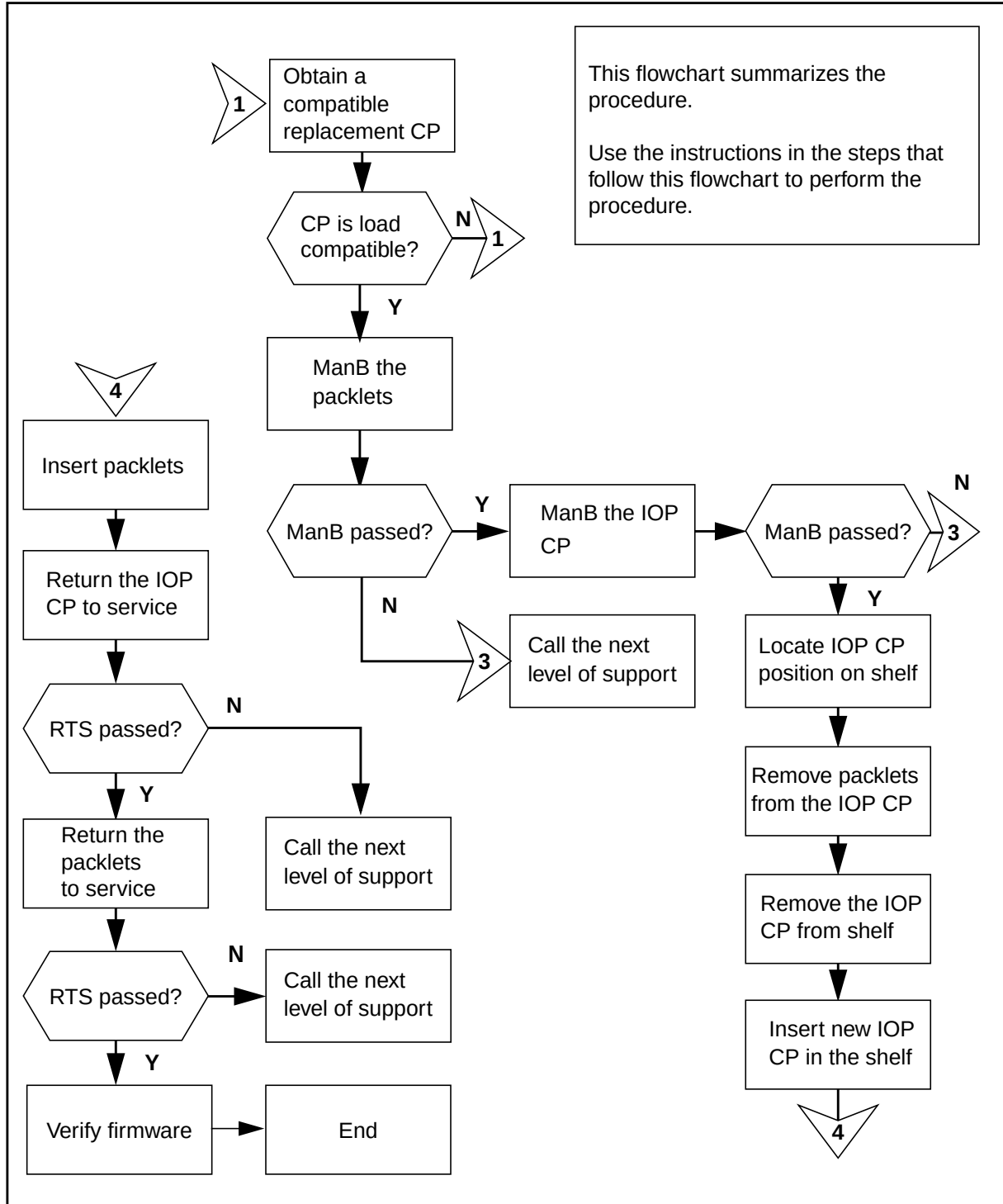
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX03 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX03 circuit pack

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of equipment damage**

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**CAUTION****Loss of service**

Do not repeat steps.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location

- 1 Get a replacement CP. The replacement CP must have the product engineering code (PEC) NTLX03BA or NTLX03BB. (The BA and BB versions can coexist in the XA-Core, so you can replace a BA with a BB or vice versa.)

At the MAP terminal:

- 2 Access the XA-Core IO MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;IO
and press the Enter key.
- 3 Examine the IO MAP display. Determine the location of the IOP CP that you need to replace. Record the IOP CP location on the physical shelf, side and slot. Make sure that redundant components are InSv before removing the IOP CP that you need to replace.

The following is a sample MAP display.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
IOPflt	.	.	.	.	.	.	.	.	.
IO		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345	.	.	.	.	IOPfl	.
2		Sta: -S-	.	.	.	0	0	1	2
3		Dep:							
4		Typ: *	*	*	*				
5		Slot: Side: Status:				Upper:	Middle:	Lower:	
6 Tst_	2	Front	S			Tape C		Disk C	
7 Bsy_	17	Front	.			Tape .		Disk .	
8 RTS_	4	Rear	.			RTIF .		CMIC .	
9	15	Rear	.			RTIF .		CMIC .	
10 LoadFW_	XAC:								
11	IO:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

	If the redundant IOP, disk or tape are	Do
	in a ManB state	step 4
	in a SysB state	step 5
	in an InSv state	step 32
4	Return the redundant IOP CP or packlets to service. At the correct MAP level type >RTS <nn> <s> or >RTS <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l) Example of command use: >RTS 17 f <i>Example of system response:</i> RTS 17 front completed	
	If the redundant IOP, Disk and Tape are	Do
	in service	step 5
	not in service	step 32
5	Make sure that the redundant Disk packlet contains the active image backup file. a Exit from the IO MAP level and access the CI MAP level prompt. At the IO MAP level type >QUIT ALL and press the Enter key.	

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- b** Access the image table of contents (ITOCCI) MAP interface. At the CI MAP level prompt type

>ITOCCI

and press the Enter key.

Example of a MAP response:

ITOC User Interface is now active.
ITOCCI:

- c** List the image files for the XA-Core in the ITOC, type:

>LISTBOOTFILE XA

and press the Enter key.

Example of a MAP response:

Image Table Of Contents for XA:

	A Registered		Generic Device	File
	L Date	Time		Name
	R MM/DD/YYYY	HH:MM:SS		
0	*	05/04/1999	19:16:21	F02LIMAGE IMG0504CX_CM
0		05/01/1999	19:21:19	F02LIMAGE IMG0501CU_CM

Note: The example of a MAP response identifies the autoloader registered (ALR) image file by an asterisk (*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- d** Determine which device contains the active image files. Examine the device name under the Generic Device header in the ITOC listing. The device name indicates the location of the disk device.
- e** Exit from the ITOCCI MAP interface and display the CI MAP level prompt. At the ITOCCI MAP interface prompt, type

>QUIT

and press the Enter key.

If the redundant disk device	Do
does not contain the active image	step 6
contains the active image	step 8

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 6 Perform a manual dump of the active image to the redundant disk device. At the CI MAP level prompt, type
>AUTODUMP MANUAL
and press the Enter key.
- 7 Wait for a system response to indicate that the manual image dump is successful.

If the manual image dump to the redundant disk device is	Do
successful	step 8
not successful	step 32

- 8 Determine if the Tape packlet that you want to remove contains a mounted tape. Perform the following steps:
- a Access the Tape MAP level. At the CI MAP level prompt type:
>MAPCI;MTC;XAC;TAPE
and press the Enter key.
 - b Examine the Tape MAP level. Record the location of the Tape packlet that you want to remove.
- Note:** The Tape MAP level displays the following information in the command interpreter output area:
- the user name under the User Name header
 - the tape drive status under the Drive header (mounted/unmounted)

The following is a sample MAP display.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Tape MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
IOP      .      .      .      .      .      .      .      .      .

Tape
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10
11
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

XMAP0
Time 14:12 >

Front: 11111111 Rear: 11111 SM PE IO PKLT
123456789012345678 456789012345 . . IOPflt TAPE C.
Sta: -S-.....- ..... 0 0 1 2
Dep: F
Typ: *
Slot: Side: Packlet: Status: User Name: Drive:
2 Front Upper C . User1 unmounted
17 Front Upper . User1 mounted
TAPE:

```

- 9 Record the user name and drive state as shown on the Tape MAP level. There are four possible tape device user conditions:
- The system is using the tape device. The Tape MAP level displays “System” as the user name. The system software is performing an activity such as an ONP or software upgrade. The tape drive state is mounted.
 - Another user is performing a backup or restore at a different location. The tape drive state is mounted.
 - You are the user of the tape device. The tape drive state is mounted.
 - There are no users. The tape drive state is unmounted.

If the Tape MAP level indicates that	Do
the system software is the user	step 10
another user is using the tape device	step 11
you are the user of the tape device	step 14
there are no users	step 15

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 10** Wait for the system software to complete the ONP or upgrade process. When the system software activities are complete, the MAP deletes the "System" user name and the tape drive state changes to unmounted.

If the system software process is complete and the Tape MAP level indicates that	Do
the tape is not rewound and the tape drive state is mounted	step 13
the tape is rewound and the tape drive state is unmounted	step 15

- 11** Notify the other user that you intend to remove the Tape packlet. The other user needs to complete tape device activities and perform an EJECTTAPE. Wait for the Tape MAP level to delete the other user name and indicate that the tape drive state is unmounted.

If the Tape MAP level indicates that	Do
the tape is not rewound and that the tape drive state is mounted	step 12
the tape is rewound and that the tape drive state is unmounted	step 15

- 12** Call the other user to make sure that all tape drive activities are complete.

If the other user has	Do
completed tape drive activities and rewound the tape	step 15
not completed tape drive activities	step 32

- 13** Clear the tape drive state on the Tape MAP level. Manually busy the Tape packlet and return the Tape packlet to service.

- a** Manually busy the Tape packlet. At the Tape MAP level type

>BSY <nn> <s> <p>

and press the enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of command use:

>BSY 2 f u

Example of system response:

BSY 2 front upper complete

- b** Return the Tape packlet to service. At the Tape MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command use:

>RTS 2 f u

Example of system response:

RTS 2 front upper passed

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 14
the tape is not rewound and the tape drive state is mounted	step 32

- 14** Access the DISKUT MAP interface and rewind the tape.

- a** At the Tape MAP level type:

>QUIT all

and press the enter key.

- b** Access the DISKUT MAP level. At the CI MAP prompt type:

>DISKUT

and press the enter key.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- c Rewind the tape. At the DISKUT MAP level type:

>EJECTTAPE <device>

and press the enter key.

where

<device> is the name of the tape device.

Note: The system rejects the EJECTTAPE command if the system cannot identify you as the user of the tape device.

Example of command use:

>EJECTTAPE F02UTAPE

Example of system response:

Rewind of tape F02UTAPE on node <node_name> is completed. The tape device is not available to the user now

- d Exit from the DISKUT MAP level. At the DISKUT MAP prompt, type

>QUIT

and press the enter key.

- e Access the XA-Core Tape MAP level. At the CI MAP prompt, type

>MAPCI;MTC;XAC:TAPE

and press the enter key.

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 15
the tape is not rewound and the tape drive state is mounted	step 32

- 15 ManB the Tape packlet. At the Tape MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Note: The Tape packlet is in the same physical shelf and slot location as the replacement IOP CP.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of command use:

>BSY 2 f u

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

Bsy 2 front upper complete.

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the Tape packlet is	Do
in a ManB state	step 16
not in a ManB state	step 32

16 ManB the Disk packlet contained in the IOP CP. Perform the following steps:

a Exit from the Tape MAP level and access the Disk MAP level. At the Tape MAP level type

>DISK

and press the Enter key.

b ManB the Disk packlet. At the Disk MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 2 f l

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

Warning: Bsy command will take it out of service.
Proceed (Y or N)
Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

BSY 2 front lower completed

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the Disk packlet is	Do
in a ManB state	step 17
not in a ManB state	step 32

- 17** ManB the IOP CP. Perform the following steps
- a** Exit from the Disk MAP level and display the IO MAP level. At the Disk MAP level type
>IO
and press the Enter key.
 - b** ManB the IOP CP. At the IO MAP level type
>BSY <nn> <s>
and press the Enter key
where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:
>BSY 2 f

Example of system response:

Warning: Bsy command will take it out of service.
Proceed (Y or N)
Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

Bsy 2 front completed.

Note: *If this command reduces redundancy and produces a major alarm, you must use the Force option.*

If the IOP CP is	Do
in a ManB state	step 18
not in a ManB state	step 32

- 18** Indicate the ManB IOP CP. At the IO MAP level, type
>INDICAT card <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command usage:
>INDICAT card 2 f
Example of system response:
 Indicate 2 front passed.

At the XA-Core physical shelf

19



WARNING

Static electricity damage

Make sure that you wear a wrist-strap connected to a grounding point on the FSP. The wrist-strap protects against electrical static discharge (ESD).

Locate the IOP CP on the physical shelf. Refer to the IOP CP location recorded from step 3. Examine the CP faceplates on the XA-Core physical shelf.

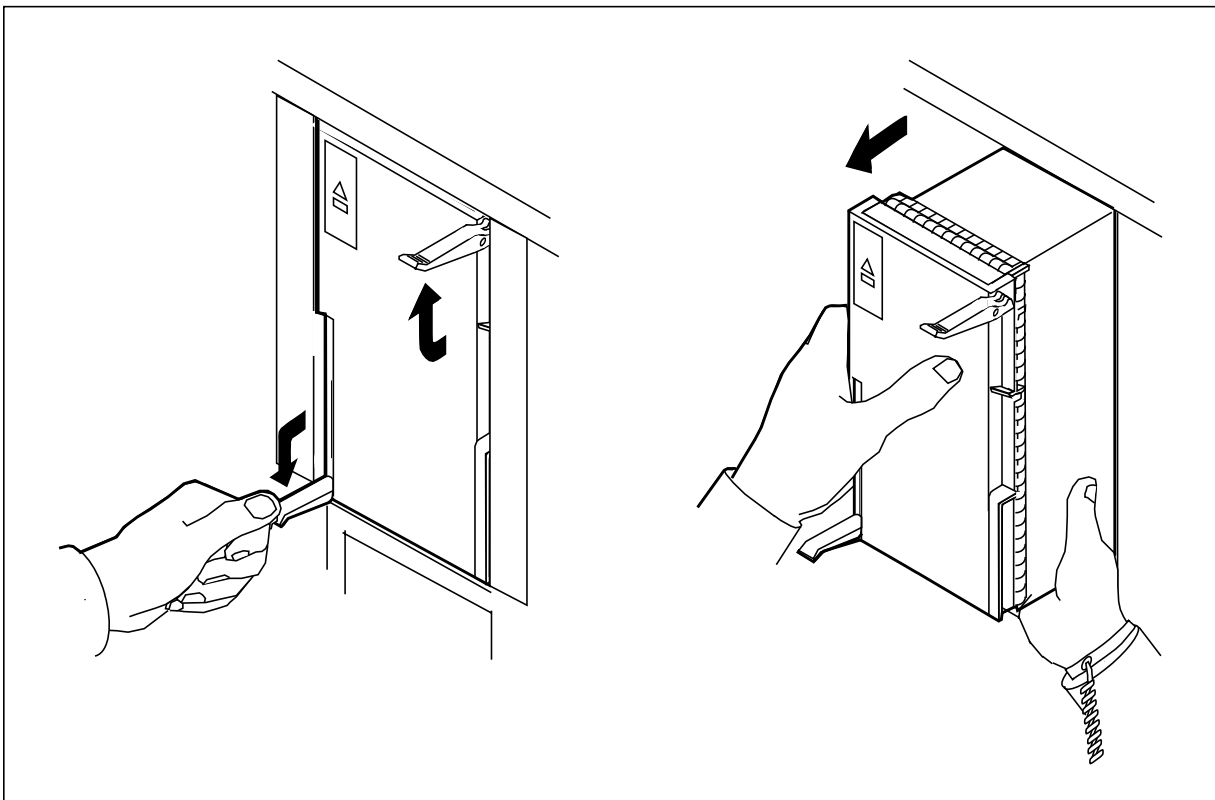
Look for a flashing, red triangular LED on the IOP CP. A winking, red LED is a result of using the indicate command. Look for lit red LEDs on the packlets.

- 20** Remove the Disk packlet from the IOP CP. Perform the following steps:
- Locate the Disk packlet in the IOP CP.
 - Open the upper and lower locking levers on the packlet.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- c Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.
- d Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.
- e Close the upper and lower locking levers on the packlet to prevent breakage.
- f Place the packlet in ESD protective packaging.

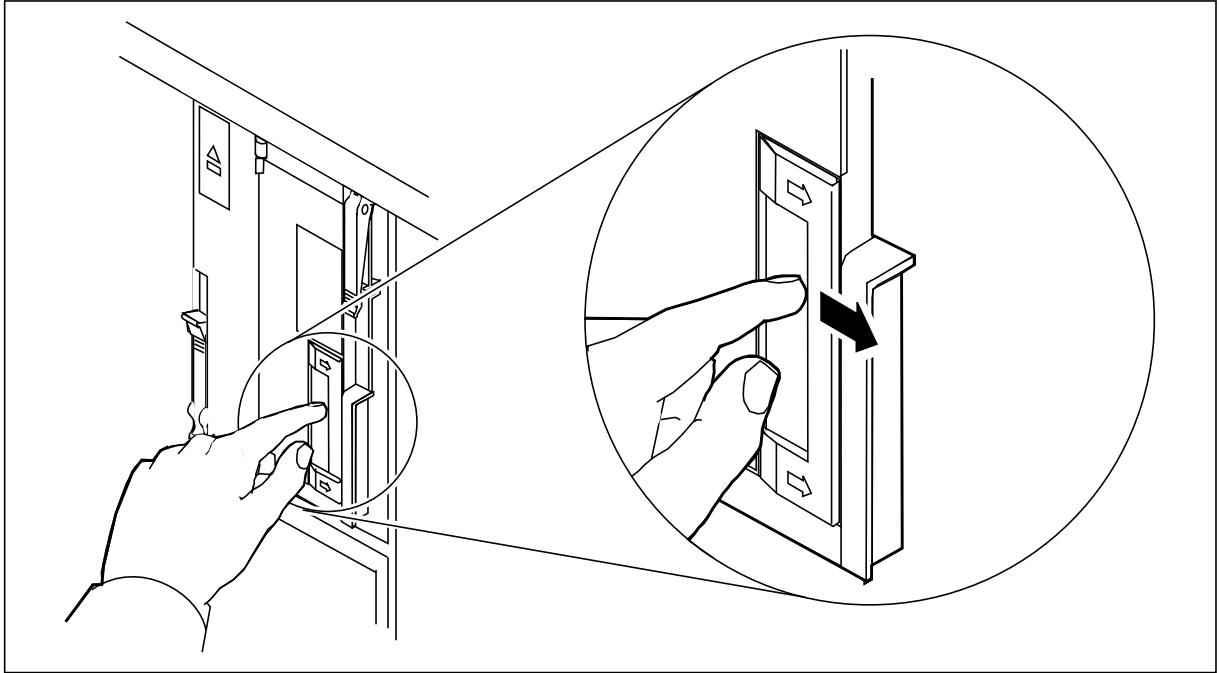
Remove the Disk packlet from the IOP CP



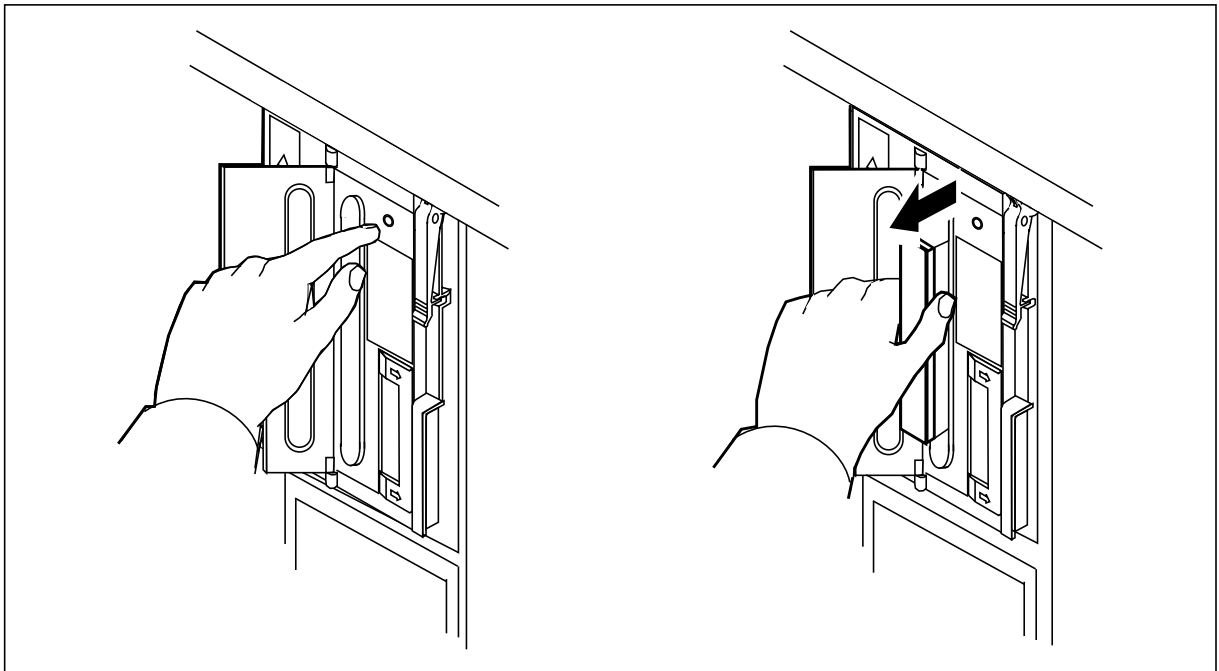
- 21** Remove the Tape cassette from the Tape packlet if necessary. If there is no tape in the IOP CP, continue to step 22. Perform the following steps:
- a Locate the Tape packlet in the IOP CP.
 - b Push the door lock in the direction of the arrow to unlock. The cassette door swings open.
 - c Press the tape eject button. The tape cassette partially ejects and is ready for removal.
 - d Close the tape cassette door. Carefully push on the door until it locks in place.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Open the Tape cassette door



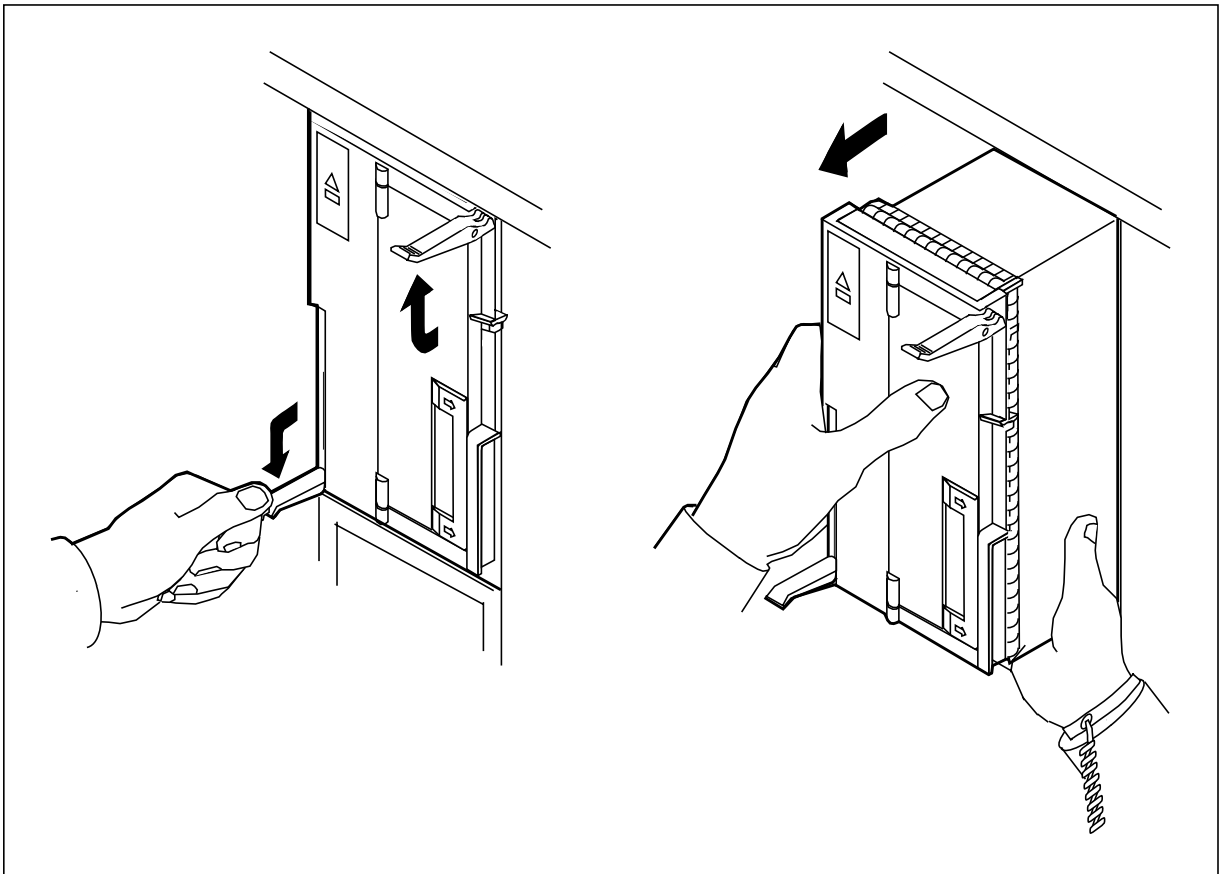
Eject and remove the Tape cassette



NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 22 Remove the Tape packlet from the IOP CP. Perform the following steps:
- a Open the upper and lower locking levers on the packlet.
 - b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.
 - c Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.
 - d Close the upper and lower locking levers on the packlet to prevent breakage.
 - e Place the packlet in ESD protective packaging.

Remove the Tape packlet from the IOP CP



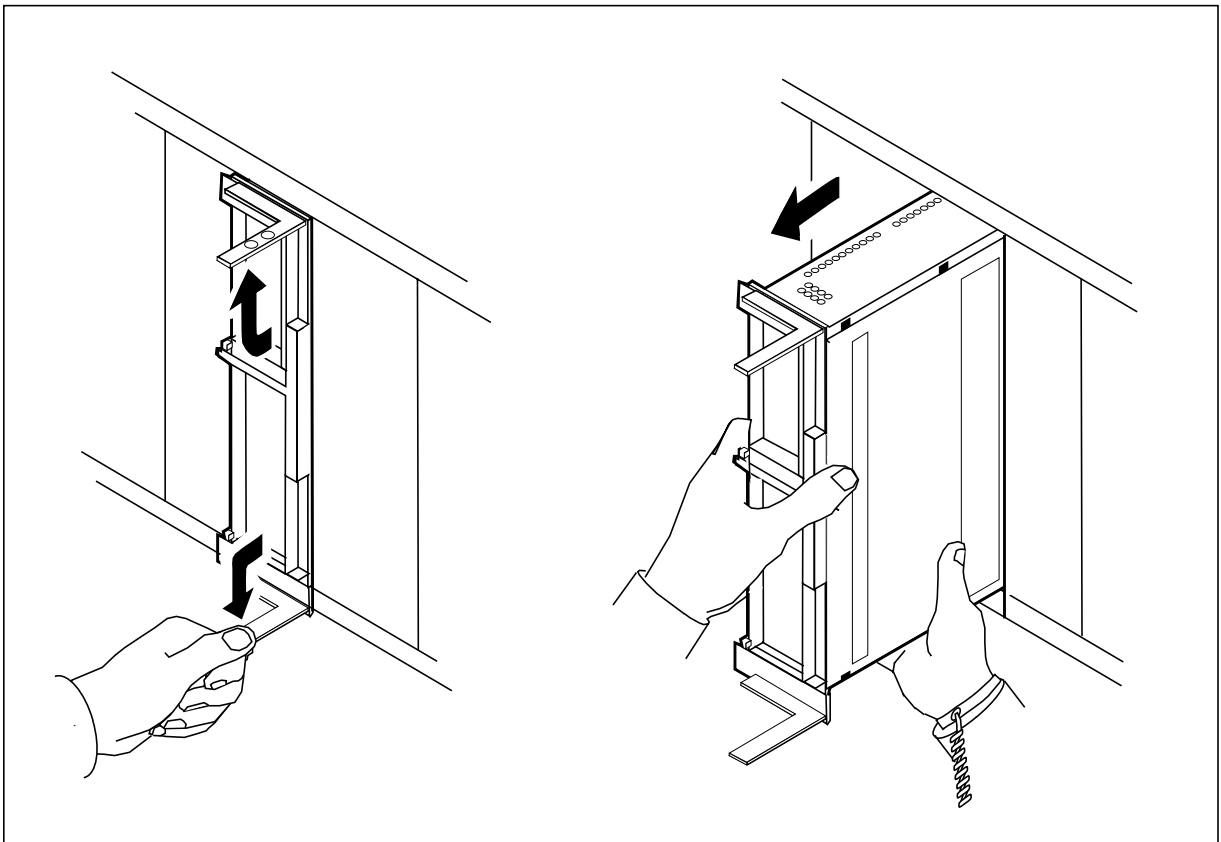
NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 23 Remove the IOP CP from the physical shelf.

Note: Make sure that you remove all packlets from the IOP CP before you perform this step.

- a Open the upper and lower locking levers on the CP.
- b Carefully pull the CP toward you by the locking levers until it extends half way from the shelf opening.
- c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.
- d Close the upper and lower locking levers on the CP to prevent breakage.
- e Place the CP in ESD protective packaging.

Remove the dual width IOP CP from the XA-Core shelf



- 24 Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.

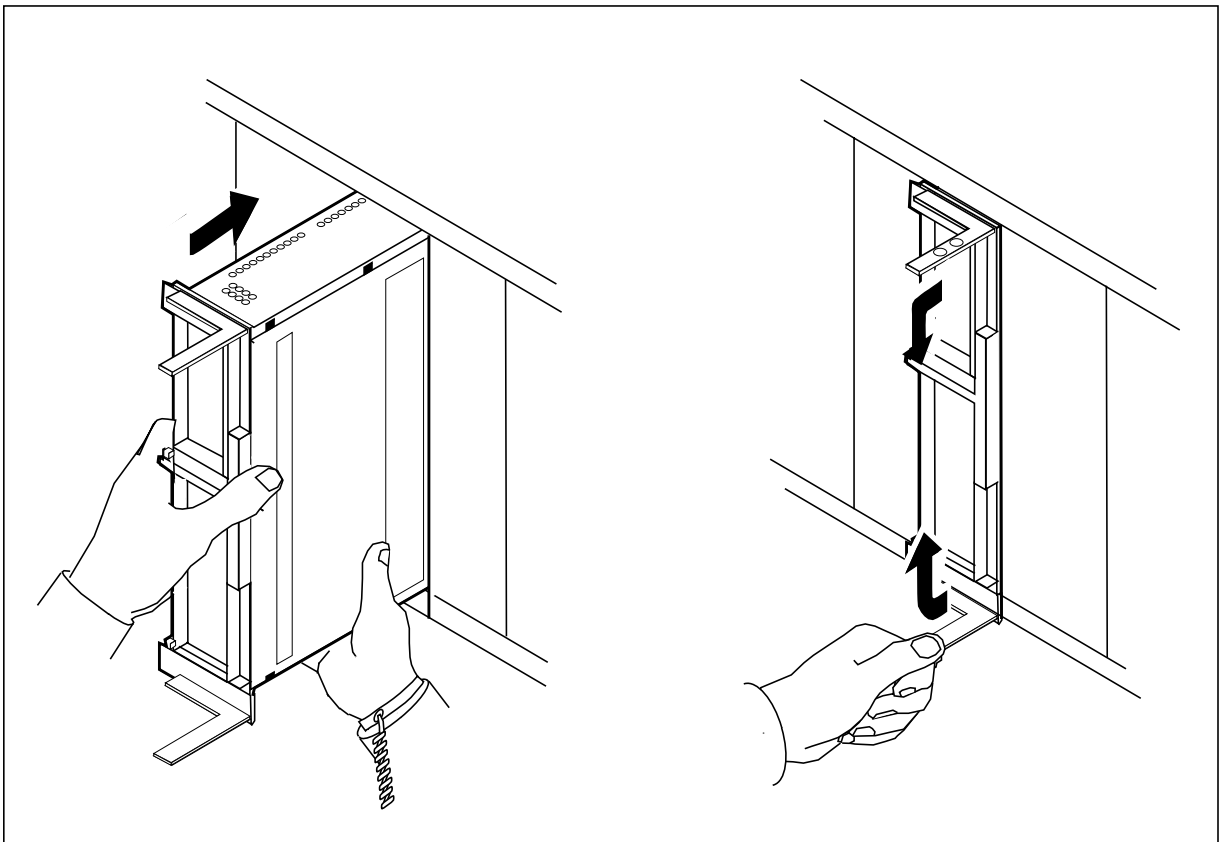
If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

- 25** Insert the replacement IOP CP in the physical shelf.
- Open the upper and lower locking levers on the replacement CP.
 - Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - Align the CP with the slot in the shelf. Carefully slide the CP into the physical slot.
 - Use your fingers or thumbs and push on the upper and lower edges of the faceplate.
 - Close the upper and lower locking levers to secure the CP in the physical shelf. Do not force the locking levers to close.

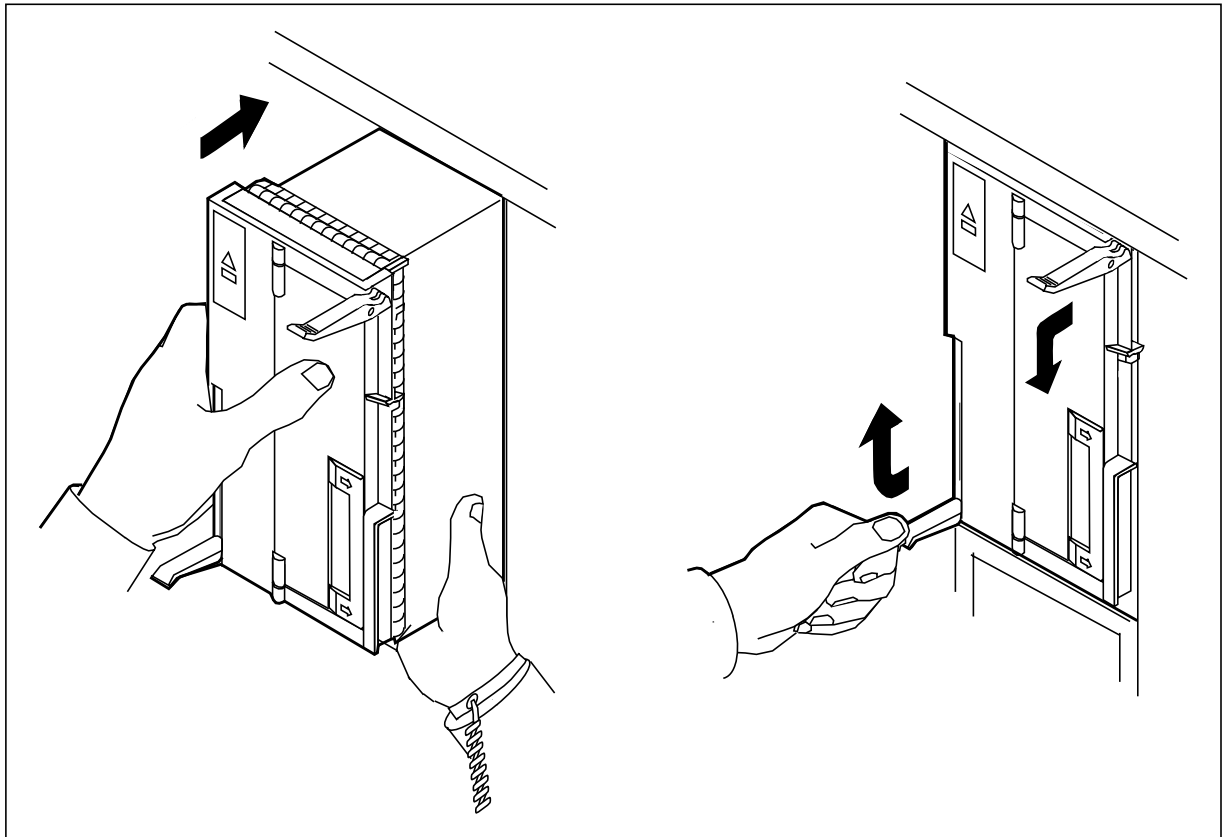
Insert the dual width IOP CP in the XA-Core shelf



NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 26 Insert the original Tape packlet in the upper slot of the replacement IOP CP.
- Remove the original Tape packlet from the ESD protective packaging.
 - Open the locking levers on the Tape packlet.
 - Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
 - Align the packlet with the upper IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
 - Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
 - Close the locking levers to secure the circuit packlet. Do not force the locking levers to close.

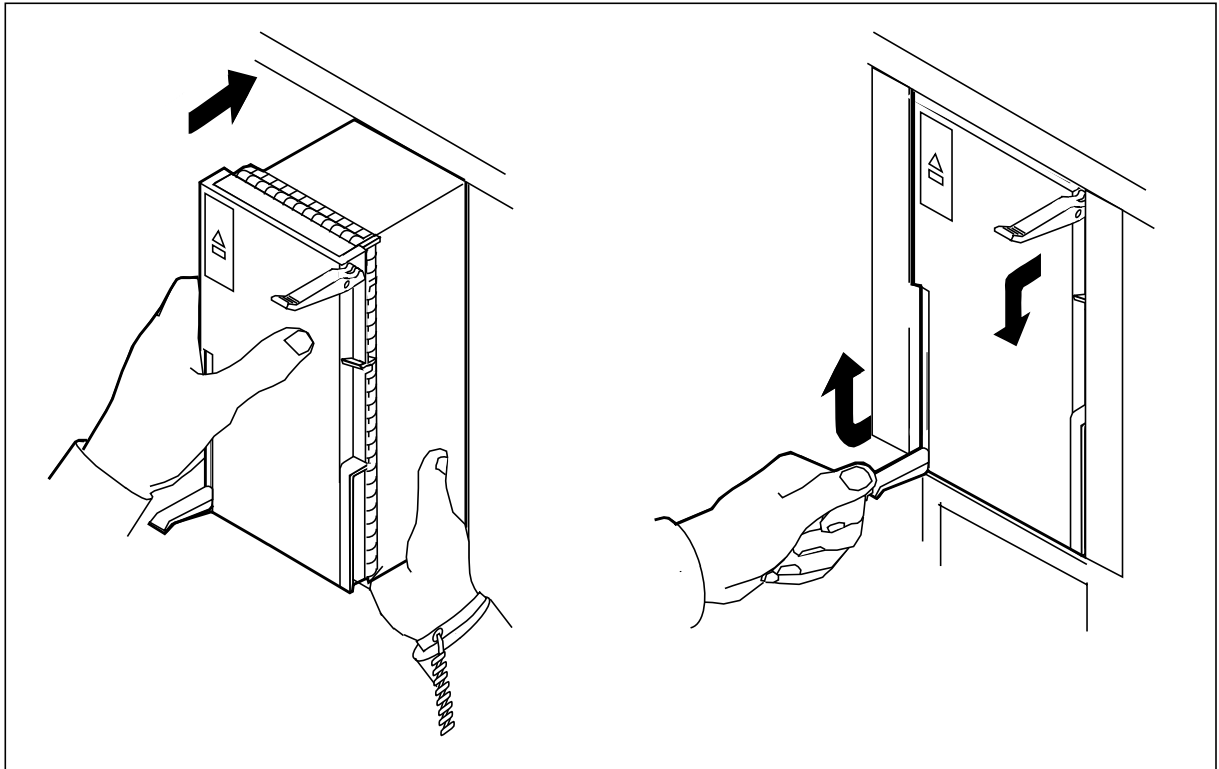
Insert the Tape packlet in the IOP CP



NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 27 Insert the original Disk packet into the lower IOP CP slot. Perform the following steps:
- Open the locking levers on the original Disk packet.
 - Hold the packet by the faceplate with one hand and support the bottom edge with the other.
 - Align the packet with the slot in the shelf and slide the packet into the physical slot. Do not force the packet into the slot.
 - Use your fingers or thumbs to push on the upper and lower edges of the packet faceplate.
 - Close the locking levers on the packet. Do not force the locking levers to close.

Insert the Disk packet in the IOP CP



NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

At the MAP terminal:

- 28** Return the IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
Example of command usage:
>RTS 2 f
Example of system response:
RTS 2 front passed.

If the IOP CP is	Do
in service	step 29
not in service	step 32

- 29** Return the Tape packlet to service. Perform the following steps:
- Access the XA-Core TAPE MAP level. At the IO MAP level type
>TAPE
and press the Enter key
 - Return the Tape packlet to service. At the TAPE MAP level type
>RTS <nn> <s> <p>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
Example of command use:
>RTS 2 f u

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

RTS 2 front upper passed

If the Tape packet is	Do
in service	step 30
not in service	step 32

- 30** Return the Disk packet to service. Perform the following steps:
- a** Exit from the Tape MAP level and access the Disk MAP level. At the TAPE MAP level type
>DISK
 and press the Enter key.
 - b** Return the Disk packet to service. At the DISK MAP level type
>RTS <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>RTS 2 f l

Example of system response:

RTS of 2 front lower passed

If the Disk packet is	Do
in service	step 31
not in service	step 32

- 31** Confirm that the IOP CP and all packets returned to service. Examine the Alarm banner and subsystem summary status field (SSSF) displayed on the MAP level

If the MAP displays	Do
an alarm	step 33
a "." under the IO status header	step 34

NTLX03 dual width IOP circuit pack in a SuperNode and SuperNode SE XA-Core (end)

- 32 Call the next level of support
- 33 Perform the correct alarm clearing procedure.
- 34 Check that the newly installed circuit pack contains the proper firmware load.
At the PE MAP level type

>QUERY CARD <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)

Example of command:

>QUERY CARD 2 f

The system displays several items of information, including the firmware version.

Example of system response:

Query 2 front completed

.

.

Firmware Ver.: EP16C023

.

.

If the firmware version	Do
is the proper version	step 36
is not the proper version	step 35

- 35 Perform the procedure to upgrade the firmware. The procedure is in this document, in the chapter "Introduction to routine maintenance procedures". Return to this point when complete.
- 36 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core

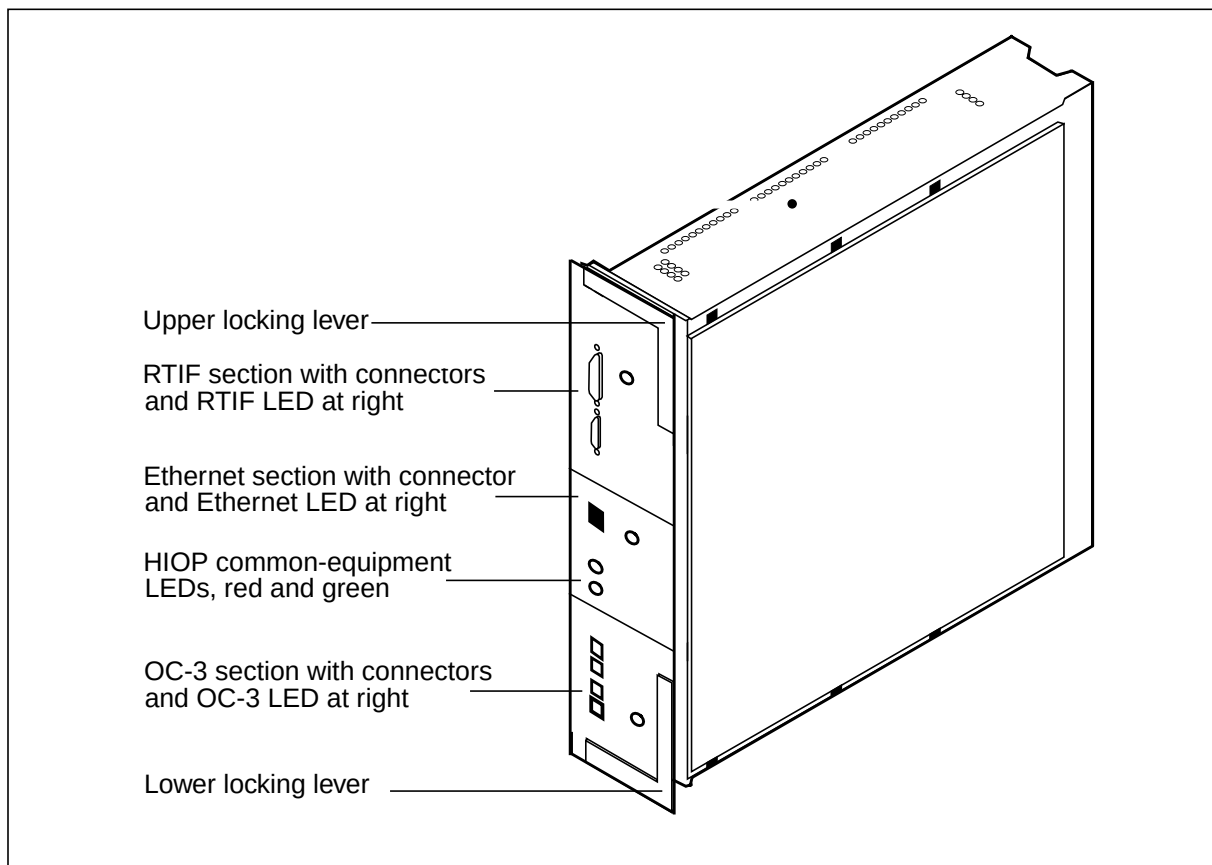
Application

This section contains the procedure for replacing an NTLX04AA high performance input/output (HIOP) circuit pack (CP) with a replacement of the same product engineering code and version.

The following table lists the correct HIOP CP version.

PEC	Suffix	Circuit pack name
NTLX04	AA	High performance input/output circuit pack

NTLX04 high performance input/output circuit pack front and side views



NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) visual indicators

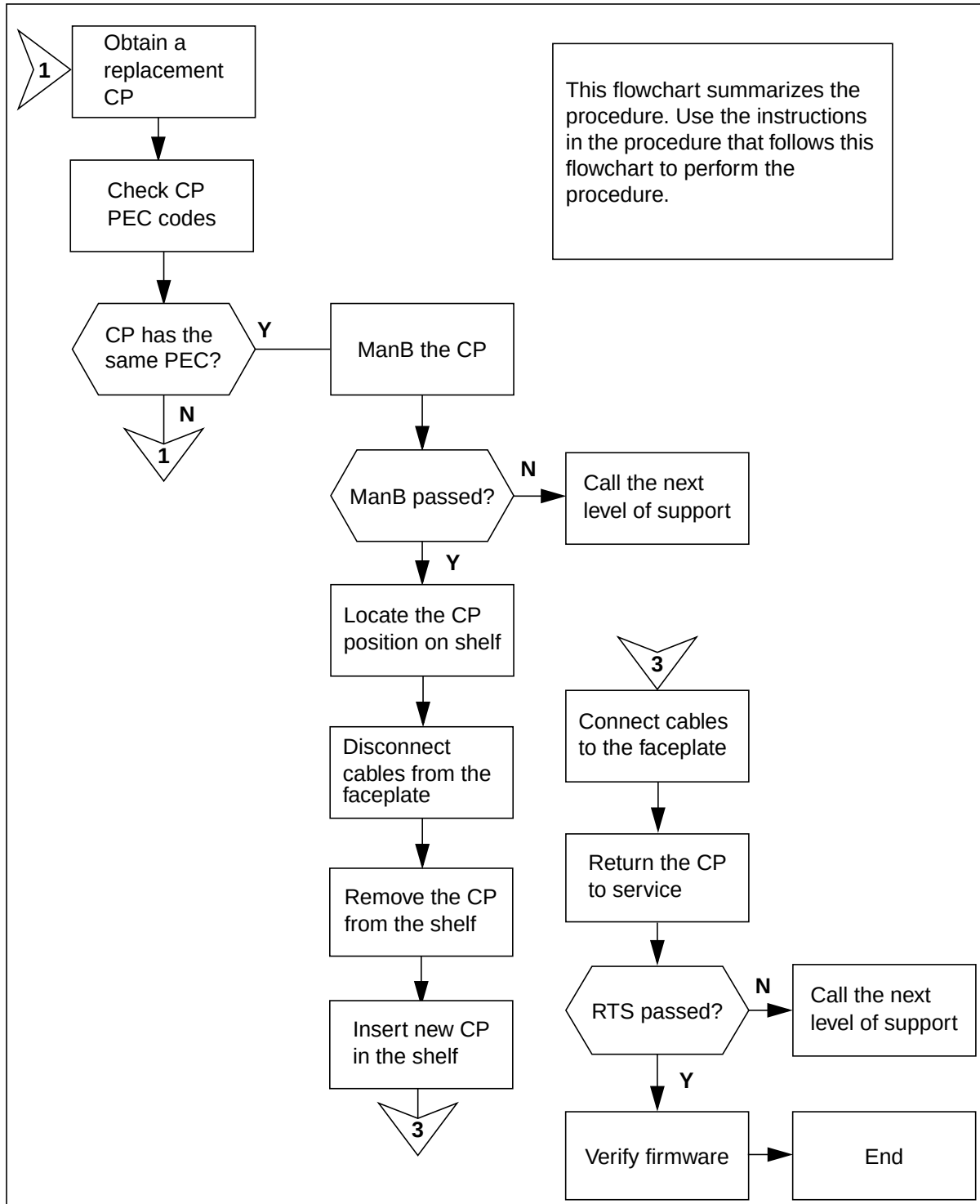
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX04 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX04 circuit pack



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP of the same equipment type at a time.

At your current location

- 1 Get a replacement CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

At the MAP terminal

- 2 Access the XA-Core IO MAP level. At the MAP terminal type

>MAPCI;MTC;XAC;IO

and press the Enter key.

The following is a sample MAP display.

IO MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.
IO		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345			.	.	.	.
2		Sta:	.....	.....		0	0	0	0
3		Dep:							
4		Typ:	*	*	***	***			
5		Slot:	Side:	Status:	Upper:	Middle:	Lower:		
6 Tst_	2	Front	I		Disk .		Tape .		
7 Bsy_	17	Front	.		Disk .		Tape .		
8 RTS_	4	Rear	.		RTIF .		CMIC .		
9	5	Rear	.			ETHR .			
10 LoadFW_	6	Rear	.			ETHR .			
11	13	Rear	.			ETHR .			
12 Uneq_	14	Rear	.			ETHR .			
13	15	Rear	.		CMIC .		CMIC .		
14 Alarm_	XAC:								
15	IO:								
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12 >									

- 3 Examine the IO MAP display. Record the working state of the system and the HIOP CPs. Determine the location of the HIOP CP that you need to replace. (You can recognize the HIOP CPs because they have information in the "Middle" field in the MAP display.) Record the HIOP CP location on the physical shelf, side and slot.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 4 ManB the HIOP CP. The CP must be in a ManB state before indication, removal, insertion or out-of-service testing. At the IO MAP type
- >BSY <nn> <s>**
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)
Example of command use:
>BSY 5 r
Example of system response:
Bsy 5 rear complete.

If the HIOP CP is	Do
in a ManB state	step 5
not in a ManB state	step 13

- 5 Indicate the ManB HIOP CP. At the IO MAP terminal type
- >INDICAT card <nn> <s>**
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)
Example of command use:
>INDICAT card 5 r
Example of system response:
Indicate 5 rear passed.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

At the XA-Core physical shelf

- 6 Locate the HIOP CP on the XA-Core physical shelf. Use the CP location information recorded from the IO MAP in step 3. Label the cable connections on the HIOP CP according to office standards.
- 7 Disconnect the all cables from the faceplate of the circuit pack. For each cable, proceed as follows.
 - a Carefully pull the connector away from the receptacle. Hold the connector by the body only.
 - b Cover the ends of the cable with dust caps.
 - c Place the cable in a safe location away from the CP.
- 8

**WARNING****Static electricity damage**

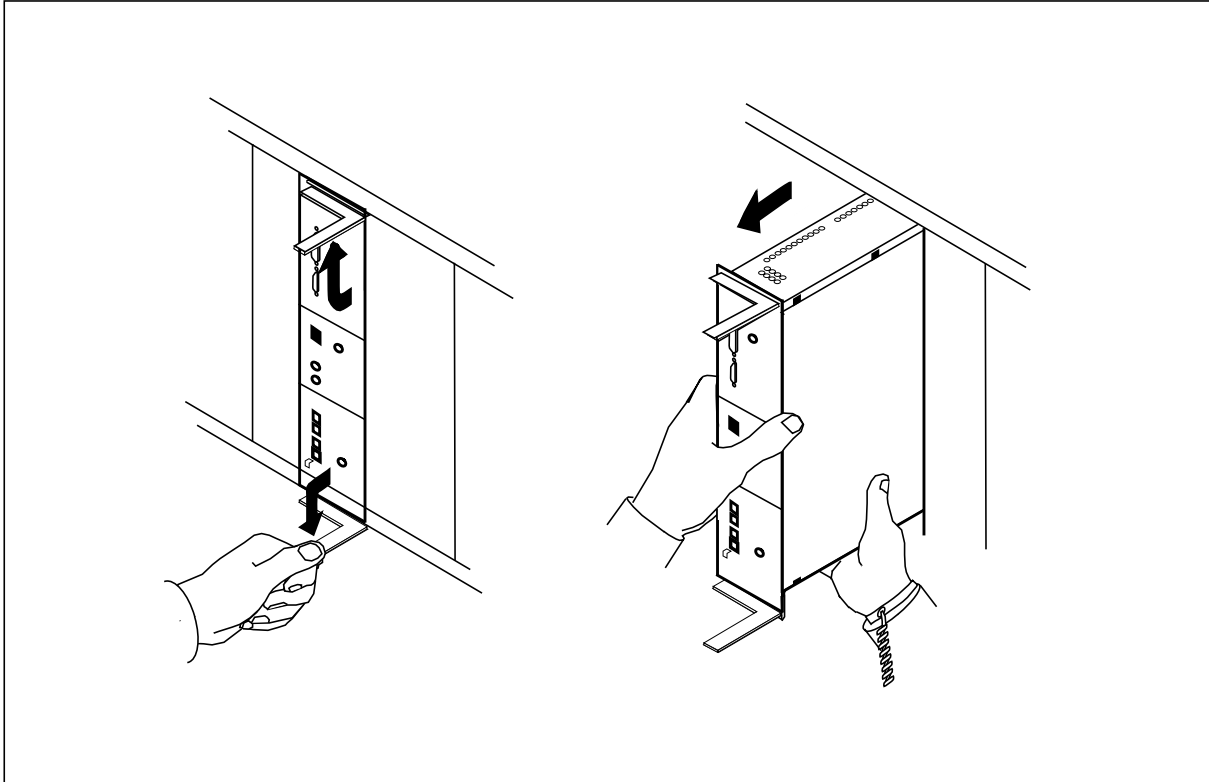
Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs.

Remove the HIOP CP from the physical shelf.

- a Open the locking levers on the CP.
- b Hold the CP by the locking levers. Pull the CP half way from the shelf opening toward you.
- c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.
- d Place the CP in ESD protective packaging.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Remove the NTLX04 HIOP CP from the XA-Core shelf



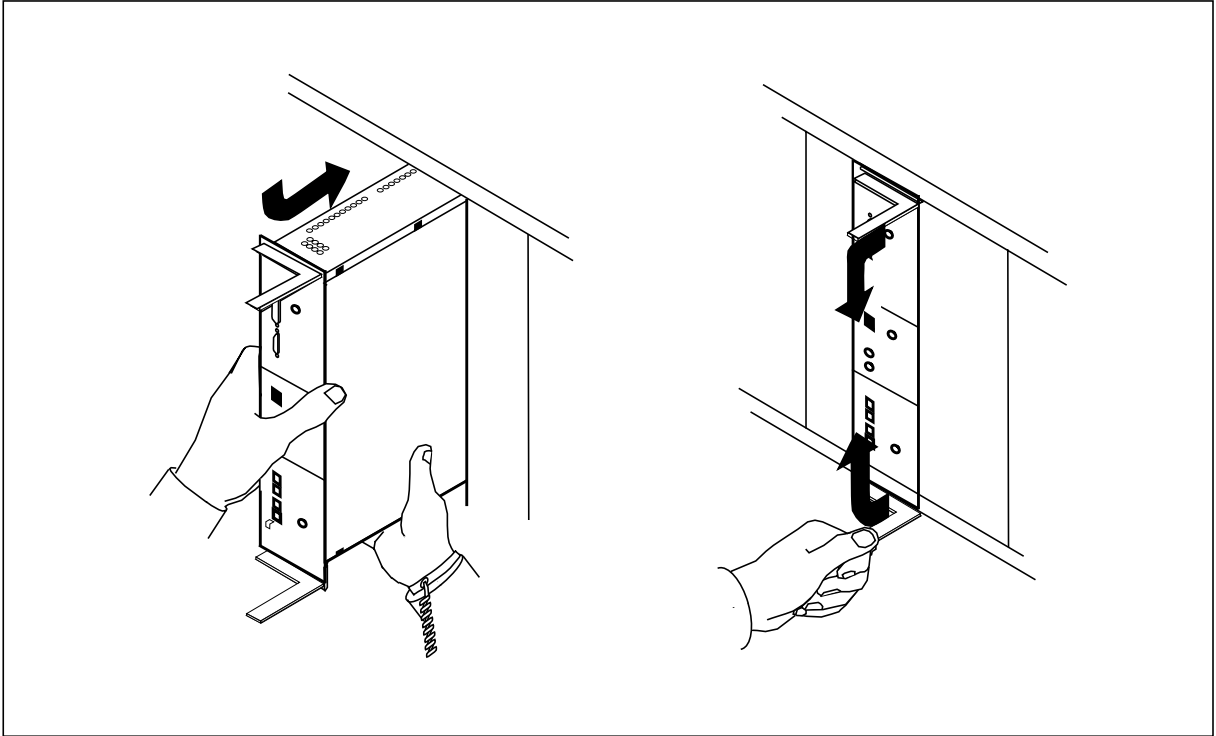
- 9 Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.

If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.
- 10 Insert the replacement HIOP CP into the physical shelf slot.
 - a Open the locking levers on the replacement HIOP CP.
 - b Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - c Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.
 - d Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the faceplate until the CP is fit into position.
 - e Close the locking levers to lock the CP in the physical shelf. Do not force the locking levers to close.

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Insert the NTLX04 HIOP CP in the XA-Core shelf



- 11** Connect the replacement or original cables to the appropriate connectors on the faceplate of the circuit pack. For each cable, proceed as follows.
- a** Remove the dust caps from the cable tips.
 - b** Hold the cable connector by the body only.
 - c** Carefully insert the cable connector into the correct receptacle.

NTLX04 high performance input/output circuit pack
in a SuperNode and SuperNode SE XA-Core (continued)

At the MAP terminal

- 12** Return the HIOP CP to service. At the IO MAP level type
>RTS <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)
Example of command:
>RTS 5 r
Example of system response:
RTS 5 rear passed.

If replacement HIOP CP is	Do
not returned to service	step 13
returned to service	step 14

- 13** Call the next level of support.
- 14** Check that the newly installed circuit pack contains the proper firmware load. At the PE MAP level type
>QUERY CARD <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)
Example of command:
>QUERY CARD 4 f

NTLX04 high performance input/output circuit pack in a SuperNode and SuperNode SE XA-Core (end)

The system displays several items of information, including the firmware version.

Example of system response:

Query 4 front completed

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Firmware Ver.: EP16C023

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If the firmware version	Do
is the proper version	step 16
is not the proper version	step 15

- 15 Perform the procedure to upgrade the firmware. The procedure is in this document, in the chapter "Introduction to routine maintenance procedures". Return to this point when complete.
- 16 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

NTLX05 OC-3 two port interface packet in a SuperNode and SuperNode SE XA-Core

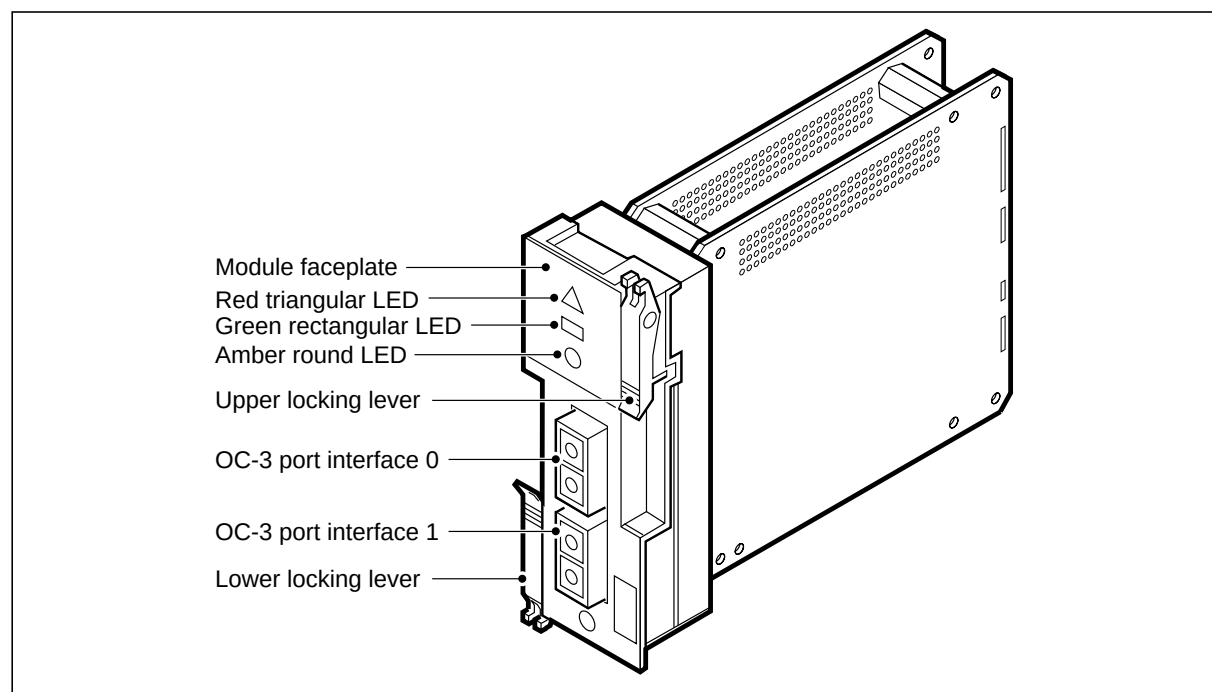
Application

This section contains the procedure for replacing an NTLX05AA OC-3 two port interface packet with a replacement of the same product engineering code and version. The packet installs in a single-width IOP circuit pack (CP).

The following lists the valid OC-3 two port interface packets.

PEC	Suffix	Card name
NTLX05	AA	OC-3 two port interface packet

NTLX05 OC-3 two port interface packet front and side views



NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

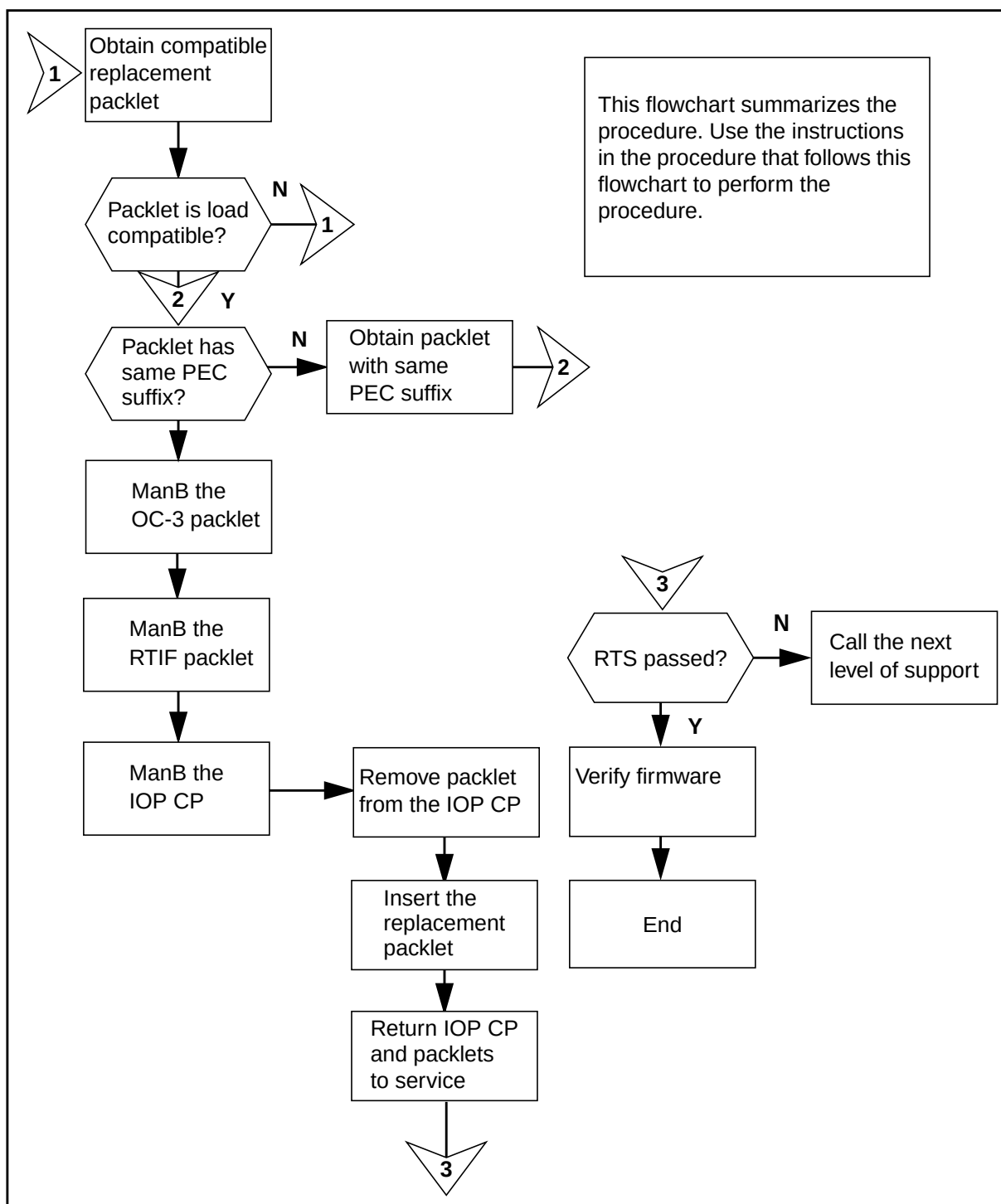
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the methods in the step instructions that follow the flowchart.

NTLX05 OC-3 two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX05 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX05 circuit packlet

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**CAUTION****Loss of service**

Do not repeat steps.

**CAUTION****Loss of service**

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location:

- 1 Get a replacement packlet. Make sure that the replacement packlet and the packlet you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core CMIC MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;CMIC
and press the Enter key.
- 3 Examine the CMIC MAP level. Record the location and status of the OC-3 two port interface packlet that you need to replace. Make sure that redundant components are InSv before removing the OC-3 two port interface packlet that you need to replace.

The following is a sample MAP display.

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

CMIC MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
MScomm	.	.	.	.	.	.	.	.	.
M									
CMIC									
0 Quit		Front: 11111111		Rear: 111111	SM	PE	IO	PKLT	
2		123456789012345678		456789012345	.	.	.	CMICfl	
3		Sta: -.-.-.-.-.-.-.-.-.-		.....	0	0	0	1	
4		Dep:		F					
5		Typ:		*	*				
6 Tst_		Slot: Side:	Packlet:	Status:	Link0:	Link1:	TOD		
7 Bsy_		4 Rear	Lower	S	C	C	C		
8 RTS_		15 Rear	Lower	.	.	.	.		
9		CMIC:							
10									
11									
12									
13 Route_									
14 Alarm_									
15									
16 Trnsl_									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12									
>									

	If the redundant components are	Do
	in a ManB state	step 4
	in an InSv state	step 5
	in a SysB state	step 17
4	Return the redundant IOP CP or packlets to service. At the correct MAP level type >RTS <nn> <s> or >RTS <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)	

NTLX05 OC-3 two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Example of command use:

>RTS 4 r

Example of system response:

RTS 4 rear completed

If the redundant components are	Do
in service	step 5
not in service	step 17

- 5** Place the OC-3 two-port interface packetlet in a ManB state. At the CMIC MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

Warning: Bsy command will take it out of service.
Please confirm ("YES", "Y", "NO", or "N")

To confirm the command type:

>Y

Example of system response

Bsy 4 rear lower complete

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the packetlet is	Do
in a ManB state	step 6
not in a ManB state	step 17

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 6 Indicate the ManB OC-3 two port interface packlet. At the CMIC MAP level, type
 >INDICAT card <nn> <s> <p>
 and press the Enter key.
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
 >INDICAT card 4 r l
 Example of system response:
 Indicate 4 rear lower passed
- 7 Place the RTIF packlet in a ManB state.
- a Access the RTIF MAP level. At the CMIC MAP level type
 >RTIF
 and press the Enter key
- b At the RTIF MAP level type:
 >BSY <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).
 Example of command use:
 >BSY 4 r u
 Example of system response:
 Warning: Bsy command will take it out of service.
 Please confirm ("YES", "Y", "NO", or "N")

 To confirm the command type:
 >Y

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response

Bsy 4 rear upper complete

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the packlet is	Do
in a ManB state	step 6
not in a ManB state	step 17

- 8** ManB the IOP CP. Perform the following steps
- a** Exit from the RTIF MAP level and display the IO MAP level. At the RTIF MAP level type
>IO
 and press the Enter key.
 - b** ManB the IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>BSY 4 r

Example of system response:

Warning: Bsy command will take it out of service.
 Proceed (Y or N)
 Please confirm ("YES", "Y", "NO", or "N"),

To confirm the command type:

>Y

Example of system response:

Bsy 4 rear passed.

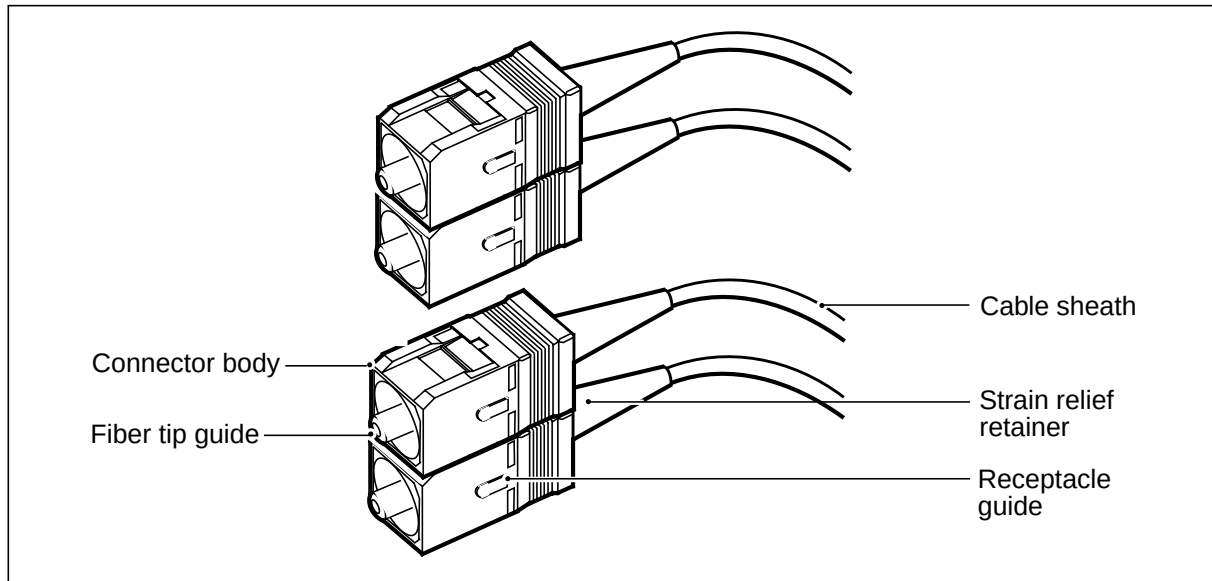
If the IOP CP is	Do
in a ManB state	step 6
not in a ManB state	step 17

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

At the XA-Core physical shelf

- 9 Locate the OC-3 two port interface packlet in the IOP CP. Label the fiber optic cable connections on the OC-3 two port interface packlet according to office standards.

Paired SC fiber optic cable connectors



10



WARNING

Fiber cable damage

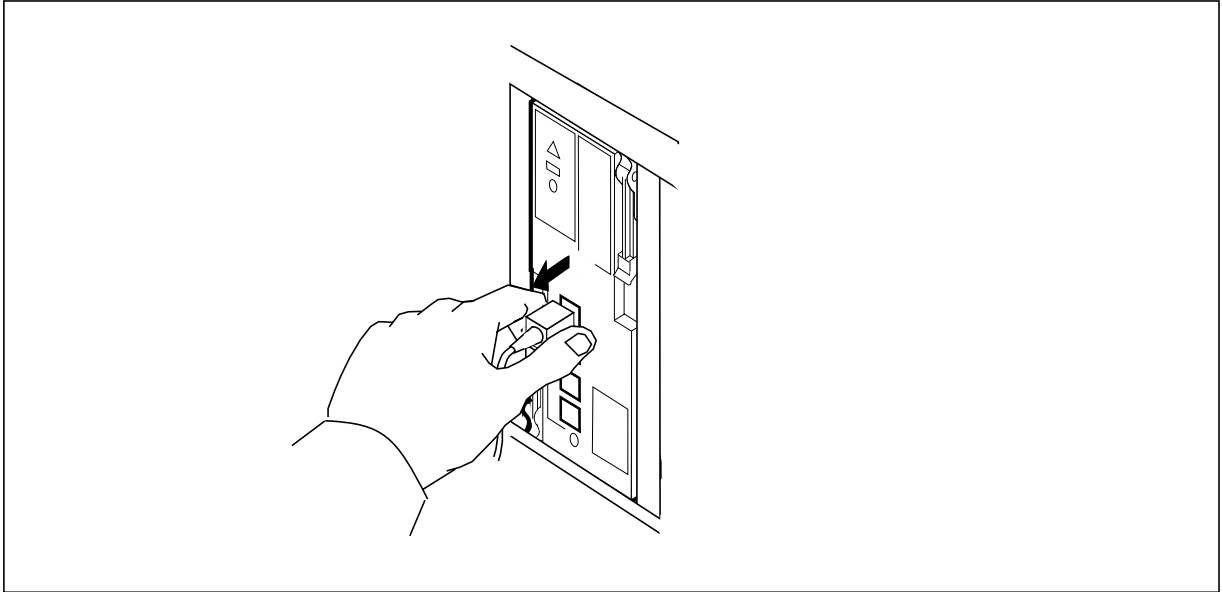
Handle the fiber optic cables with caution. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface reduces communication performance.

Disconnect the fiber optic cables from the faceplate of the OC-3 two port interface packlet.

- a Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.
- b Cover the ends of the fiber optic cable with dust caps.
- c Place the fiber optic cables in a safe location away from the packlet.

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



11



WARNING

Do not hold circuit packlet by levers only

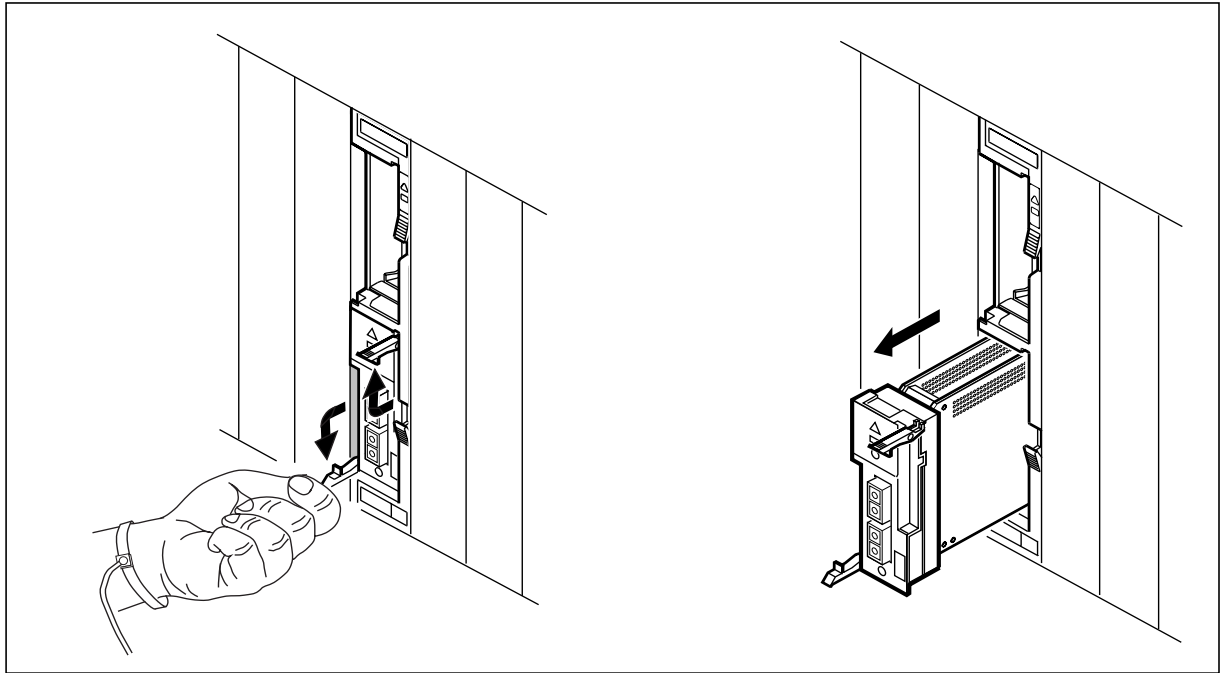
Holding a circuit packlet by the levers can result in lever breakage.

Remove the OC-3 two port interface packlet from the IOP CP. Perform the following steps:

- a Open the upper and lower locking levers on the packlet.
- b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.
- c Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.
- d Place the packlet in ESD protective packaging.

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Remove the OC-3 two port interface packlet from the IOP CP



12



WARNING

Do not hold circuit packlet by levers only

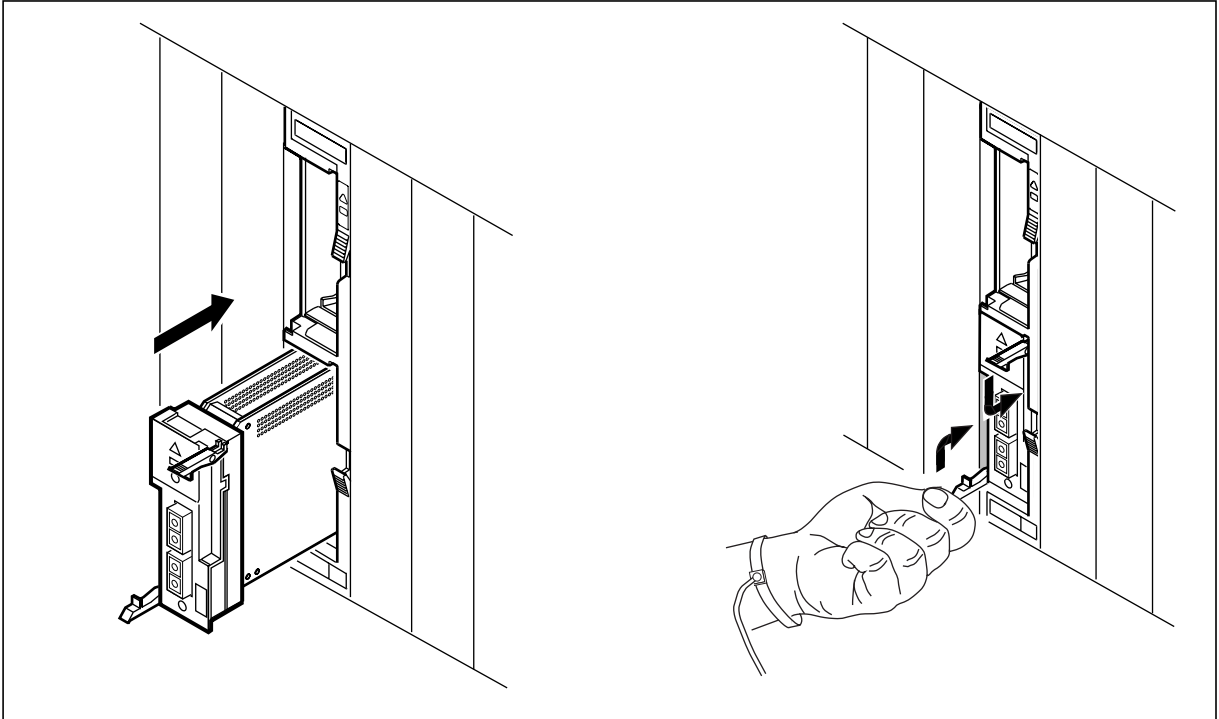
Holding a circuit packlet by the levers can result in lever breakage.

Insert the replacement OC-3 two port interface packlet in the lower IOP CP slot.

- a Remove the replacement OC-3 two port interface packlet from the ESD protective packaging.
- b Open the upper and lower locking levers on the packlet.
- c Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
- d Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
- e Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
- f Close the locking levers to secure the packlet. Do not force the locking levers to close.

NTLX05 OC-3 two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

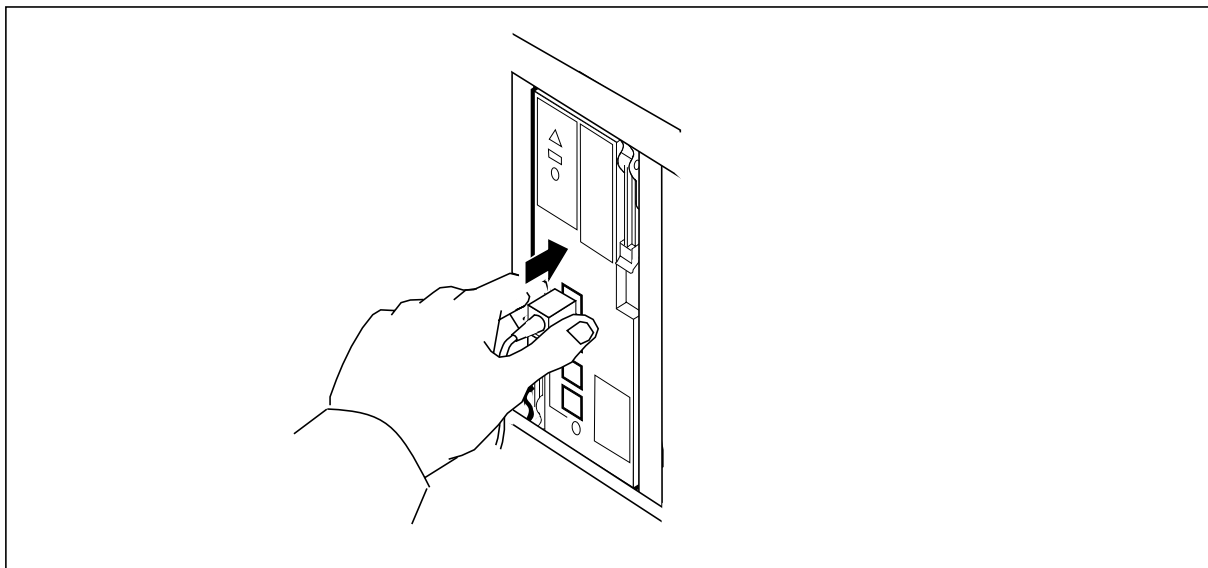
Insert the OC-3 two port interface packetlet into the IOP CP



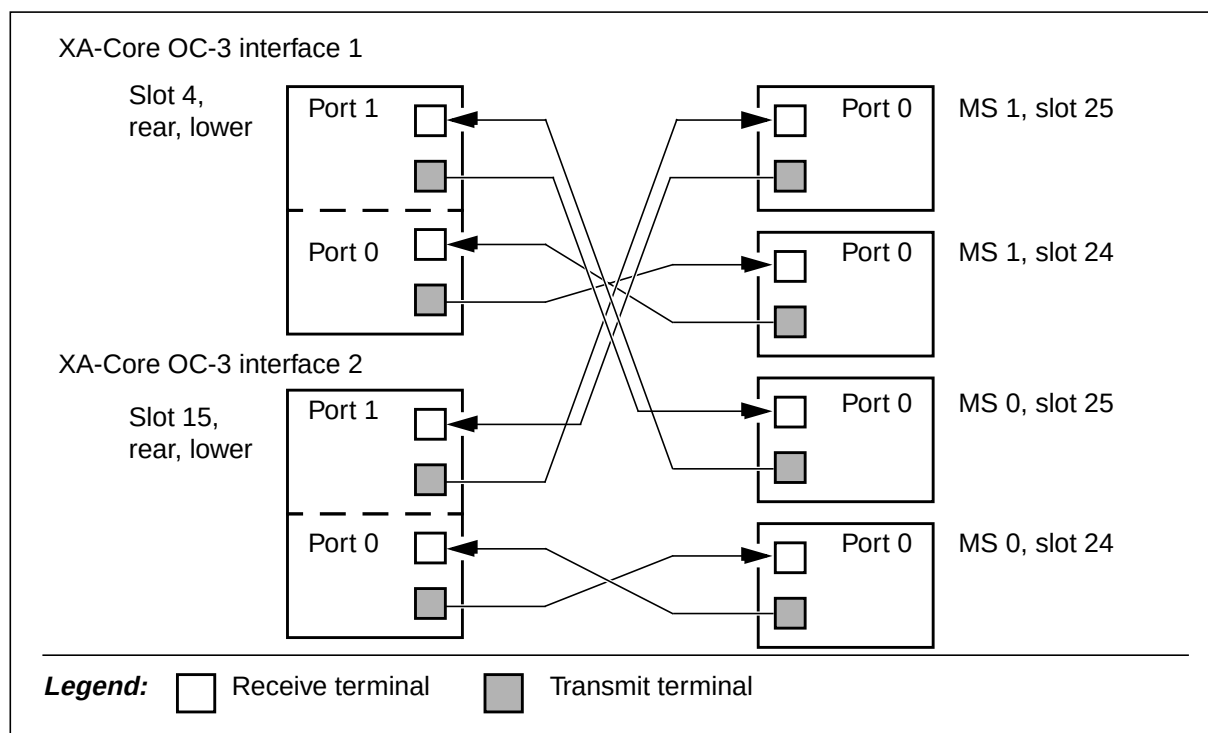
- 13** Connect the replacement or original fiber optic cables to the correct OC-3 two port interface ports.
- a** Remove the dust caps from the fiber optic cable tips. Clean the tips of the fiber optic cables. Use the recommended cleaning methods.
 - b** Hold the fiber optic cable connector by the body only.
 - c** Carefully insert the fiber optic cable connectors into the correct receptacles. See the diagrams in this step.

NTLX05 OC-3 two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Connect the OC-3 two port interface fiber optic cables

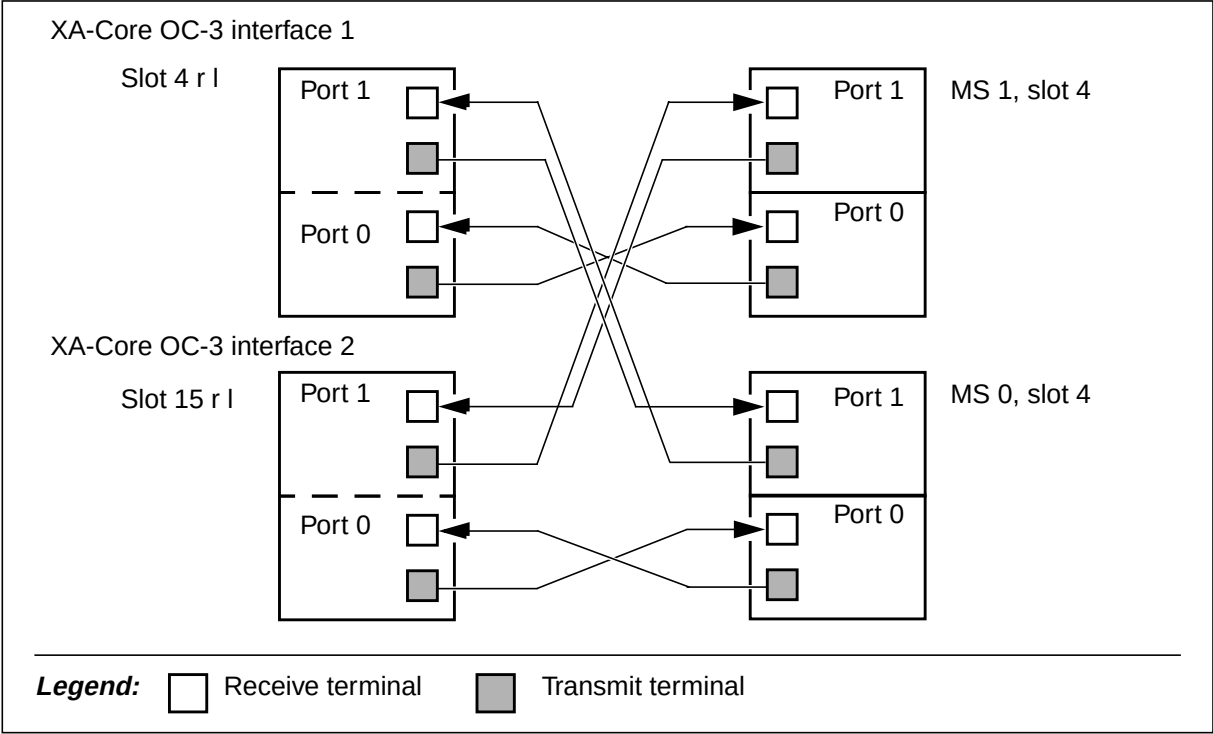


XA-Core and MS fiber optic cable connections (SuperNode)



NTLX05 OC-3 two port interface packetlet
in a SuperNode and SuperNode SE XA-Core (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



At the MAP

- 14 Return the IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the
physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packetlet location in the
physical shelf - front (f) or rear (r)
Example of command use:
>RTS 4 r
Example of system response:
RTS 4 rear completed

If the IOP CP is	Do
in service	step 15
not in service	step 17

NTLX05 OC-3 two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

- 15** Return the OC-3 two port interface packetlet to service. Perform the following steps.

- a** Exit from the IO MAP level and access the CMIC MAP level. At the IO MAP level type

>CMIC

and press the Enter key.

- b** Return the OC-3 two port interface packetlet to service. At the CMIC MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

RTS 4 rear lower completed

If the OC-3 two port interface packetlet is	Do
in service	step 16
not in service	step 17

NTLX05 OC-3 two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

- 16** Return the RTIF packetlet to service. Perform the following steps.
- a** Exit from the CMIC MAP level and access the RTIF MAP level. At the CMIC MAP level type
>RTIF
 and press the Enter key.
 - b** Return the RTIF packetlet to service. At the RTIF MAP level type
>RTS <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>BSY 4 r u

Example of system response:

RTS 4 rear upper completed

If the RTIF packetlet is	Do
not in service	step 17
in service	step 18

- 17** Call the next level of support.
- 18** Check that the newly installed CMIC packetlet contains the proper firmware load. At the PE MAP level type
>QUERY CARD <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command:
>QUERY CARD 4 r u

NTLX05 OC-3 two port interface packlet in a SuperNode and SuperNode SE XA-Core (end)

The system displays several items of information, including the firmware version.

Example of system response:

Query 4 rear upper completed

:

:

Firmware Ver.: EP16C023

:

:

If the firmware version	Do

is the proper version	step 20

is not the proper version	step 19

- 19** Perform the procedure to upgrade the firmware. The procedure is in this document, in the chapter "Introduction to routine maintenance procedures". Return to this point when complete.
- 20** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

NTLX05 OC-3 AMDI two port interface packet in a SuperNode and SuperNode SE XA-Core

Application

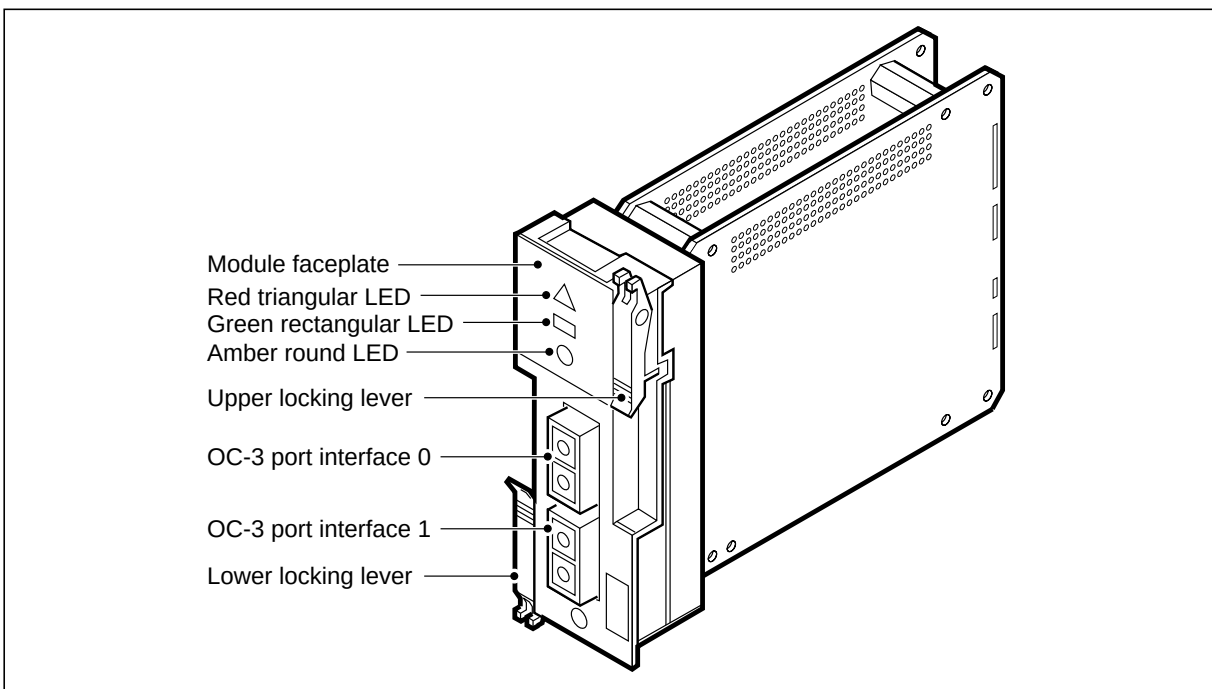
This section contains the procedure for replacing an NTLX05BA OC-3 AMDI two port interface packet with a replacement of the same product engineering code and version (that is, NTLX05BA). The packet installs in a single-width IOP circuit pack (CP).

This procedure may also be used to replace the NTLX05AB packet that supports AMDI services. Use a replacement of the same product engineering code and version (that is, NTLX05AB).

The following lists the valid OC-3 two port interface packets.

PEC	Suffix	Card name
NTLX05	BA	OC-3 AMDI two port interface packet

NTLX05 OC-3 two port interface packet front and side views



NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

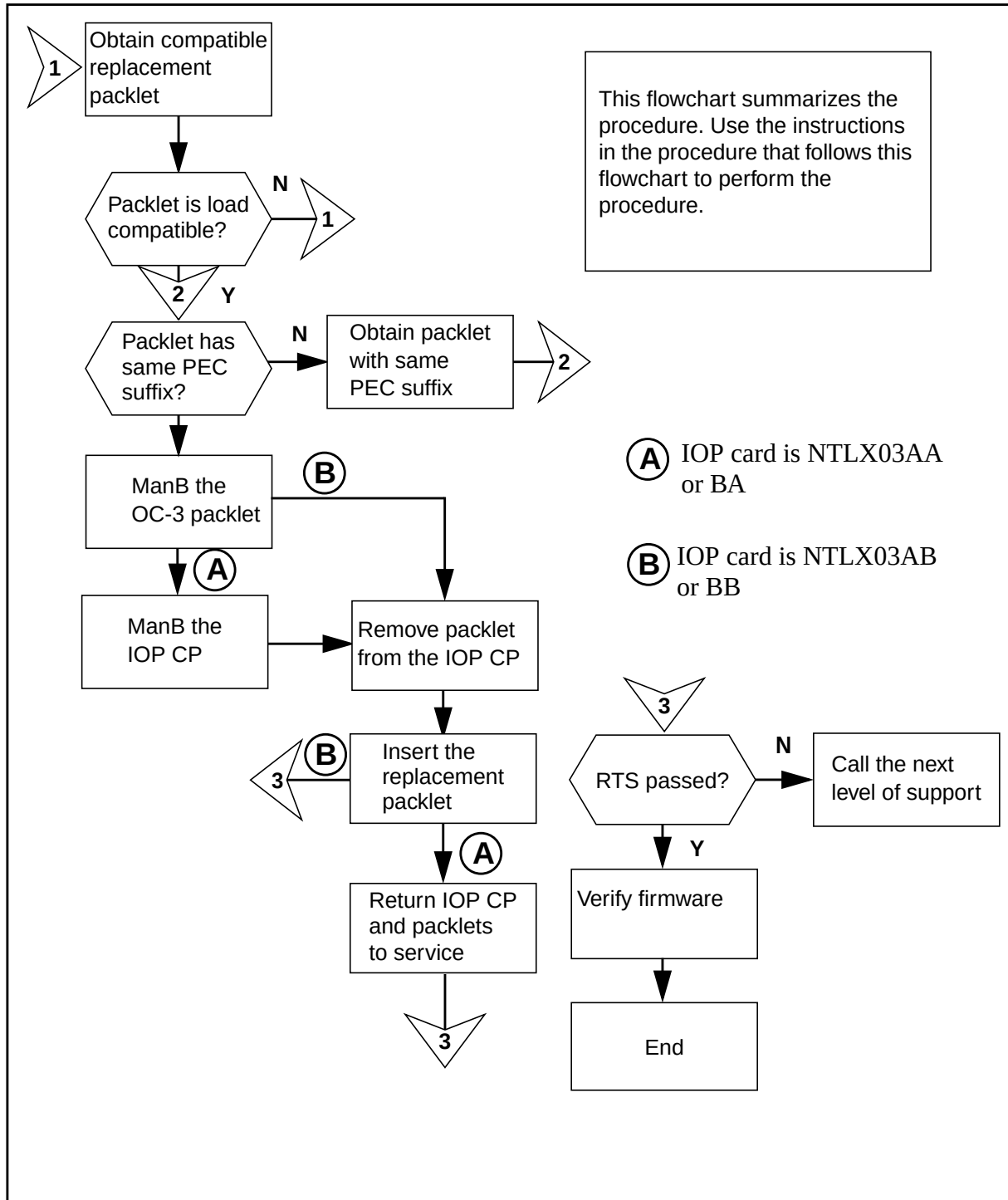
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the methods in the step instructions that follow the flowchart.

NTLX05 OC-3 AMDI two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX05 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX05 circuit packlet



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location:

- 1 Get a replacement packlet. Make sure that the replacement packlet and the packlet you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core AMDI MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;AMDI
and press the Enter key.
- 3 Examine the AMDI MAP level. Record the location and status of the OC-3 two port interface packlet that you need to replace. Make sure that redundant components are InSv before removing the OC-3 two port interface packlet that you need to replace.

The following is a sample MAP display.

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

AMDI MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
AMDI     .       .       .       .       .       .       .       .       .
*M*
AMDI
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
XMAP0
Time 14:12 >

Front: 11111111 Rear: 111111 SM PE IO PKLT
123456789012345678 456789012345 Linkfl
0 0 0 0

Sta: . - . . . . - . . . . . . . . . . . . . . . . . .
Dep: F
Typ: ** **
Slot: Side: Packlet: Port0: Link0: Port1: Link1:
5 Rear Lower . S -
6 Rear Lower . . -
13 Rear Lower . . -
14 Rear Lower . . -

XAC:
AMDI:

```

If the redundant IOP or AMDI devices are	Do
in a ManB state	step 4
in an InSv state	step 5
in a SysB state	step 17

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 4 Return the redundant IOP CP or packlets to service. At the correct MAP level type

>RTS <nn> <s>

or

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r

Example of system response:

RTS 4 rear completed

If the redundant IOP and AMDI devices are	Do
in service	step 5
not in service	step 17

- 5 Place the OC-3 AMDI two-port interface packlet in a ManB state. At the AMDI MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

Warning: Bsy command will take it out of service.
Please confirm ("YES", "Y", "NO", or "N")

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

To confirm the command type:

>Y

Example of system response

Bsy 4 rear lower complete

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the packlet is	Do
in a ManB state	step 6
not in a ManB state	step 17

- 6 Indicate the ManB OC-3 two port interface packlet. At the AMDI MAP level, type

>INDICAT card <nn> <s> <p>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>INDICAT card 4 r l

Example of system response:

Indicate 4 rear lower passed

7

If the IOP card is	Do
NTLX03AA or BA	step 8
NTLX03AB or BB	step 9

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 8 ManB the IOP CP. Perform the following steps
 - a Exit from the AMDI MAP level and display the IO MAP level. At the AMDI MAP level type
>IO
 and press the Enter key.
 - b ManB the IOP CP. At the IO MAP level type
>BSY <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 Example of command use:
>BSY 4 r

Example of system response:

Warning: Bsy command will take it out of service.
 Proceed (Y or N)
 Please confirm ("YES", "Y", "NO", or "N"),

To confirm the command type:

>Y

Example of system response:

Bsy 4 rear passed.

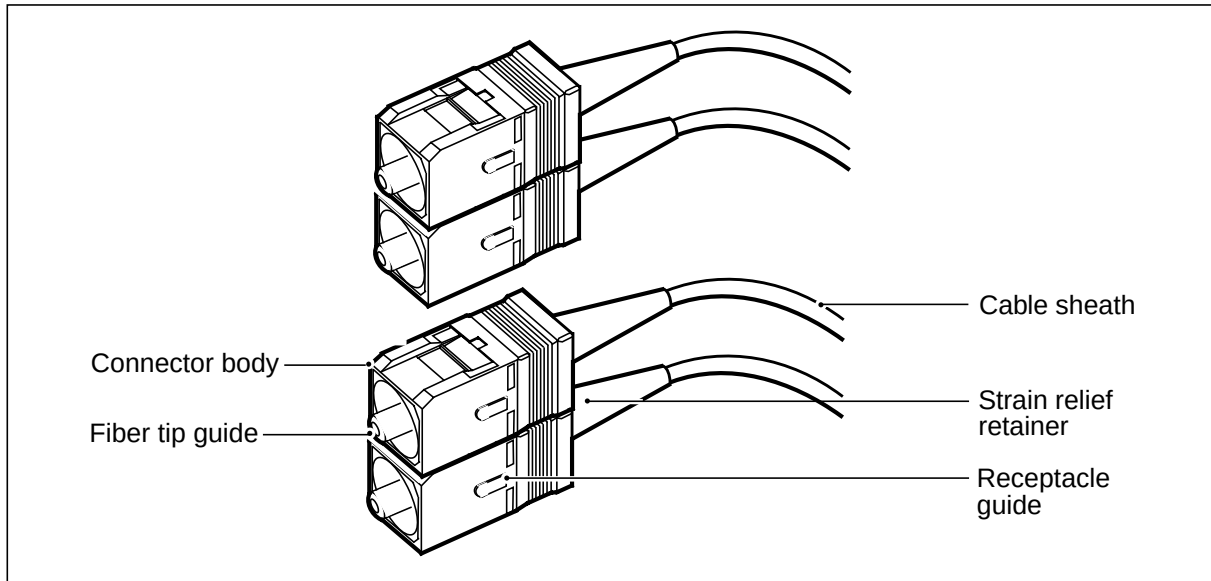
If the IOP CP is	Do
in a ManB state	step 9
not in a ManB state	step 17

At the XA-Core physical shelf

- 9 Locate the OC-3 two port interface packlet in the IOP CP. Label the fiber optic cable connections on the OC-3 two port interface packlet according to office standards.

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Paired SC fiber optic cable connectors



10

**WARNING****Fiber cable damage**

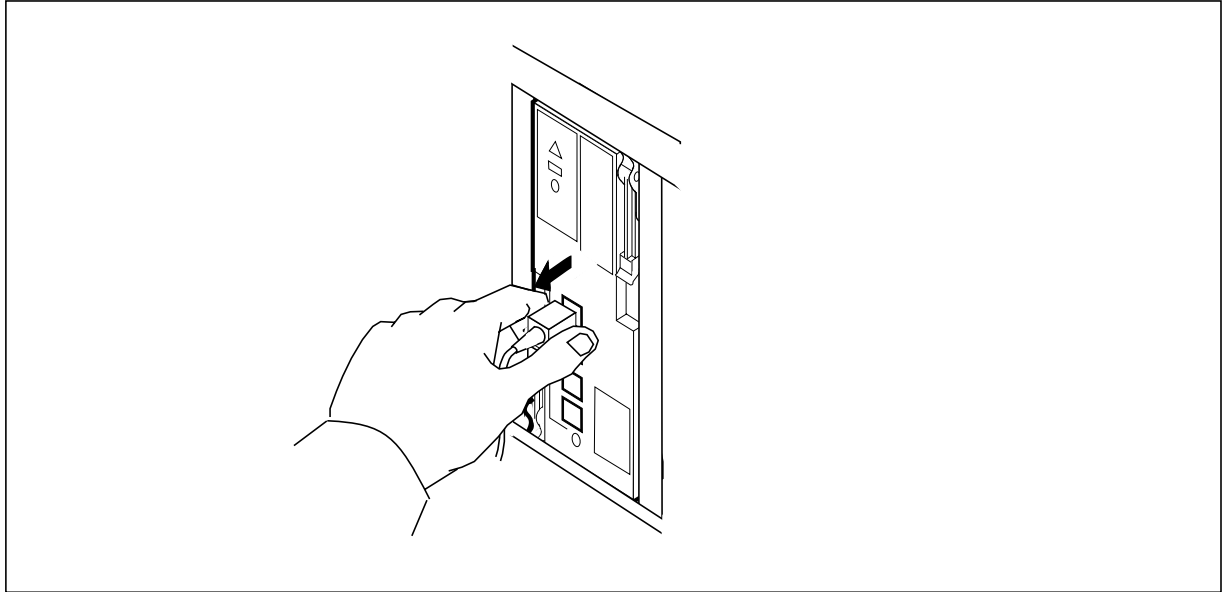
Handle the fiber optic cables with caution. Do not crimp or bend the fiber optic cables to a radius of less than 25mm (1 in.). Do not touch the tip of the fiber optic filament. Dirt or oil from the skin transferred to the fiber tip surface reduces communication performance.

Disconnect the fiber optic cables from the faceplate of the OC-3 two port interface packlet.

- a** Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.
- b** Cover the ends of the fiber optic cable with dust caps.
- c** Place the fiber optic cables in a safe location away from the packlet.

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



11



WARNING

Do not hold circuit packlet by levers only

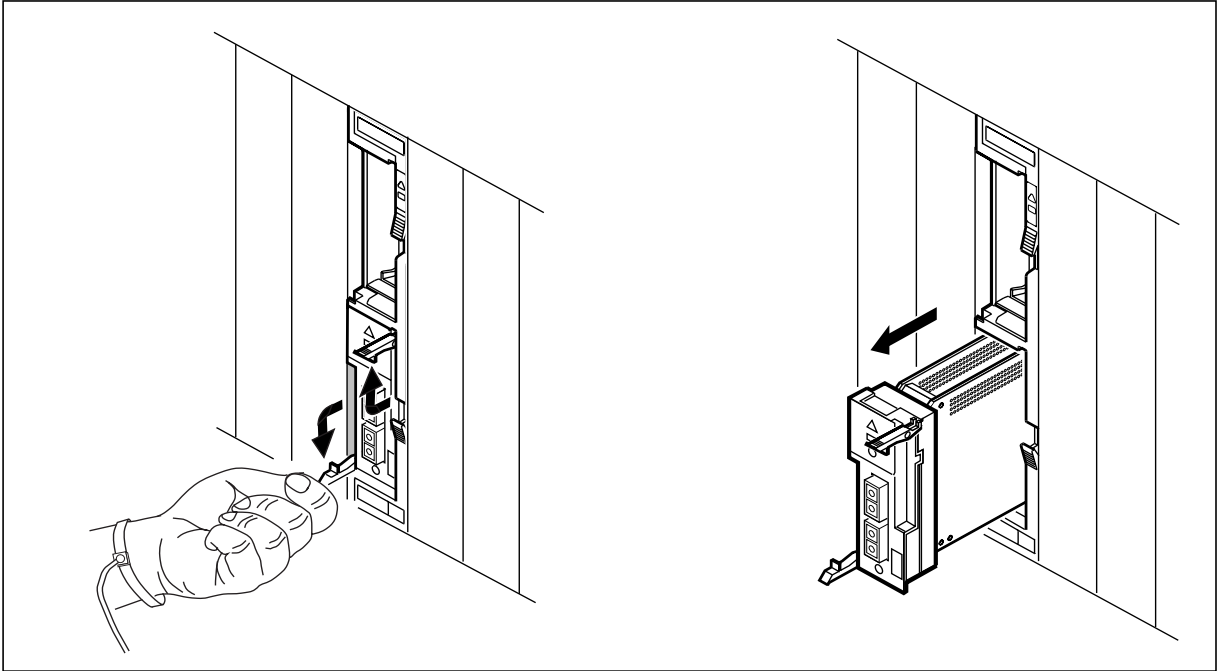
Holding a circuit packlet by the levers can result in lever breakage.

Remove the OC-3 two port interface packlet from the IOP CP. Perform the following steps:

- a Open the upper and lower locking levers on the packlet.
- b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.
- c Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.
- d Place the packlet in ESD protective packaging.

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Remove the OC-3 two port interface packlet from the IOP CP



12



WARNING

Do not hold circuit packlet by levers only

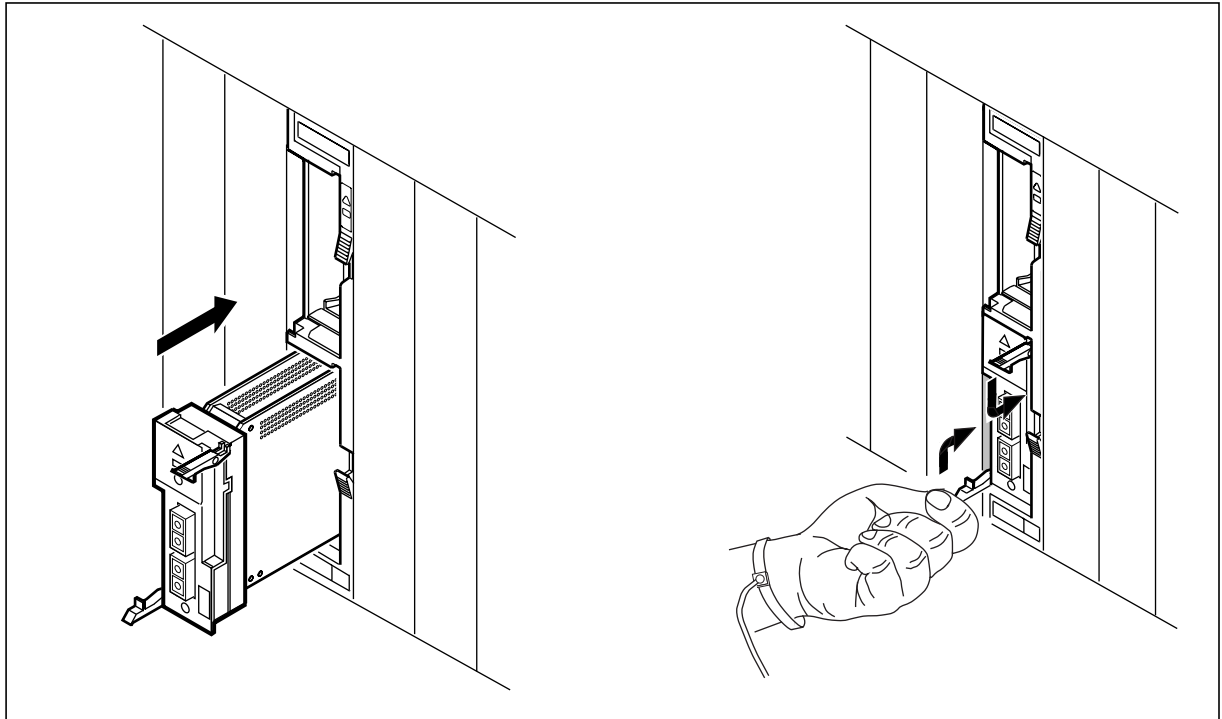
Holding a circuit packlet by the levers can result in lever breakage.

Insert the replacement OC-3 two port interface packlet in the lower IOP CP slot.

- a Remove the replacement OC-3 two port interface packlet from the ESD protective packaging.
- b Open the upper and lower locking levers on the packlet.
- c Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
- d Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
- e Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
- f Close the locking levers to secure the packlet. Do not force the locking levers to close.

NTLX05 OC-3 AMDI two port interface packetlet in a SuperNode and SuperNode SE XA-Core (continued)

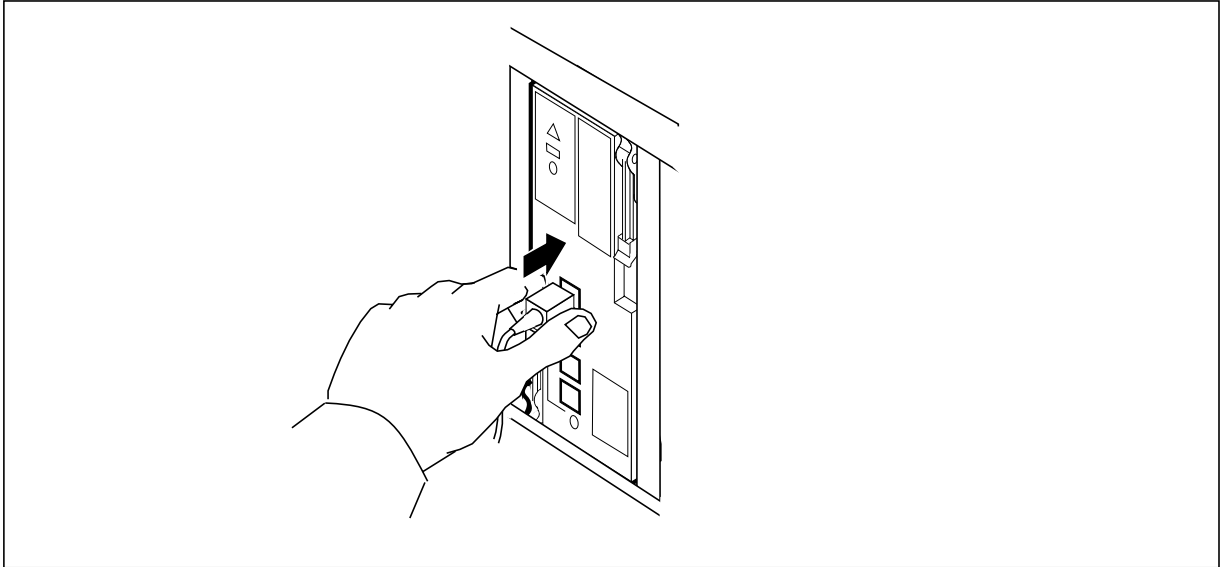
Insert the OC-3 two port interface packetlet into the IOP CP



- 13** Connect the replacement or original fiber optic cables to the correct OC-3 two port interface ports.
- a** Remove the dust caps from the fiber optic cable tips. Clean the tips of the fiber optic cables. Use the recommended cleaning methods.
 - b** Hold the fiber optic cable connector by the body only.
 - c** Carefully insert the fiber optic cable connectors into the correct receptacles. See the diagrams in this step.

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Connect the OC-3 two port interface fiber optic cables



14

If the IOP card is	Do
NTLX03AA or BA	step 15
NTLX03AB or BB	step 16

At the MAP

- 15 Return the IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the
 physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the
 physical shelf - front (f) or rear (r)
 Example of command use:
>RTS 4 r

NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

RTS 4 rear completed

If the IOP CP is	Do
in service	step 16
not in service	step 17

- 16** Return the OC-3 AMDI two port interface packlet to service. Perform the following steps.
- Exit from the previous MAP level and access AMDI MAP level. At the previous MAP level type
>AMDI
 and press the Enter key.
 - Return the OC-3 two port interface packlet to service. At the AMDI MAP level type
>RTS <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>RTS 4 r l
Example of system response:
 RTS 4 rear lower completed

If the OC-3 two port interface packlet is	Do
not in service	step 17
in service	step 18

- 17** Call the next level of support.

NTLX05 OC-3 AMDI two port interface packetlet in a SuperNode and SuperNode SE XA-Core (end)

- 18** Check that the newly installed AMDI packetlet contains the proper firmware load. At the PE MAP level type

>QUERY CARD <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command:

>QUERY CARD 4 r l

The system displays several items of information, including the firmware version.

Example of system response:

Query 4 rear lower completed

.

.

Firmware Ver.: EP16C023

.

.

If the firmware version	Do
is the proper version	step 20
is not the proper version	step 19

- 19** Perform the procedure to upgrade the firmware. The procedure is in this document, in the chapter "Introduction to routine maintenance procedures". Return to this point when complete.
- 20** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core

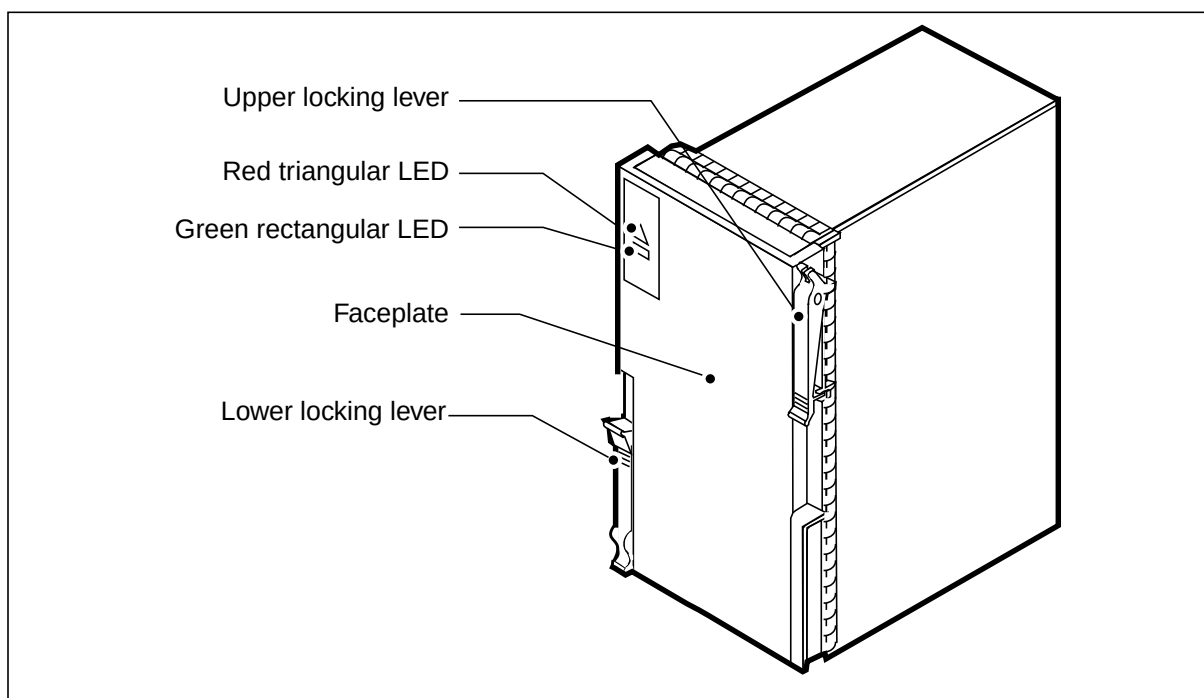
Application

This section contains the procedure for replacing an NTLX06AA or AB disk packlet with a replacement of the same product engineering code and version (that is, AA for AA or AB for AB). The disk packlet installs in a dual-width Input/Output processor (IOP) circuit pack (CP).

The following lists the valid disk packlets.

PEC	Suffix	Circuit packlet name
NTLX06	AA	Disk 4 GigaByte packlet
NTLX06	AB	Disk 8 GigaByte packlet

NTLX06 disk packlet front and side views



NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

Do not go to a common procedure unless instructed in the step-action procedure.

Light emitting diode (LED) strategy

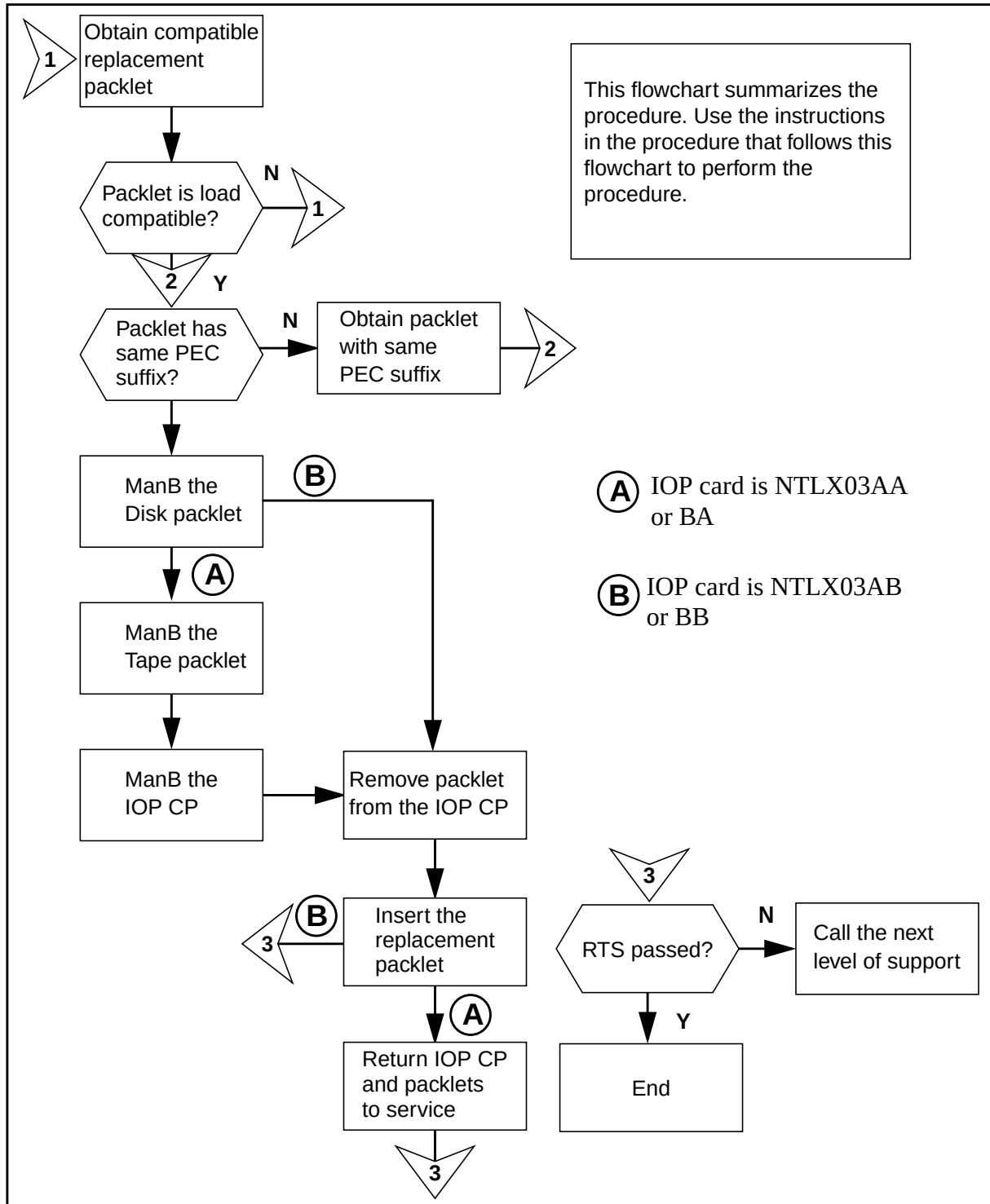
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the instructions in the step-action procedure that follows the flowchart.

NTLX06 disk packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX06 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX06 disk packlet

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**CAUTION****Loss of service**

Do not repeat steps.

**CAUTION****Loss of service**

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location

- 1 Get a replacement packlet. Make sure that the replacement packlet and the packlet you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core Disk MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;DISK
and press the Enter key.

NTLX06 disk packlet
in a SuperNode and SuperNode SE XA-Core (continued)

- 3
- Examine the Disk MAP level. Record the location and status of the Disk packlet that you need to replace. Make sure that redundant components are InSv before removing the Disk packlet that you need to replace.

The following is a sample MAP display.

Disk MAP level

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10

11 Format

12

13

14 Alarm_

15

16

17 Indicat_

18 Query_

XAC
DISK

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

Disk

Front: 111111111 Rear: 111111

123456789012345678 456789012345

Sta: 0

Dep: F

Typ: * *

Slot: Side: Packlet: Status:

2 Front Lower .

17 Front Lower M

DISK:

PKLT
DISK M
1

XMAP0

Time 14:12 >

	If the redundant IOP, Disk or Tape devices are	Do
	in a ManB state	step 4
	in an InSv state	step 5
	in a SysB state	step 29
- 4
- Return the redundant IOP CP or packlets to service. At the correct MAP level type
- >RTS <nn> <s>
- or
- >RTS <nn> <s> <p>
- and press the Enter key
- where

NTLX06 disk packlet

in a SuperNode and SuperNode SE XA-Core (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 4 r

Example of system response:

RTS 4 rear completed

If the redundant IOP, Disk and Tape devices are	Do
in service	step 5
not in service	step 29

- 5 Make sure that the redundant Disk packlet contains the active image backup file.
 - a Exit from the Disk MAP level and access the CI MAP prompt. At the Disk MAP level type
>QUIT ALL
 and press the Enter key.
 - b Access the image table of contents (ITOCCI) MAP interface. At the CI MAP level prompt type
>ITOCCI
 and press the Enter key.
Example of a MAP response:
 ITOC User Interface is now active.
 ITOCCI:
 - c List the image files for the XA-Core in the ITOC, type:
>LISTBOOTFILE XA
 and press the Enter key.

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

Example of a MAP response:

Image Table Of Contents for XA:

	A Registered		Generic Device	File
	L Date	Time		Name
	R MM/DD/YYYY	HH:MM:SS		
0	*	05/04/1999 19:16:21	F02LIMAGE	IMG0504CX_CM
0		05/01/1999 19:21:19	F02LIMAGE	IMG0501CU_CM

Note: The example of a MAP response identifies the autoloader registered (ALR) image file by an asterisk (*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- d Determine which device contains the active image files. Examine the device name under the Generic Device header in the ITOC listing. The device name indicates the location of the disk device.
- e Exit from the ITOCCI MAP interface and display the CI MAP level prompt. At the ITOCCI MAP interface prompt, type
>QUIT
and press the Enter key.

If the redundant disk device	Do
does not contain the active image	step 6
contains the active image	step 8

- 6 Perform a manual dump of the active image to the redundant disk device. At the CI MAP prompt, type
>AUTODUMP MANUAL
and press the Enter key.

- 7 Wait for a system response to indicate that the manual image dump is successful.

If the manual image dump to the redundant disk device is	Do
successful	step 8
not successful	step 29

- 8 Determine if the Tape packlet contains a mounted tape. Perform the following steps:

- Note:** The Tape MAP level displays the following information in the command interpreter output area:

- The following is a sample MAP display.

Tape MAP level

9 Record the user name and drive state as shown on the Tape MAP level. There are four possible tape device user conditions:

- The system is using the tape device. The Tape MAP level displays “System” as the user name. The system software is performing an activity such as an ONP or software upgrade. The tape drive state is mounted.
- Another user is performing a backup or restore at a different location. The tape drive state is mounted.

**NTLX06 disk packlet
in a SuperNode and SuperNode SE XA-Core** (continued)

- You are the user of the tape device. The tape drive state is mounted.
- There are no users. The tape drive state is unmounted.

	If the Tape MAP level indicates that	Do
	the system software is the user	step 10
	another user is using the tape device	step 11
	you are the user of the tape device	step 14
	there are no users	step 16
10	Wait for the system software to complete the ONP or upgrade process. When the system software activities are complete, the MAP deletes the "System" user name and the tape drive state changes to unmounted.	
	If the system software process is complete and the Tape MAP level indicates that	Do
	the tape is not rewound and the tape drive state is mounted	step 13
	the tape is rewound and the tape drive state is unmounted	step 16
11	Notify the other user that you intend to busy the Tape packlet. The other user needs to complete tape device activities and perform an EJECTTAPE. Wait for the Tape MAP level to delete the other user name and indicate that the tape drive state is unmounted.	
	If the Tape MAP level indicates that	Do
	the tape is not rewound and that the tape drive state is mounted	step 12
	the tape is rewound and that the tape drive state is unmounted	step 16
12	Call the other user to make sure that all tape device activities are complete.	
	If the other user has	Do
	completed tape drive activities and rewound the tape	step 16
	not completed tape drive activities	step 29

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 13** Clear the tape drive state on the Tape MAP level. Manually busy the Tape packlet and return the Tape packlet to service.
- a** Manually busy the Tape packlet. At the Tape MAP level type
- >BSY <nn> <s> <p>**
- and press the enter key.
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- <p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).
- Example of command use:
- >BSY 2 f u**
- Example of system response:*
- BSY 2 front upper complete
- b** Return the Tape packlet to service. At the Tape MAP level type
- >RTS <nn> <s> <p>**
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
- <p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).
- Example of command use:
- >RTS 2 f u**
- Example of system response:*
- RTS 2 front upper passed

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 16
the tape is not rewound and the tape drive state is mounted	step 29

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 14** Access the DISKUT MAP interface and rewind the tape.
- a** At the Tape MAP level type:
>QUIT all
and press the enter key.
 - b** Access the DISKUT MAP level. At the CI MAP prompt type:
>DISKUT
and press the enter key.
 - c** Rewind the tape. At the DISKUT MAP level type:
>EJECTTAPE <device>
and press the enter key.
where
<device> is the name of the tape device.
Note: The system rejects the EJECTTAPE command if the system cannot identify you as the user of the tape device.
Example of command use:
>EJECTTAPE F02UTAPE
Example of system response:
Rewind of tape F02UTAPE on node <node_name> is completed. The tape device is not available to the user now
 - d** Exit from the DISKUT MAP level. At the DISKUT MAP prompt, type
>QUIT
and press the enter key.
 - e** Access the XA-Core Tape MAP level. At the CI MAP prompt, type
>MAPCI;MTC;XAC:TAPE
and press the enter key.

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 16
the tape is not rewound and the tape drive state is mounted	step 29

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

15

If the IOP card is	Do
NTLX03AA or BA	step 16
NTLX03AB or BB	step 17

16

ManB the Tape packlet. At the Tape MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Note: The Tape packlet is in the same physical shelf and slot location as the replacement IOP CP.

Example of command use:

>BSY 2 f u

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

Bsy 2 front upper passed.

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the Tape packlet is	Do
in a ManB state	step 17
not in a ManB state	step 29

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

17 ManB the Disk packlet contained in the IOP CP. Perform the following steps:

- a Exit from the Tape MAP level and access the Disk MAP level. At the Tape MAP level type

>DISK

and press the Enter key.

- b ManB the Disk packlet. At the Disk MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 2 f l

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

BSY 2 front lower completed

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the Disk packlet is	Do
in a ManB state	step 18
not in a ManB state	step 29

18 Indicate the ManB Disk packlet. At the Disk MAP level, type

>INDICAT card <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

<s> is the e side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>INDICAT card 2 f l

Example of system response:

Indicate 2 front lower passed.

19

If the IOP card is	Do
NTLX03AA or BA	step 20
NTLX03AB or BB	step 21

20

ManB the IOP CP. Perform the following steps

- a** Exit from the Disk MAP level and display the IO MAP level. At the Disk MAP level type

>IO

and press the Enter key.

- b** ManB the IOP CP. At the IO MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 2 f

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"):

To confirm the command type:

>Y

Example of system response:

Bsy 2 front completed.

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

Note: If the Bsy command reduces redundancy and produces a major alarm, you must use the Force option.

If the IOP CP is	Do
in a ManB state	step 21
not in a ManB state	step 29

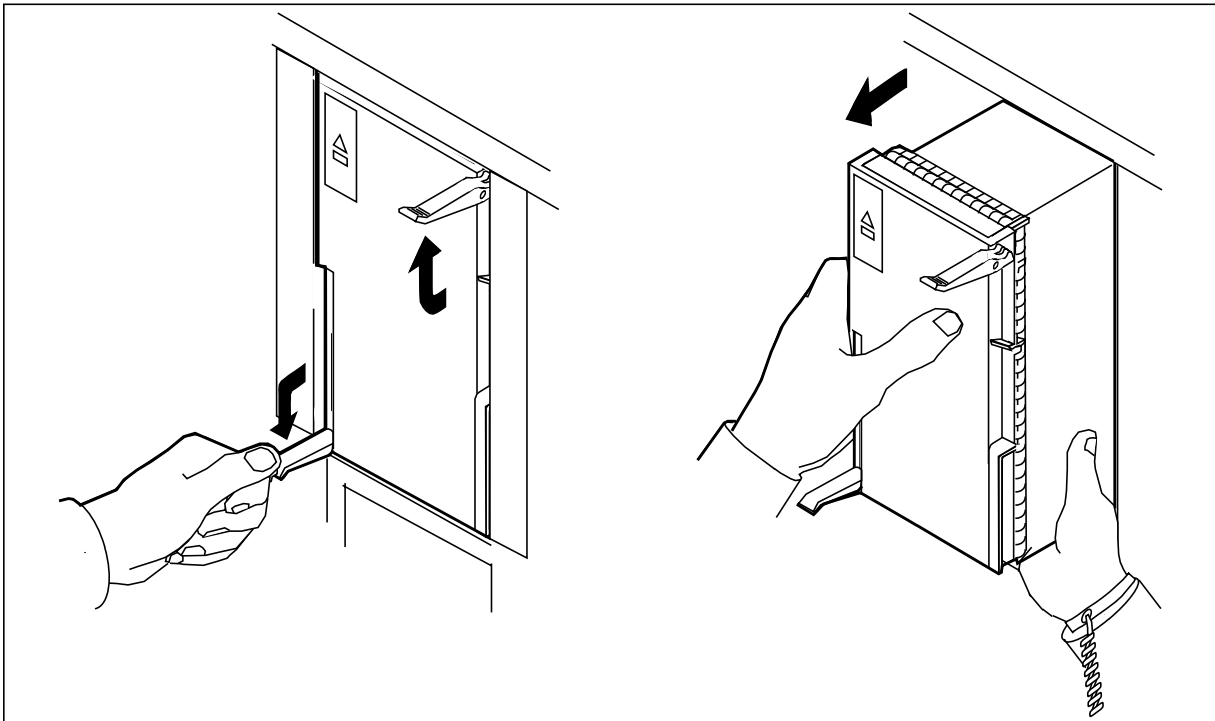
At the XA-Core physical shelf

- 21** Locate the Disk packlet on the physical shelf. Refer to the packlet location recorded from 3. Examine the IOP CP and packlet faceplates on the XA-Core physical shelf.

Look for a winking, red triangular LED on the packlet. A winking, red LED is a result of using the indicate command..

- 22** Remove the Disk packlet from the IO CP. Perform the following steps:
- Open the upper and lower locking levers on the packlet.
 - Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.
 - Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.

Remove the Disk packlet from the IOP CP

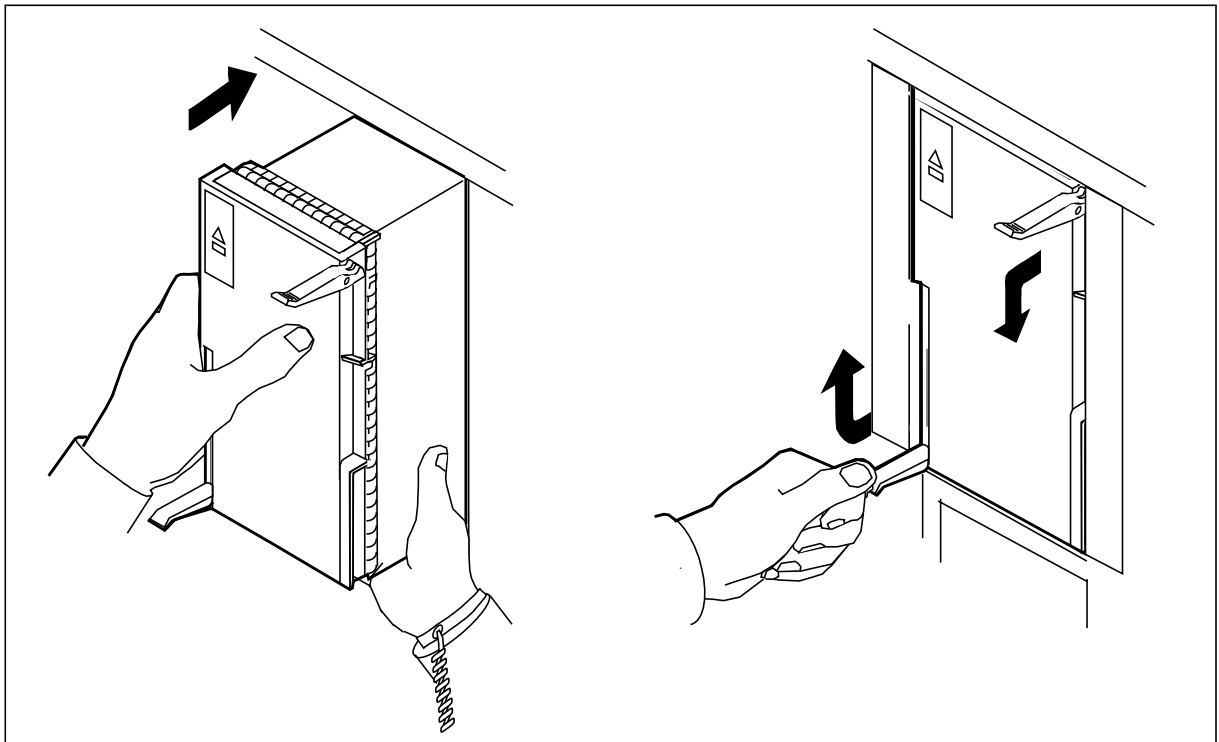


NTLX06 disk packlet

in a SuperNode and SuperNode SE XA-Core (continued)

- d Close the upper and lower locking levers on the packlet to prevent breakage.
 - e Place the packlet in ESD protective packaging.
- 23** Insert the replacement Disk packlet into the lower IOP CP slot. Perform the following steps:
- a Open the locking levers on the replacement Disk packlet.
 - b Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
 - c Align the packlet with the slot in the shelf and slide the packlet into the physical slot. Do not force the packlet into the slot.
 - d Use your fingers or thumbs to push on the upper and lower edges of the packlet faceplate.
 - e Close the locking levers on the packlet. Do not force the locking levers to close.

Insert the Disk packlet in the IOP CP



24

If the IOP card is	Do
NTLX03AA or BA	step 25

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

If the IOP card is	Do
NTLX03AB or BB	step 26

At the MAP terminal

- 25** Return the IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the
physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the
physical shelf - front (f) or rear (r)
Example of command usage:
>RTS 2 f
Example of system response:
RTS 2 front passed.

If the IOP CP is	Do
in service	step 26
not in service	step 29

NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 26** Return the Disk packlet to service. Perform the following steps:
- a** Exit from the IO MAP level and access the Disk MAP level. At the IO MAP level type
>DISK
 and press the Enter key.
 - b** Return the Disk packlet to service. At the DISK MAP level type
>RTS <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>RTS 2 f l

Example of system response:

RTS 2 front lower passed

If the Disk packlet is	Do
not in service	step 29
in service	step 31

27

If the IOP card is	Do
NTLX03AA or BA	step 28
NTLX03AB or BB	step 31

NTLX06 disk packetlet in a SuperNode and SuperNode SE XA-Core (end)

- 28** Return the Tape packetlet to service. Perform the following steps:
- a** Access the XA-Core TAPE MAP level. At the Disk MAP level type
>TAPE
and press the Enter key
 - b** Return the Tape packetlet to service. At the TAPE MAP level type
>RTS <nn> <s> <p>
and press the Enter key
where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:
>RTS 2 f u

Example of system response:

RTS 2 front upper passed

If the Tape packetlet is	Do
not in service	step 29
in service	step 31

- 29** Call the next level of support.
- 30** Perform the correct alarm clearing procedure.
- 31** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core

Application

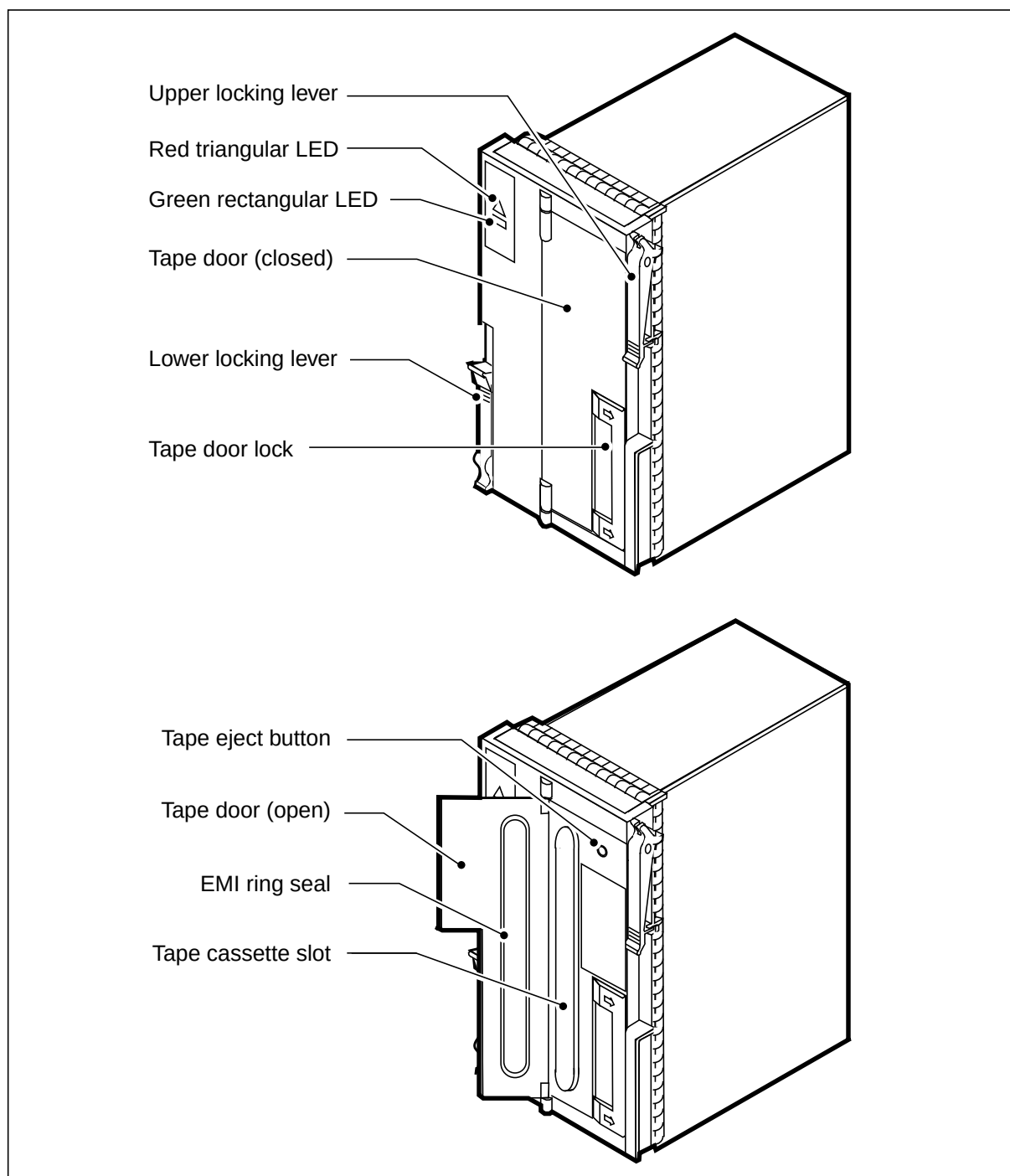
This section contains the procedure for replacing an NTLX07AA tape packlet with a replacement of the same product engineering code and version. The tape packlet installs in a dual-width Input/Output processor (IOP) circuit pack (CP).

The following lists the valid tape packlets.

PEC	Suffix	Circuit packlet name
NTLX07	AA	DAT tape drive packlet

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

NTLX06 Tape drive packlet front and side views



NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

Do not go to a common procedure unless instructed in the step-action procedure.

Light emitting diode (LED) strategy

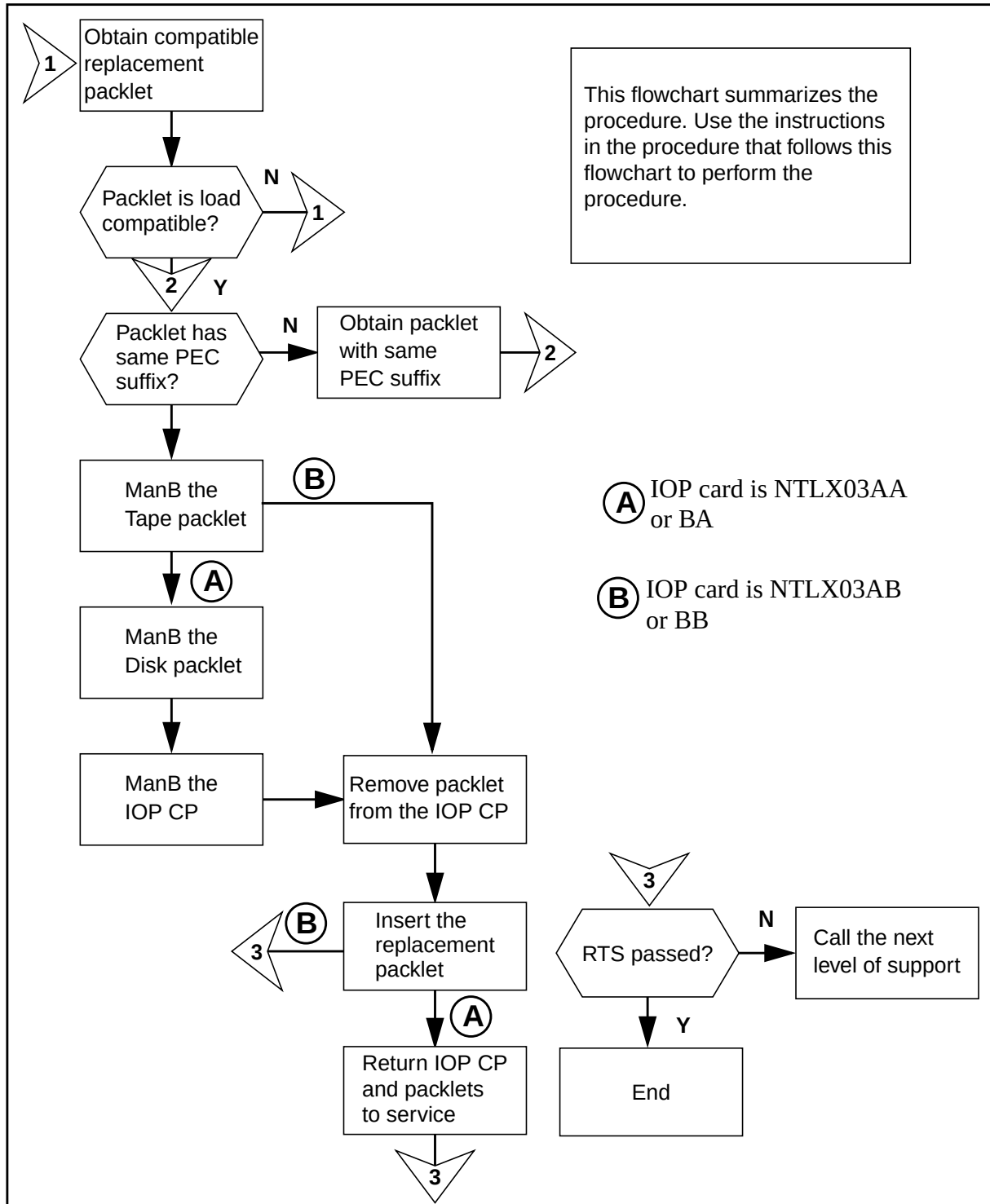
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the instructions in the step-action procedure that follows the flowchart.

NTLX07 tape packet in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX07 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX07 tape packet in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX07 tape packet

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packets.

**CAUTION****Loss of service**

Do not repeat steps.

**CAUTION****Loss of service**

Manually busy one packet of the same equipment type at a time. Make sure that the unit you are replacing is inactive and the mate unit is active.

At your current location

- 1 Get a replacement packet. Make sure that the replacement packet and the packet you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core Tape MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;TAPE
and press the Enter key.

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 3 Examine the Tape MAP level. Record the location and status of the Tape packlet that you need to replace. Make sure that redundant components are InSv before removing the Tape packlet that you need to replace. Determine if the Tape packlet contains a mounted tape.

Note: The Tape MAP level displays the following information in the command interpreter output area:

- the user name under the User Name header
- the tape drive status under the Drive header (mounted/unmounted)

Tape MAP level

XAC Tape	MS .	IOD .	Net .	PM .	CCS .	Lns .	Trks .	Ext .	APPL .
Tape		Front: 111111111			Rear: 111111	SM	PE	IO	PKLT
0 Quit		123456789012345678			456789012345	.	.	.	TAPetb
2		Sta: -.-.-.-.-.-.-.-.-.-.-S-			.-.-.-.-.-.-.-.-.-.-.-	0	0	0	1
3		Dep:							
4		Typ: *		*					
5		Slot: 2	Side: Front	Packlet: Upper	Status: .	User Name: USER1		Drive: mounted	
6 Tst_		17	Front	Upper	S			Unmounted	
7 Bsy_		TAPE:							
8 RTS_									
9									
10									
11									
12									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12 >									

If the redundant IOP, Disk or Tape devices are

Do

in a ManB state	step 4
in an InSv state	step 5
in a SysB state	step 29

- 4 Return the redundant IOP CP or packlets to service. At the correct MAP level type
- >RTS <nn> <s>
- or
- >RTS <nn> <s> <p>

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 2 f

Example of system response:

RTS 4 rear completed

If the redundant IOP, Disk and Tape devices are	Do
in service	step 5
not in service	step 29

- 5** Make sure that the redundant Disk packlet contains the active image backup file.

- a** Exit from the Tape MAP level and access the CI MAP prompt. At the Tape MAP level type

>QUIT ALL

and press the Enter key.

- b** Access the image table of contents (ITOC) MAP interface. At the CI MAP level prompt type

>ITOC

and press the Enter key.

Example of a MAP response:

ITOC User Interface is now active.
ITOC:

- c** List the image files for the XA-Core in the ITOC, type:

>LISTBOOTFILE XA

and press the Enter key.

Example of a MAP response:

Image Table Of Contents for XA:

A Registered	Generic Device	File
L Date	Time	Name
R MM/DD/YYYY	HH:MM:SS	

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

```
-----  
-----  
0 * 05/04/1999 19:16:21 F02LIMAGE IMG0504CX_CM  
0 05/01/1999 19:21:19 F02LIMAGE IMG0501CU_CM
```

Note: The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- d Determine which device contains the active image files. Examine the device name under the Generic Device header in the ITOC listing. The device name indicates the location of the disk device.
- e Exit from the ITOCCI MAP interface and display the CI MAP prompt. At the ITOCCI MAP interface prompt, type

>QUIT

and press the Enter key.

If the redundant disk device	Do
does not contain the active image	step 6
contains the active image	step 8

- 6 Perform a manual dump of the active image to the redundant disk device. At the CI MAP prompt, type

>AUTODUMP MANUAL

and press the Enter key.

- 7 Wait for a system response to indicate that the manual image dump is successful.

If the manual image dump to the redundant disk device is	Do
successful	step 8
not successful	step 29

- 8 Access the XA-Core Tape MAP level. At the CI MAP prompt type

>MAPCI;MTC;XAC;TAPE

and press the Enter key.

NTLX07 tape packlet

in a SuperNode and SuperNode SE XA-Core (continued)

- 9** Record the user name and drive state as shown on the Tape MAP level. There are four possible tape device user conditions:
- The system is using the tape device. The Tape MAP level displays "System" as the user name. The system software is performing an activity such as an ONP or software upgrade. The tape drive state is mounted.
 - Another user is performing a backup or restore at a different location. The tape drive state is mounted.
 - You are the user of the tape device. The tape drive state is mounted.
 - There are no users. The tape drive state is unmounted.

If the Tape MAP level indicates that	Do
the system software is the user	step 10
another user is using the tape device	step 11
you are the user of the tape device	step 14
there are no users	step 15

- 10** Wait for the system software to complete the ONP or upgrade process. When the system software activities are complete, the MAP deletes the "System" user name and the tape drive state changes to unmounted.

If the system software process is complete and the Tape MAP level indicates that	Do
the tape is not rewound and the tape drive state is mounted	step 13
the tape is rewound and the tape drive state is unmounted	step 15

- 11** Notify the other user that you intend to replace the Tape packlet. The other user needs to complete tape device activities and perform an EJECTTAPE. Wait for the Tape MAP level to delete the other user name and indicate that the tape drive state is unmounted.

If the Tape MAP level indicates that	Do
the tape is not rewound and that the tape drive state is mounted	step 12
the tape is rewound and that the tape drive state is unmounted	step 15

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 12** Call the other user to make sure that all tape device activities are complete.

If the other user has	Do
completed tape drive activities and rewound the tape	step 15
not completed tape drive activities	step 29

- 13** Clear the tape drive state on the Tape MAP level. Manually busy the Tape packlet and return the Tape packlet to service.

- a** Manually busy the Tape packlet. At the Tape MAP level type

>BSY <nn> <s> <p>

and press the enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command use:

>BSY 2 f u

Example of system response:

BSY 2 front upper complete

- b** Return the Tape packlet to service. At the Tape MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command use:

>RTS 2 f u

NTLX07 tape packet in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

RTS 2 front upper passed

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 15
the tape is not rewound and the tape drive state is mounted	step 29

14 Access the DISKUT MAP interface and rewind the tape.

a At the Tape MAP level type:

>QUIT all

and press the enter key.

b Access the DISKUT MAP level. At the CI MAP prompt type:

>DISKUT

and press the enter key.

c Rewind the tape. At the DISKUT MAP level type:

>EJECTTAPE <device>

and press the enter key.

where

<device> is the name of the tape device.

Note: The system rejects the EJECTTAPE command if the system cannot identify you as the user of the tape device.

Example of command use:

>EJECTTAPE F02UTAPE

Example of system response:

Rewind of tape F02UTAPE on node <node_name> is completed. The tape device is not available to the user now

d Exit from the DISKUT MAP level. At the DISKUT MAP prompt, type

>QUIT

and press the enter key.

e Access the XA-Core Tape MAP level. At the CI MAP prompt, type

>MAPCI;MTC;XAC:TAPE

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

and press the enter key.

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 15
the tape is not rewound and the tape drive state is mounted	step 29

- 15** ManB the Tape packlet. At the Tape MAP level type
>BSY <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>BSY 17 f u
Example of system response:
 Warning: Bsy command will take it out of service.
 Proceed (Y or N)
 Please confirm ("YES", "Y", "NO", or "N"),

To confirm the command type:
>Y

Example of system response:
 Bsy 2 front upper passed.
Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the Tape packlet is	Do
in a ManB state	step 16
not in a ManB state	step 29

- 16** Indicate the ManB Tape packlet. At the Tape MAP level, type
>INDICAT card <nn> <s> <p>

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>INDICAT card 17 f u

Example of system response:

Indicate 2 front upper passed.

17

If the IOP card is	Do
NTLX03AA or BA	step 18
NTLX03AB or BB	step 20

18

ManB the Disk packlet contained in the IOP CP. Perform the following steps:

- a** Exit from the Tape MAP level and access the Disk MAP level. At the Tape MAP level type

>DISK

and press the Enter key.

- b** ManB the Disk packlet. At the Disk MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 17 f l

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"),

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

To confirm the command, type:

>Y

Example of system response:

BSY 2 front lower completed

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the Disk packlet is	Do
in a ManB state	step 19
not in a ManB state	step 29

19 ManB the IOP CP. Perform the following steps

- a** Exit from the Disk MAP level and display the IO MAP level. At the Disk MAP level type

>IO

and press the Enter key.

- b** ManB the IOP CP. At the IO MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 17 f

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"),

To confirm the command type:

>Y

Example of system response:

Bsy 17 front completed.

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the IOP CP is	Do
in a ManB state	step 20
not in a ManB state	step 29

At the XA-Core physical shelf

20



WARNING

Static electricity damage

Make sure that you wear a wrist-strap connected to a grounding point on the FSP. The wrist-strap protects against electrical static discharge (ESD).

Locate the Tape packlet on the physical shelf. Refer to the packlet location recorded from 16. Examine the packlet faceplates on the XA-Core physical shelf.

Look for a winking, red triangular LED on the Tape packlet. A winking, red LED is a result of using the indicate command.

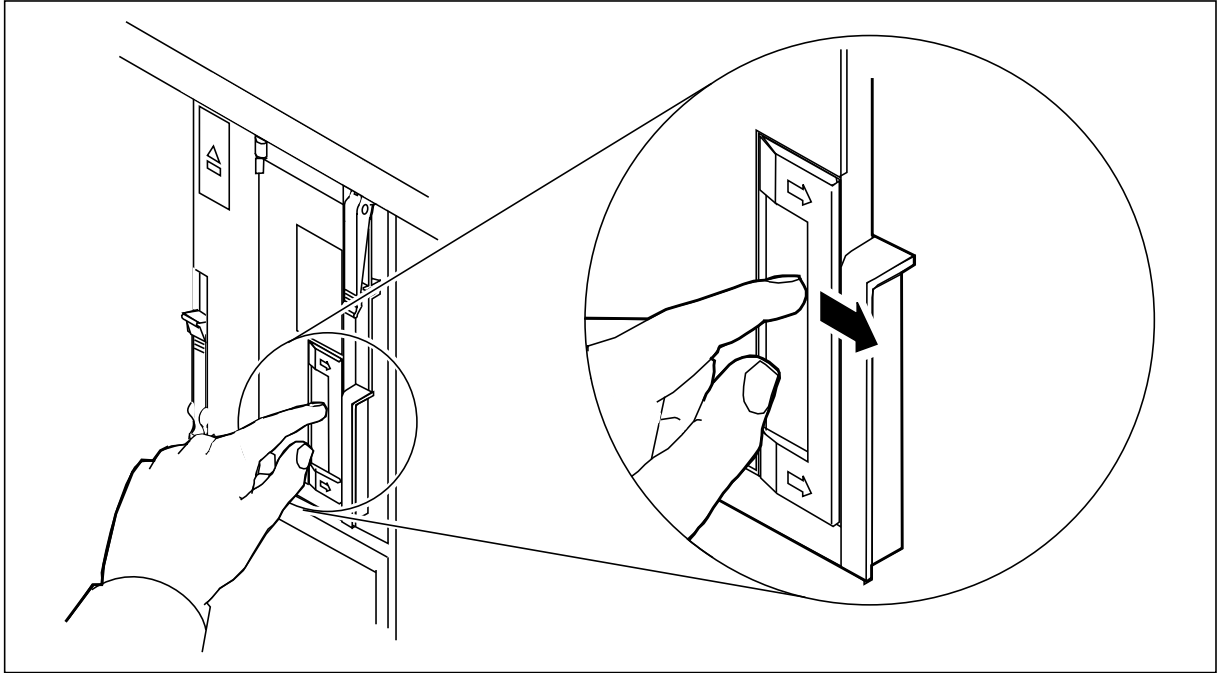
21

If needed, remove the tape cassette from the Tape packlet. Perform the following steps:

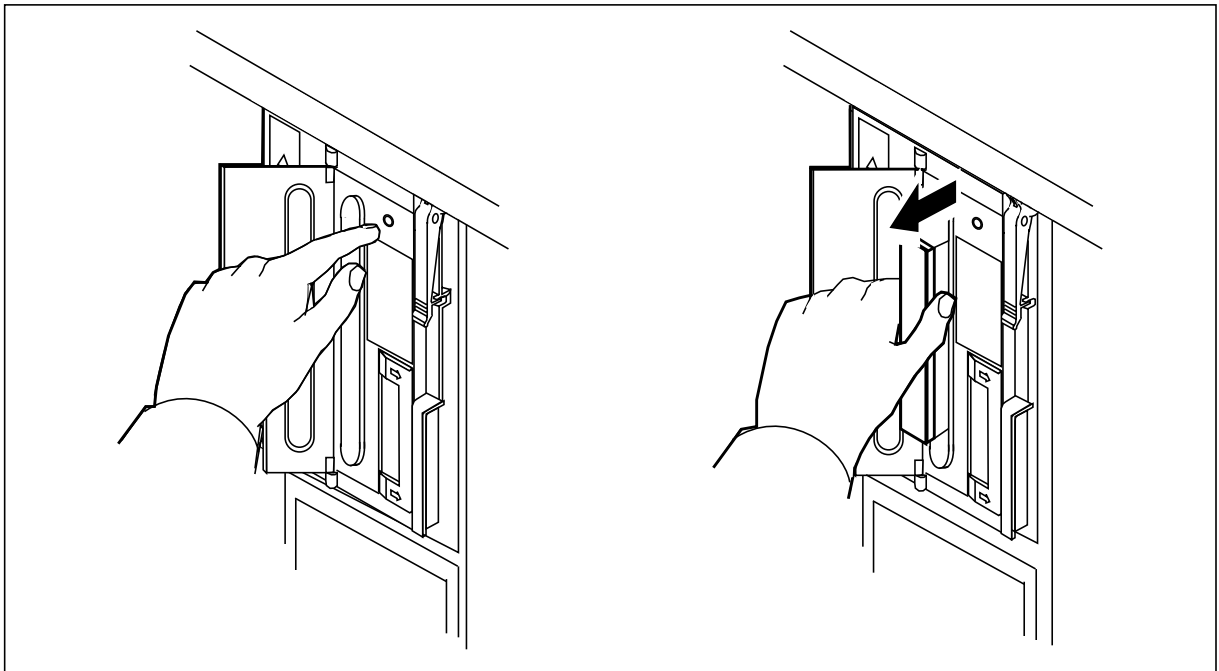
- a Locate the Tape packlet in the IOP CP.
- b Push the door lock in the direction of the arrow to unlock. The cassette door swings open.
- c Press the tape eject button. The tape cassette partially ejects and is ready for removal.
- d Remove the tape cassette and place it in a safe location away from the physical shelf.
- e Move the door to the closed position. Carefully push on the door until it locks in place.

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

Open the Tape cassette door



Eject and remove the Tape cassette

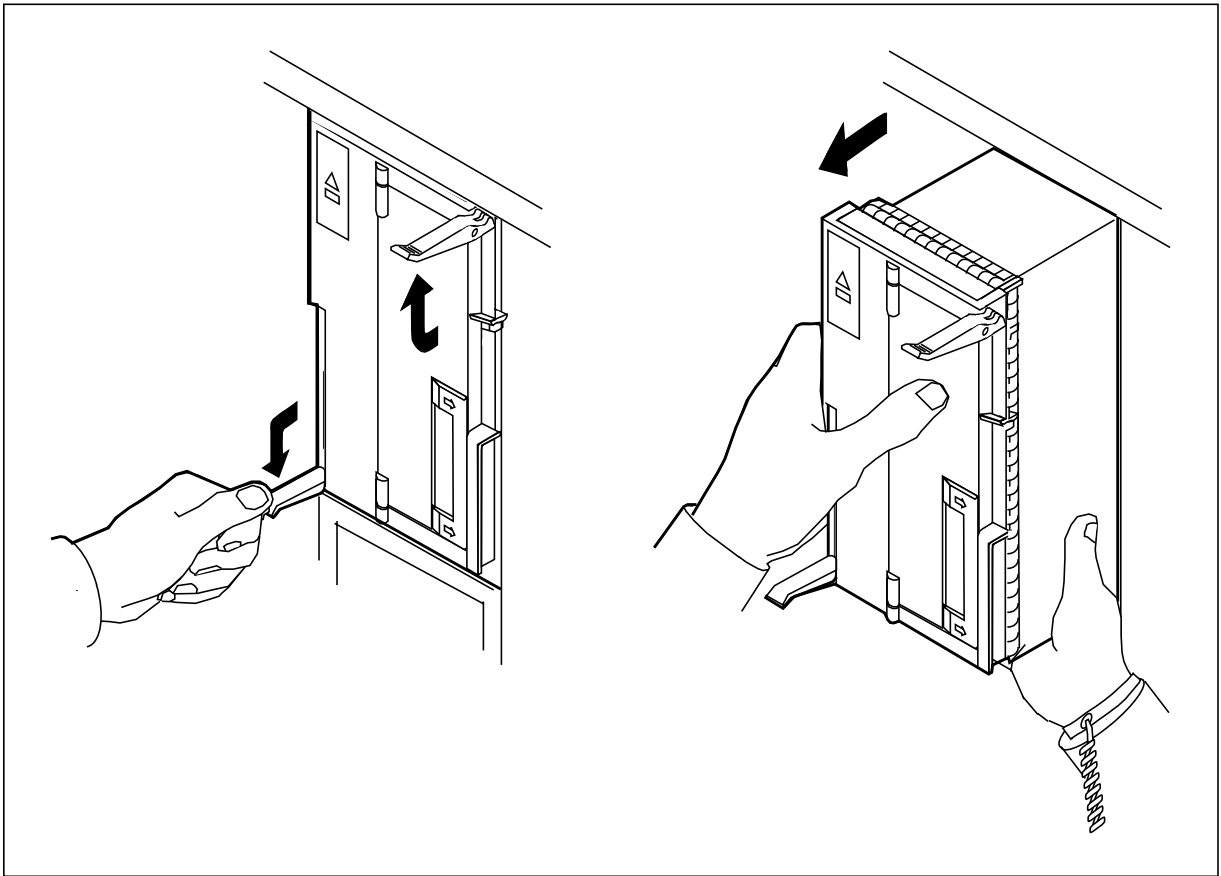


22 Remove the Tape packlet from the IOP CP. Perform the following steps:

NTLX07 tape packet in a SuperNode and SuperNode SE XA-Core (continued)

- a Open the upper and lower locking levers on the packet.
- b Carefully pull the packet toward you by the locking levers until it extends half way from the shelf opening.
- c Hold the packet by the faceplate with one hand and support the bottom edge with the other. Remove the packet completely from the shelf.
- d Close the upper and lower locking levers on the packet to prevent breakage.
- e Place the packet in ESD protective packaging.

Remove the Tape packet from the IOP CP

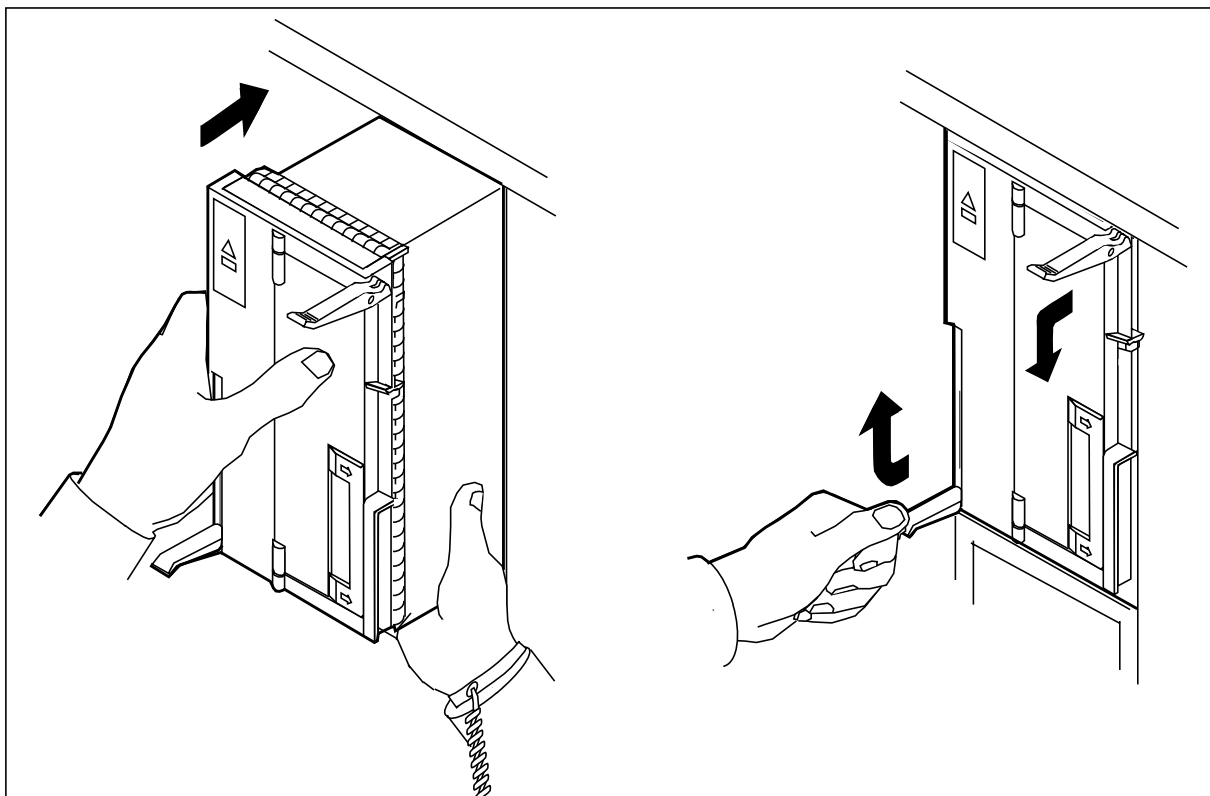


- 23** Insert the replacement Tape packet in the upper slot of the replacement IOP CP.
- a Remove the replacement Tape packet from the ESD protective packaging.
 - b Open the locking levers on the Tape packet.
 - c Hold the packet by the faceplate with one hand and support the bottom edge with the other.

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

- d Align the packlet with the upper IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
- e Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
- f Close the locking levers to secure the circuit packlet. Do not force the locking levers to close.

Insert the Tape packlet in the IOP CP



24

If the IOP card is	Do
NTLX03AA or BA	step 25
NTLX03AB or BB	step 26

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (continued)

At the MAP terminal

- 25** Return the IOP CP to service. At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command usage:

>RTS 17 f

Example of system response:

RTS 17 front passed.

If the IOP CP is	Do
in service	step 26
not in service	step 29

- 26** Return the Tape packlet to service. Perform the following steps:

- a** Access the XA-Core TAPE MAP level. At the IO MAP level type

>TAPE

and press the Enter key

- b** Return the Tape packlet to service. At the TAPE MAP level type

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>RTS 17 f u

Example of system response:

RTS 2 front upper passed

NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core (end)

27	If the Tape packlet is	Do
	not in service	step 29
	in service	step 27
28	If the IOP card is	Do
	NTLX03AA or BA	step 28
	NTLX03AB or BB	step 31
28	Return the Disk packlet to service. Perform the following steps:	
	a Access the Disk MAP level. At the Tape MAP level type >DISK and press the Enter key.	
	b Return the Disk packlet to service. At the DISK MAP level type >RTS <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l) Example of command use: >RTS 17 f l	
	<i>Example of system response:</i> RTS 17 front lower passed	
	If the Disk packlet is	Do
	not in service	step 29
	in service	step 31
29	Call the next level of support	
30	Perform the correct alarm clearing procedure.	
31	You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.	

NTLX08 RTIF packet in a SuperNode and SuperNode SE XA-Core

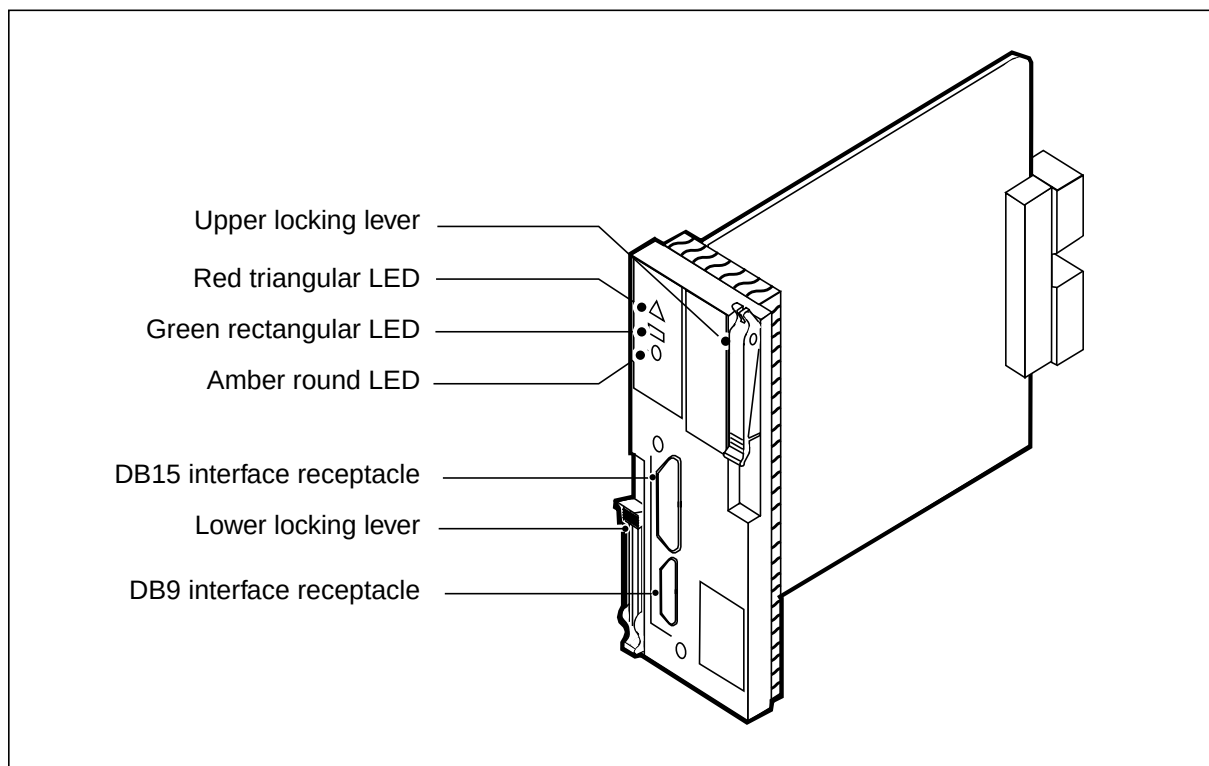
Application

This section contains the procedure for replacing an NTLX08AA or NTLX08AB Reset terminal interface (RTIF) packet with a replacement of the same product engineering code and version (that is, AA for AA or AB for AB). The packet installs in a single-width IOP circuit pack (CP).

The following table lists the valid RTIF packets.

PEC	Suffix	Card name
NTLX08	AA	Reset terminal interface (RTIF) packet
NTLX08	AB	Reset terminal interface (RTIF) packet

NTLX08 RTIF packet front and side views



NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

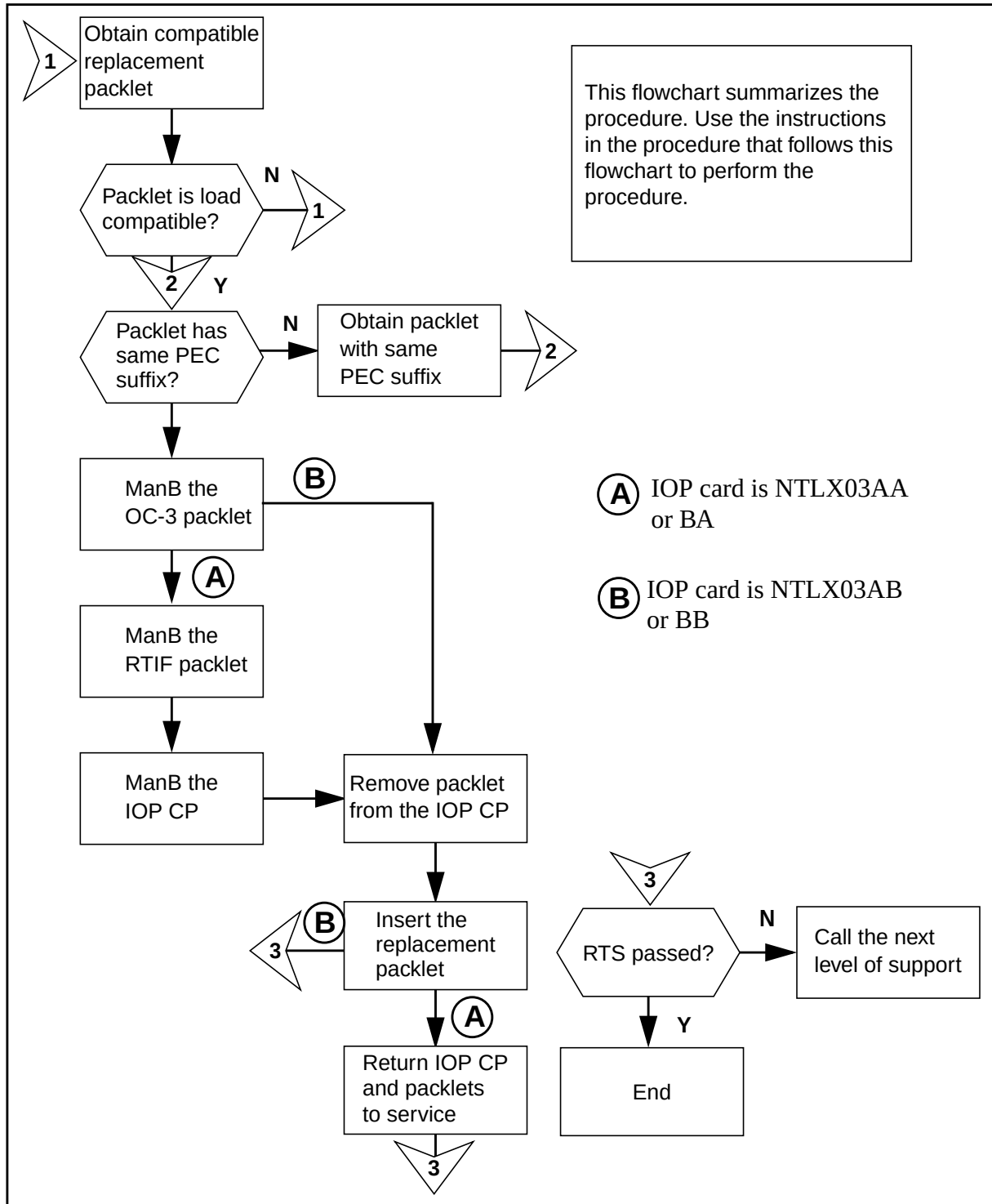
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the instructions in the step-action procedure that follows the flowchart.

NTLX08 RTIF packetlet in a Super Node and Super Node SE XA-Core (continued)

Summary of NTLX08 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

How to replace an NTLX08 RTIF packlet



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location

- 1 Get a replacement packlet. Make sure that the replacement packlet and the packlet you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core RTIF MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;RTIF
and press the Enter key.
- 3 Examine the RTIF MAP level. Record the location and status of the RTIF packlet that you need to replace. Make sure that redundant components are InSv before removing the RTIF packlet that you need to replace.

The following is a sample MAP display.

NTLX08 RTIF packlet
in a Super Node and Super Node SE XA-Core (continued)

RTIF MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
RTIF	.	.	.	.	.	.	.	.	.
RTIF		Front: 11111111		Rear: 111111		SM	PE	IO	PKLT
0 Quit		123456789012345678		456789012345		.	.	.	RTIFfl
2	Sta:	-----		-----		0	0	0	1
3	Dep:								
4	Typ:			*	*				
5	Slot:	Side:	Packlet:	Local Port:	Remote Port:				
6 Tst_	4	Rear	Upper S	C	C				
7 Bsy_	15	Rear	Upper .	.	.				
8 RTS_	XAC:								
9	RTIF:								
10									
11									
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

	If the redundant IOP, OC-3 or RTIF are	Do
	in a ManB state	step 4
	in an InSv state	step 5
	in a SysB state	step 20
4	Return the redundant IOP CP or packlets to service. At the correct MAP level type >RTS <nn> <s> or >RTS <nn> <s> <p> and press the Enter key where <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r) <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l) Example of command use:	

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

>RTS 4 r

Example of system response:

RTS 4 rear completed

If the redundant IOP, RTIF and OC-3 packlets are	Do
in service	step 5
not in service	step 20

5

If the IOP card is	Do
NTLX03AA or BA	step 6
NTLX03AB or BB	step 7

6

Place the OC-3 two-port interface packlet in a ManB state. At the CMIC MAP level type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l

Example of system response:

Warning: Bsy command will take it out of service.
Please confirm ("YES", "Y", "NO", or "N")

To confirm the command type:

>Y

Example of system response

Bsy 4 rear lower complete

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the packlet is	Do
in a ManB state	step 7
not in a ManB state	step 20

- 7 Place the RTIF packlet in a ManB state. At the RTIF MAP level type
>BSY <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r u

Example of system response:

Warning: Bsy command will take it out of service.
 Please confirm ("YES", "Y", "NO", or "N")

To confirm the command type:

>Y

Example of system response

Bsy 4 rear upper complete

Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

If the packlet is	Do
in a ManB state	step 8
not in a ManB state	step 20

- 8 Indicate the ManB RTIF packlet. At the RTIF MAP level, type
>INDICAT card <nn> <s> <p>
 and press the Enter key.
 where

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>INDICAT card 4 r u

Example of system response:

Indicate 4 rear upper passed.

9

If the IOP card is	Do
NTLX03AA or BA	step 10
NTLX03AB or BB	step 11

10

ManB the IOP CP. Perform the following steps

- a** Exit from the RTIF MAP level and display the IO MAP level. At the RTIF MAP level type

>IO

and press the Enter key.

- b** ManB the IOP CP. At the IO MAP level type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 4 r

Example of system response:

Warning: Bsy command will take it out of service.

Proceed (Y or N)

Please confirm ("YES", "Y", "NO", or "N"),

To confirm the command type:

>Y

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

Example of system response:

Bsy 4 rear passed.

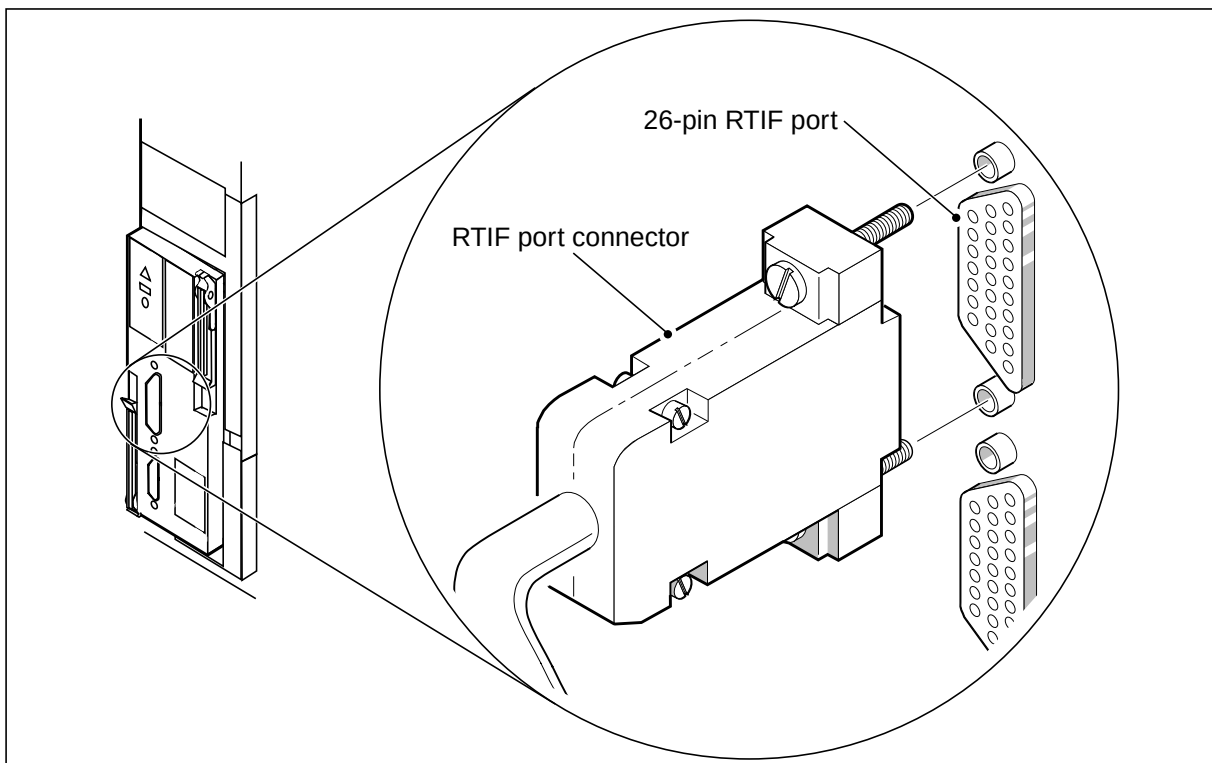
Note: *If this command reduces redundancy and produces a major alarm, you must use the Force option.*

If the IOP CP is	Do
in a ManB state	step 11
not in a ManB state	step 20

At the XA-Core physical shelf

- 11 Locate the RTIF packlet in the IOP CP. Use the location information from 3. Examine the packlet faceplate and look for a flashing red LED. Label the local and remote port cable connections on the RTIF packlet according to office standards.

RTIF port connectors

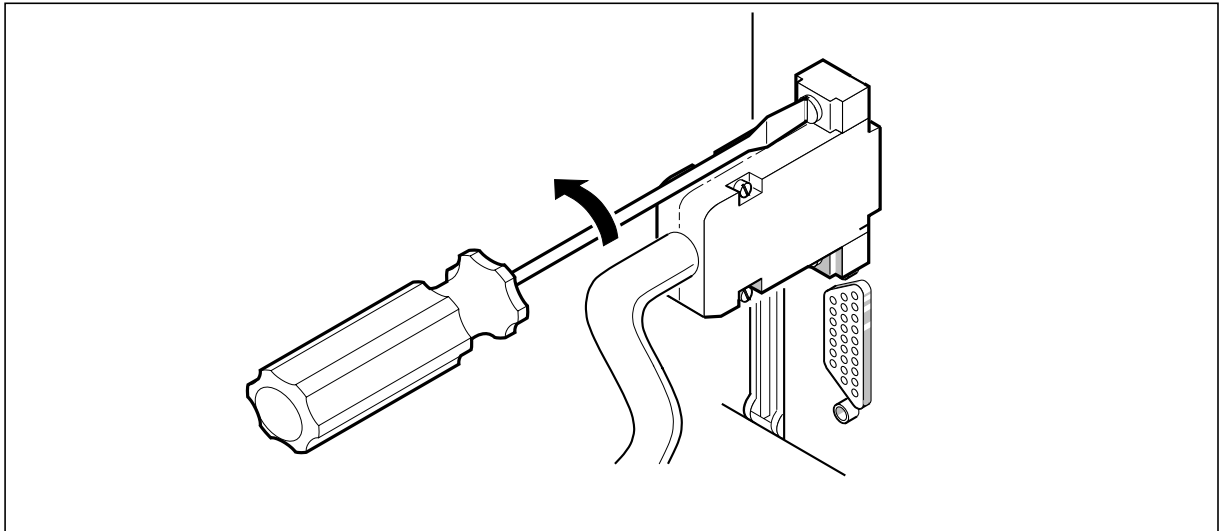


- 12 Disconnect the local and remote port cables from the RTIF packlet.
 - a Loosen the connector retaining screws from the RTIF ports.
 - b Hold the connector by the body only.

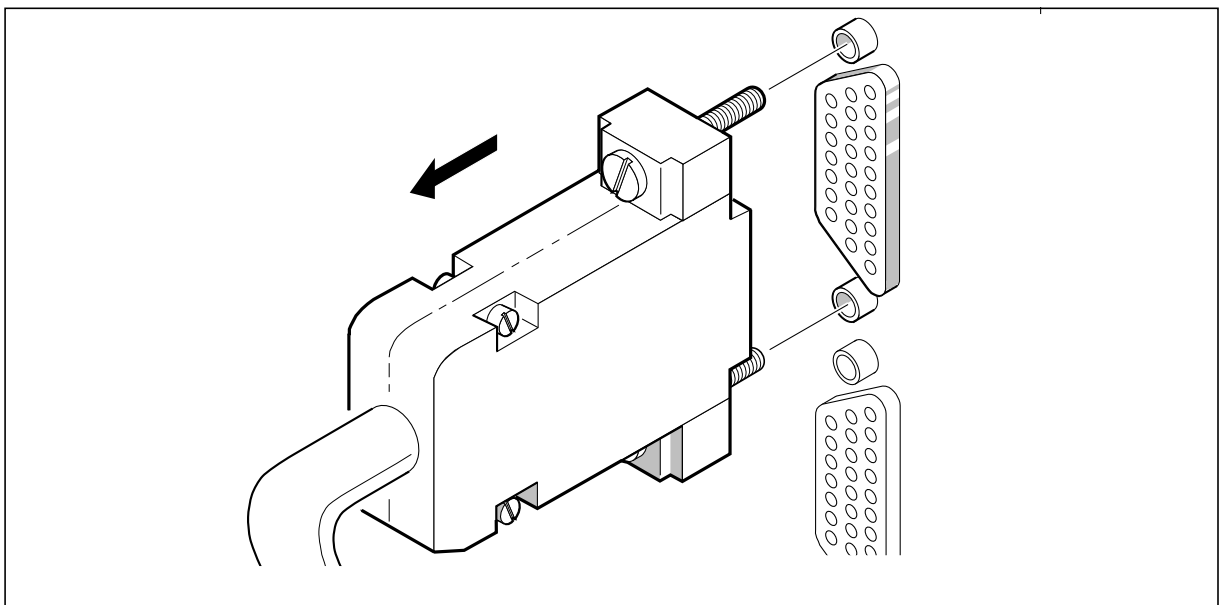
NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

- c Carefully pull the connectors away from the port receptacles.
- d Place the cables in a safe location away from the packlet.

Loosen the RTIF port connectors



Remove the RTIF port connectors

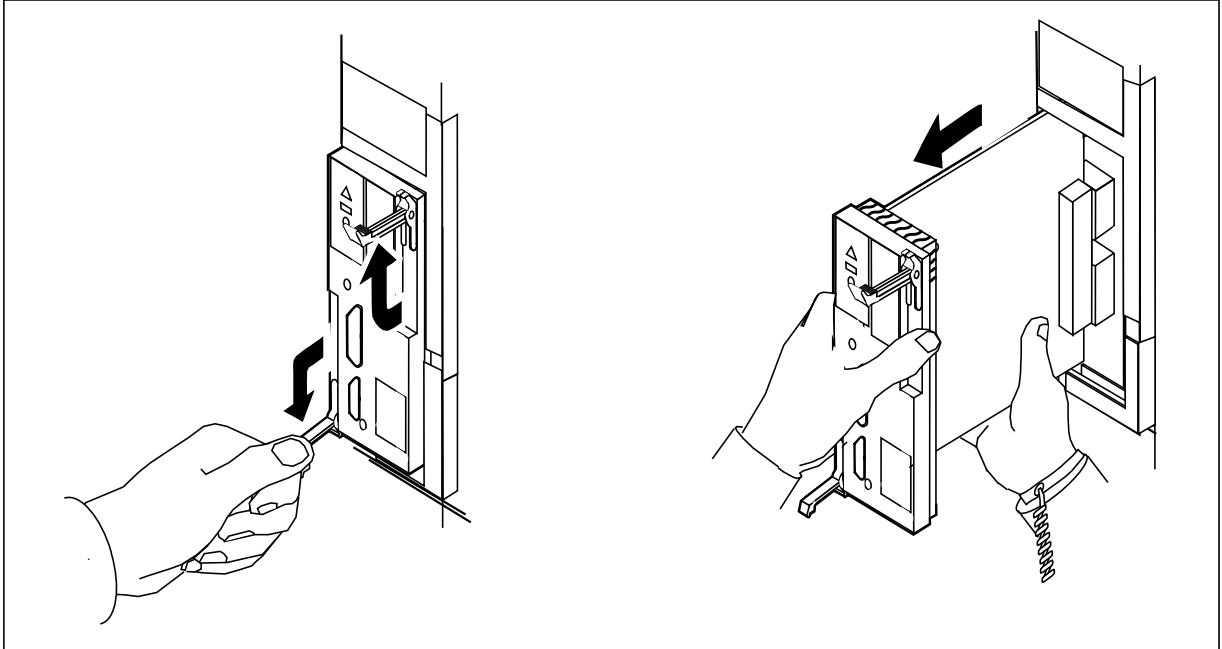


- 13** Remove the RTIF packlet from the IOP CP. Perform the following steps:
- a Open the locking levers on the RTIF packlet.
 - b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

- c Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.
- d Place the packlet in ESD protective packaging.

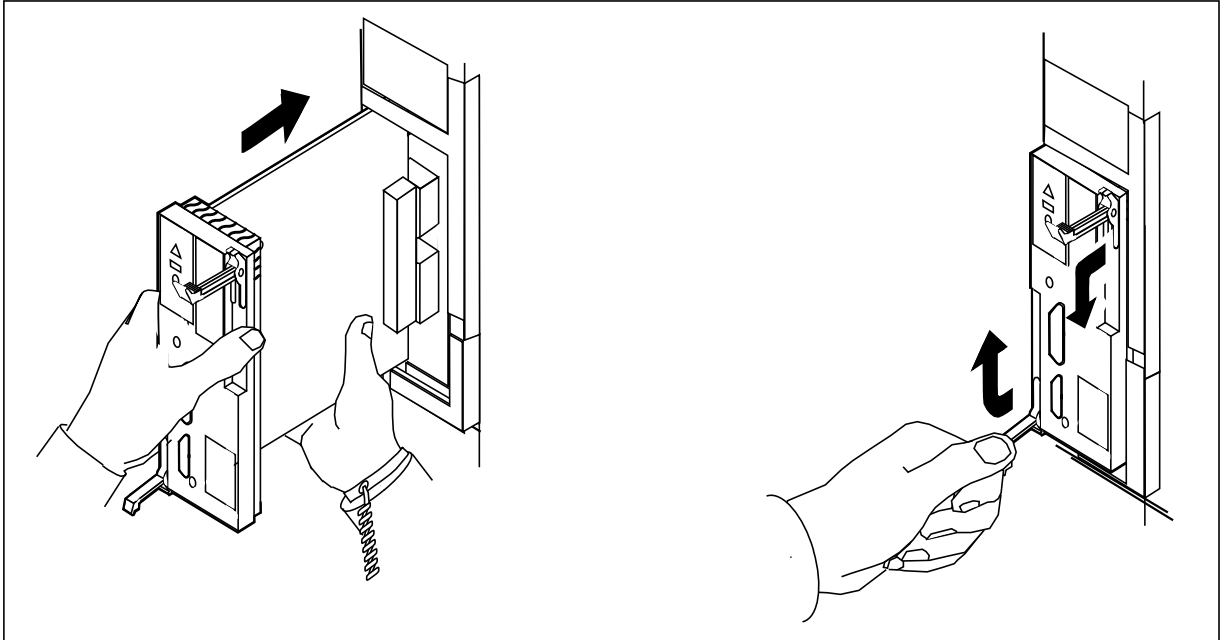
Remove the RTIF packlet from the IOP CP



- 14** Insert the replacement RTIF packlet in the upper slot of the IOP CP. Use the diagrams in this step.
- a Remove the replacement RTIF packlet from the ESD protective packaging.
 - b Open the locking levers on the replacement RTIF packlet.
 - c Hold the packlet by the faceplate with one hand and support the bottom edge with the other.
 - d Align the packlet with the upper IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.
 - e Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
 - f Close the locking levers on the RTIF packlet. Do not force the locking levers to close.

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

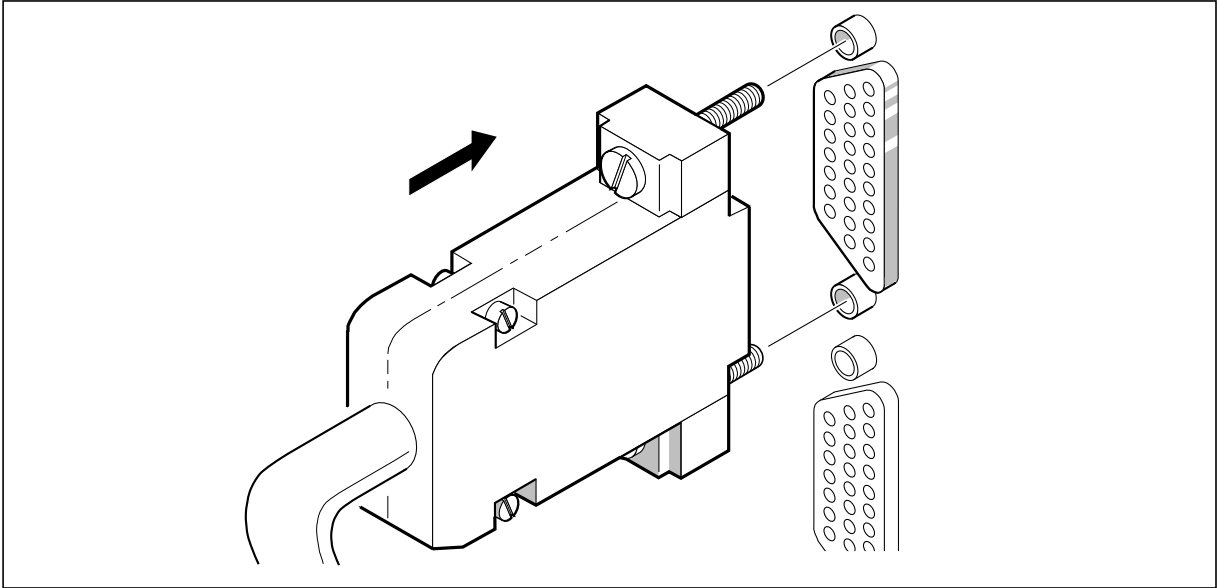
Insert the RTIF packlet into the IOP CP



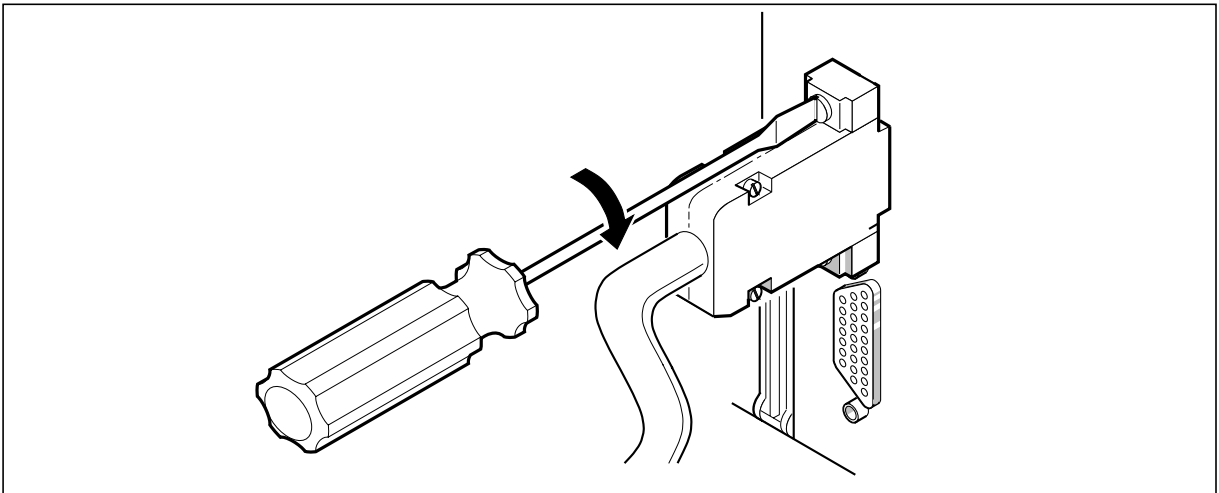
- 15** Connect the local and remote cables to the RTIF packlet.
- a** Hold the connector by the receptacle body only.
 - b** Align the connector to the correct RTIF port receptacle.
 - c** Push the connector into the receptacle.
 - d** Tighten the connector retaining screws.

NTLX08 RTIF packlet in a Super Node and Super Node SE XA-Core (continued)

Insert the local and remote port connectors into the RTIF ports



Tighten the local and remote port connector screws



16

If the IOP card is	Do
NTLX03AA or BA	step 17
NTLX03AB or BB	step 19

**NTLX08 RTIF packlet
in a Super Node and Super Node SE XA-Core (continued)**

At the MAP

- 17** Return the IOP CP to service. At the IO MAP level type
>RTS <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
Example of command use:
>RTS 4 r
Example of system response:
RTS 4 rear completed

If the IOP CP is	Do
in service	step 18
not in service	step 20

- 18** Return the OC-3 two port interface packlet to service. Perform the following steps.
- a** Exit from the IO MAP level and access the CMIC MAP level. At the IO MAP level type
>CMIC
and press the Enter key.
- b** Return the OC-3 two port interface packlet to service. At the CMIC MAP level type
>RTS <nn> <s> <p>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
<p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
Example of command use:
>RTS 4 r l

NTLX08 RTIF packetlet in a Super Node and Super Node SE XA-Core (end)

Example of system response:

RTS 4 rear lower completed

If the OC-3 two port interface packetlet is	Do
in service	step 19
not in service	step 20

- 19** Return the RTIF packetlet to service. Perform the following steps.
- a** Exit from the CMIC MAP level and access the RTIF MAP level. At the CMIC MAP level type
>RTIF
 and press the Enter key.
 - b** Return the RTIF packetlet to service. At the RTIF MAP level type
>RTS <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>BSY 4 r u

Example of system response:

RTS 4 rear upper completed

If the RTIF packetlet is	Do
not in service	step 20
in service	step 22

- 20** Call the next level of support.
- 21** Perform the correct alarm clearing procedure.
- 22** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core

Application

This section contains the procedure for replacing an NTLX09AA Ethernet packlet with a replacement of the same product engineering code and version. The packlet installs in a single-width IOP circuit pack (CP).

The following lists the valid Ethernet packlets.

PEC	Suffix	Card name
NTLX09	AA	Ethernet packlet

Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

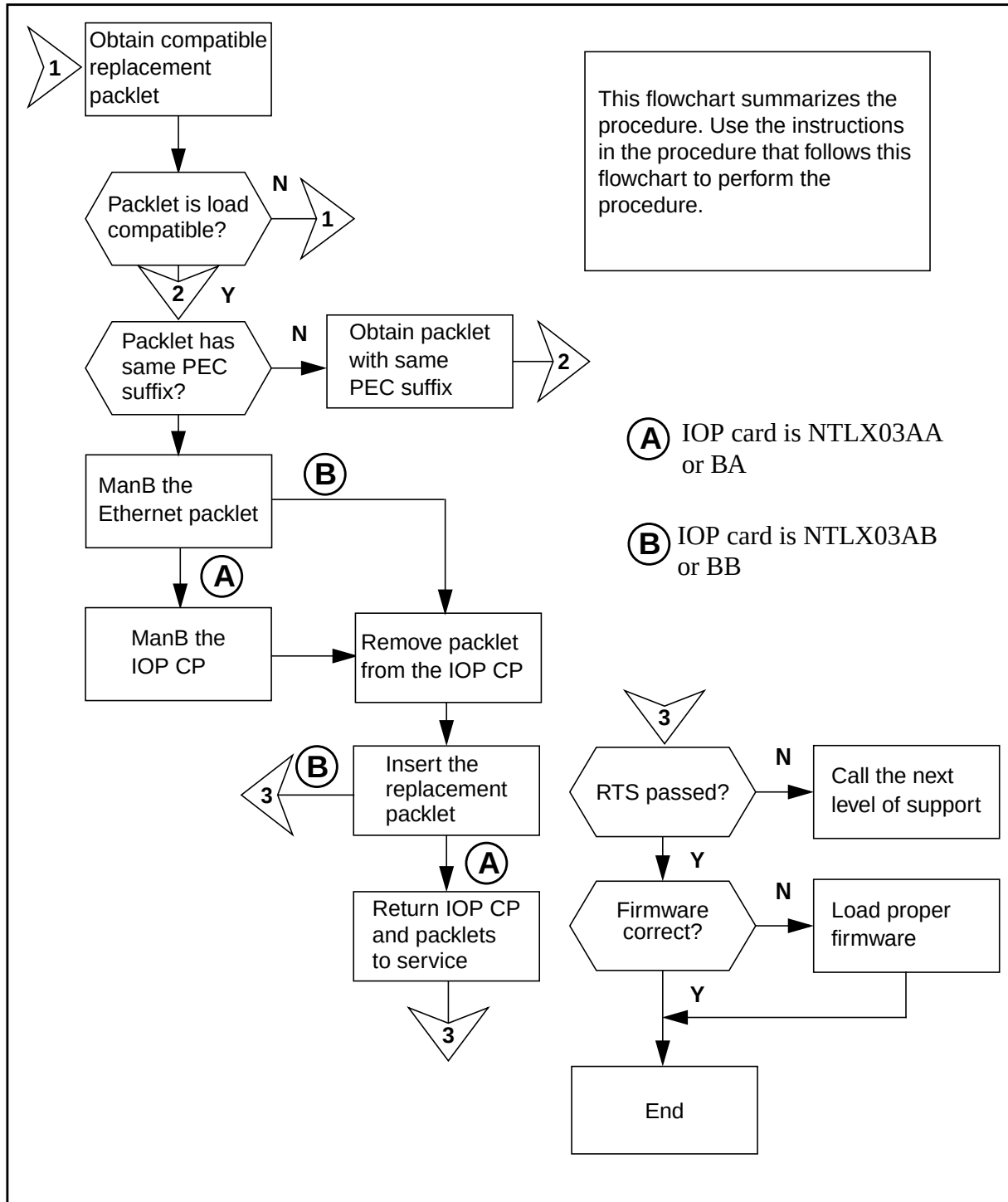
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the instructions in the step-action procedure that follows the flowchart.

NTLX09 Ethernet packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX09 Ethernet packetlet replacement procedure



NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX09 Ethernet packlet



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



CAUTION

Loss of service

Do not repeat steps.



CAUTION

Loss of service

Manually busy one CP or packlet of the same equipment type at a time. Make sure that redundant components are InSv before taking any CPs, packlets or resources OOS.

At your current location:

- 1 Get a replacement packlet. Make sure that the replacement packlet and the packlet you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core ETHR MAP level. At the CI MAP prompt type
>MAPCI;MTC;XAC;ETHR
and press the Enter key.

NTLX09 Ethernet packet in a SuperNode and SuperNode SE XA-Core (continued)

- 3 Examine the ETHR MAP level. Record the location and status of the ethernet packet that you need to replace. Make sure that redundant components are InSv before removing the ethernet packet that you need to replace.

The following is a sample MAP display.

ETHR MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
ETHR	.	.	.	.	.	.	.	.	.
C									
ETHR			Front: 11111111	Rear: 111111		SM	PE	IO	PKLT
0 Quit			123456789012345678	456789012345		.	.	.	ETHR M
2	Sta:	.	.	.	.	0	0	0	1
3	Dep:	.	.	.	.				
4	Typ:			FF	FF				
5	Slot:	Side:	Packlet:	Port:	Link:				
6 Tst_	5	Rear	Lower M	C	C				
7 Bsy_	6	Rear	Lower .	M	C				
8 RTS_	13	Rear	Lower .	.	S				
9	14	Rear	Lower I	.	-				
10 LoadFW_	XAC:								
11	ETHR:								
12 Uneq_									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the redundant IOP and Ethernet packet are	Do
in a ManB state	step 4
in an InSv state	step 5
in a SysB state	step 19

NTLX09 Ethernet packetlet
in a SuperNode and SuperNode SE XA-Core (continued)

- 4
- Return the redundant IOP CP or packlets to service. At the correct MAP level type
- >RTS <nn> <s>
- or
- >RTS <nn> <s> <p>
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >RTS 4 r
- Example of system response:
- RTS 4 rear completed

If the redundant IOP and Ethernet packetlet are	Do
in service	step 5
not in service	step 19

- 5
- Place the Ethernet packetlet in a ManB state. At the ETHR MAP level type
- >BSY <nn> <s> <p>
- and press the Enter key
- where
- <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
- <s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)
- <p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)
- Example of command use:
- >BSY 4 r l

NTLX09 Ethernet packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

Warning: Bsy command will take it out of service.
Please confirm ("YES", "Y", "NO", or "N")

To confirm the command type:

>Y

Example of system response, indicating success

Bsy 4 rear lower complete

6

If	Do
the packetlet is in a ManB state	step 8
the packetlet does not go into the ManB state	step 6

7

If	Do
the system responded to the previous step by asking for confirmation, and, on receiving confirmation, displayed the message, "No action taken because of Bsy impact,"	step 7
the packetlet failed to go into the ManB state for any other reason	step 19

Use the "force" option to place the Ethernet packetlet in a ManB state. At the ETHR MAP level type

>BSY <nn> <s> <p> force

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

<p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>BSY 4 r l force

NTLX09 Ethernet packetlet in a SuperNode and SuperNode SE XA-Core (continued)

Example of system response:

Warning: Bsy command will take it out of service.
Please confirm ("YES", "Y", "NO", or "N")

To confirm the command type:

>Y

Example of system response

Bsy 4 rear lower complete

If the packetlet is	Do
in a ManB state	step 8
not in a ManB state	step 19

- 8** Indicate the ManB Ethernet packetlet. At the ETHR MAP level, type
>INDICAT card <nn> <s> <p>
and press the Enter key.
where
<nn> is the slot number parameter value to indicate the number of the
physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packetlet location in the
physical shelf - front (f) or rear (r)
<p> is the position parameter value to indicate the packetlet location in an
input/output processor (IOP) - upper (u) or lower (l)

Example of command use:

>INDICAT card 4 r l

Example of system response:

Indicate 4 rear lower passed

9

If the IOP card is	Do
NTLX03AA or BA	step 10
NTLX03AB or BB	step 11

NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 10** ManB the IOP CP. Perform the following steps
- a** Exit from the ETHR MAP level and display the IO MAP level. At the ETHR MAP level type
>IO
and press the Enter key.
 - b** ManB the IOP CP. At the IO MAP level type
>BSY <nn> <s>
and press the Enter key
where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:
>BSY 4 r

Example of system response:

Warning: Bsy command will take it out of service.
Proceed (Y or N)
Please confirm ("YES", "Y", "NO", or "N"),

To confirm the command type:
>Y

Example of system response:

Bsy 4 rear passed.

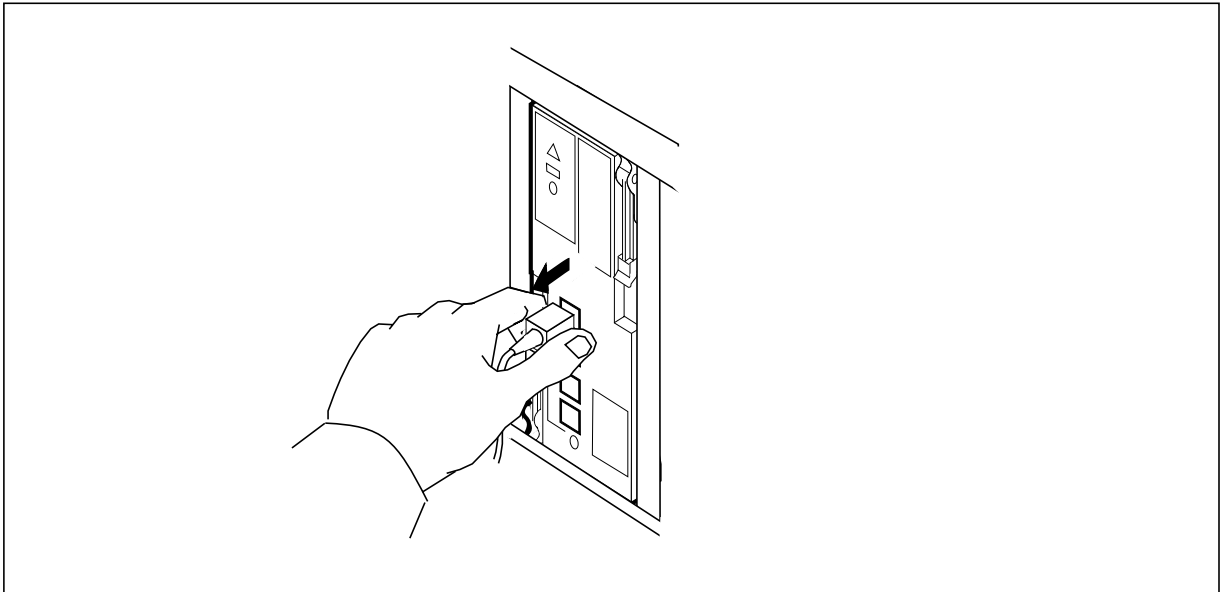
If the IOP CP is	Do
in a ManB state	step 11
not in a ManB state	step 19

NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core (continued)

At the XA-Core physical shelf

- 11 Locate the Ethernet packlet in the IOP CP. Label the cable connections on the Ethernet packlet according to office standards.
- 12 Disconnect the cables from the faceplate of the Ethernet packlet.
 - a Carefully pull the connector away from the receptacle. Hold the connector by the body only.
 - b Cover the ends of the cable with dust caps.
 - c Place the cable in a safe location away from the packlet.

Disconnect the cable from the Ethernet packlet port



NTLX09 Ethernet packet in a SuperNode and SuperNode SE XA-Core (continued)

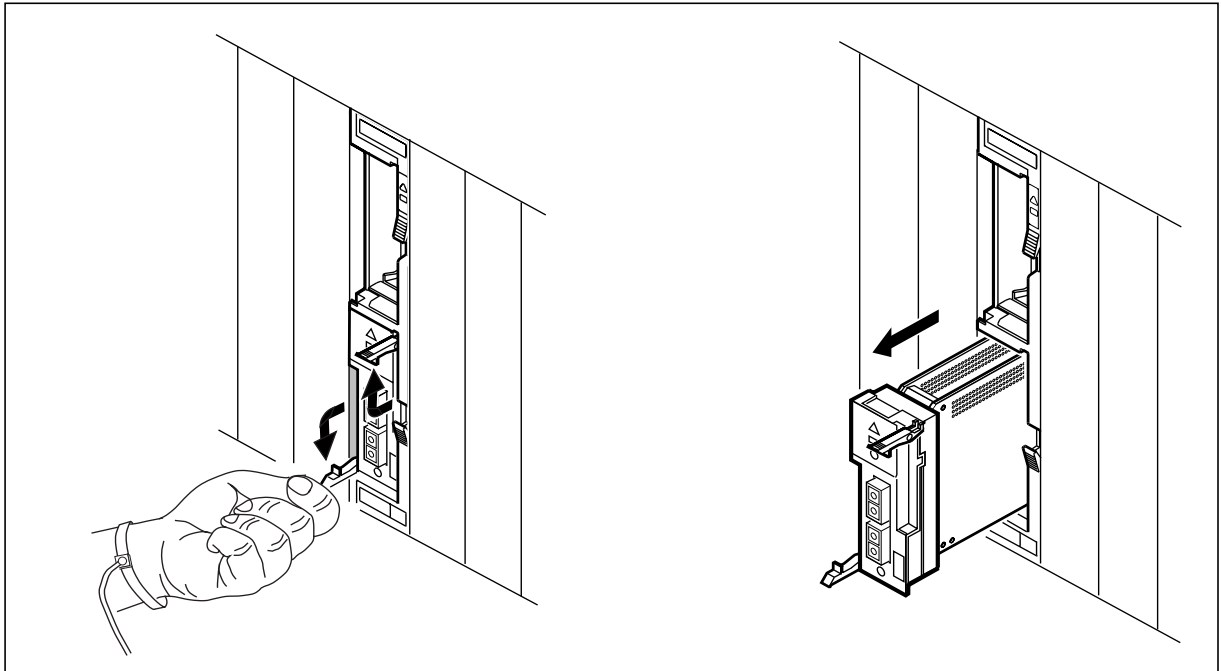
13

**WARNING****Do not hold circuit packet by levers only**

Holding a circuit packet by the levers can result in lever breakage.

Remove the Ethernet packet from the IOP CP. Perform the following steps:

- a Open the upper and lower locking levers on the packet.
- b Carefully pull the packet toward you by the locking levers until it extends half way from the shelf opening.
- c Hold the packet by the faceplate with one hand and support the bottom edge with the other. Remove the packet completely from the shelf.
- d Place the packet in ESD protective packaging.

Remove the Ethernet packet from the IOP CP

NTLX09 Ethernet packet in a SuperNode and SuperNode SE XA-Core (continued)

14



WARNING

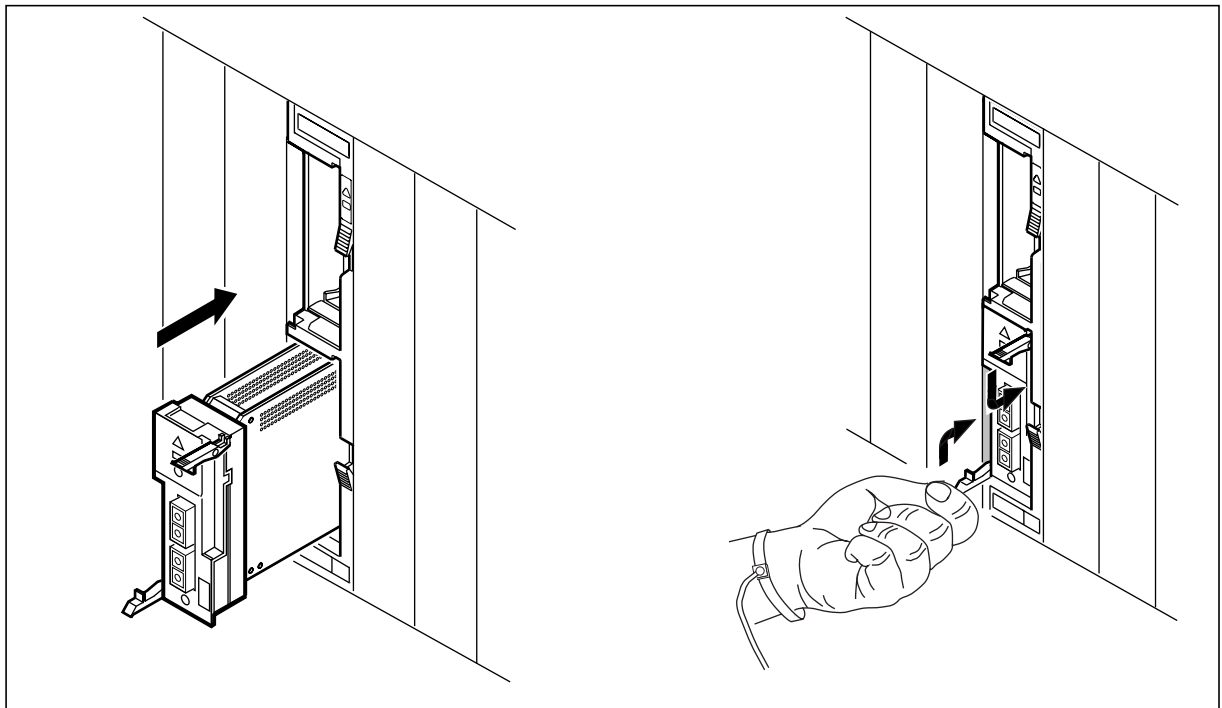
Do not hold circuit packet by levers only

Holding a circuit packet by the levers can result in lever breakage.

Insert the replacement Ethernet packet in the upper or lower IOP CP slot.

- a Remove the replacement Ethernet packet from the ESD protective packaging.
- b Open the upper and lower locking levers on the packet.
- c Hold the packet by the faceplate with one hand and support the bottom edge with the other.
- d Align the packet with the upper or lower IOP CP slot and carefully slide the packet into the slot. Do not force the packet into the slot.
- e Use your fingers or thumbs to push on the upper and lower edges of the faceplate.
- f Close the locking levers to secure the packet. Do not force the locking levers to close.

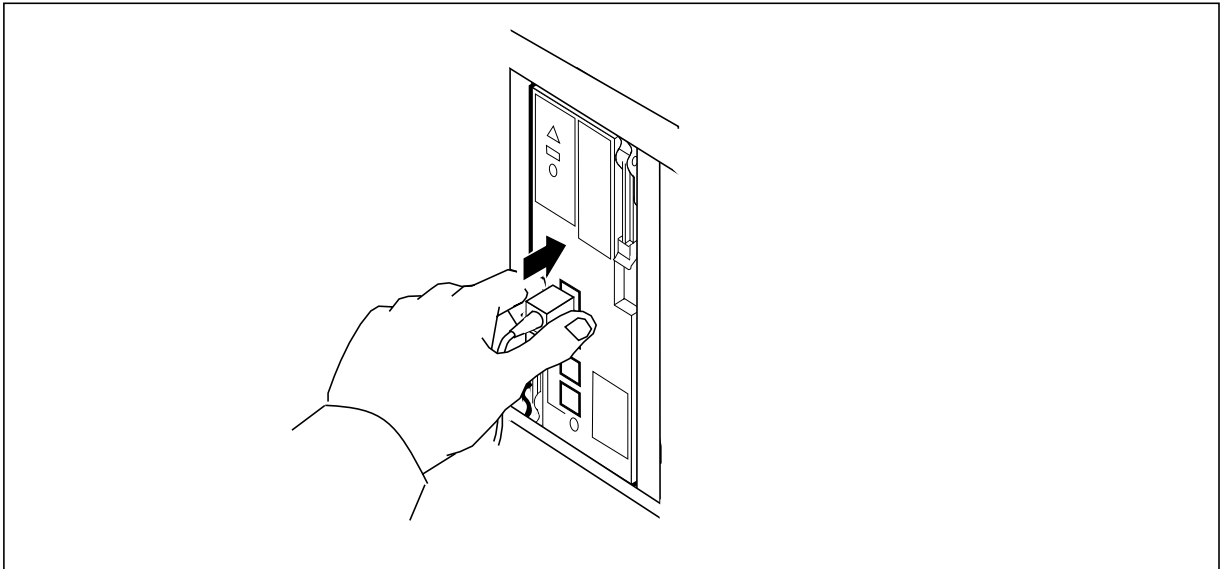
Insert the Ethernet packet into the IOP CP



NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 15** Connect the replacement or original cable to the correct interface ports.
- a** Remove the dust caps from the cable tips.
 - b** Hold the cable connector by the body only.
 - c** Carefully insert the cable connector into the correct receptacle. See the diagrams in this step.

Connect the cable



16

If the IOP card is	Do
NTLX03AA or BA	step 17
NTLX03AB or BB	step 18

NTLX09 Ethernet packetlet in a SuperNode and SuperNode SE XA-Core (continued)

At the MAP

- 17 Return the IOP CP to service. At the IO MAP level type

>RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>RTS 4 r

Example of system response:

RTS 4 rear completed

If the IOP CP is	Do
in service	18
not in service	step 19

NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core (continued)

- 18** Return the Ethernet packlet to service. Perform the following steps.
- a** Exit from the IO MAP level and access the ETHR MAP level. At the IO MAP level type
>ETHR
 and press the Enter key.
 - b** Return the Ethernet packlet to service. At the ETHR MAP level type
>RTS <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)
 <p> is the position parameter value to indicate the packlet location in an input/output processor (IOP) - upper (u) or lower (l)
 Example of command use:
>RTS 4 r l

Example of system response:

RTS 4 rear lower completed

If the Ethernet packlet is	Do
in service	step 20
not in service	step 19

Note: After you return the Ethernet packlet to service, you may have to wait a few minutes for the link to come into service. The reason for the delay is that the MAC address of the new packlet must be updated in the LAN ARP table. The addresses in the table are refreshed automatically at fixed intervals.

- 19** Call the next level of support.

NTLX09 Ethernet packetlet in a SuperNode and SuperNode SE XA-Core (end)

- 20** Check that the Ethernet packetlet contains the proper firmware load. At the ETHR MAP level type
>QUERY card <nn> <s> <p>
and press the Enter key
where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packetlet location in the physical shelf - front (f) or rear (r)
<p> is the position parameter value to indicate the packetlet location in an input/output processor (IOP) - upper (u) or lower (l)
Example of command use:
>QUERY card 4 r l
Example of system response:
Query 4 rear lower completed
.
.
Firmware Ver.: EP14D001
.
.
If the firmware version	Do
is the proper version	step 22
is not the proper version	step 21
- 21** Perform the procedure to upgrade the firmware. The procedure is in this document, in the chapter "Introduction to routine maintenance procedures". Return to this point when complete.
- 22** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

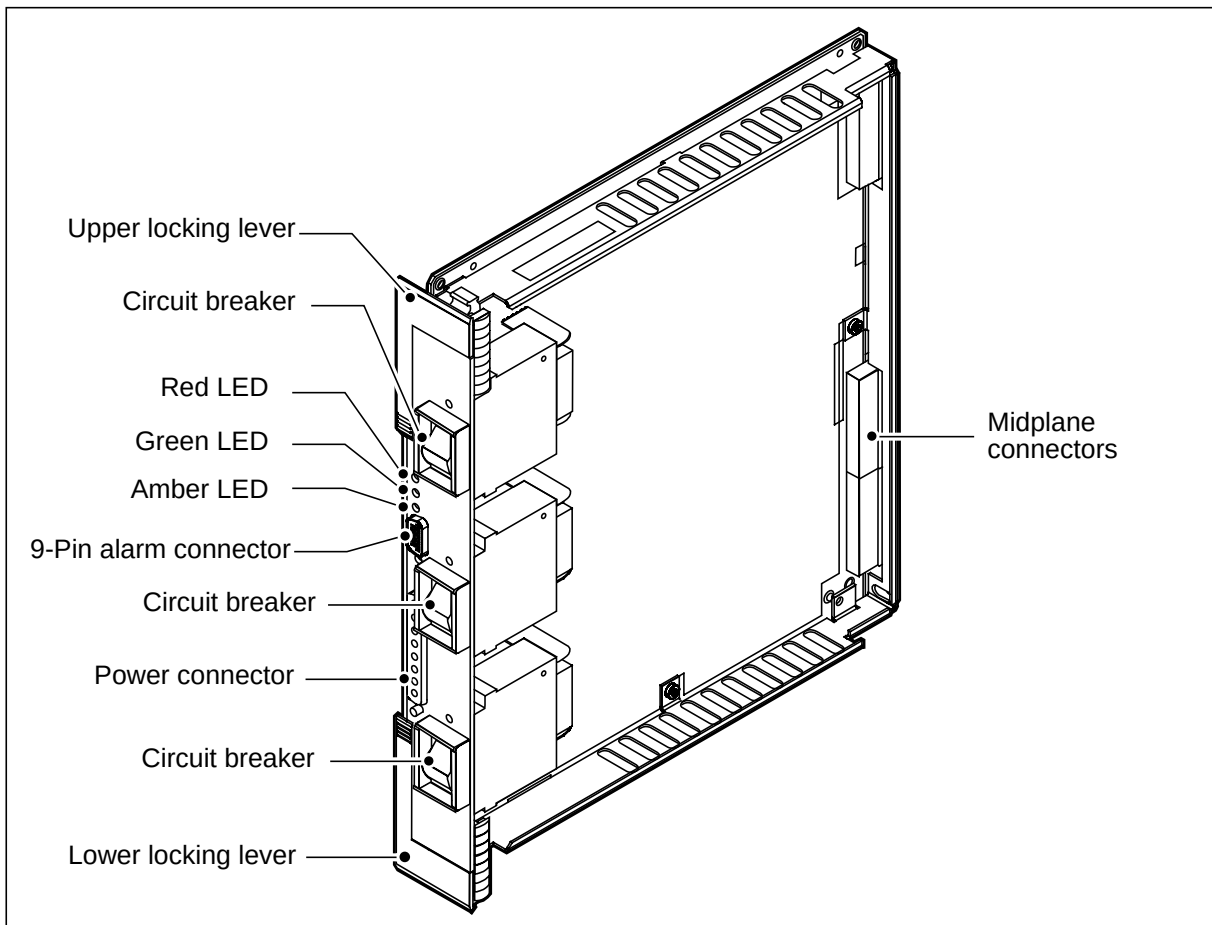
NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core

Application

This section contains the procedure for replacing an NTLX12 Shelf interface module (SIM) circuit pack (CP) with a replacement of the same product engineering code and version. The following table lists the correct SIM CP versions.

PEC	Suffix	Circuit pack name
NTLX12	AA	SIM circuit pack

NTLX12 shelf interface module circuit pack front and side views - DRAFT



NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

The NTLX12 replacement procedure refers to the How to return a card or assembly common procedure.

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diodes (LEDs) strategy

Description

The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to the section titled "Light emitting diode (LED) interpretation" for an explanation of the LED system.

SIM LED explanation

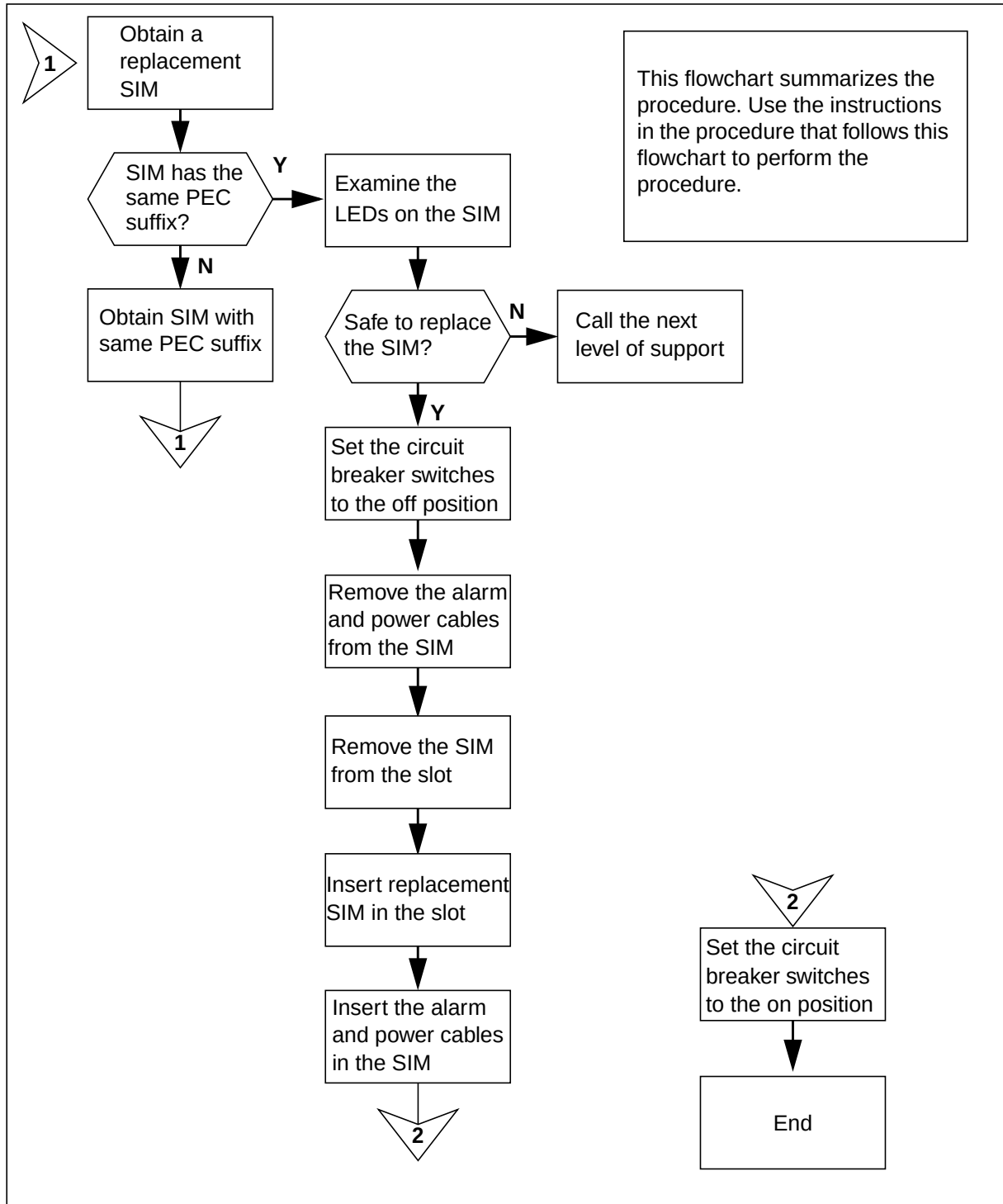
Green	Amber	Red	SIM state
On	Off	Off	The SIM is in a normal working state. Do not remove.
Off	Off	Off	The SIM does not have power or there is an LED control circuit failure. You can remove the SIM from the shelf if you are sure there is no power.
On	On	Off	Alarm State. There is a SIM failure, the input feed is without electrical power or one or more circuit breakers are off. Do not remove the SIM from the shelf.
Off	On	On	Alarm state. There is a SIM failure or all input feeds are without electrical power. You can remove the SIM from the shelf.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX12 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX12 SIM circuit pack



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.

NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)



CAUTION

Loss of service

Manually busy one CP of the same equipment type at a time. Make sure that the unit you are replacing is inactive and the mate unit is active.

At your current location

- 1 Get a replacement SIM CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.

At the XA-Core physical shelf

- 2 Locate the SIM CP on either end of the rear of the XA-Core physical shelf. Look for a lit red triangular and a yellow round LED on the SIM CP.
- 3



WARNING

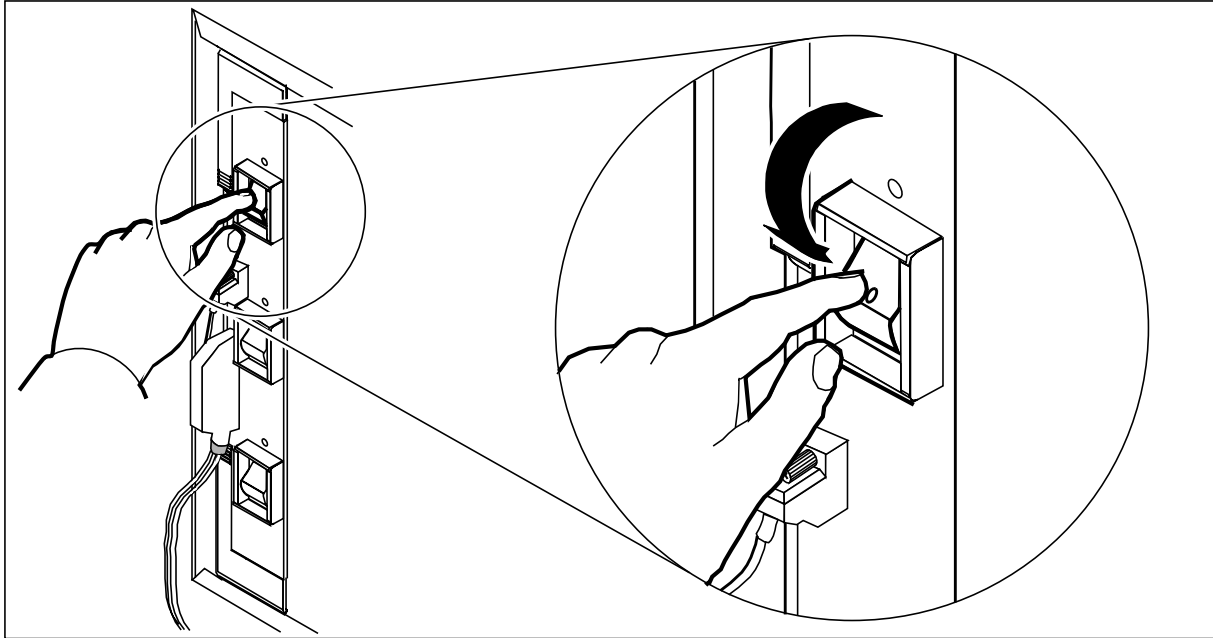
Risk of equipment damage

Switch circuit breakers to 0 before removing the module or power/alarm connector. Allow 15 sec. discharge time after front power cable disconnection before removing module.

Set all circuit breakers to the off (0) position. Press down on each circuit breaker switch until it clicks and remains in place. Wait 15 sec. and then continue with step 4.

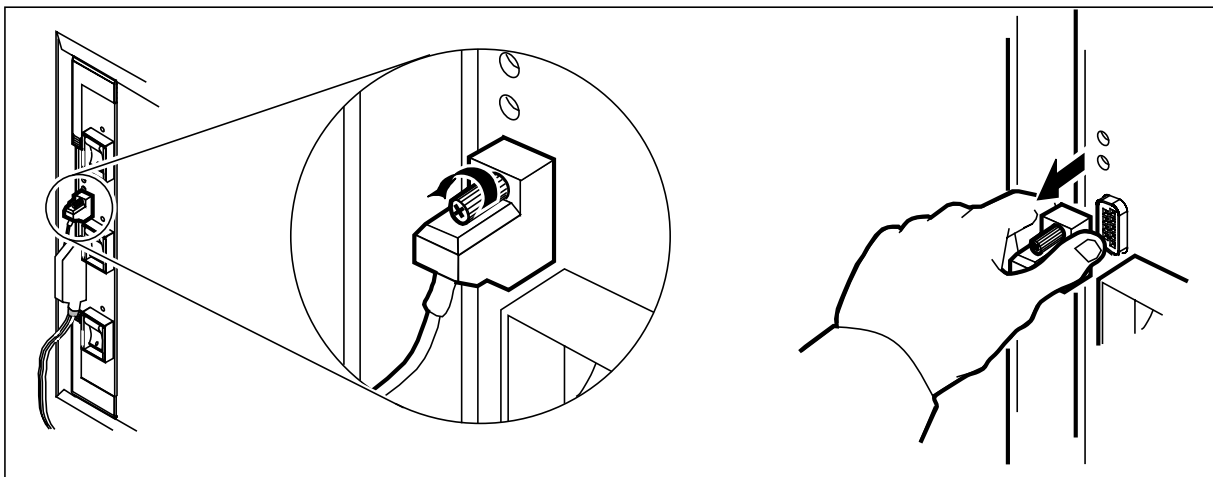
NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Set the circuit breakers on the SIM to the off (0) position



- 4** Remove the alarm cable from the SIM CP faceplate.
- a** Turn the alarm connector fastener in a counter-clockwise direction.
 - b** Carefully pull the alarm cable connector from the faceplate receptacle.
 - c** Place the cable in a safe location away from the XA-Core shelf.

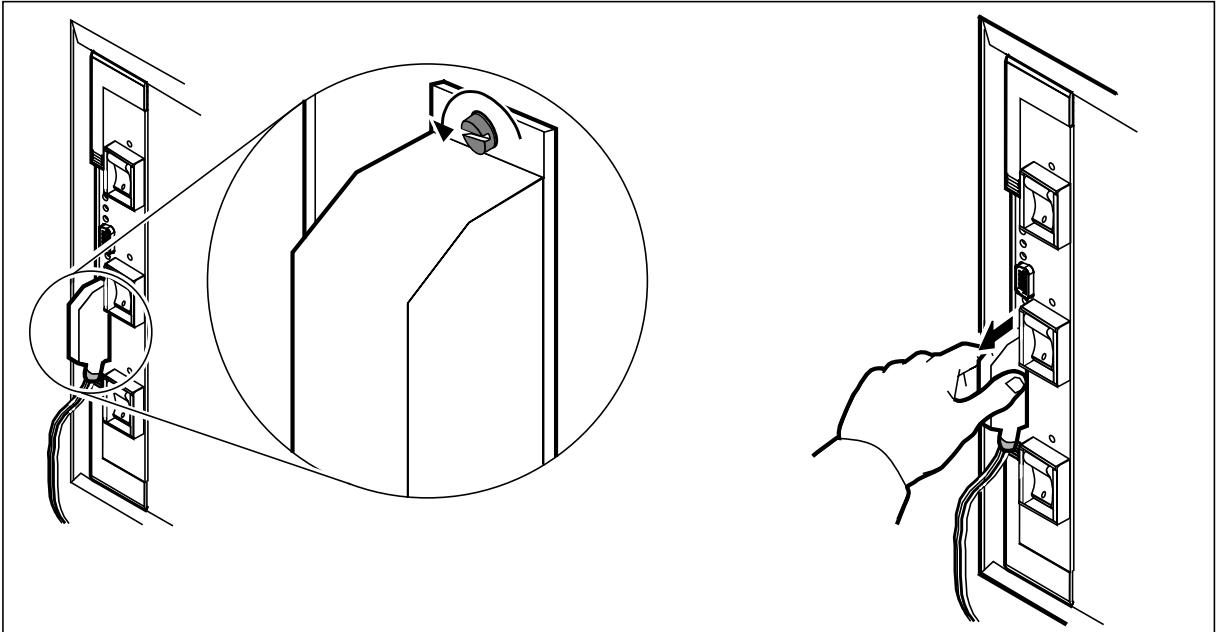
Remove the SIM alarm connector



NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 5 Remove the power cable from the SIM CP faceplate.
 - a Turn the alarm connector fasteners in a counter-clockwise direction.
 - b Carefully pull the power cable connector from the faceplate receptacle.
 - c Place the cable in a safe location away from the XA-Core shelf.

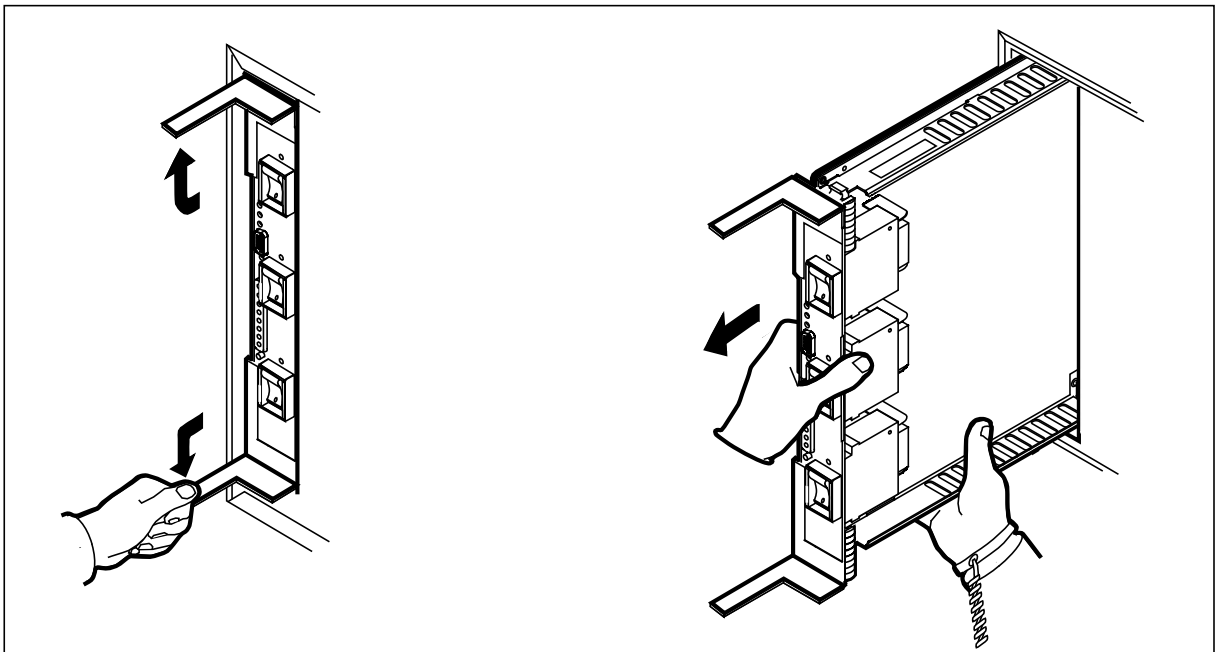
Remove the SIM power connector



NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 6 Remove the SIM CP from the physical shelf.
 - a Open the locking levers on the CP.
 - b Hold the CP by the locking levers. Pull the CP half way from the shelf opening toward you.
 - c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.
 - d Place the CP in ESD protective packaging.

Remove the NTLX12 SIM CP from the XA-Core shelf



- 7 Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.

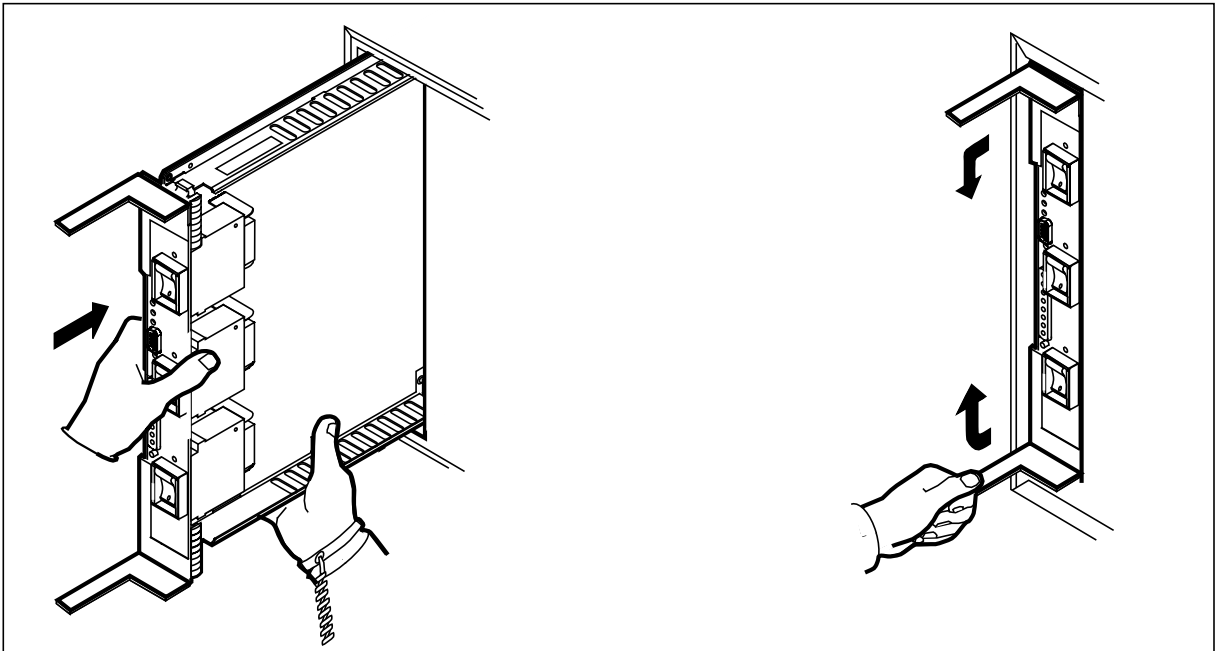
If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 8 Insert the replacement SIM CP into the physical shelf slot.
 - a Open the locking levers on the replacement SM CP.
 - b Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - c Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.
 - d Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the faceplate until the CP is fit into position.
 - e Close the locking levers to lock the CP in the physical shelf. Do not force the locking levers to close.

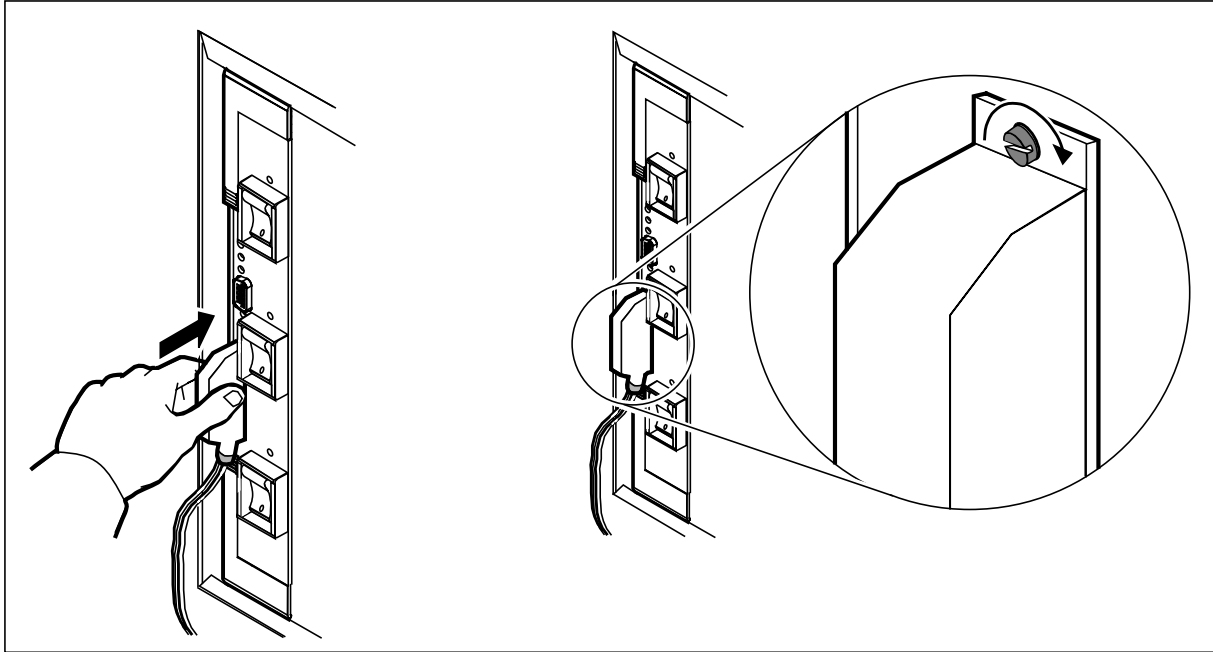
Insert the NTLX12 SIM CP in the XA-Core shelf



- 9 Connect the power cable to the SIM power receptacle.
 - a Carefully push the power cable connector into the faceplate receptacle.
 - b Turn the alarm connector fasteners in a clockwise direction.

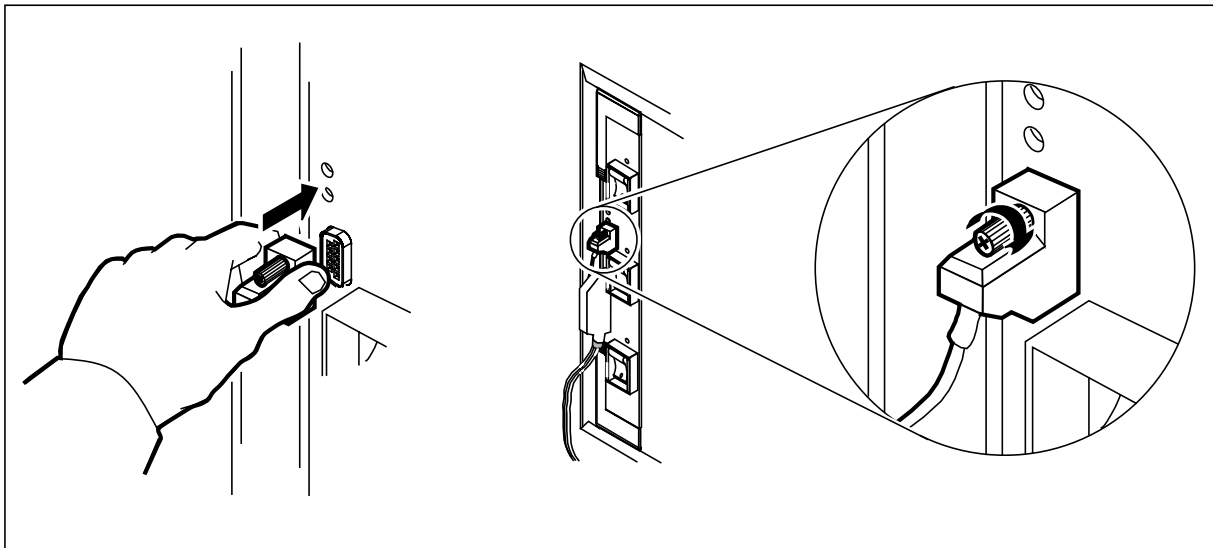
NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Insert the SIM power connector



- 10** Connect the alarm cable to the SIM alarm receptacle.
- a** Carefully insert the alarm cable connector into the SIM alarm receptacle.
 - b** Turn the alarm connector fastener in a clockwise direction.

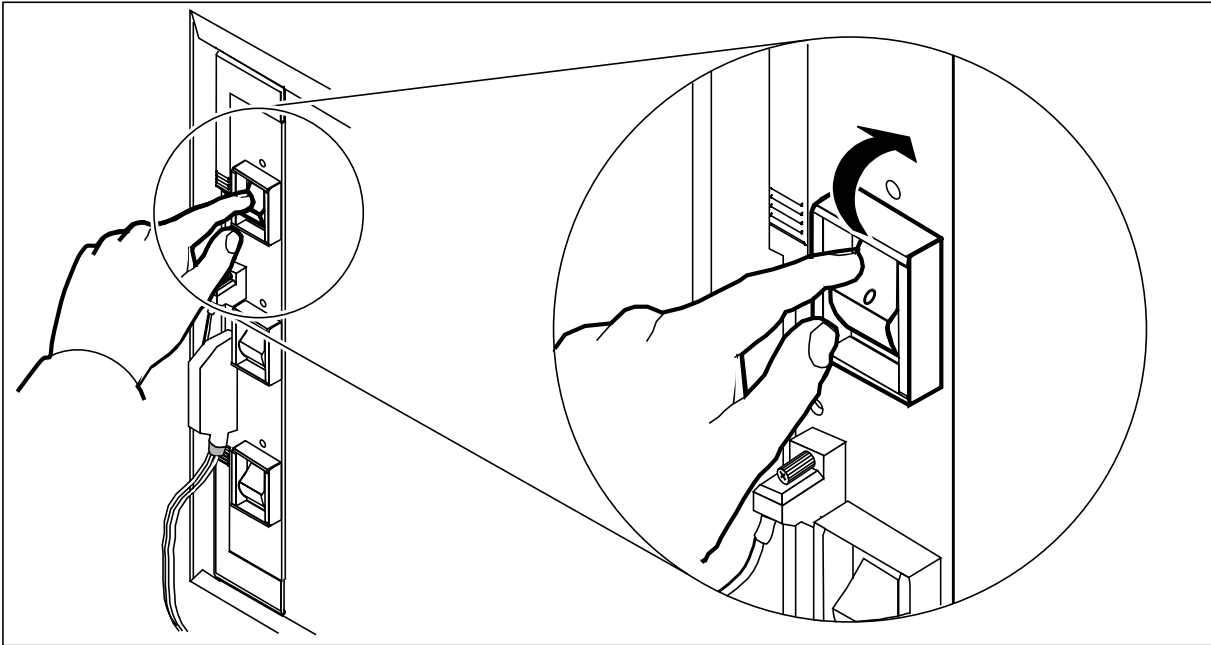
Insert the SIM alarm connector



NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 11** Set all circuit breakers to the ON (1) position. Push up on each circuit breaker switch until it clicks and remains in place. Wait 15 sec. before continuing.

Set all circuit breakers on the SIM to the ON (1) position



If circuit breakers		Do
remain set to the ON position		step 12
reset to the OFF position		step 16
12	Examine the SIM CP faceplate. Look at the LEDs.	
If the		Do
green LED is ON and red and yellow LEDs are OFF		step 13
green, yellow and red LEDs are OFF		step 16
green and yellow LEDs are ON and the red LED is OFF		step 16
green LED is OFF and the yellow and red LEDs are ON		step 16

13 Examine the XAC Map level. Look for any in-service trouble (IsTb) alarms in the alarm banner or subsystem status summary fields (SSSF). At the CI MAP level, type

and press the Enter key.

The following is a sample MAP display.

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.
XAC		Front:	111111111	Rear:	111111	SM	PE	IO	PKLT
0 Quit		123456789012345678	456789012345						
2 Card_	Sta:	-.-.-.-.-.-.-.-.-.-.	.--.-.-.-.-.-.-.-.			0	0	0	0
3 XACMtc	Dep:								
4 SM	XAC:								
5 PE									
6 IO									
7 CMIC									
8 RTIF									
9 Disk									
10 Tape									
11									
12									
13									
14 Alarm_									
15									
16									
17 Indicat_									
18 Query_									
XMAP0									
Time 14:12	>								

If the XA-Core XAC MAP level displays	Do
in-service trouble alarms	step 14
a different alarm type	step 15
no alarms	step 17

NTLX12 SIM circuit pack in a SuperNode and SuperNode SE XA-Core (end)

- 14** Access the XA-Core log utility system and check for power failure log reports.
- a** At the MAP CI prompt type
>LOGUTIL
 and press the Enter key.
 - b** Open the XA-Core log system by typing
>OPEN XAC
 and press the Enter key.
 - c** Query the XA-Core log reports. To display all of the most recent log reports, type
>DUMPLOGS XAC
 and press the Enter key.
 Or, to display a known log report, type
>OPEN XAC LOG#
- | If the XA-Core log report shows | Do |
|---------------------------------|---------|
| a different alarm type | step 15 |
| a power failure | step 16 |
| all alarms are clear | step 17 |
- 15** Perform the correct alarm clearing procedure and return to this point.
- | If the XA-Core alarm is | Do |
|-------------------------|---------|
| not clear | step 16 |
| clear | step 17 |
- 16** Call the next level of support.
- 17** Refer to How to return a card or assembly. Return to this point when complete.
- 18** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

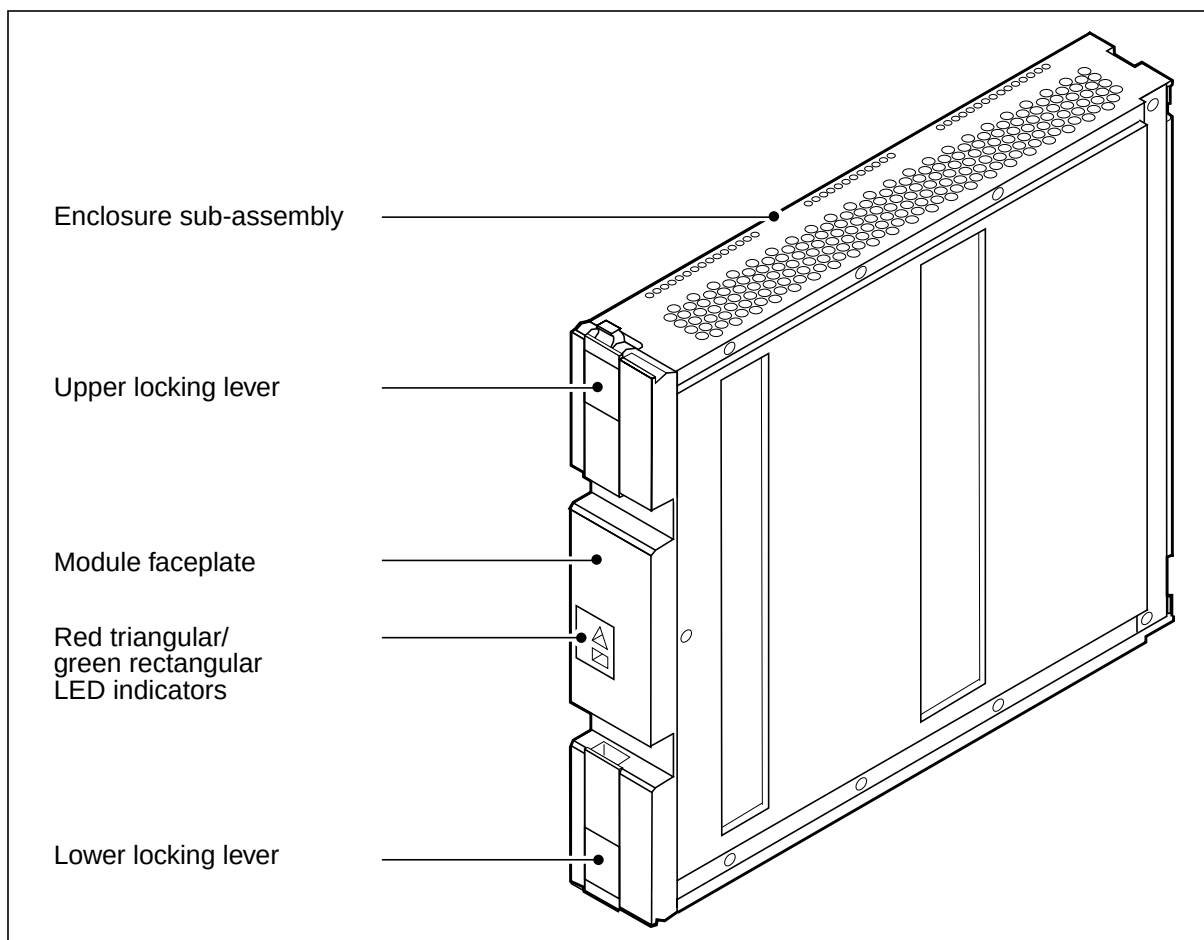
NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core

Application

This section contains the procedure for replacing an NTLX14 Shared memory (SM) circuit pack (CP) with a replacement of the same product engineering code and version. The following table lists the correct SM CP versions.

PEC	Suffix	Circuit pack name
NTLX14	CA	384 MByte SM circuit pack

NTLX14 shared memory circuit pack front and side views



NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Common procedures

The NTLX14 replacement procedure refers to the How to return a card or assembly common procedure.

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

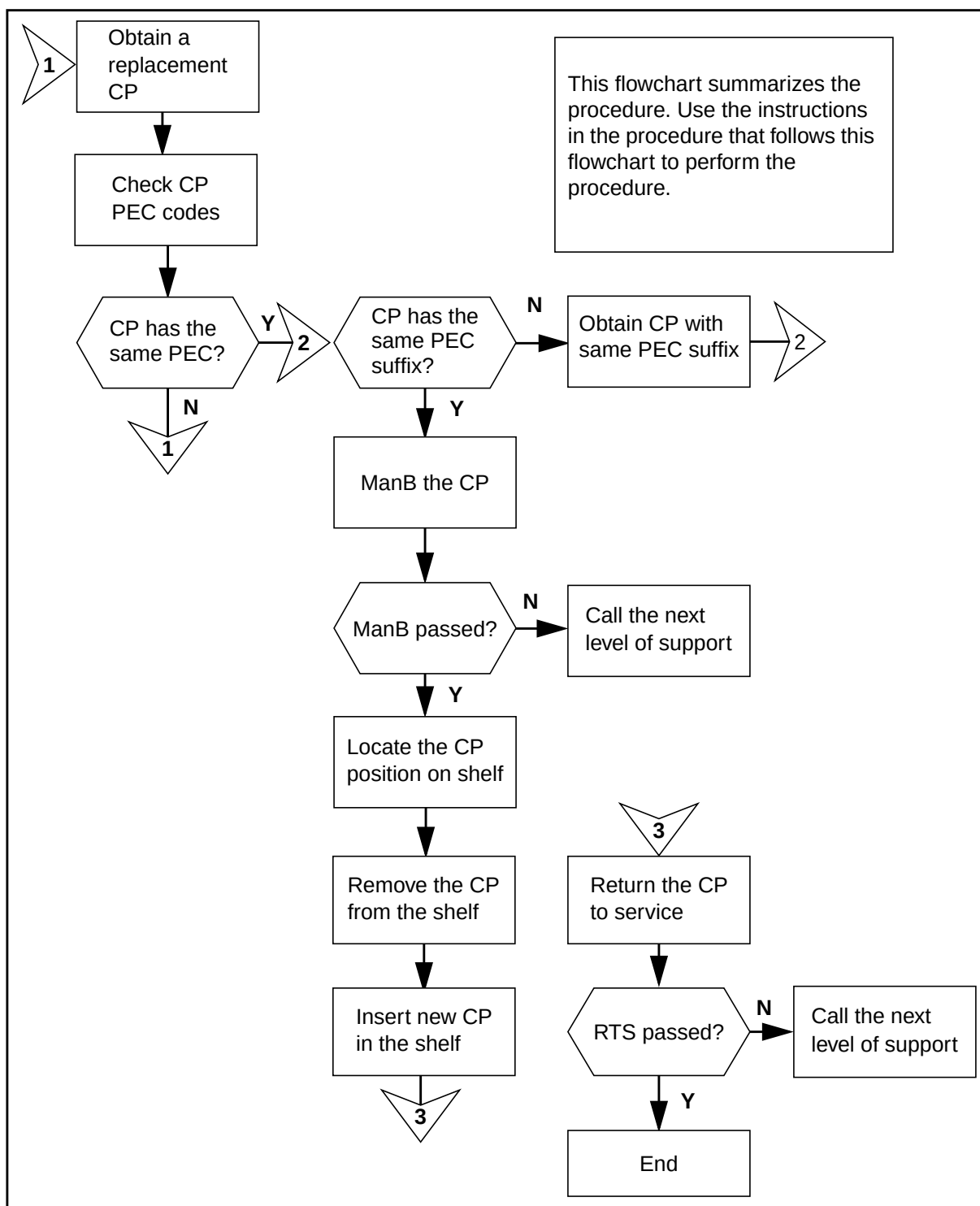
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

Summary of NTLX14 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX14 circuit pack

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of equipment damage**

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

**CAUTION****Loss of service**

Do not repeat steps.

**CAUTION****Loss of service**

Manually busy one CP of the same equipment type at a time. Make sure that the unit you are replacing is inactive and the mate unit is active.

NTLX14 shared memory circuit pack
in a SuperNode and SuperNode SE XA-Core (continued)

At your current location

- 1 Get a replacement CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.

At the MAP terminal

- 2 Access the XA-Core SM MAP level. At the MAP terminal type
>MAPCI;MTC;XAC;SM
and press the Enter key.

The following is a sample MAP display.

SM MAP level

XAC
LowSM

MS
.

IOD
.

Net
.

PM
.

CCS
.

Lns
.

Trks
.

Ext
.

APPL
.

SM

0 Quit

2

3

4

5

6 Tst_

7 Bsy_

8 RTS_

9

10

11

12 Uneq_

13

14 Alarm_

15

16 Trnsl_

17 Indicat_

18 Query_

Front: 11111111

123456789012345678

Sta: -.-.-.-.-.-.-.-.-.-

Dep:

Typ: ** **

Physical: 1920

SM:

Rear: 111111

456789012345

.-.-M-----.

*

Useable: 1920

SM

PE

IO

PKLT

SM M

.

.

.

1

0

0

0

Available: 960

XMAP0

Time 14:12

>

- 3 Examine the SM MAP display. Record the working state of the system and the SM CPs. Determine the location of the SM CP that you need to replace. Record the SM CP location on the physical shelf, side and slot.

NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 4 ManB the SM CP. The CP must be in a ManB state before indication, removal, insertion or out-of-service testing. At the SM MAP type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>BSY 7 r

Example of system response:

Bsy 7 rear complete.

If the SM CP is	Do
in a ManB state	step 5
not in a ManB state	step 11

- 5 Indicate the ManB SM CP. At the SM MAP terminal type

>INDICAT card <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

Example of command use:

>INDICAT card 7 r

Example of system response:

Indicate 7 rear passed.

At the XA-Core physical shelf

- 6 Locate the SM CP on the XA-Core physical shelf. Use the CP location information recorded from the SM MAP in step 3. Look for a winking, red triangular LED (from step 5).

NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

7



WARNING

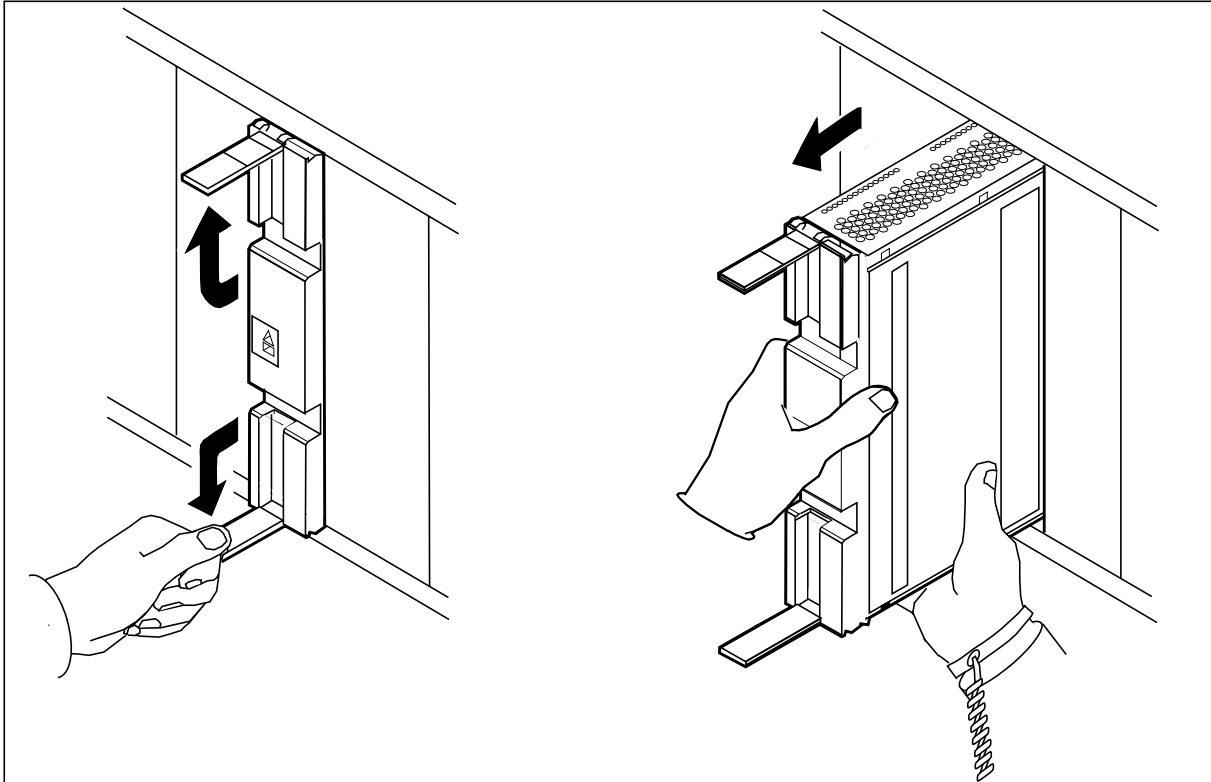
Static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs.

Remove the SM CP from the physical shelf.

- a Open the locking levers on the CP.
- b Hold the CP by the locking levers. Pull the CP half way from the shelf opening toward you.
- c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.
- d Place the CP in ESD protective packaging.

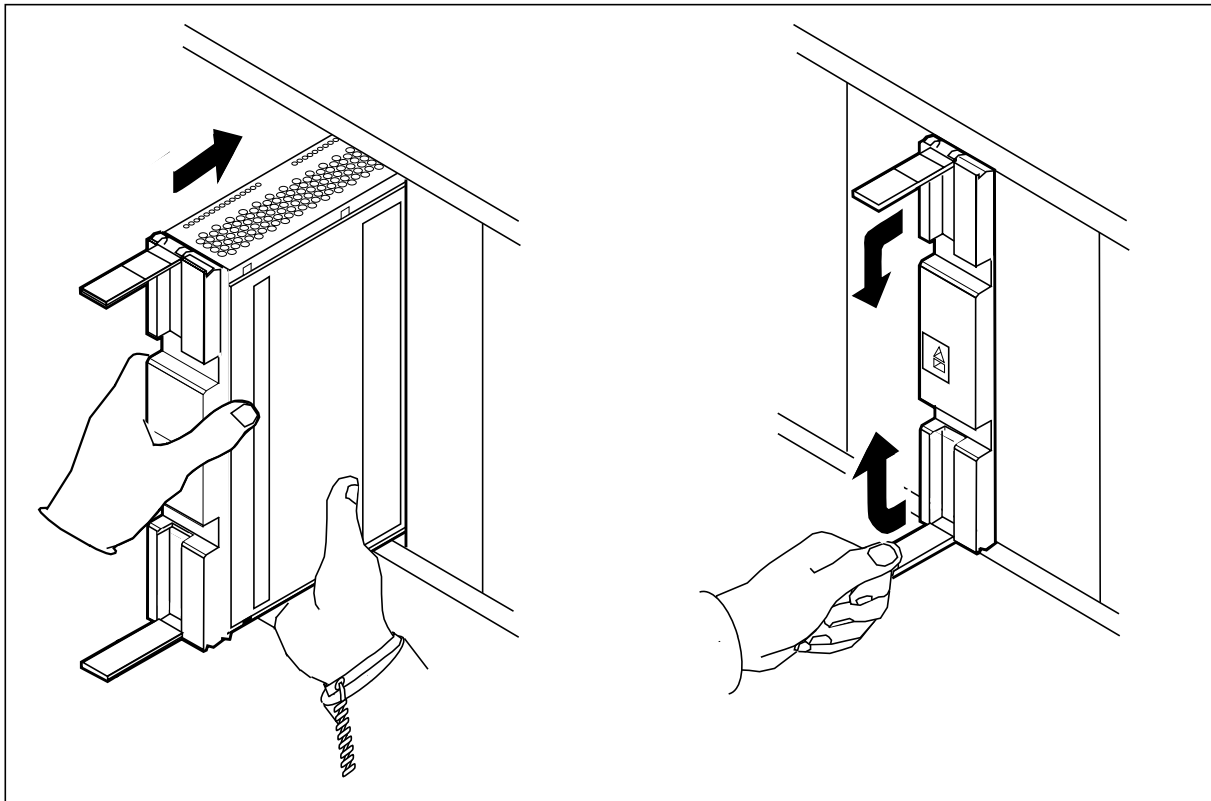
Remove the NTLX14 SM CP from the XA-Core shelf



NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

- 8** Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.
- If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.
- If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.
- 9** Insert the replacement SM CP into the physical shelf slot.
- Open the locking levers on the replacement SM CP.
 - Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.
 - Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the faceplate until the CP is fit into position.
 - Close the locking levers to lock the CP in the physical shelf. Do not force the locking levers to close.

Insert the NTLX14 SM CP in the XA-Core shelf



NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core (end)

At the MAP terminal

- 10** Return the SM CP to service. At the SM MAP level type
>RTS <nn> <s>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the
physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packlet location in the
physical shelf - front (f) or rear (r)
Example of command:
>RTS 7 r
Example of system response:
RTS 7 rear passed.

If replacement SM CP is	Do
not returned to service	step 11
returned to service	step 12

- 11** Call the next level of support.
- 12** Refer to How to return a card or assembly. Return to this point when complete.
- 13** You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

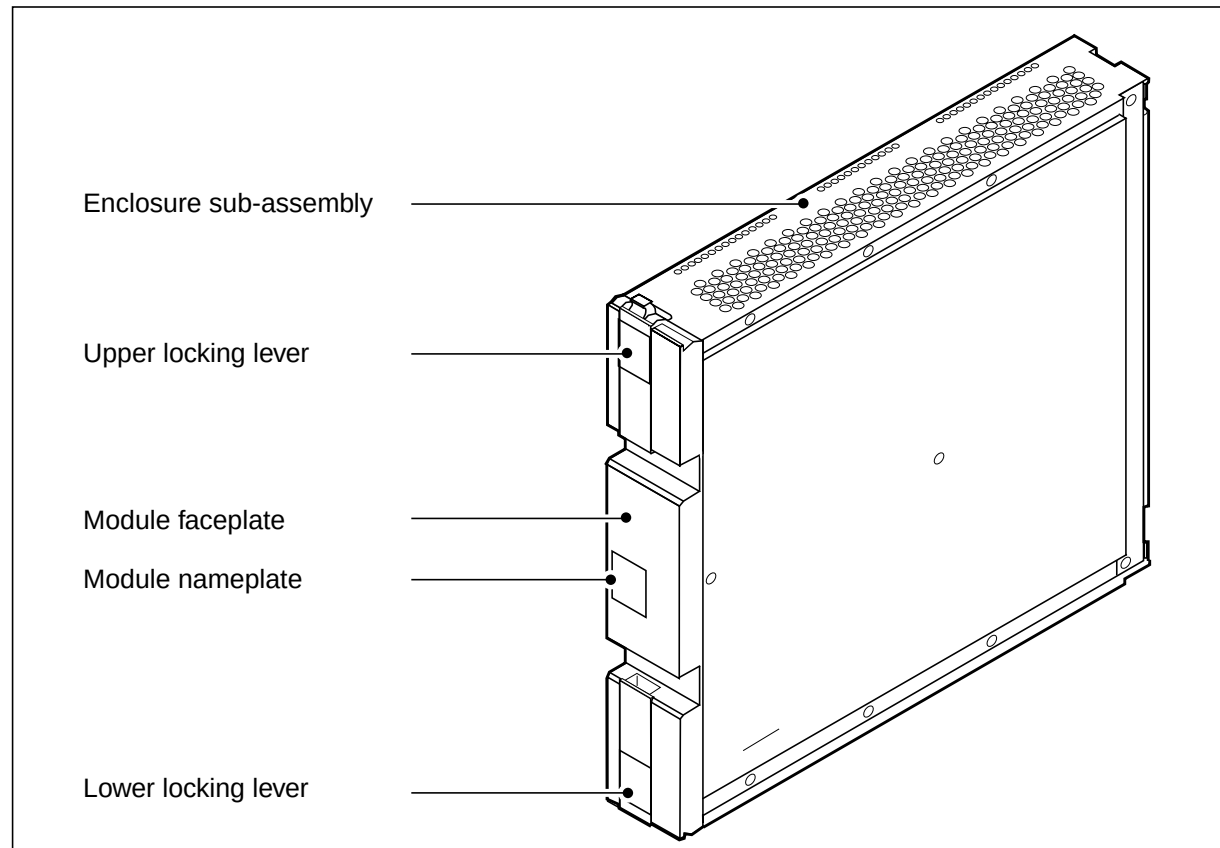
NTLX20 Filler circuit pack in a Super Node and Super Node SE XA-Core

Application

Use this procedure to replace or insert a new NTLX20 filler circuit pack (CP). Install the NTLX20 filler CP in slot 1 F (slot 1 front). The following table lists the correct XA-Core filler CP versions.

PEC	Suffix	Circuit pack name
NTLX20	AA	Filler

NTLX20 filler CP front and side views



Common procedures

There are no common procedures.

NTLX20 Filler circuit pack in a Super Node and Super Node SE XA-Core (continued)

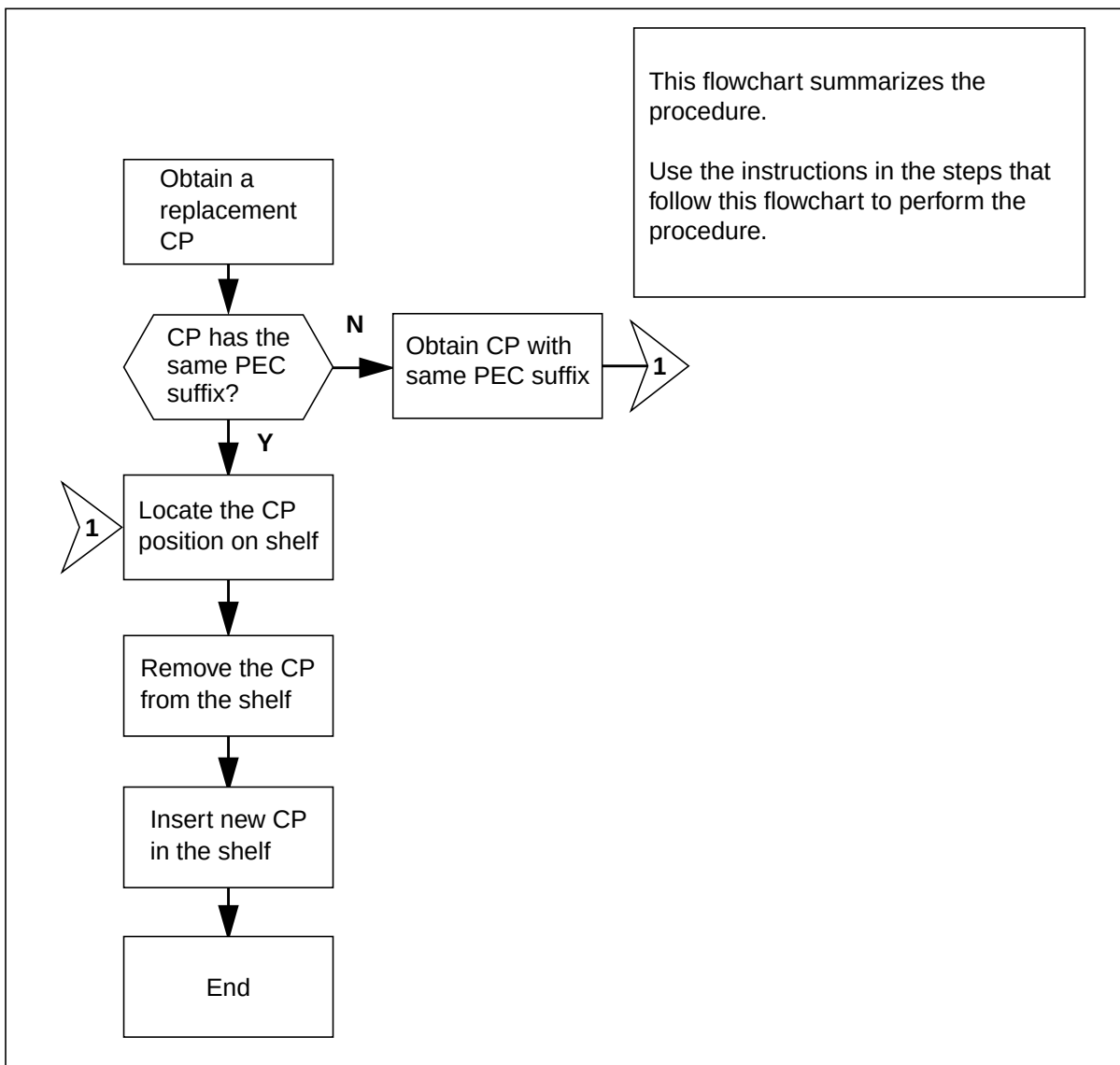
Light emitting diode (LED) visual indicators

There are no LEDs on the filler faceplate.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

Summary of NTLX20 filler CP replacement procedure



NTLX20 Filler circuit pack in a Super Node and Super Node SE XA-Core (continued)

How to replace an NTLX20 filler circuit pack

**WARNING****Risk of equipment damage**

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.

**WARNING****Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.

**CAUTION****Loss of service**

Do not repeat steps.

At your current location

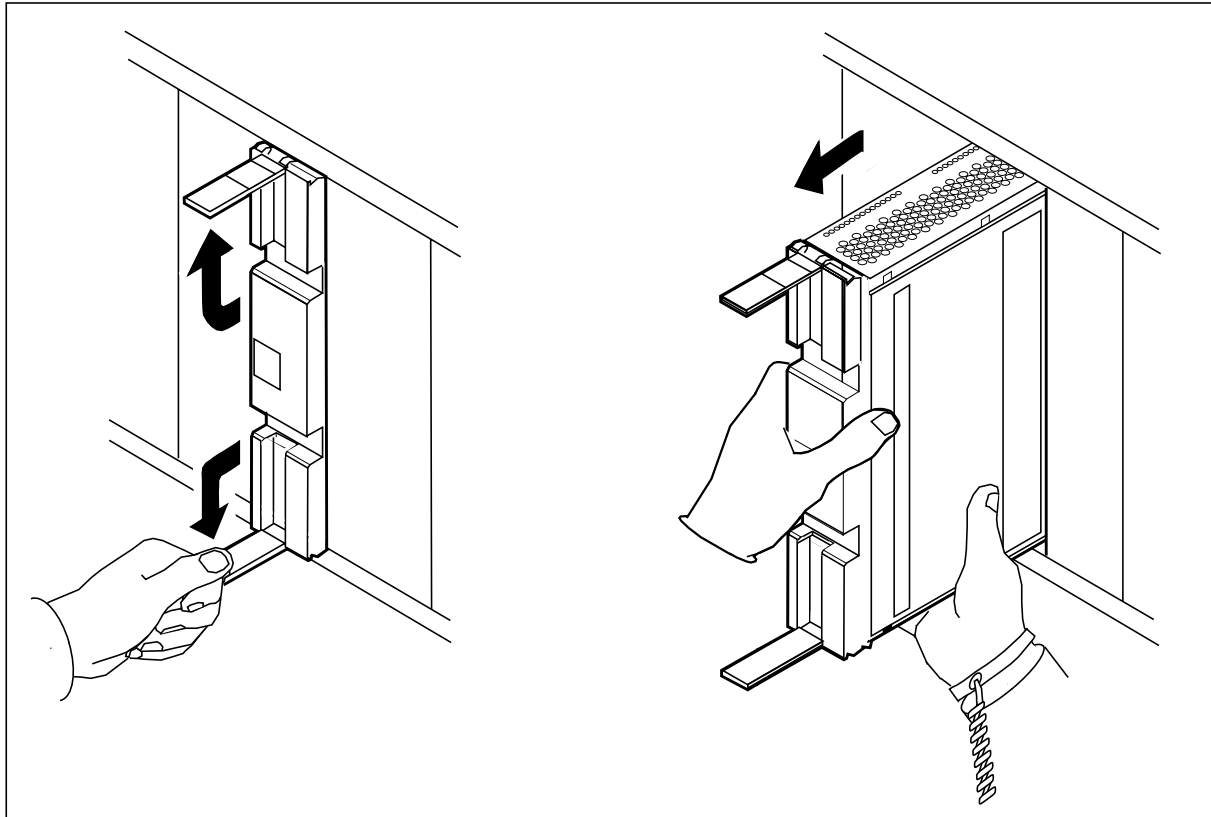
- 1 Get a replacement CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.

At the XA-Core physical shelf

- 2 Locate the filler CP on the XA-Core physical shelf.
- 3 Remove the filler CP from the physical shelf. Use the diagrams shown in this step.
 - a Open the locking levers on the CP.
 - b Hold the CP by the locking levers. Pull the CP half way from the shelf opening toward you.
 - c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.

NTLX20 Filler circuit pack in a Super Node and Super Node SE XA-Core (continued)

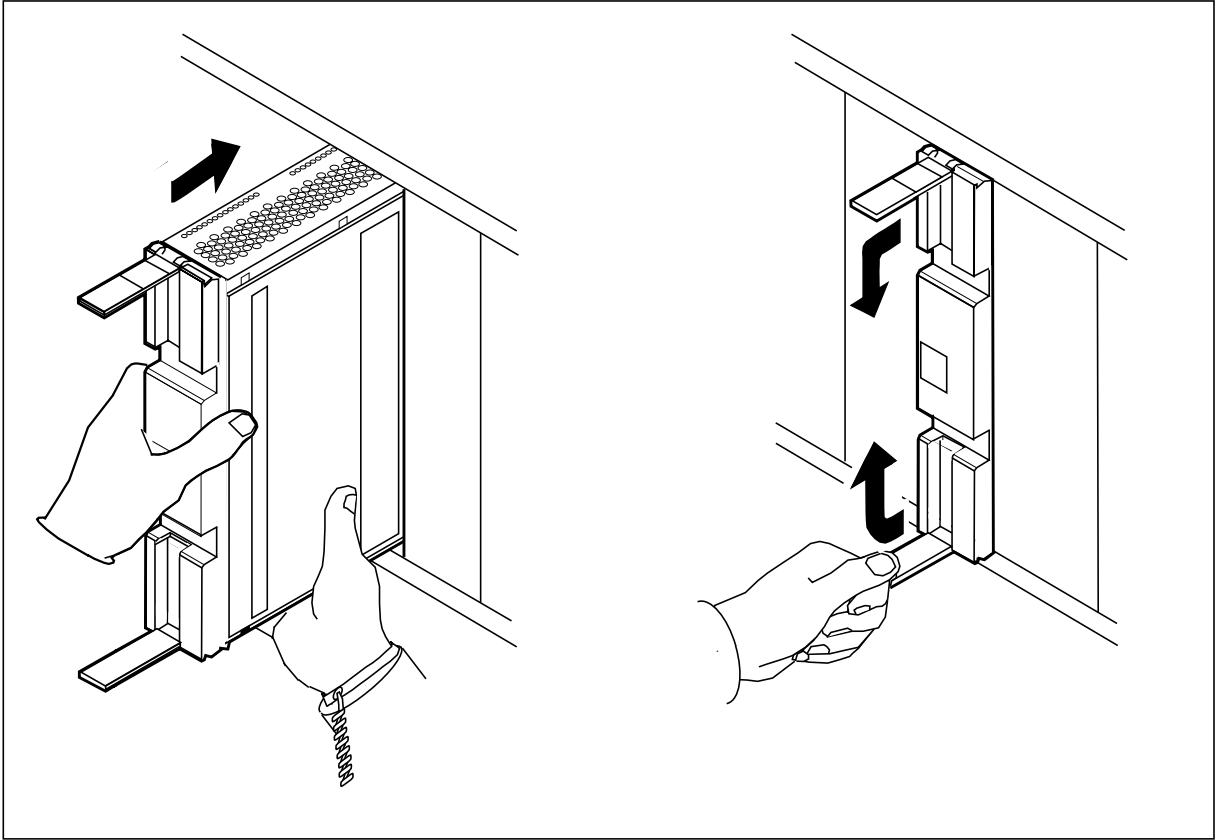
Remove the NTLX20 filler CP from the XA-Core shelf



- 4 Place the CP in ESD protective packaging.
- 5 Insert the replacement filler CP into the physical shelf slot. Use the diagrams shown in this step.
 - a Open the locking levers on the replacement filler CP.
 - b Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - c Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.
 - d Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the faceplate until the CP is fit into position.
 - e Close the locking levers to lock the CP in the physical shelf. Do not force the locking levers to close.

NTLX20 Filler circuit pack in a Super Node and Super Node SE XA-Core (end)

Insert the NTLX20 filler CP in the XA-Core shelf



- 6 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

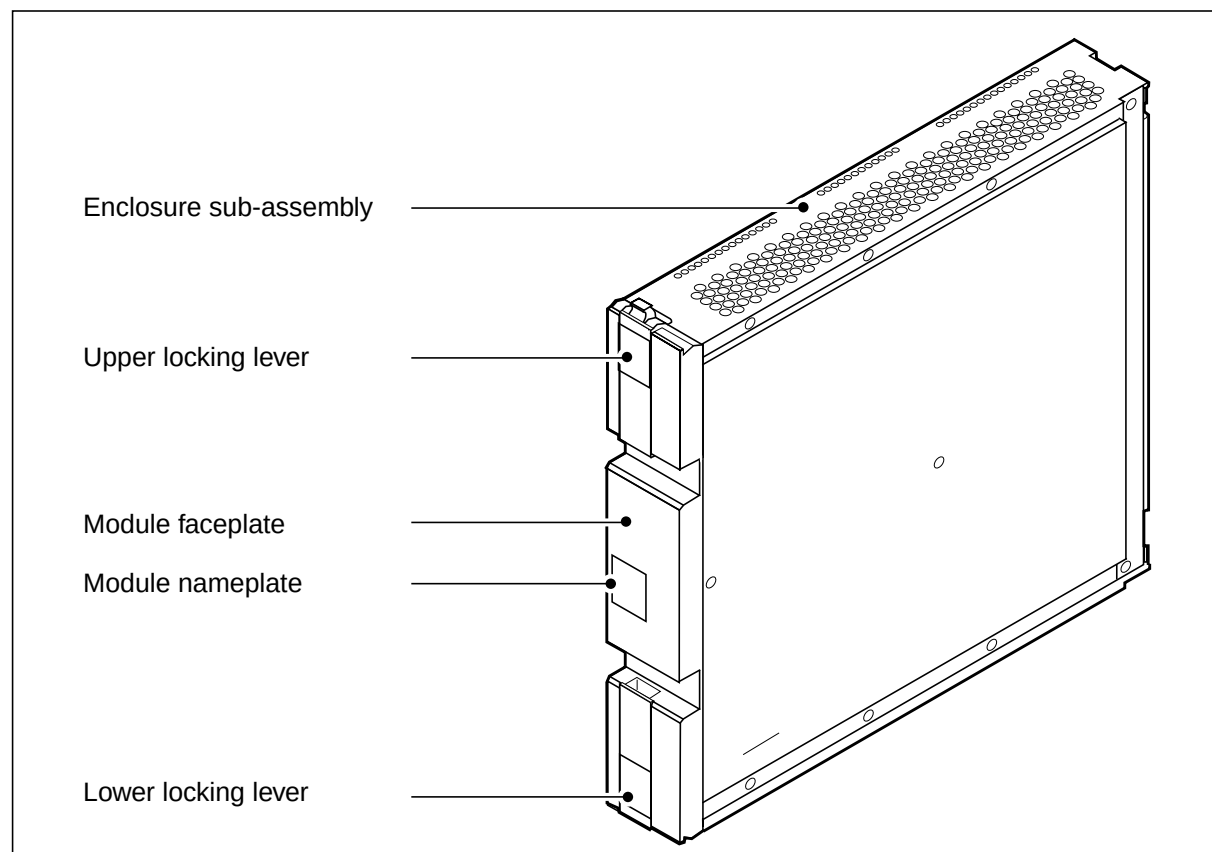
NTLX20 Terminating filler circuit pack in a SuperNode and SuperNode SE XA-Core

Application

Use this procedure to replace or insert a new NTLX20 Terminating filler circuit pack (CP). The following table lists the correct XA-Core Slot terminator CP versions.

PEC	Suffix	Circuit pack name
NTLX20	BA	Terminating filler

NTLX20 Terminating filler CP front and side views



Common procedures

There are no common procedures.

NTLX20 Terminating filler circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

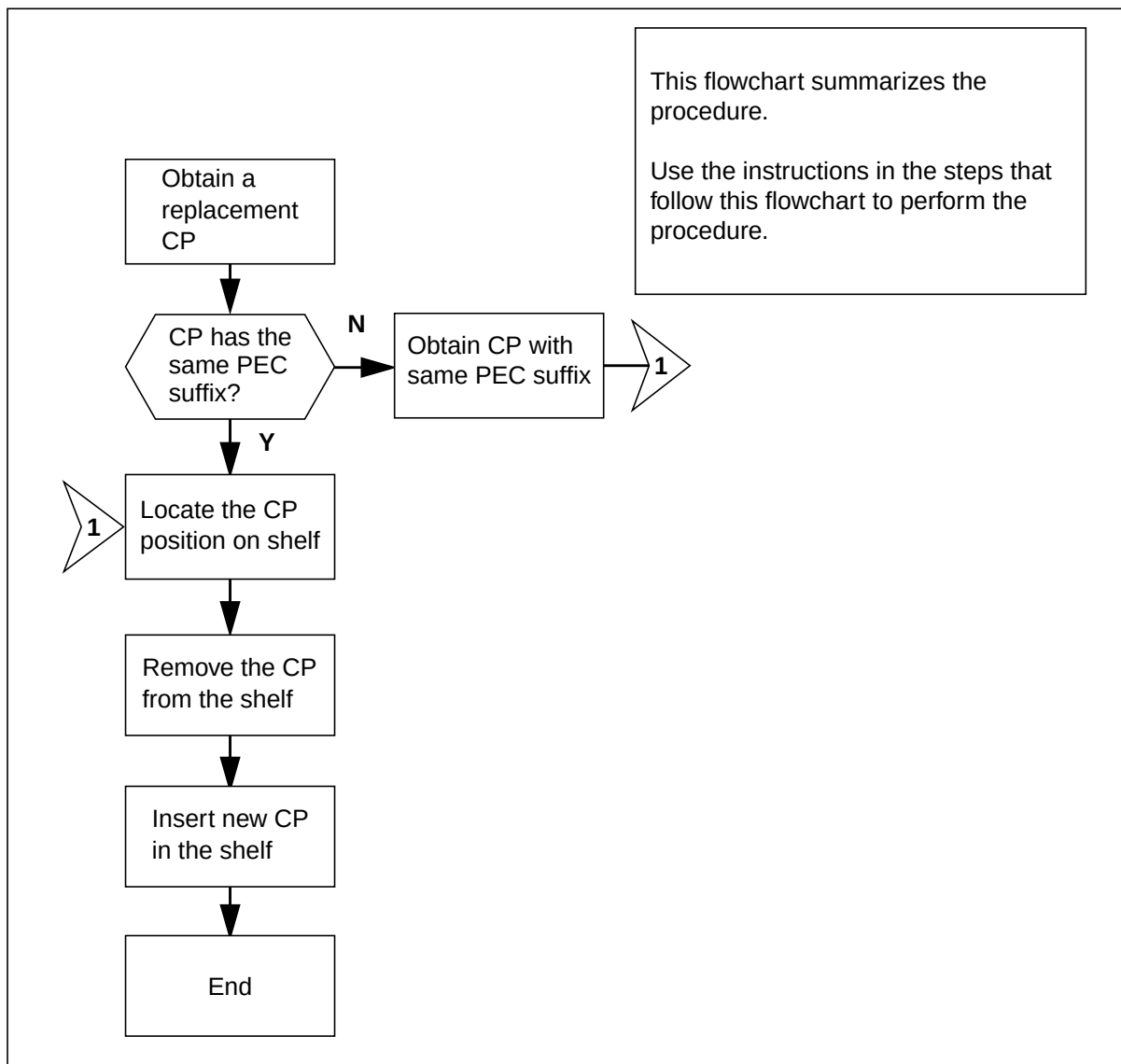
Light emitting diode (LED) visual indicators

There are no LEDs on the faceplate.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

Summary of NTLX20 Terminating filler CP replacement procedure



NTLX20 Terminating filler circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

How to replace an NTLX20 Terminating filler circuit pack



WARNING

Risk of equipment damage

Use this procedure as instructed from a step in a maintenance procedure. Use of this procedure separately can result in equipment damage.



WARNING

Risk of equipment damage

Before inserting the replacement circuit pack during this procedure, use a flashlight to inspect the backplane in the slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins. If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in the slot. Look for physical damage or abnormalities. If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.



WARNING

Risk of static electricity damage

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



CAUTION

Loss of service

Do not repeat steps.

NTLX20 Terminating filler circuit pack in a SuperNode and SuperNode SE XA-Core (continued)

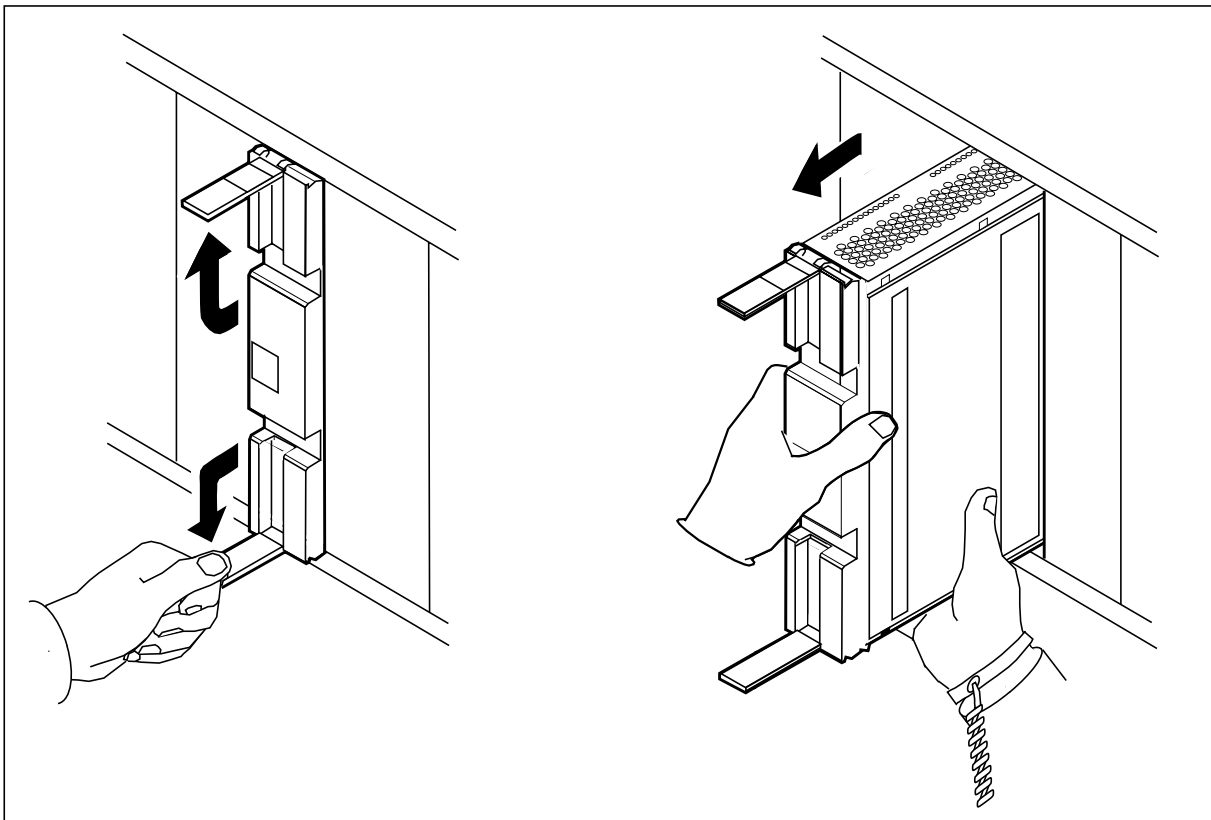
At your current location

- 1 Get a replacement CP. Make sure that the replacement CP and the CP you remove have the same product engineering code (PEC) and PEC suffix.

At the XA-Core physical shelf

- 2 Locate the Terminating filler CP on the XA-Core physical shelf.
- 3 Remove the Terminating filler CP from the physical shelf. Use the diagrams shown in this step.
 - a Open the locking levers on the CP.
 - b Hold the CP by the locking levers. Pull the CP half way from the shelf opening toward you.
 - c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.

Remove the NTLX20 Terminating filler CP from the XA-Core shelf



- 4 Place the CP in ESD protective packaging.
- 5 Using a flashlight, inspect the backplane in this slot for bent pins. If you find any bent backplane pins, stop work immediately and contact the next level of support to arrange for an in-service XA-Core shelf replacement. Under no circumstances should you try to straighten bent pins.

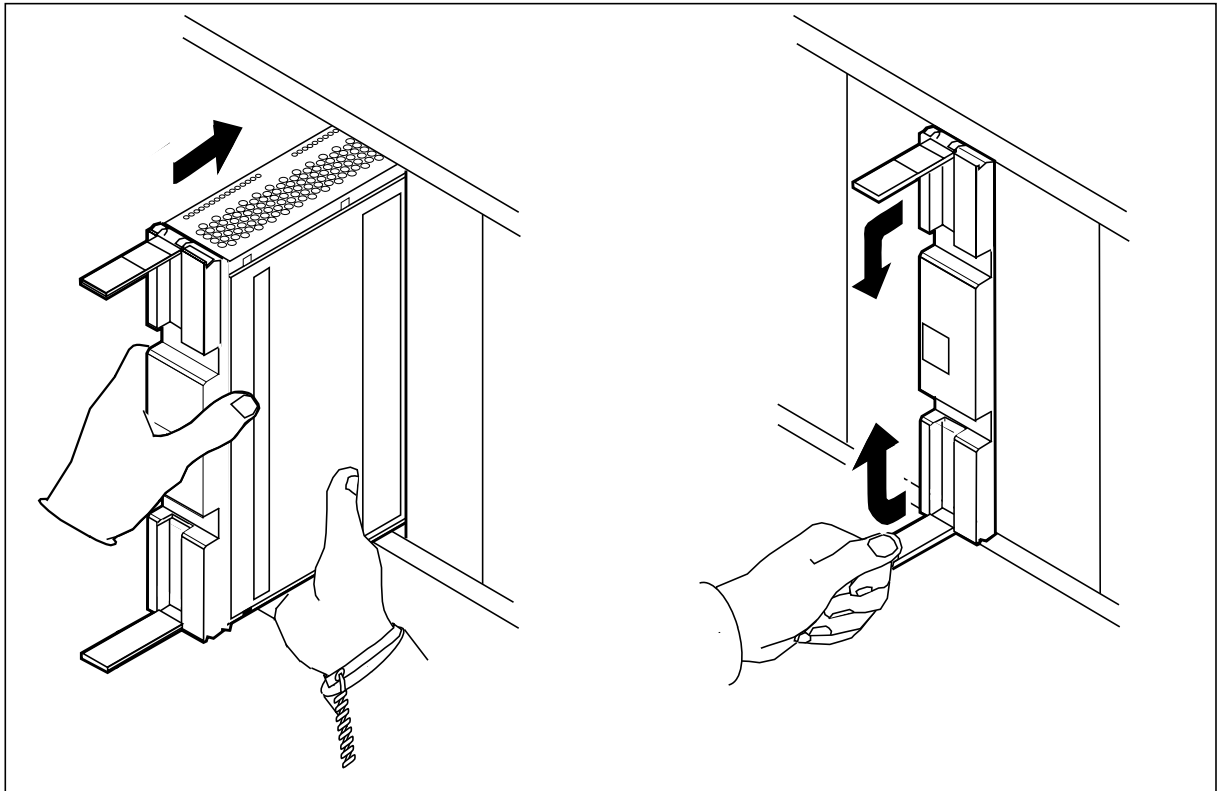
NTLX20 Terminating filler circuit pack in a SuperNode and SuperNode SE XA-Core (end)

If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

- 6 Insert the replacement Terminating filler CP into the physical shelf slot. Use the diagrams shown in this step.
 - a Open the locking levers on the replacement Terminating filler CP.
 - b Hold the CP by the faceplate with one hand and support the bottom edge with the other.
 - c Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.
 - d Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the faceplate until the CP is fit into position.
 - e Close the locking levers to lock the CP in the physical shelf. Do not force the locking levers to close.

Insert the NTLX20 Terminating filler CP in the XA-Core shelf



- 7 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

3 Introduction to recovery procedures

Introduction

This chapter describes how to perform recovery maintenance procedures on the DMS SuperNode (SN) and DMS SuperNode SE (SNSE) XA-Core (XAC). Each procedure contains the following sections:

- application
- interval
- common procedures
- action

Application

This section describes the purpose of the procedure.

Interval

This section describes when to perform the procedure.

Common procedures

This section lists common procedures used during the recovery maintenance procedure. A common procedure is a series of steps that repeats in maintenance procedures. Common procedures include card removal and replacement.

Action

This section provides a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

How to boot an XA-Core in a DMS switch

Application

Use this procedure to boot a DMS SuperNode or DMS SuperNode SE switch that has an eXtended Architecture Core (XA-Core). This procedure boots a switch from a reset terminal display. An image loads from a small computer systems interface (SCSI) device. The SCSI device can be in a disk or a digital audio tape (DAT).

When you boot a switch, the booted switch drops all calls.

Interval

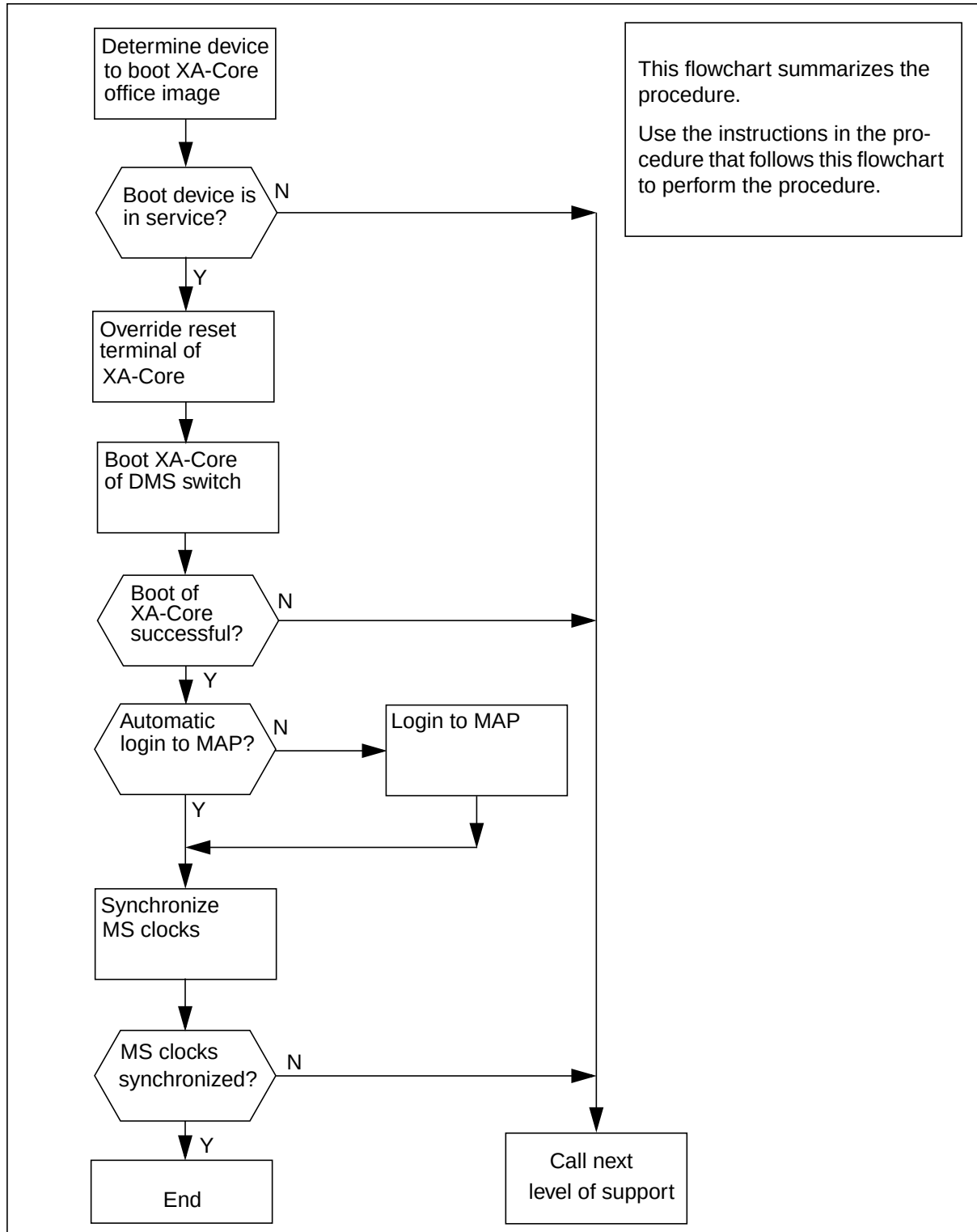
Perform this procedure when instructed by your next level of support.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an summary of the procedure. Follow the exact steps to boot an XA-Core in a DMS switch.

How to boot an XA-Core in a DMS switch (continued)**How to boot an XA-Core in a DMS switch**

How to boot an XA-Core in a DMS switch (continued)

How to boot an XA-Core in the DMS switch



CAUTION

Call your next level of support

Do not try this procedure before you call your next level of support.



CAUTION

Extended service interruption

A longer recovery time occurs for a switch boot from tape than a switch boot from disk. Boot from disk when possible, because call processing starts again more quickly after a switch boot from disk.

At your current location

- 1 Determine from office records, the name of the XA-Core recording device that contains the last office image file. The XA-Core recording device is a disk drive or a tape drive for a digital audio tape (DAT). Record the name of the XA-Core device.

At the XA-Core shelf

- 2 Make sure that the disk drive or the tape drive that you recorded in step 1 is in service. Make sure the disk drive or the tape drive recorded in step 1 has a green light-emitting diode (LED) illuminated.

If the disk drive or tape drive is	Do
in service	step 3
not in service	step 14

At the XA-Core reset terminal

- 3 To override the XA-Core reset terminal, type:

>|OVERRIDE

and press the enter key.

Example of a reset terminal response

NOW IN SERVICE AFFECTING MODE

- 4 To boot the XA-Core, type:

>|BOOT nn s p

and press the enter key.

where

How to boot an XA-Core in a DMS switch (continued)

nn is the number of the slot position of the input/output processor (IOP) card that contains the packet with the last image file. The packet is for a disk drive or a DAT drive.

s is the front (F) or rear (R) shelf position of the IOP card that contains the packet with the last image file. The packet is for a disk drive or a DAT drive.

p is the upper (U) or lower (L) position of the IOP card that contains the packet with the last image file. The packet is for a disk drive or a DAT drive.

Example of reset terminal input:

```
>\BOOT 2 F L
```

Example of a reset terminal response

```
CONFIRM (\YES OR \NO)
```

- 5 To confirm the command, type:

```
>\YES
```

and press the enter key.

- 6 Monitor the reset terminal display to determine if the switch has booted.

Note: When the switch boots, the reset terminal displays a response to indicate a boot in progress. The response also displays different diagnostic messages and alphanumeric addresses. When the switch has completely booted, a prompt appears on the reset terminal display. The prompt can display as follows.

Example of a reset terminal response

```
RTIF>
```

If the response has	Do
a prompt	step 7
no prompt after approximately 15 min	step 14

How to boot an XA-Core in a DMS switch (continued)

At the MAP terminal

7



CAUTION

Extended service interruption

The exact log-in procedure can vary, depending on your office configuration. If you need additional help, call the personnel responsible for the next level of support.

Determine if you have to log in.

Note: The log-in message indicates that you have to manually log in. An automatic log in can occur if the office parameters have automatic log in.

Example of a MAP response

Please Login.

If log in is	Do
not automatic	step 8
automatic	step 12

8 Press the break key.

Example of a MAP response

?

9 To log in to the MAP terminal, type:

LOGIN

and press the enter key.

Example of a MAP response

Enter User Name

10 To enter the user name, type:

user_name

and press the enter key.

where

user_name is the name of the user for the account

Example of a MAP response

Enter Password

11 To enter the password, type:

password

How to boot an XA-Core in a DMS switch (end)

and press the enter key.

where

password is the name of the password for the account

Example of a MAP response

SuperNode_1 Logged in on 1997/01/15 at 20:37:17

- 12** To access the MS Clock level of the MAP display, type:

MAPCI;MTC;MS;CLOCK

and press the enter key.

- 13** To synchronize the clocks, type:

SYNC

and press the enter key.

If the MAP response is	Do

a successful completion	step 15

a failure	step 14

- 14** For additional help, call the personnel responsible for the next level of support.

- 15** You have completed this procedure.

How to perform a cold restart in XA-Core

Application

Use this procedure to perform a cold restart. The cold restart is on an eXtended Architecture Core (XA-Core) of a DMS SuperNode or of a DMS SuperNode SE switch.

A cold restart is more serious than a warm restart but less serious than a reload restart. A cold restart is an initialization phase during which temporary storage deallocates and clears. All calls drop during the restart and there is no billing data recorded for the calls that the switch drops. After a cold restart, the switch keeps the office configuration and translation data.

Interval

Perform this instruction when instructed by your next level of support.

Common procedures

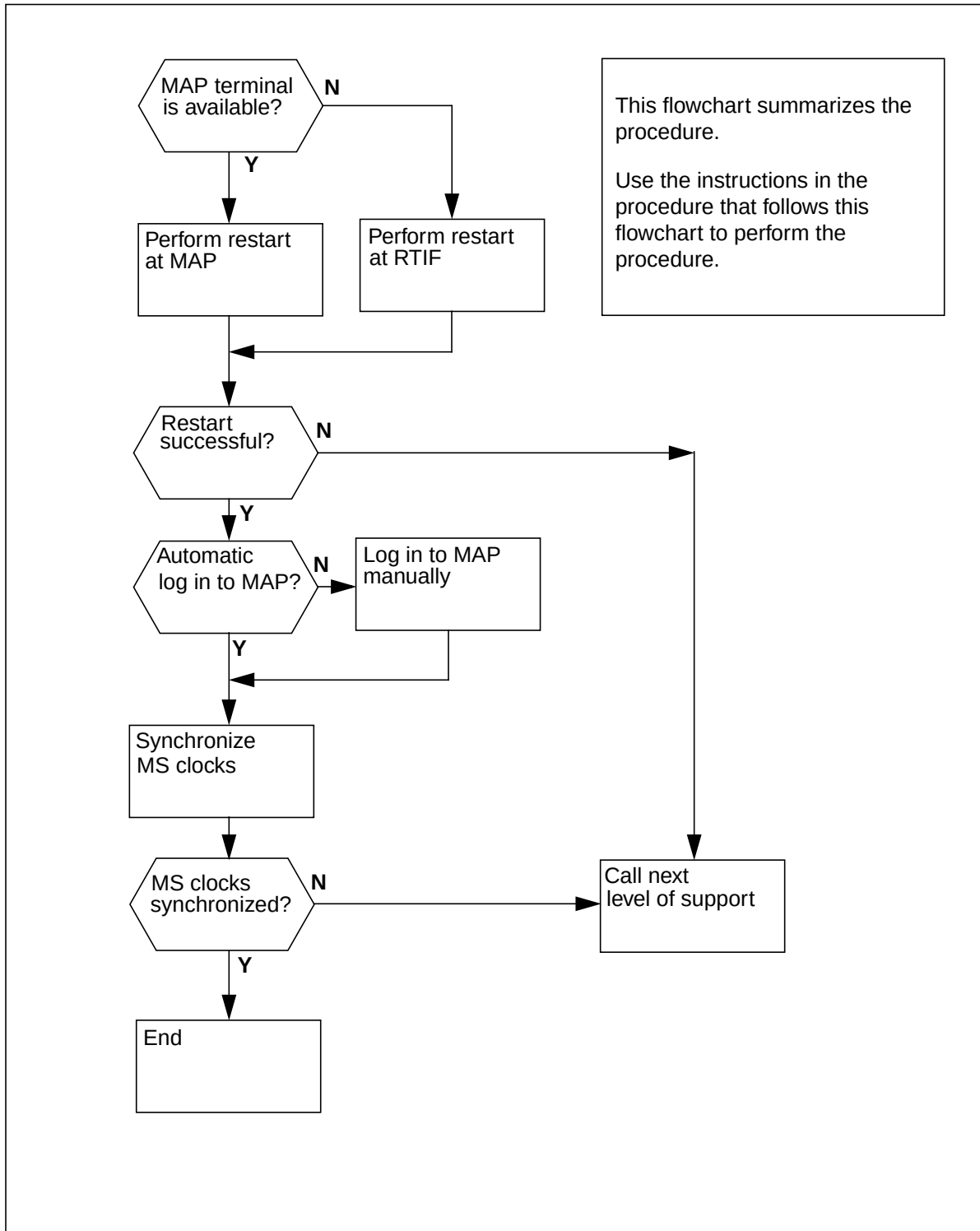
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

How to perform a cold restart in XA-Core (continued)

How to perform a cold restart in XA-Core



How to perform a cold restart in XA-Core (continued)

How to perform a cold restart in XA-Core

**CAUTION****Call your next level of support**

Do not try this procedure before you call your next level of support.

**CAUTION****Loss of service**

All calls drop during a cold restart.

**CAUTION****Extended service interruption**

Execute the restart from a MAP terminal when possible. The MAP terminals can be out of service if there is a serious problem. If a MAP terminal is not available, perform the restart from the reset terminal interface (RTIF) of XA-Core.

At your current location

- 1 Determine if a MAP terminal is available to execute the restart.

If a MAP terminal is	Do
available	step 2
not available	step 6

At the MAP terminal

- 2 To access the CI level of the MAP, type:

>QUIT ALL

and press the enter key.

Example of a MAP display

CI:
>

- 3 To restart the switch, type:
>RESTART COLD ACTIVE

How to perform a cold restart in XA-Core (continued)

and press the Enter key.

Example of a MAP display

WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Use MTC SWACT. Consult NORESTARTSWACT/MTC SWACT Users Guide
NTP.
Please confirm ("YES", "Y", "NO", or "N"):

- 4 To confirm the command, type:

>YES

and press the enter key.

Example of a MAP display

COLD Restart from Command on CPU 0
*** SOS COLD restart no. 2 at OCT-20 15:46:06.
<<IGNORED>>
Please Login.

At the RTIF terminal

- 5 Determine if the restart of the switch has completed.

Note: When the switch restarts, alphanumeric addresses appear in the RTIF display. When the switch has completed the restart, an automatic log in occurs or a manual log-in request appears.

If the response indicates	Do
a completed restart	step 9
no restart completion after approximately 5 min	step 16

At the RTIF terminal

- 6 To restart the switch, type:

>IRESTART COLD ACTIVE

and press the enter key.

Example of a reset terminal response

Please confirm: (YES/NO)

- 7 To confirm the command, type:

>YES

and press the enter key.

Example of a reset terminal response

RESTART DONE

How to perform a cold restart in XA-Core (continued)

- 8 Monitor the RTIF display to determine if the switch has restarted.
- Note:** When the switch restarts, alphanumeric addresses display in the RTIF response. When the switch completes the restart, A1 appears in the RTIF response..

If the RTIF response has	Do
A1	step 9
no A1 after approximately 5 min	step 16

At the MAP terminal

9



CAUTION

Extended service interruption

The exact log-in procedure can vary, depending on your office configuration. If you need additional help, call the personnel responsible for the next level of support.

Determine from the MAP display if you have to log in.

Note: The message Please Login indicates that you have to log in manually. If your office parameters have automatic log in, you can log in automatically.

Example of a MAP response

Please Login.

If the log in is	Do
manual	step 10
automatic	step 14

- 10 Press the break key.
- Example of a MAP response*
- ?
- 11 To log in to the MAP terminal, type:
- >LOGIN**
- and press the Enter key.
- Example of a MAP response*
- Enter User Name
- 12 To enter the user name, type:

How to perform a cold restart in XA-Core (end)

>user_name

and press the enter key.

where

user_name is the name of the user for the account

Example of a MAP response

Enter Password

- 13** To enter the password, type:

>password

and press the enter key.

where

password is the alphanumeric string of the password for the account

Example of a MAP response

SuperNode_1 Logged in on 1997/01/15 at 20:37:17

- 14** To access the message switch (MS) Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

- 15** To synchronize the clocks, type:

>SYNC

and press the enter key.

If the MAP response to the SYNC command is	Do
successful	step 17
failed	step 16

- 16** For additional help, call the personnel responsible for the next level of support.

- 17** You have completed this procedure.

Emergency power conservation restoration

Application

Use this procedure to return to normal operation an eXtended Architecture Core (XA-Core) configuration of a switch. The switch is a DMS SuperNode or a DMS SuperNode SE switch. Use this procedure after having performed all parts of the procedure “Emergency power conservation shutdown” to maintain emergency backup power. The procedure “Emergency power conservation shutdown” follows an extended commercial power outage.

The procedure “Emergency power conservation shutdown” reduces the power decrease of emergency batteries to a minimum. The reduced power of emergency batteries is from a turn off in stages of equipment that is not necessary to maintain subscriber service. The specification of equipment shutdown is in a moving up order based on its effect on the system reliability. The equipment shutdown begins with less required equipment such as spare printers and ends with more required equipment.

This restoration procedure includes a top-level procedure and a number of other procedures. This procedure, “Emergency power conservation restoration” is the top-level procedure. This procedure describes the equipment for retrieval, and the order to do the retrieval. The top-level procedure refers out to the other procedures. The other procedures provide detail instructions for a restore of separate elements of the switch. A list of these other procedures are in the table of contents.

This procedure describes equipment recovery in decreasing order based on its effect on system reliability. The equipment restoration begins with more required equipment and ends with less required equipment such as maintenance trunk modules. The configuration of your office and the requirements of your operating company, can change the order of equipment restoration. The return of elements of the switch to service can be in a different order.

Interval

Use this procedure after completion of the procedure “Emergency power conservation shutdown” in this document. Perform this procedure on switch equipment that is out of service. Perform this procedure to restore normal operation to equipment after the need for power conservation shutdown in an emergency.

Common procedures

There are no common procedures.

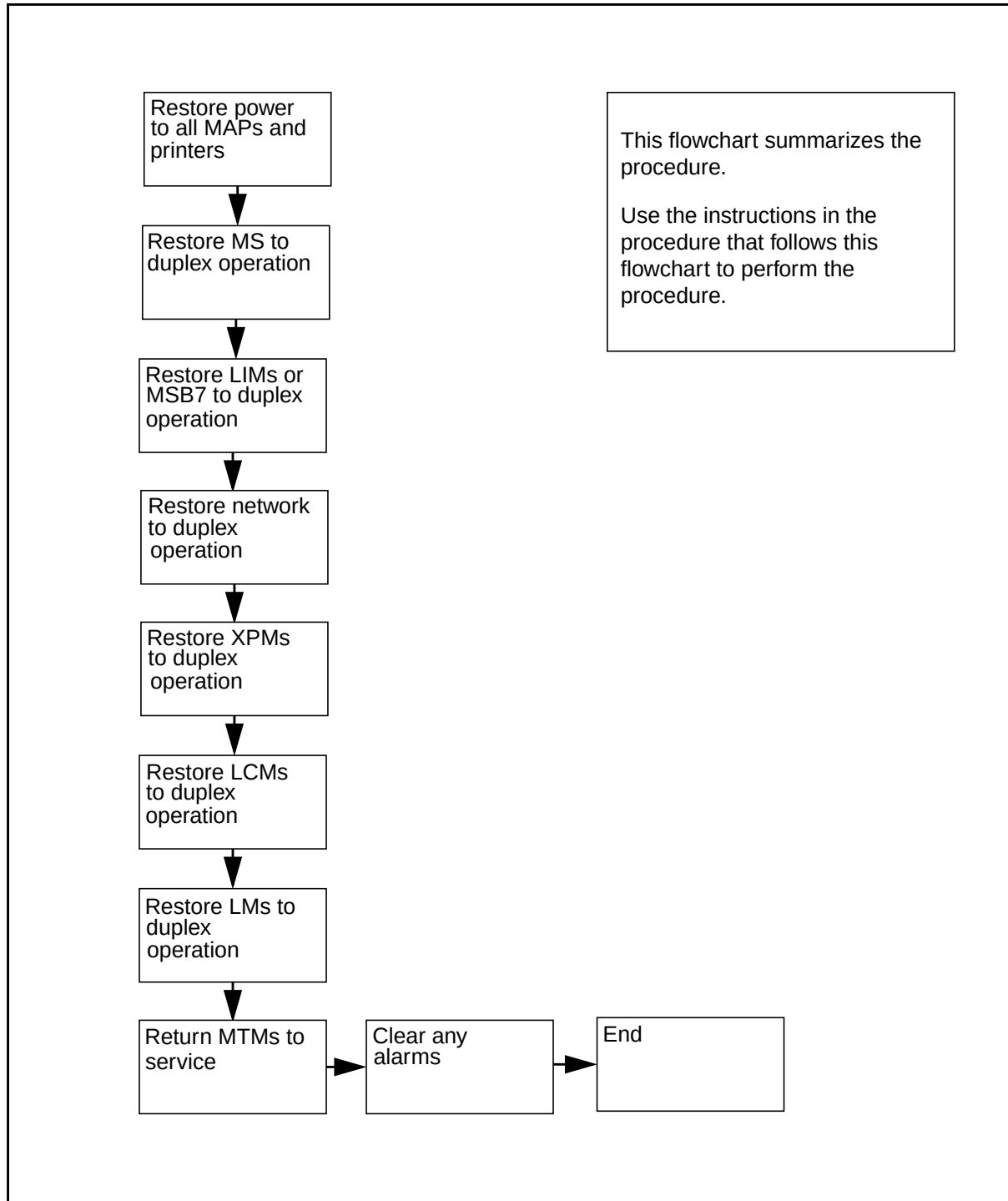
Emergency power conservation restoration (continued)

Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

Emergency power conservation restoration (continued)

Emergency power conservation restoration



Emergency power conservation restoration (continued)

Emergency power conservation restoration



WARNING

Potential extended equipment outage

Nortel Networks recommends that you perform this procedure under the supervision of Emergency Technical Assistance Services (ETAS) of Nortel Networks. Also call your next level of support before you perform this procedure.



CAUTION

Potential loss of service or extended outage

This procedure is only to restore normal operation after the performance of measures for emergency power conservation. Do not use this procedure or parts of this procedure for equipment maintenance purposes.

At your current location

- 1 Use office records to identify and record the power converters which supply the MAPs and printers of the switch.
- 2 Restore power to all the power converters identified in step 1 that supply power to the MAPs and printers of the switch.

At the MAP

- 3 Restore power to one side of the remote oscillator shelf (NT3X9507), if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring the remote oscillator shelf to duplex operation" in *Recovery Procedures*, 297-8001-545.
- 4 Restore power to one message switch (MS) shelf if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring the MS duplex operation" in *Recovery Procedures*, 297-8001-545.
- 5 Restore power to one unit of the CCS7 message switch and buffer (MSB7) if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring the MSB7 to duplex operation" in *Recovery Procedures*, 297-8001-545.
- 6 Restore power to one link interface module (LIM) unit on one or more link peripheral processors (LPP) if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring LPP LIMs to duplex operation" in *Recovery Procedures*, 297-8001-545.
- 7 If you removed power from one or more network frames, restore power to the changed frames at the power distribution center (PDC).
- 8 Restore power to one or more junctored network (JNET) shelves if you turned off power to save emergency backup power. To restore power, perform the

Emergency power conservation restoration (end)

- procedure "Restoring the junctored network to duplex operation" in *Recovery Procedures*, 297-8001-545.
- 9 Restore power to one or more enhanced network (ENET) shelves if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring the enhanced network to duplex operation" in *Recovery Procedures*, 297-8001-545.
 - 10 Restore power to one or more units of a line group controller (LGC), line trunk controller (LTC), or digital trunk controller (DTC). Restore power if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring LGCs, LTCs, and DTCs to duplex operation" in *Recovery Procedures*, 297-8001-545.
 - 11 Restore power to one or more units of a line concentrating module (LCM) if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring LCMs to duplex operation" in *Recovery Procedures*, 297-8001-545.
 - 12 Restore power to one or more line modules (LM) if you turned off power to save emergency backup power. To restore power, perform the procedure "Restoring line modules to duplex operation" in *Recovery Procedures*, 297-8001-545.
 - 13 Restore power to one or more maintenance trunk modules (MTM) if you turned off power to save emergency backup power. To restore power, perform the procedure "Returning maintenance trunk modules to service" in *Recovery Procedures*, 297-8001-545.
 - 14 To clear any alarms on the MAP display, perform the correct alarm clearing procedure. The correct alarm clearing procedure is in this document or in the *Alarm and Performance Monitoring Procedures*, 297-8001-543.
 - 15 You have completed this procedure.

Emergency power conservation shutdown

Application

Use this procedure to maintain emergency backup power for a DMS SuperNode or a DMS SuperNode SE switch. Use this procedure when the switch has an eXtended Architecture Core (XA-Core) configuration.

This procedure reduces the loss from emergency batteries to a minimum by closure of power to equipment in stages. The equipment shutdown is not necessary to maintain subscriber service. Equipment shutdown is in moving up order based on its effect on switch reliability. The equipment shutdown begins with less required equipment, such as spare printers, and ends with more required equipment.

The procedure includes a top-level procedure and a number of referred procedures. The top-level procedure, “Emergency power conservation shutdown” in this document describes the equipment you can turn off without loss of service. The top-level procedure, “Emergency power conservation shutdown” in this document also describes the order of equipment shutdown. The top-level procedure refers out to other procedures which provide detail instructions for turning off power to separate elements of the switch. The referred procedures are in the table of contents.

When you perform this procedure, take into consideration the configuration and condition of your switch. Also take into consideration the expected period of the power outage, and the quantity of reserve power available. Continue as follows:

Note: If you receive a warning message for a loss of service if you busy a plane or unit, do not continue. Clear the problem that can cause a loss of service before you busy the plane or unit. Also you can leave both planes or units of that subsystem in service.

- Complete the number of steps of this procedure as your set of conditions needs. For example, if you expect power to restore, you can decide to leave important systems to operate in a duplex mode. The message switch (MS) is an example of a system that can have a duplex mode. Equally for reliability, you can decide to leave both units in service on peripheral modules required for emergency service lines.
- This procedure requires a condition when this procedure instructs you to busy down one plane or unit of a system. The condition is that the mate plane or unit you leave in service, is fault free and can operate normally.
- When possible, take the same plane or unit out of service on each subsystem (for example, ENET plane 0, LIM unit 0, MS 0). This action decreases the possible result of error and reduces recovery time.

Emergency power conservation shutdown (continued)

Interval

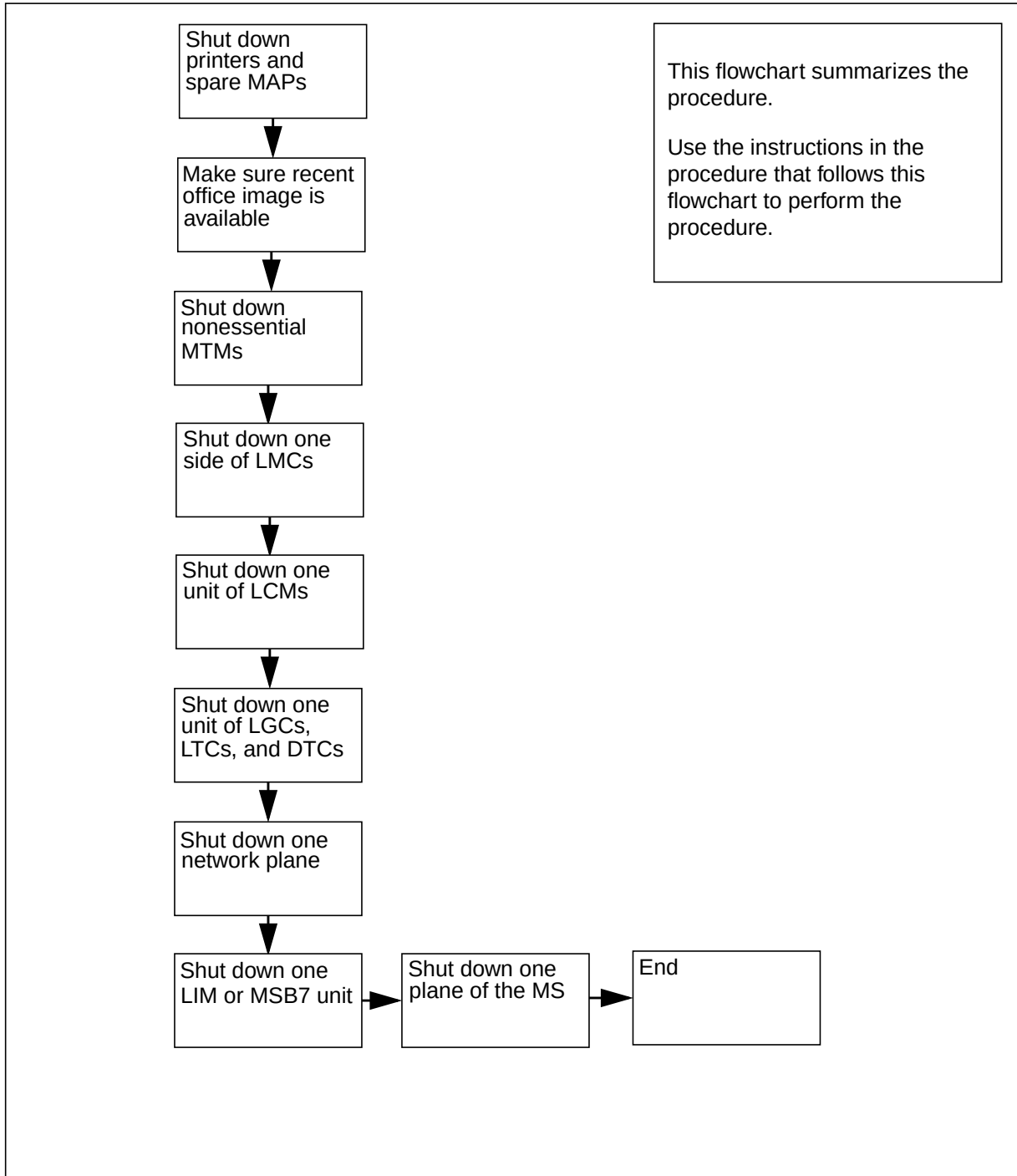
Use this procedure to maintain emergency backup power without loss of subscriber service, during an extended commercial power outage.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

Emergency power conservation shutdown (continued)**Emergency power conservation shutdown**

Emergency power conservation shutdown (continued)

Emergency power conservation shutdown



CAUTION

Potential service interruption or extended outage

Nortel Networks recommends that you call Emergency Technical Assistance Services (ETAS) of Nortel Networks. Also call your next level of support before you perform this procedure.



CAUTION

Potential loss of service or extended outage

This procedure is only for conservation of emergency backup power. Do not use this procedure or sections for equipment maintenance purposes.

At your current location

- 1** Use office records to identify and record the power converters that supply the MAPs and printers for the switch.
- 2** Turn the power off on all power converters identified in step 1. Do not turn the power off for the power converters which supplies the operator's MAP and one printer connected to IOC 0.

At the MAP terminal

- 3** To confirm that an office image is available to reload the switch if a total turn off of power becomes necessary, type:

>AUTODUMP STATUS

and press the enter key.

Example of a MAP response

```
Successful Image: 990215_CM  
Taken: 1999/03/17 21:47:32:04.138 WED.  
On Volume: F17LIMAGE
```

```
Successful Image: 990215_MS  
Taken: 1999/03/17 21:47:32:04:138 WED.  
On Volume: F17LIMAGE
```

SCHEDULED-Image Dump is ON.

Next scheduled dump is MONDAY at 22:30 hours.

Emergency power conservation shutdown (continued)

Next image to be dumped on F02LIMAGE.

If an office image is	Do
available	step 5
not available	step 4

- 4 Record the office image. Perform the procedure, "How to record an XA-Core office image on a disk" in this document. Return to this step when you complete the procedure to record the office image.
- 5 Turn off power for all maintenance trunk modules (MTM) in the office. Do not turn power off if the MTM contains cards that have an effect on service. To turn off power perform the procedure, "Emergency shutdown of maintenance trunk modules" in *Recovery Procedures*, 297-8001-545.

Note: Cards that have an effect on service include digitone receiver cards (NT2X48), centralized automatic message accounting (CAMA) cards (NT2X66), and digital recorded announcement machine (DRAM) cards.
- 6 Turn off power for one of the line module controllers (LMC) (NT2X14 shelf) in each double-bay line module (LM) pair in the office. To turn off the power, perform the procedure, "Emergency shutdown of one half of a line module pair" in *Recovery Procedures*, 297-8001-545.
- 7 Turn off power for one unit of all line concentrating modules (LCM) in the office. To turn off the power, perform the procedure, "Emergency shutdown of one unit of LCMs" in *Recovery Procedures*, 297-8001-545.
- 8 Turn off power for one unit of all line group controllers (LGC), line trunk controllers (LTC), and digital trunk controllers (DTC) in the office. To turn off the power, perform the procedure, "Emergency shutdown of one LGC, LTC, and DTC unit" in *Recovery Procedures*, 297-8001-545.
- 9 Turn off power for one plane of all network shelves in the office, as follows:
 - for ENET, perform the procedure, "Emergency shutdown of one enhanced network plane" in *Recovery Procedures*, 297-8001-545.
 - for JNET, perform the procedure, "Emergency shutdown of one junctored network plane" in *Recovery Procedures*, 297-8001-545.
- 10 If you removed power from a complete network frame in step 9, turn off power for the cooling fans for the frame. To turn off power, remove the correct power fuses from the PDC.
- 11 Busy and power down one local message switch in the link peripheral processor (LPP). Perform the procedure, "Emergency shutdown of one LIM unit on each LPP" in *Recovery Procedures*, 297-8001-545.
- 12 Turn off power for one unit of all CCS7 message switch and buffers (MSB7) in the office. To turn off power, perform the procedure, "Emergency shutdown of one unit of MSB7s" in *Recovery Procedures*, 297-8001-545.
- 13 Turn off power for one message switch (MS) plane. To turn off power, perform the procedure, "Emergency shutdown of one DMS SuperNode MS plane" in *Recovery Procedures*, 297-8001-545.
- 14 If your office has a remote oscillator shelf (NT3X9507), busy the clock related to the MS number. The MS number is for the MS that you turned off power in

Emergency power conservation shutdown (end)

step 13. To busy the clock, perform the procedure, "Emergency shutdown of one remote oscillator shelf plane" in *Recovery Procedures*, 297-8001-545.

15 You have completed this procedure.

How to perform a reload restart in an XA-Core

Application

Use this procedure to perform a reload restart. The reload restart is on an eXtended Architecture Core (XA-Core) of a DMS SuperNode or of a DMS SuperNode SE switch.

A reload restart is more serious than a cold restart. A reload restart simulates an actual reload of the current software into the switch. All calls drop during the restart and there is no billing data recorded for the calls that the switch drops. After a reload restart, the switch keeps the office configuration and translation data.

Interval

Perform this procedure when instructed by your next level of support.

Common procedures

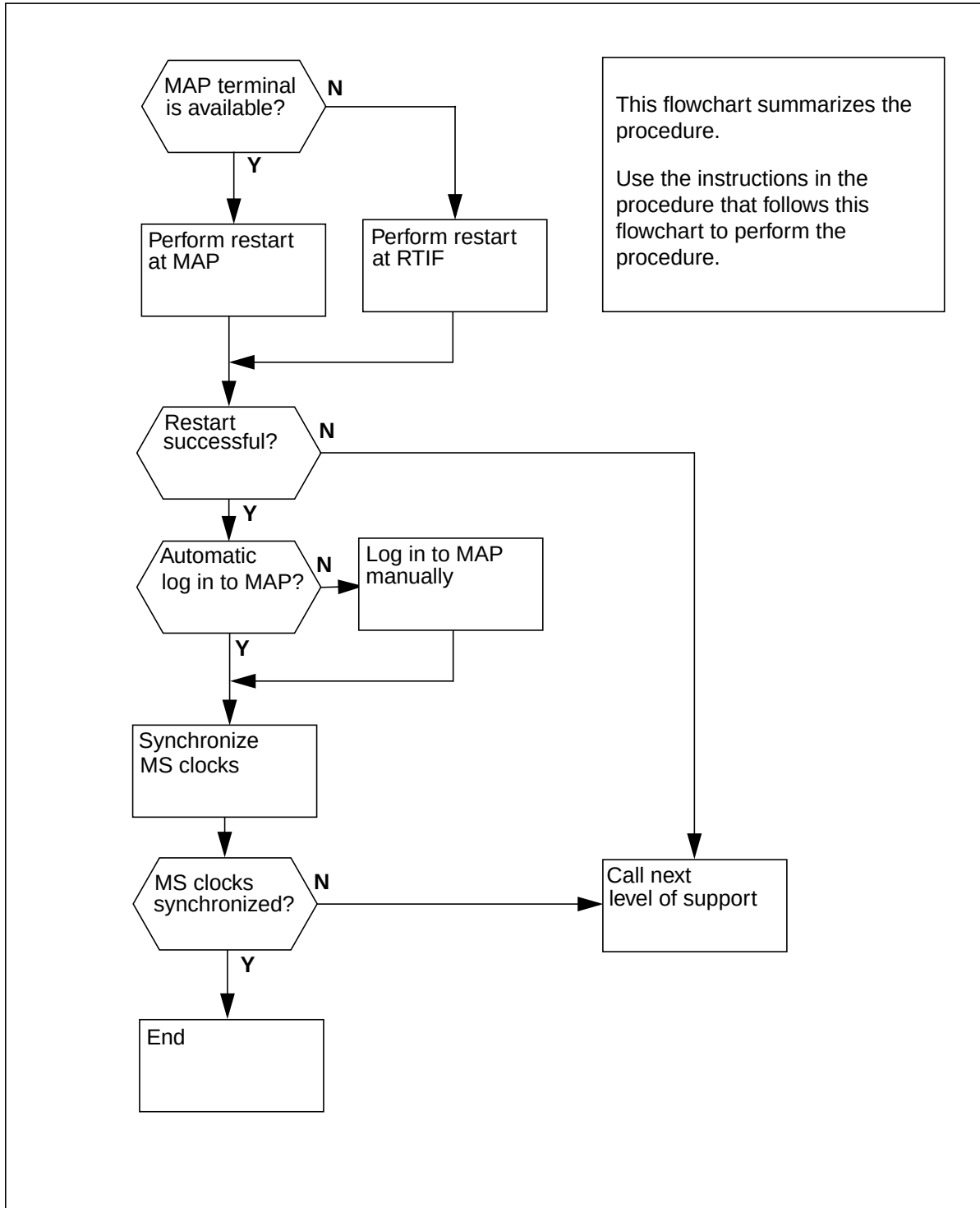
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

How to perform a reload restart in an XA-Core (continued)

How to perform a reload restart in an XA-Core



How to perform a reload restart in an XA-Core (continued)

How to perform a reload restart in XA-Core



CAUTION

Contact your next level of support

Do not try this procedure before you call your next level of support.



CAUTION

Loss of service

All calls drop during a reload-restart.



CAUTION

Extended service interruption

Execute the restart from a MAP terminal when possible. The MAP terminals can be out of service if there is a serious problem. If a MAP terminal is not available, perform the restart from the reset terminal interface (RTIF) of XA-Core.

At your current location

- 1 Determine if a MAP terminal is available to execute the restart.

If a MAP terminal is	Do
available	step 2
not available	step 6

At the MAP terminal

- 2 To access the CI level of the MAP, type:

>QUIT ALL

and press the enter key.

Example of a MAP display

CI:

>

- 3 To restart the switch, type:

>RESTART RELOAD ACTIVE

How to perform a reload restart in an XA-Core (continued)

and press the enter key.

Example of a MAP response

WARNING: This action will result in a CALL PROCESSING OUTAGE.

Please confirm ("YES", "Y", "NO", "N"):

- 4 To confirm the command, type:

>YES

and press the enter key.

At the RTIF terminal

- 5 Determine if the restart of the switch has completed.

Note: When the switch restarts, alphanumeric addresses appear in the RTIF display. When the switch has completed the restart, an automatic log in occurs or a manual log-in request appears.

If the response indicates	Do
a completed restart	step 9
no restart completion after approximately 5 min	step 16

At the RTIF terminal

- 6 To restart the switch, type:

>\RESTART RELOAD

and press the enter key.

Example of an RTIF response

Please confirm: (YES/NO)

- 7 To confirm the command, type:

>\YES

and press the enter key.

Example of an RTIF response

RESTART DONE

- 8 Monitor the RTIF display to determine if the switch has restarted.

Note: When the switch restarts, alphanumeric addresses display in the RTIF response. When the switch completes the restart, A1 appears in the RTIF response.

If If the RTIF response has	Do
A1	step 9
no A1 after approximately 5 min	step 16

How to perform a reload restart in an XA-Core (continued)

At the MAP terminal

9



CAUTION

Extended service interruption

The exact log-in procedure can vary, depending on your office configuration. If you need additional help, call the personnel responsible for the next level of support.

Determine from the MAP display if you have to log in.

Note: The message Please Login indicates that you have to log in manually. If your office parameters have automatic log in, you can log in automatically.

Example of a MAP response

Please Login.

If your log in is	Do
not automatic	step 10
automatic	step 14

10 Press the break key.

Example of a MAP response

?

11 To log in to the MAP terminal, type:

LOGIN

and press the enter key.

Example of a MAP response

Enter User Name

12 To enter the user name, type:

user_name

and pressing the Enter key.

where

user_name is the name of the user for the account

Example of a MAP response

Enter Password

13 To enter the password, type:

password

How to perform a reload restart in an XA-Core (end)

and press the enter key.

where

password is the alphanumeric string of the password for the account

Example of a MAP response

SuperNode1 Logged in on 1997/01/15 at 20:37:17

- 14** To access the message switch (MS) Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

- 15** To synchronize the clocks, type:

>SYNC

and press the enter key.

If the SYNC command is	Do
successful	step 17
not successful	step 16

- 16** For additional help, call the personnel responsible for the next level of support.

- 17** You have completed this procedure.

How to perform a warm restart in XA-Core

Application

Use this procedure to perform a warm restart. The warm restart is on an eXtended Architecture Core (XA-Core) of a DMS SuperNode or of a DMS SuperNode SE switch.

A warm restart is the least serious type of restart. A warm restart is an initialization phase during which temporary storage deallocates and clears. Calls in the talking state continue during the restart, and the switch keeps data related to each call. Calls that have not reached the talking state disconnect.

Interval

Perform this procedure when instructed by your next level of support.

Common procedures

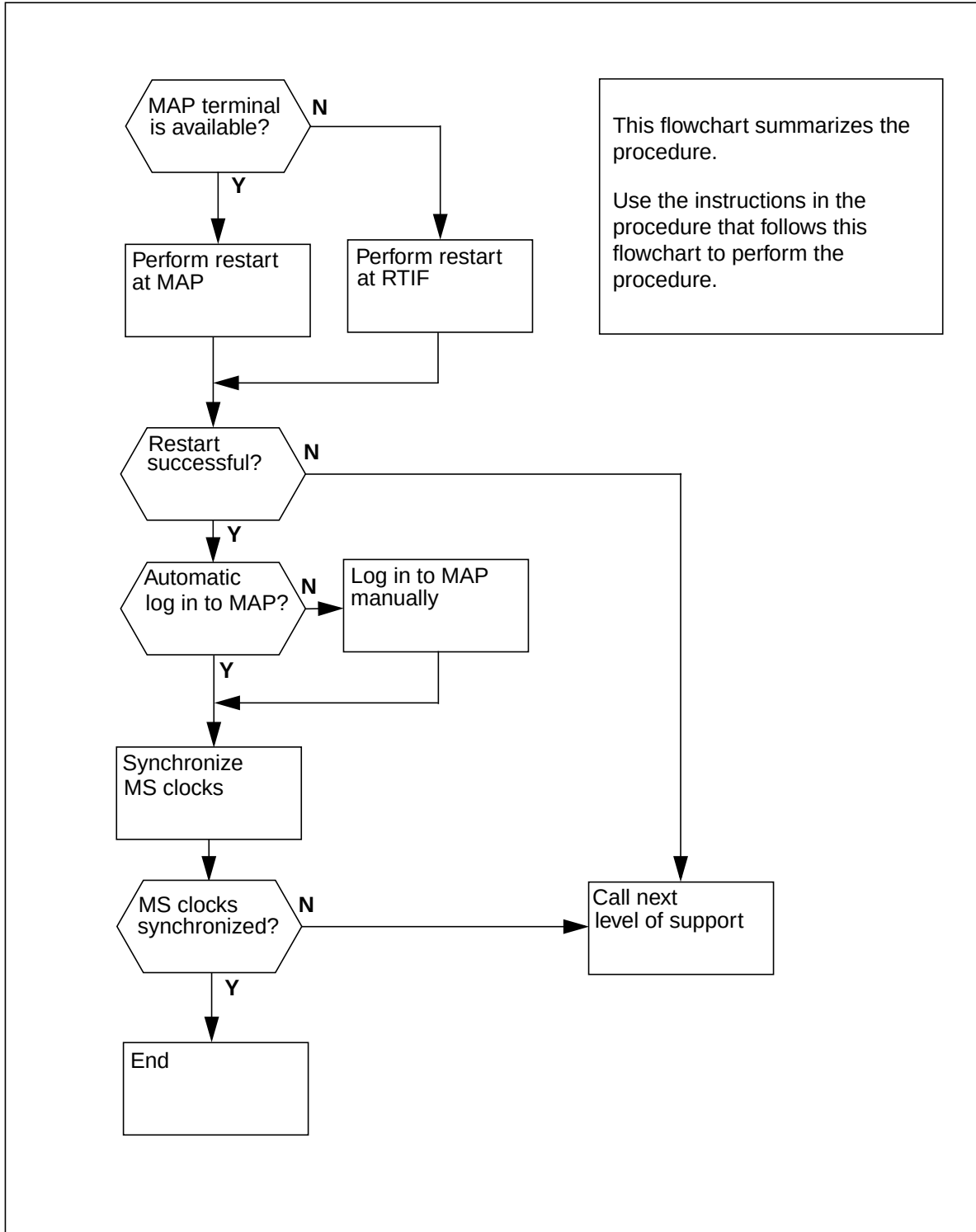
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

How to perform a warm restart in XA-Core (continued)

How to perform a warm restart in XA-Core



How to perform a warm restart in XA-Core (continued)

How to perform a warm restart in XA-Core



CAUTION

Call your next level of support

Do not try this procedure before you call your next level of support.



CAUTION

Loss of service

Calls in process that have not reached the talking state disconnect during a warm restart.



CAUTION

Extended service interruption

Execute the restart from a MAP terminal when possible. The MAP terminals can be out of service if there is a serious problem. If a MAP terminal is not available, perform the restart from the reset terminal interface (RTIF) of XA-Core.

At your current location

- 1 Determine if a MAP terminal is available to execute the restart.

If a MAP terminal is	Do
available	step 2
not available	step 6

At the MAP terminal

- 2 To access the CI level of the MAP, type:

>QUIT ALL

and press the enter key.

Example of a MAP display

CI :
>

- 3 To restart the switch, type:
>RESTART WARM ACTIVE

How to perform a warm restart in XA-Core (continued)

and press the enter key.

Example of a MAP display

WARNING: This action will result in a CALL PROCESSING OUTAGE.

Use MTC SWACT. Consult NORESTARTSWACT/MTC SWACT Users Guide NTP.

Please confirm ("YES", "Y", "NO", or "N"):

- 4 To confirm the command, type:

>YES

and press the enter key.

WARM Restart from Command on CPU 0

*** SOS WARM restart no. 3 at OCT-20 18:36:55.

<<IGNORED>>

U2 Logged in on 1998/10/20 at 18:37:51.

At the RTIF terminal

- 5 Determine if the restart of the switch has completed.

Note: When the switch restarts, alphanumeric addresses appear in the RTIF display. When the switch has completed the restart, an automatic log in occurs or a manual log-in request appears.

If the response indicates	Do
a completed restart	step 9
no restart completion after approximately 5 min	step 16

At the RTIF terminal

- 6 To restart the switch, type:

>IRESTART WARM

and press the enter key.

Example of a RTIF response

Please confirm: (YES/NO)

- 7 To confirm the command, type:

>YES

and press the enter key.

Example of a RTIF response

RESTART DONE

How to perform a warm restart in XA-Core (continued)

- 8 Monitor the RTIF display to determine if the switch has restarted.

Note: When the switch restarts, alphanumeric addresses display in the RTIF response. When the switch has restarted, A1 appears in the RTIF response..

If the RTIF response has	Do
A1	step 9
no A1 after approximately 5 min	step 16

At the MAP terminal

- 9



CAUTION

Extended service interruption

The exact login procedure can vary, depending on your office configuration. If you need additional help, call the personnel responsible for the next level of support.

Determine from the MAP display if you have to log in.

Note: The message Please Login indicates that you have to log in manually. If your office parameters have automatic log in, you can log in automatically.

Example of a MAP response

Please Login.

If If your log in is	Do
not automatic	step 10
automatic	step 14

- 10 Press the break key.

Example of a MAP response

?

- 11 To log in to the MAP terminal, type:

>**LOGIN**

and press the enter key.

Example of a MAP response

Enter User Name

- 12 To enter the user name, type:

How to perform a warm restart in XA-Core (end)

>user_name

and press the enter key.

where

user_name is the name of the user for the account

Example of a MAP response

Enter Password

- 13** To enter the password, type:

>password

and press the enter key.

where

password is the alphanumeric string of the password for the account

Example of a MAP response

SuperNode1 Logged in on 1997/01/15 at 20:37:17

- 14** To access the message switch (MS) Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

- 15** To synchronize the clocks, type:

>SYNC

and press the enter key.

If the MAP response to the SYNC command is	Do

successful	step 17

failed	step 16

- 16** For additional help, call the personnel responsible for the next level of support.

- 17** You have completed this procedure.

How to recover a dead XA-Core DMS switch

Application

Use this procedure to recover a dead switch that has an eXtended Architecture Core (XA-Core). The switch can be a DMS SuperNode or SuperNode SE switch. The switch is dead if the complete switch is without power. The power loss results from a loss or interruption of A and B dc power feeds to the power distribution center (PDC).

Interval

Perform this procedure when instructed by your next level of support.

Common procedures

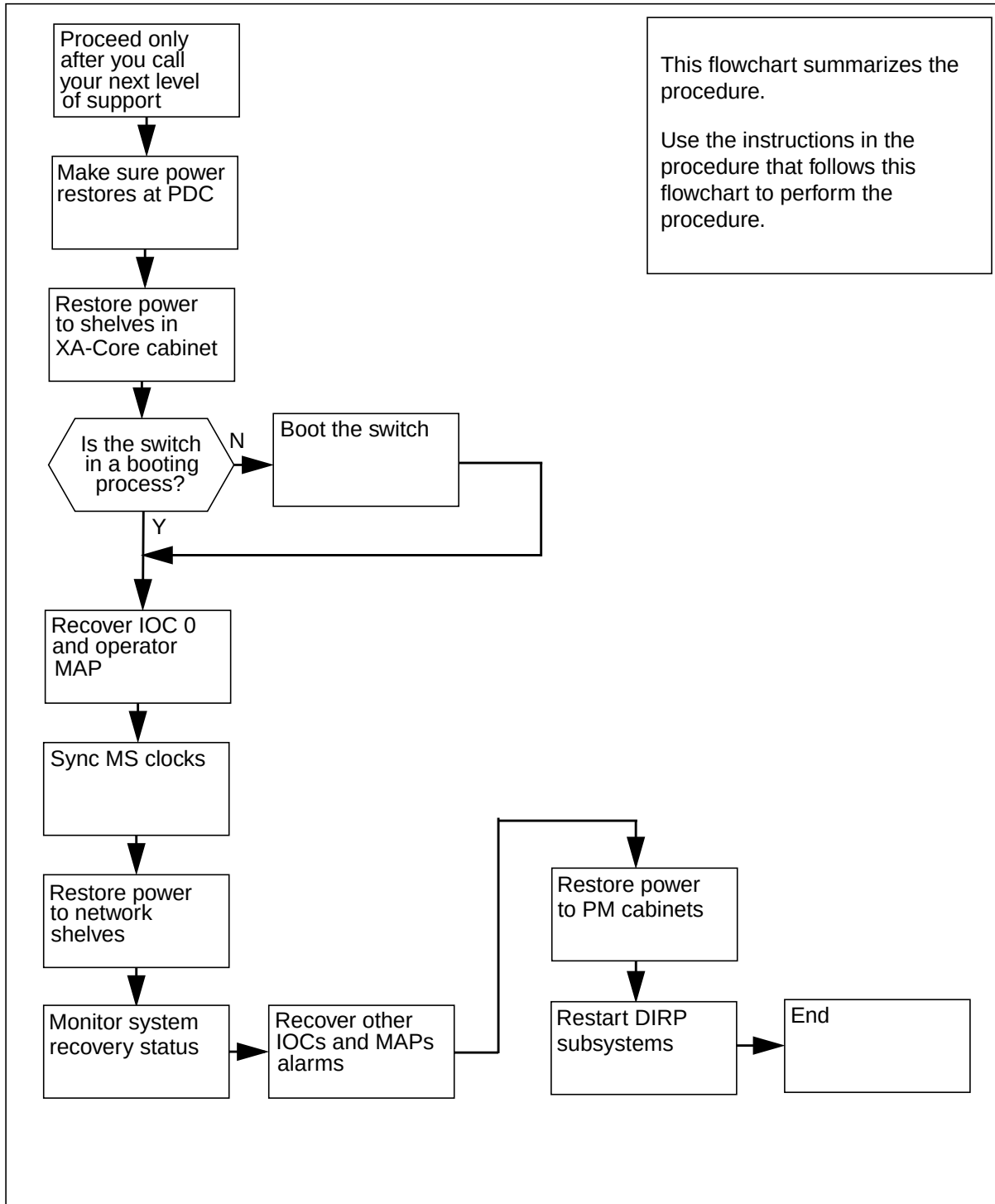
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

How to recover a dead XA-Core DMS switch (continued)

How to recover a dead XA-Core DMS Switch



How to recover a dead XA-Core DMS switch (continued)

How to recover a dead XA-Core DMS switch



CAUTION

Call ETAS or your next level of support

In the event of a dead system, call the Emergency Technical Assistance Services (ETAS) of Nortel Networks. Also call your next level of support before you perform this procedure.



DANGER

Risk of electrocution

Do not touch the cabinet wiring. Connections with unshielded cabinet wiring can result in electric shock. Only qualified power maintenance personnel can perform the voltage measurements in step 3.

At the PDC

- 1 When possible after detection of the power outage, remove all the fuse holders for the following:
 - line concentrating equipment (LCE) talk batteries
 - trunk module equipment (TME) talk batteries
 - PDC filter fuses from the correct PDCs

Note: The location of the fuse holders in the fuse panel can vary, depending on your office configuration. For help in locating the fuse holders, refer to the fuse assignment diagram for your office. Also call your next level of support to help you locate the fuses.
- 2 The next step depends on if the switch power is a -48 V dc feed or by a -60 V dc feed.

If the switch power is	Do
-48 V dc	step 3
-60 V dc	step 4

- 3 Continue when you know of restored power at the power plant for your office. Power maintenance personnel must check for restored power at each PDC. At the rear of each PDC, measure the dc voltage across the A feed bus and

How to recover a dead XA-Core DMS switch (continued)

the battery return plate. Repeat the dc voltage measurement for the B feed bus. Power is correct when the voltage on each feed is -48 V dc.

Note: Power can be at a nominal potential of -48 V dc. Under conditions that are not normal, the operating voltage can range from -43.75 V dc to -55.8 V dc. A not normal condition is a commercial power failure

If the switch has	Do
power retrieval	step 6
no power retrieval	step 5

- 4** Continue when you know of restored power at the power plant for your office. Request power maintenance personnel to check for restored power at each PDC. At the rear of each PDC, measure the dc voltage across the A feed bus and the battery return plate. Repeat the dc voltage measurement for the B feed bus. Power is correct when the voltage on each feed is -60 V dc.

Note: Power can be at a nominal potential of -60 V dc. Under conditions that are not normal, the operating voltage can range from -57.4 V dc to -67.7 V dc. A not normal condition is a commercial power failure.

If power has	Do
power retrieval	step 6
no power retrieval	step 5

At the power room

- 5** For help in restoring power to the PDC, call the personnel responsible for maintenance of power at your site.

When power restores to the PDC, return to this point.

At the PDC

- 6** Inspect the alarm indication fuses for the XA-Core and the network cabinets.

If uses that blew are	Do
present	step 7
not present	step 14

- 7** Replace the blown cartridge fuse in the rear of the fuse holder. Make sure that the amperage of the replacement cartridge fuse matches the amperage marked on the PDC.

- 8** Remove the blown alarm-indication fuse from the front of the fuse holder.

- 9** Re-insert the fuse holder, with the alarm-indication fuse removed, into the PDC.

- 10** Get an alarm-indication fuse for replacement.

- 11** Insert the alarm-indication fuse that is for replacement into the fuse holder.

How to recover a dead XA-Core DMS switch (continued)

- 12** Continue as follows:

If the replacement fuse is	Do
not successful and blows repeatedly	step 13
successful	step 14

- 13** Call your next level of support for help.
Continue when you complete replacement of all blown fuses and restored power to the XA-Core and network cabinets. Continue this procedure at step 14.
- 14** If a second person is available to help in the recovery, continue this procedure with two sets of tasks. Request the second person to restore power from the pdc to the peripheral module frames. The second person restores power by use of steps 86 through 121 of this procedure. While the second person restores power, you recover the core and network by completion of steps 15 through 73. If one person is available, recover the core and network first.
- 15** Determine if the switch has a remote oscillator shelf.

If the switch has	Do
a remote oscillator shelf	step 16
no remote oscillator shelf	step 17

At the remote oscillator shelf

- 16** Turn on the power converters for the shelf.

At the XA-Core cabinet

- 17** Locate the NT9X31 and NT9X30 power converters for message switch 0 (MS 0) in slots 33F and 36F on the MS 0 shelf.
- 18** Turn on the NT9X31 and NT9X30 power converters in slots 33F and 36F of the MS 0 shelf at the same time. Lift and release the power switches located on the faceplates of the converters.
- 19** Locate the NT9X31 and NT9X30 power converters for MS 0 in slots 1F and 4F on the MS 0 shelf.
- 20** Turn on the NT9X31 and NT9X30 power converters in slots 1F and 4F of the MS 0 shelf at the same time. Lift and release the power switches located on the faceplates of the converters.
- 21** Locate the NT9X31 and NT9X30 power converters for message switch 1 (MS 1) in slots 33F and 36F on the MS 1 shelf.
- 22** Turn on the NT9X31 and NT9X30 power converters in slots 33F and 36F of the MS 1 shelf at the same time. Lift and release the power switches located on the faceplates of the converters.
- 23** Locate the NT9X31 and NT9X30 power converters for MS 1 in slots 1F and 4F on the MS 01shelf.

How to recover a dead XA-Core DMS switch (continued)

- 24** Turn on the NT9X31 and NT9X30 power converters in slots 1F and 4F of the MS 1 shelf at the same time. Lift and release the power switches located on the faceplates of the converters.
- 25** Determine if the switch is a SuperNode switch or a SuperNode SE switch.
- | If the switch is | Do |
|-------------------------|-----------|
| a SuperNode switch | step 26 |
| a SuperNode SE switch | step 29 |
- 26** Turn on circuit breakers for shelf interface module (SIM) A. Turn on the three switches for circuit breakers A1, A2, and A3. The SIM A card is in slot 3R of the XA-Core shelf.
- 27** Turn on circuit breakers for shelf interface module (SIM) B. Turn on the three switches for circuit breakers B1, B2, and B3. The SIM B card is in slot 16R of the XA-Core shelf.
- 28** Go to step 31
- 29** Turn on circuit breakers for shelf interface module (SIM) A. Turn on the two switches for circuit breakers A1 and A2. The SIM A card is in slot 3R of the XA-Core shelf.
- 30** Turn on circuit breakers for shelf interface module (SIM) B. Turn on the two switches for circuit breakers B1 and B2. The SIM B card is in slot 16R of the XA-Core shelf.
- 31** Determine if all the power converters have power. You know that all the power converters have power when all the Converter Off lights go off.
- | If all the power converters have | Do |
|---|-----------|
| power | step 34 |
| not power | step 32 |
- 32** To power up the frame perform the procedure, "Clearing an Ext FSP DPCC cabinet major alarm" in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431, 297-8001-5432, 297-8001-5433, and 297-8001-5434 (four volumes).
- When you completed the procedure, return to this point.
- 33** Go to step 17

How to recover a dead XA-Core DMS switch (continued)

At the XA-Core shelf

34



CAUTION
Extended service interruption
If you boot the switch from tape, the boot requires more recovery time than a boot from disk. Boot from disk when possible, because call processing operation continues quicker after a boot from disk. Do not try this procedure before you call your next level of support.

Determine from office records the name of the last office image file.

If the last office image file is on	Do
disk	step 36
tape	step 35

- 35 Make sure that the tape cartridge contains the last image file inserted in the tape drive.

At the XA-Core reset terminal

- 36 To boot the XA-Core, type:
>BOOT nn s p
and press the enter key.
where
nn is the number of the slot position of the input/output processor (IOP) card that contains the packet with the last image file. The packet is for a disk drive or a DAT drive.
s is the front (F) or rear (R) shelf position of the IOP card that contains the packet with the last image file. The packet is for a disk drive or a DAT drive.
p is the upper (U) or lower (L) position of the IOP card that contains the packet with the last image file. The packet is for a disk drive or a DAT drive.

Example of a RTIF response

B00T Please confirm: (YES/NO)

- 37 To confirm the command, type:
>YES
and press the enter key.
Example of a RTIF response
Boot request submitted

How to recover a dead XA-Core DMS switch (continued)

- 38** Monitor the XA-Core reset terminal to determine if the switch has booted.
When the switch boots, the XA-Core reset terminal displays a response to indicate a boot in progress. The response also displays different diagnostic messages and alphanumeric addresses. When the switch has completely booted, an A1 appears on the RTIF display.f

If the response has	Do
an A1	step 39
no A1 after approximately 15 min	step 164

At the MAP terminal

39



CAUTION

Extended service interruption

The exact log in procedure can vary, depending on your office configuration. If you need additional help, call the personnel responsible for the next level of support.

Determine if you have to log in.

Note: The log in message indicates that you have to manually log in. An automatic log in can occur if the office parameters have automatic log in.

Example of a MAP response

Please Login.

If the log in is	Do
not automatic	step 40
automatic	step 44

- 40** Press the break key.
Example of a MAP response
?

- 41** To log in to the MAP terminal, type:
>LOGIN
and press the enter key.
Example of a MAP response
Enter User Name

How to recover a dead XA-Core DMS switch (continued)

- 42** To enter the user name, type:
>user_name
 and press the enter key.
 where
 user_name is the name of the user for the account
Example of a MAP response
 Enter Password
- 43** To enter the password, type:
>password
 and press the enter key.
 where
 password is the name of the password for the account
Example of a MAP response
 SuperNode1 Logged in on 1997/01/15 at 20:37:17
- 44** To turn on priority, type:
>PRIORITY ON
 and press the enter key.
Example of a MAP response
 Pref>
- 45** To determine if the system time is correct, type:
>TIME
 and press the enter key.
Example of a MAP response
 Time is 14:55:50
- | If the system time is | Do |
|-----------------------|---------|
| correct | step 48 |
| not correct | step 46 |
- 46** To enter the correct time (by use of the 24 hour clock), type:
>SETTIME hh mm
 and press the enter key.
 where
 hh is the hour (00 to 23)
 mm is the minute (00 to 59)

How to recover a dead XA-Core DMS switch (continued)

Example of a MAP response

Warning: There is an automated TOD clock change request scheduled on:
1997/10/15 at 1:00 (see table DSTTABLE).
Do you want to proceed with this request?
Please confirm ("YES", "Y", "NO", or "N")

- 47** To confirm the command, type:

>YES

and press the enter key.

Example of a MAP response

Time is 20:40:00 on WED 1997/10/15.

- 48** Determine if the system date is correct.

If the system date is	Do
correct	step 51
not correct	step 49

- 49** To enter the correct date, type:

>SETDATE dd mm yyyy

and press the enter key.

where

dd is the day (01 to 31)

mm is the month (01 to 12)

yyyyy is the year

Example of a MAP response

Warning: There is an automated TOD clock change request scheduled on:
1997/10/15 at 1:00 (see table DSTTABLE).
Do you want to proceed with this request?
Please confirm ("YES", "Y", "NO", or "N")

- 50** To confirm the command, type:

>YES

and press the enter key.

Example of a MAP response

Date is WED. 15/OCT/1997 00:00:00

- 51** To access the SRSTATUS level of the MAP, type:

>MAPCI;MTC;SRSTATUS

and press the enter key.

How to recover a dead XA-Core DMS switch (continued)

Example of a MAP response

```

SRSTATUS
0 Quit OVERALL STATUS Pend: 0% Inprg: 0% Comp: 100%
Fail: 0%
2 View_ View: SYSTEM 14:08:30
3 List_ Pend InPrg Comp Fail Pend InPrg
Comp Fail
4 MS 0 0 2 0 IOD 5 5 30 2
5 NET 0 0 6 0 Other 21 3 13 3
6 SER1 0 41 0 0
7 SER2 0 39 0 0
8 SER3 0 37 0 0
9
10 MTC:
11 STATUS:

```

- 52 Determine the recovery status of the MSs.

Note: MS recovery status displays to the right of the word “MS” in the MAP display. Recovery status for each MScan be one of pending, in progress, complete, or failed.

If the recovery status is	Do
either MS failed recovery	step 164
either MS continues to have pending recovery	step 53
another status different from failed or pending recovery	step 54

- 53 Wait until both MSs are either in recovery development or have completed recovery.

When neither MS continues to have pending recovery, go to step 52

- 54 To access the MS Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

- 55 To synchronize the clocks, type:

>SYNC

and press the enter key.

If the SYNC command is	Do
successful	step 57
failed	step 56

- 56 Record the reason for synchronization failure, as shown in the MAP response. Continue this procedure at step 57 to recover networks and peripheral modules (PM). Repeat the try to synchronize the MS clocks later, after networks and PMs are in service.

How to recover a dead XA-Core DMS switch (continued)

At the ENET frames

- 57 Locate the NT9X31 power converters in slots 1F and 33F on the ENET shelves.
- 58 To turn on the NT9X31 power converters lift and release the power switches located on the faceplates of the converters.
- 59 Locate the NT9X30 power converters in slots 4F and 36F on the ENET shelves.
- 60 Turn on the NT9X30 power converters lift and release the power switches located on the faceplates of the converters.
- 61 Determine if all the converters have power. Power indication is by all the Converter Off lights going off.

If all the power converters have	Do
power	step 64
not power	step 62

- 62 To power up the ENET frame perform the procedure, *Clearing an Ext FSP DPCC cabinet major alarm*, in the document, *Alarm and performance monitoring procedures, 297-XXXX-543*

When you complete the procedure, return to this point.

- 63 Go to step 57

At the MAP terminal

- 64 To access the SRSTATUS level of the MAP display, type:

>MAPCI;MTC;SRSTATUS

and press the enter key.

Example of a MAP response

```

SRSTATUS
0 Quit  OVERALL STATUS  Pend: 0%  Inprg: 0%  Comp: 100%
Fail: 0%
2 View_  View: SYSTEM                                     14:08:30
3 List_  Pend  InPrg  Comp  Fail  Pend InPrg
Comp Fail
4      MS      0      0      2      0  IOD  5  5      30  2
5      NET      0      0      6      0  Other 21  3      13  3
6      SER1      0      41      0      0
7      SER2      0      39      0      0
8      SER3      0      37      0      0
9
10      MTC:
11      STATUS:

```

How to recover a dead XA-Core DMS switch (continued)

- 65 From the MAP display, determine the recovery status of the network.
Note: Network recovery status displays to the right of the word "NET" in the MAP display. Recovery status can be one of pending, in progress, complete, or failed.

If the status of any network element is	Do
failed	step 68
pending	step 66
another status	step 74

- 66 Continue when there are no network elements that continue to be pending recovery.
- 67 Go to step 65.
- 68 To manually recover the ENET perform the procedure, "Recovering the Enhanced Network" in *Recovery Procedures*, 297-8001-545.
 When you complete the procedure, return to this point.
- 69 Go to step 64.

At the MAP terminal

- 70 To access the NET level of the MAP display, type:

>NET

and press the enter key.

Example of a MAP response

```
NET
Plane 01234 56789 11111 11111 22222 22222 33
      0 0000 01234 56789 01234 56789 01
      1 0000
JNET
```

- 71 To manually busy the network module for return to service, type:

>BSY plane_no pair_no

and press the enter key.

where

plane_no is the network plane number (0 or 1)

pair_no is the network plane pair number (0 to 31)

- 72 To return the network module to service, type:

>RTS plane_no pair_no

and press the enter key.

where

plane_no is the network plane number (0 or 1)

How to recover a dead XA-Core DMS switch (continued)

- pair_no is the network plane pair number (0 to 31)
- 73** Repeat steps 71 through 72 for each JNET shelf.
When all JNET shelves recover, continue this procedure at step 74.
- 74** Determine if there are additional input output controller (IOC) and maintenance and administration position (MAP) terminals to recover.
- | If recover of additional IOCs and MAP terminals is | Do |
|---|-----------|
| not complete | step 75 |
| complete | step 86 |
- 75** Restore power to all remaining power inverters in the office.
- At the IOC**
- 76** Locate the IOC for recovery.
- | If recovery is for | Do |
|---------------------------|-----------|
| an IOC | step 77 |
| an IOM | step 81 |
- 77** Turn on the power converters on the IOC.
Note: The version of IOC determines if the IOC has one or two power converters.
- 78** While you press the reset button on one of the IOC power converters, lift the related circuit breaker to turn on the FSP.
- 79** Release the reset button.
- 80** Repeat steps 76 through 79 for each IOC for recovery, then continue this procedure at step 81.
- 81** To access the input output device (IOD) level of the MAP display, type:
>IOD
and press the enter key.
- 82** To access the IOC level of the MAP display for the IOC for recovery, type:
>BSY ioc_no
and press the enter key.
where
ioc_no is the number of the IOC or IOM
- 83** To return the IOC or IOM to service, type:
>RTS ioc_no
and press the enter key.
where
ioc_no is the number of the IOC or IOM
-

How to recover a dead XA-Core DMS switch (continued)

- 84** Repeat steps 82 through 83 for each IOC or IOM for recovery, then continue this procedure at step 85.
- 85** Log in to additional MAP terminals as required.
Note: Steps 40 through 43 describe how to log in to the MAP terminal.
- 86** Determine if your switch has one or more link peripheral processors (LPP) or fiberized link interface shelf (FLIS).
- | If the switch has | Do |
|----------------------------|----------|
| LPPs or FLIS | step 87 |
| does not have LPPs or FLIS | step 106 |
- 87** Determine if PDC has power restored to the LPP(s).
- | If PDC has | Do |
|--------------------------------|---------|
| power restored to the LPPs | step 91 |
| not power restored to the LPPs | step 88 |
- 88** Check the PDC fuses that supply the LPP.
- | If there are | Do |
|------------------------|---------|
| blown fuses | step 89 |
| no blown fuses visible | step 90 |
- 89** Replace the blown fuses.
Note: If fuses blow repeatedly, call your next level of support for help.
 When PDC power restores to the LPPs, continue this procedure at step 91.
- 90** Call the personnel responsible for maintaining power at your site, or refer to your next level of support for help.
 When PDC power restores to the LPPs, continue this procedure at step 91.
- 91** Locate the LPPs for recovery.

How to recover a dead XA-Core DMS switch (continued)

At the LPP cabinet

92



WARNING

Static electricity damage

Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP). Also a wrist strap can connect to a modular supervisory panel (MSP). Wear a wrist strap when you handle circuit cards. A wrist strap protects the cards against damage caused by static electricity.

Locate the NT9X74 cards in all link interface shelves (LIS).

Note: NT9X74 cards are in shelf position 7F and 32F on all LISs.

- 93 To unseat each NT9X74 card, release the locking levers and carefully pull the card towards you about 25 mm (1 in.).
- 94 Locate the NT9X30 power converters in slots 4F and 36F of the link interface module (LIM) unit shelf.
- 95 To turn on the power converters of the LIM unit shelf, toggle the switch each NT9X30 card.
- 96 Locate the NT9X30 or NTDX16 power converters for each LIS.
Note: NT9X30 power converters are in slots 4F and 36F for each LIS. NTDX16 power converters can be in slots 1F, 4F, 33F, and 36F for each LIS.
- 97 To turn on the LIS power converters, toggle the switch on each NT9X30 or NTDX16 card.
- 98 Determine if all the power converters turned on power correctly. All the CONVERTER OFF lights go off when power turns on correctly.

If all the CONVERTER OFF lights are

Do

off

step 101

not off

step 99

- 99 To power up the frame, perform the procedure, "Clearing an Ext FSP LPP cabinet major alarm" in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431, 297-8001-5432, 297-8001-5433, and 297-8001-5434 (four volumes).

When you complete the procedure, return to this point.

- 100 Go to step 94.

How to recover a dead XA-Core DMS switch (continued)

- 101** Put in position all NT9X74 cards as follows:
- Carefully slide each NT9X74 card back into the LIS.
 - Push on the upper and lower edges of each faceplate. Make sure that the card is completely in the slot of the shelf.
 - Close the locking levers on each card.

- 102** Repeat steps 91 through 101 for each LPP in your office.
When power restores to all LPPs, continue this procedure at step 103.

- 103** To access the SRSTATUS level of the MAP display, type:

>MAPCI;MTC;SRSTATUS

and pressing the Enter key.

Example of a MAP response

```
SRSTATUS
0 Quit  OVERALL STATUS  Pend: 0%  Inprg: 0%  Comp: 100%
Fail: 0%
2 View__ View: SYSTEM                                     14:08:30
3 List__ Pend  InPrg  Comp  Fail  Pend InPrg
Comp Fail
4      MS      0      0      2      0  IOD  5  5    30  2
5      NET      0      0      6      0  Other 21  3    13  3
6      SER1      0     41      0      0
7      SER2      0     39      0      0
8      SER3      0     37      0      0
9
10      MTC:
11      STATUS:
```

- 104** From the MAP display, determine the recovery status of the Series III PMs.

Note: Series III PM recovery status displays to the right of the word "SER3" in the MAP display. Recovery status can be one of pending, in progress, complete, or failed.

If the Series 3 PM are	Do
zero	step 106
not zero	step 105

- 105** To manually recover the PMs, perform the procedure, "Recovering Link Peripheral Processors, in *Recovery Procedures*, 297-8001-545.

When you complete the procedure, return to this point.

- 106** Steps 107 through 121 describe how to restore power from the PDC to Series I and Series II peripheral module frames. Continue as follows:

If the PDC power to the PM frames restores	Do
correctly	step 122
not correctly	step 107

How to recover a dead XA-Core DMS switch (continued)

- 107** Get one of the following capacitor charging tools:
- a 100-W, 120-V light bulb installed into a socket that has pigtail leads
 - tool number T000655 (CPC number NTA0600512), that has a fuse holder-style connector instead of pigtail leads for easier insertion

At the PDC

108



WARNING

Possible equipment damage or extended service interruption

Use correct fuses. When you return fuses to the PDC, make sure that the amperage of the fuses is correct. The fuse amperage must match the amperage marked on the PDC.

At the first empty fuse slot in the PDC, connect the leads of the capacitor charging tool. Connect the leads across the contacts for the fuse holder until the lamp decreases brightness. If you use a charging tool with a fuse holder-style connector, insert the connector into the slot. Insert the connector until the lamp decreases brightness.

- 109** Remove the capacitor charging tool and immediately insert again the correct fuse holder into the slot.
- 110** Repeat steps 108 and 109 for all the LCE talk battery, TME talk battery, and PDC filter fuse holders you removed in step 1. When all fuses restore to the PDCs, continue with this procedure.
- 111** Determine if any alarm-indicating fuses blew.

Note: The fuse alarm-indicator lamp lights when an alarm-indicating fuse blows.

If any alarm-indicating fuses have	Do
blown	step 112
not blown	step 122

- 112** Locate a fuse holder with a blown alarm-indicating fuse.
- Note:** You can replace blown fuses in any order.
- 113** The cartridge fuse in the fuse holder has blown. Remove the fuse holder from the PDC.
- 114** Replace the blown cartridge fuse in the rear of the fuse holder. Make sure that the amperage of the replacement cartridge fuse matches the amperage marked on the PDC.
- 115** Remove the blown alarm-indicating fuse from the front of the fuse holder.

How to recover a dead XA-Core DMS switch (continued)

- 116** Insert again the fuse holder, with the alarm-indicating fuse removed, into the PDC.
- 117** Get a replacement alarm-indicating fuse.
- 118** Insert the replacement alarm-indicating fuse into the fuse holder.
- 119** Determine if the alarm-indicating fuse blows.

Note: The fuse alarm indicator lamp lights when an alarm-indicating fuse blows.

If the alarm-indicating fuse is	Do
blown	step 164
not blown	step 120

- 120** Determine if you replaced all the blown alarm-indicating fuses.

If you have	Do
replaced all the blown alarm-indicating fuses	step 121
not replaced all the blown alarm-indicating fuses	step 112

- 121** Determine if the fuse alarm indicator lamp lit.

If the fuse alarm indicator lamp lit	Do
yes	step 164
no	step 122

At the PM frames

- 122** Select a peripheral module (PM) frame to power up.
Note: The PM frames can power up in any order.
- 123** Locate the frame supervisory panel (FSP) and the power converters on the frame.
- 124** Determine if the FSP for the frame has fuses or circuit breakers.

If the FSP has	Do
fuses	step 125
circuit breakers	step 130

How to recover a dead XA-Core DMS switch (continued)

- 125** Determine if the power converters have Power Reset buttons or Power Reset switches.

If the power converters have	Do
Power Reset buttons	step 126
Power Reset switches	step 128

- 126** To turn on each power converter press and hold its Power Reset button for 2 s.

Note: The Converter Fail light goes off when the power converter turns on.

- 127** Determine if all the power converters turn on correctly, indicated by all the Converter Fail lights going off.

If all the Converter Fail lights are	Do
off	step 132
not off	step 133

- 128** To turn on each power converter pull out the power switch and toggle it to the Power Reset position.

Note: The Converter Fail light goes off when the power converter turns on.

- 129** Determine if all the power converters turns on correctly, indicated by all the Converter Fail lights are off.

If all the Converter Fail lights are	Do
off	step 132
not off	step 133

- 130** Turn on each power converter as follows:

- Toggle the circuit breaker to the ON position.
- Press and hold the Power Reset button for 2 s.
- Release the circuit breaker and the Power Reset button.

Note: The Converter Fail light goes off when the power converter turns on.

- 131** Determine if all the power converters turn on correctly, indicated by all the CONVERTER FAIL lights are off.

If all the Converter Fail lights are	Do
off	step 132
not off	step 133

How to recover a dead XA-Core DMS switch (continued)

- 132** Determine if all PM frames turn on.

If all the PM frames turn on	Do
yes	step 137
no	step 133

- 133** Determine if a try made to power up the remaining PM frames.

If power up has	Do
not tried	step 134
tried and failed	step 136

- 134** Power up the next PM frame.

- 135** Go to step 123.

- 136** To power up the remaining PM frames perform the correct procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431, 297-8001-5432, 297-8001-5433, and 297-8001-5434 (four volumes). When you complete the procedure, return to this point.

At the MAP terminal

- 137** To access the SRSTATUS level of the MAP display, type:

>MAPCI;MTC;SRSTATUS

and press the enter key.

Example of a MAP response

```

SRSTATUS
0 Quit  OVERALL STATUS  Pend: 0%  Inprg: 0%  Comp: 100%
Fail: 0%
2 View_  View: SYSTEM
3 List_  Pend  InPrg  Comp  Fail
Comp Fail
4      MS      0      0      2      0      IOD  5  5      30  2
5      NET      0      0      6      0      Other 21  3      13  3
6      SER1      0      41      0      0
7      SER2      0      39      0      0
8      SER3      0      0      37      0
9
10      MTC:
11      STATUS:

```

How to recover a dead XA-Core DMS switch (continued)

- 138** From the MAP display, determine the recovery status of the Series I and II PMs.

Note: Series I PM recovery status displays to the right of the word “SER1” in the MAP display. Series II PM recovery status displays to the right of the word “SER2” in the MAP display. Recovery status can be one of pending, in progress, complete, or failed.

If the recovery status is	Do
zero	step 141
not zero	step 139

- 139** Determine from office records or other office personnel which PMs to manually recover first.
- 140** To manually recover the PMs in the required order, perform the correct alarm clearing procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431, 297-8001-5432, 297-8001-5433, and 297-8001-5434 (four volumes). When you have complete the procedures, return to this point.
- 141**

**CAUTION****Loss of billing data**

Different billing systems than automatic message accounting (AMA) or additional billing system, can be in your office configuration. Call your next level of support to determine if other billing systems are in your office, and if you require recovery action.

To access the device independent recording package (DIRP) level of the MAP, type:

>IOD;DIRP

and press the enter key.

- 142** To determine the state of the recording volumes for the billing system, type:

>QUERY subsystem ALL

and press the enter key.

where

subsystem is the name of the DIRP system used for the billing system

How to recover a dead XA-Core DMS switch (continued)

Example of a MAP response

```

SSNAME  SSNO  SEQNO  ROTATES  POOLNO  PARLPOOL  EMERGENCY
AMA      0      1      6      9      62    ***YES***
REGULAR
FILE(S)  STATE  VOLUME  RECCOUNT  BLOCK  E  V  V_B  VLID  FNUM  FRN#
ACTIVE   NONEg
STANDBY1 NONE
PARALLEL
FILE      STATE  VOLUME  BLOCK  E  V  V_B  VLID  FNUM  FRN#
          NONE
REGULAR  VOLUME(S)
VOL#  VOLNAME  STATE      IOC  CARD  VOL  FSEG  ROOM  VLID  FILES
REGULAR  SPACE

```

If the state of the recording volumes for the billing system has	Do

no volumes allocated, as indicated by the word NONE under the state header on the MAP display	step 144

any volume is IN ERROR, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 143

all volumes are READY, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 145

Note: Different billing systems than automatic message accounting (AMA) or additional billing system, can be in your office configuration. Call your next level of support to determine if other billing systems are in your office, and if you require recovery action.

- 143** To reset any volumes that are IN ERROR, type:

>**RSETVOL vol_name**

and press the enter key.

where

vol_name is the name of the volume to reset

If the volumes reset has	Do

passed	step 145

failed	step 164

- 144** Perform the procedure, "Allocating recording volumes in the DIRP utility" in *Routine Maintenance Procedures*, 297-8001-546. When you complete the procedure, return to this point.

How to recover a dead XA-Core DMS switch (continued)

- 145** To determine the state of the DLOG recording volumes, type:

>QUERY DLOG ALL

and press the enter key.

Example of a MAP response

```
SSNAME  SSNO  SEQNO  ROTATES  POOLNO  PARLPOOL  EMERGENCY
DLOG      2      1      102      10      NONE      ****YES***
.
REGULAR
FILE(S)  STATE  VOLUME  RECCOUNT  BLOCK  E  V  V_B  VLID  FNUM  FRN#
ACTIVE  AVAIL  S01DDLOG    6      6    0  22  NO  8447  0013  204D
STANDBY1 AVAIL  S00DDLOG    0      0    0  23  NO  8408  0014  309B
.
REGULAR  VOLUME(S)
VOL# VOLNAME  STATE  IOC CARD VOL FSEG ROOM VLID FILES
   22 S01DDLOG  READY      N/A N/A   7    5   18 8447  A
   23 S00DDLOG  READY      N/A N/A   8    4   18 8408  S1
REGULAR  SPACE
VOL# VOLNAME  STATE      SEGS  EXP  UNEXP  TOTAL
   22 S01DDLOG  READY        5   13     0    18
   23 S00DDLOG  READY        4   14     0    18
```

If the state of DLOG recording volumes is	Do

no allocated volumes, as indicated by the word NONE under the state header on the MAP display	step 147

any volume is IN ERROR, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 146

all volumes are READY, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 148

Note: Different billing systems than automatic message accounting (AMA) or additional billing system, can be in your office configuration. Call your next level of support to determine if other billing systems are in your office, and if you require recovery action.

How to recover a dead XA-Core DMS switch (continued)

- 146** To reset any volumes that are IN ERROR, type:

>RSETVOL vol_name

and press the enter key.

where

vol_name is the name of the volume to reset

If the volumes reset has	Do
passed	step 148
failed	step 164

- 147** Perform the procedure, "Allocating recording volumes in the DIRP utility" in *Routine Maintenance Procedures*, 297-8001-546. When you complete the procedure, return to this point.

- 148** Determine from your next level of support if you need to recover other DIRP systems (for example, JF, OM).

If you need to recover other DIRP systems	Do
yes	step 149
no	step 152

- 149** Perform the correct procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431, 297-8001-5432, 297-8001-5433, and 297-8001-5434 (four volumes). When you complete the procedures, return to this point.

- 150** To determine if DIRP logs generated, type:

>LOGUTIL;OPEN DIRP

and press the enter key.

If DIRP log generated	Do
yes	step 151
no	step 152

- 151** Refer to the *Log Report Reference Manual*, 297-800-8401, 297-800-8402, 297-800-8403, 297-800-8404, 297-800-8405, 297-800-8406, and 297-8001-8407 (seven volumes), and take the correct action.

When you complete the log report activities, return to this point.

- 152** Determine if the try to synchronize the clocks in step 55 was successful.

If synchronization	Do
was successful	step 155
failed	step 153

How to recover a dead XA-Core DMS switch (continued)

- 153** To access the MS Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

- 154** To synchronize the clocks, type:

>SYNC

and press the enter key.

If the SYNC command was	Do
a successful completion	step 155
a failure	step 164

- 155** To turn off priority, type:

>PRIORITY OFF

and press the enter key.

- 156** To access the SRSTATUS level of the MAP display, type:

>MAPCI;MTC;SRSTATUS

and press the enter key.

Example of a MAP response

```

SRSTATUS
0 Quit  OVERALL STATUS  Pend: 0%  Inprg: 0%  Comp: 100%
Fail: 0%
2 View_  View: SYSTEM                                14:08:30
3 List_  Pend  InPrg  Comp  Fail  Pend InPrg
Comp Fail
4      MS      0      0      2      0  IOD  5  5  30  2
5      NET      0      0      6      0  Other 21  3  13  3
6      SER1      0      0      41      0
7      SER2      0      0      39      0
8      SER3      0      0      37      0
9
10      MTC:
11      STATUS:

```

How to recover a dead XA-Core DMS switch (end)

- 157** Determine the status of the switch recovery.

If the status of the switch recovery is	Do
any Series III PMs that failed recovery	step 158
any Series I or II PMs that failed recovery	step 160
any IODs or other devices and services that failed recovery	step 163
that the system has completely recovered	step 165

- 158** To manually recover the PMs, perform the procedure, "Recovering Link Peripheral Processors" in *Recovery Procedures*, 297-8001-545.

When you complete the procedure, return to this point.

- 159** Go to step 156.

- 160** Determine from office records or other office personnel which PMs you can recover first.

- 161** To manually recover the PMs in the required order perform the correct alarm clearing procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-5431, 297-8001-5432, 297-8001-5433, and 297-8001-5434 (four volumes).

When you complete the procedure, return to this point.

- 162** Go to step 156.

- 163** To manually recover IODs and other devices and services, perform the correct procedure in this document. Also you can refer to your site-related operating procedures.

- 164** For additional help, call the personnel responsible for the next level of support.

- 165** You have completed this procedure.

4 Introduction to routine maintenance procedures

Introduction

This chapter describes how to perform routine maintenance procedures on the DMS SuperNode (SN) and DMS SuperNode SE (SNSE) XA-Core (XAC). Each procedure contains the following sections:

- application
- interval
- common procedures
- action

Application

This section describes the purpose of the procedure.

Interval

This section describes when to perform the procedure.

Common procedures

This section lists common procedures used during the routine maintenance procedure. A common procedure is a series of steps that repeats in maintenance procedures. Common procedures include card removal and replacement.

Action

This section provides a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Summary of XA-Core storage device commands and tasks



CAUTION

Use the SCANF command with caution

SCANF is a powerful tool that is used to perform file operations, one of which is to allow open files to be copied. Use this command during periods of low activity to avoid loss of data.

This section provides a an overview of the tasks and commands associated with XA-Core storage devices.

Table 4-1 Back up a file

Task	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)	CI common file manipulation commands: all storage devices
Back up a single file from a disk to a tape	BACKUP FILE (BA)	SCANF XXXX COPY	COPY

Table 4-2 Copy a file (Sheet 1 of 2)

Task	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)	CI common file manipulation commands: all storage devices
Copy a single file from any storage device to another		SCANF XXXX COPY	COPY
Copy a single file from one disk volume to another disk volume		SCANF XXXX COPY	COPY
Copy a single file within the same disk volume to a different file name	DUPLICATE (DUP)		COPY
Copy multiple files from one storage device to another		SCANF XXXX COPY	
Copy multiple files from tape to disk		SCANF XXXX COPY	

Table 4-2 Copy a file (Sheet 2 of 2)

Task	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)	CI common file manipulation commands: all storage devices
Copy multiple files to a specified disk volume		SCANF XXXX COPY	

Table 4-3 Create a file or volume

Task	DISKADM: XA-Core disks	SCANF: all storage devices (XXXX= name of storage device and volume)	Edit utility: all storage devices
Create a volume on an in-service disk	CREATEVOL (CV)		
Create, navigate, edit or save a file			EDIT, INPUT, TOP, END, UP, DOWN, FIND, LINE, TYPE, CHANGE, DELETE, SAVE, FILE

Table 4-4 Handling image files

Task	DISKADM: XA-Core disks	DISKADM: XA-Core disks	ITOCCL: XA-Core Disks
Delete a registered image file from a Message Switch (MS) or XA-Core ITOC			CLEARBBOTFILE (CBF)
List all image files registered in the MS or XA-Core ITOC			LISTBOOTFILE (LBF)
Register a specified image file in the MS or XA-Core ITOC			SETBOOTFILE (SBF)
Set an Autoload image file			SETALR (SA)

4-4 Introduction to routine maintenance procedures

Table 4-5 Deleting a file or volume

Task	DISKADM: XA-Core disks	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)
Delete a single file from a disk volume		DELETEFL (DDF)	SCANF XXXX DELETE
Delete a volume from an in-service disk	DELETEVOL (DDV)		
Delete files from a volume on an in-service disk	REINITVOL (RV)		SCANF XXXX DELETE
Delete selected files from a disk volume			SCANF XXXX DELETE
Delete files from a tape (see "Format a tape")			

Table 4-6 Tape commands

Task	DISKADM: XA-Core disks	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)
Demount a tape		EJECTTAPE (ET) or QUIT DISKUT	
Format a tape		INSERTTAPE (IT)	
Mount a tape		INSERTTAPE (IT)	

Table 4-7 Listing a file or volume (Sheet 1 of 2)

Task	DISKADM: XA-Core disks	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)
List data about a single disk volume		VOLINFO (VINFO)	
List data about all disk volumes	DISPLAYVOLS (DV)	LISTVOLS (LV)	

Table 4-7 Listing a file or volume (Sheet 2 of 2)

Task	DISKADM: XA-Core disks	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)
List data about all files on a disk or tape, and place the file names in the user directory		LISTFL (LF)	SCANF XXXX BRIEF or FULL
List data about an in-service disk	DISPLAYDISK (DD)		
List data about selected files on a disk or tape, and place the file names in the user directory			SCANF XXXX BRIEF or FULL

Table 4-8 File commands

Task	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)	CI common file manipulation commands: all storage devices
Execute a file			READ
Rename a file on a disk volume	RENAMFL (RNF)		COPY
Restore a single file from tape to disk	RESTORE FILE (RE)	SCANF XXXX COPY	COPY

Table 4-9 VDU or printer commands

Task	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)	CI common file manipulation commands: all storage devices
List the contents of a file on the VDU or printer			PRINT

Table 4-10 SCANF OPTIONS

Task	DISKUT: XA-Core disks and tapes	SCANF: all storage devices (XXXX= name of storage device and volume)	CI common file manipulation commands: all storage devices
Disable prompt for confirmation		NOPROMPT	
Operate on files that do match criteria		MATCH	
Operate on files that do not match specified name criteria		NOTNAME	
Operate on files up to and including a specified index value		TOI	
Operate on files with specified name criteria		NAME	
Prompt for confirmation (default)		PROMPT	
Start from a file index value		FROMI	

Routine maintenance schedule for XA-Core

Use this table to help you prepare a routine maintenance schedule for your office. The following procedures are for a DMS SuperNode or SuperNode SE switch that has the eXtended Architecture Core (XA-Core).

Task	Interval
How to backup an XA-Core office image from disk to tape	each week or per office schedule
How to change XA-Core REx intensity	when required
How to check and adjust the TOD clock of XA-Core	daily
How to clean the XA-Core tape drive	after eight hours of operation
How to copy all files of an XA-Core disk volume to tape	when required
How to create a test volume on XA-Core disks	after installation of new disk in disk drive packlet
How to create volumes on XA-Core disks	after installation of new or old disk in disk drive packlet
How to perform LED maintenance in XA-Core	every 30 days (monthly)
How to record an XA-Core office image on a disk	every day or when required
How to replace XA-Core cooling unit filters	every six weeks
How to restore an XA-Core office image from tape to disk	when required
How to return an XA-Core card, packlet, or assembly to Nortel Networks	when required
How to schedule automatic image taking for XA-Core	per office manager
How to schedule tape drive maintenance in XA-Core	every 180 days (six months)
How to test wrist-strap grounding cords for XA-Core	every 30 days (monthly)

Upgrade firmware on an XA-Core component

Application

Use this procedure to upgrade firmware on an XA-Core component. You can upgrade firmware in the following components:

- PE circuit packs
- IOP circuit packs
- HIOP circuit packs
- CMIC packlets
- AMDI packlets
- ETHR packlets

This procedure is applicable only to offices equipped with CSP14 or higher based software releases.

Interval

Perform this procedure as required.

Common procedures

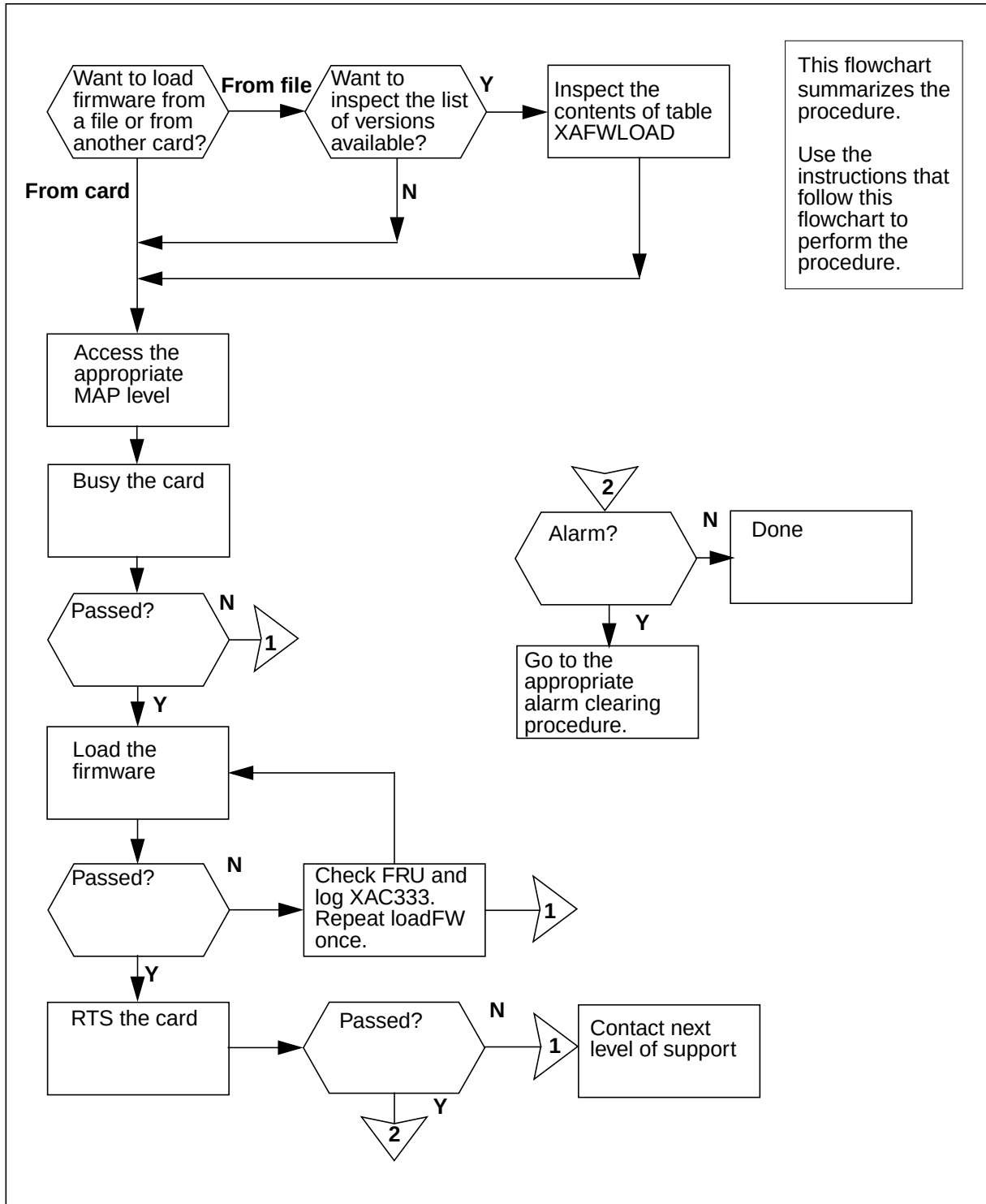
This procedure does not refer to any common procedures.

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step action procedure that follows the flowchart to perform the routine maintenance procedure.

Upgrade firmware on an XA-Core component (continued)

Summary of Upgrade firmware on an XA-Core component



Upgrade firmware on an XA-Core component (continued)

Upgrade firmware on an XA-Core component

At the MAP terminal

1

If	Do
you want to inspect table XAFWLOAD to see what firmware versions are available for loading from a file	step 14
you want to load firmware (FW) from a file, and you know which version you want to load	step 2
you want to clone the firmware (FW) from another component of the same type that is in the XA-Core	step 6

2

Go to the appropriate MAP level. Type

>MAPCI;MTC;XAC;<chosen-level>

where

<chosen-level> is PE, IO, CMIC, AMDI, or ETHR

and press the Enter key.

Note: For an HIOP circuit pack, go to the IO level.

3



CAUTION

Possible service impact

The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

To manually busy the circuit pack or packlet, type

>BSY <nn> <s> <p>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packlet that is to be upgraded - 0 to 18

<s> is the side parameter value - front (f) or rear (r)

Upgrade firmware on an XA-Core component (continued)

<p> is used only if you are in the CMIC, AMDI, or ETHR MAP level, and indicates the packet location in an input/output processor (IOP) - upper (u) or lower (l)

Note: If this command reduces redundancy, you must use the Force option. Use the Force option with caution.

Map response

Warning: Bsy command will take it out of service.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

- 4 To confirm the action, type

>Y

and press the Enter key.

If	Do
the response is Command Submitted. Bsy 4 front completed	step 5
the response is Command Submitted. Bsy 4 front failed	step 11

- 5 To load a firmware version from a file, type

>LOADFW <nn> <s> <p> FILE <version>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packet that is to be upgraded - 0 to 18

<s> is the side parameter value - front (f) or rear (r)

<p> is used only if you are in the CMIC, AMDI, or ETHR MAP level, and indicates the packet location in an input/output processor (IOP) - upper (u) or lower (l)

<version> is CURRENT or NEW

If	Do
the response is Command Submitted. LoadFW 4 front completed	step 10
the response is Command Submitted. LoadFW 4 front failed and, for example, reason is Volume nonexistent.	Confirm the FRU information in table XAFWLOAD and record log XAC333 then repeat this step again. If the loading process continues to fail, go to step 11.

- 6 Go to the appropriate MAP level. Type

Upgrade firmware on an XA-Core component (continued)

>MAPCI;MTC;XAC;<chosen-level>

where

<chosen-level> is PE, IO, AMDI, or ETHR

and press the Enter key.

Note 1: For an HIOP circuit pack, go to the IO level.

Note 2: The clone option is not available at the CMIC MAP level.

7



CAUTION

Possible service impact

The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

To manually busy the circuit pack or packlet, type

>BSY <nn> <s> <p>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packlet that is to be upgraded - 0 to 18

<s> is the side parameter value - front (f) or rear (r)

<p> is used only if you are in the CMIC, AMDI, or ETHR MAP level, and indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Note: If this command reduces redundancy, you must use the Force option. Use the Force option with caution.

Map response

Warning: Bsy command will take it out of service.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

8

To confirm the action, type

>Y

Upgrade firmware on an XA-Core component (continued)

and press the Enter key.

If	Do
the response is Command Submitted. Bsy 4 front completed	step 9
the response is Command Submitted. Bsy 4 front failed	step 11

- 9 To clone the firmware version that is running in another circuit pack or packlet of the same type, type

>LOADFW <to-nn> <to-s> <to-p> CLONE <from-nn> <from-s> <from-p>

and press the Enter key.

where

<to-nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packlet that is to be upgraded - 0 to 18

<to-s> is the side parameter value - front (f) or rear (r)

<to-p> is used only if you are in the AMDI or ETHR MAP level, and indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

<from-nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packlet whose software is being cloned - 0 to 18

<from-s> is the side parameter value - front (f) or rear (r)

<from-p> is used only if you are in the AMDI or ETHR MAP level, and indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

If	Do
the response is Command Submitted. LoadFW 4 front completed	step 10
the response is Command Submitted. LoadFW 4 front failed and, for example, reason is Volume nonexistent.	Confirm the FRU information in table XAFWLOAD and record log XAC333 then repeat this step again. If the loading process continues to fail, go to step 11.

- 10 To return the circuit pack or packlet to service, type

>RTS <nn> <s> <p>

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the circuit pack or packlet that is to be upgraded - 0 to 18

Upgrade firmware on an XA-Core component (continued)

<s> is the side parameter value - front (f) or rear (r)

<p> is used only if you are in the CMIC, AMDI, or ETHR MAP level, and indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

	If	Do
	the response is Command Submitted. RTS 4 front passed	step 12
	the response is Command Submitted. RTS 4 front failed	step 11
11	For additional help, call the next level of support.	
12	If an alarm occurs, perform the appropriate alarm-clearing procedure from Chapter 1 of this document and return to this point when finished. If no alarm occurs, go to step 13.	
13	You have completed the procedure.	
14	To access the table XAFWLOAD, type >TABLE XAFWLOAD and press the Enter key. <i>Map response</i> TABLE: XAFWLOAD	
15	To find out the number of tuples in the table, type >COUNT and press the Enter key. <i>Map response</i> BOTTOM SIZE = 40 Note: The size will be 40 tuples or fewer.	
16	To move to the top of the table, type >TOP and press the Enter key.	

Upgrade firmware on an XA-Core component (end)

- 17** To display the tuples, type
>LIST <size>
 and press the Enter key.
 where
 <size> is the number of tuples, from step 15.
Map response

	INDEX	FRU	PEC	VERSION	VOLUME	FILE	LOADTYPE	STATUS	SOAK
1	PE	NTLX02AA	XAPE01AC	F02LFWLOADS	PEFW413	FW	old	48	
2	PE	NTLX02AA	XAPE01AF	F02LFWLOADS	PEFW421	FW	current	48	
3	PE	NTLX02AA	XAPE01BA	F02LFWLOADS	PEFW424	FW	new	48	
4	IOP	NTLX03AA	XAI001AA	F02LFWLOADS	ISEFW41	FW	old	0	
5	IOP	NTLX03AA	XAI001AC	F02LFWLOADS	ISEFW44	FW	current	0	
6	CMIC	NTLX05AA	PK10CU10	F02LFWLOADS	0C3FW75	FW	current	72	
7	HIOP	NTLX04AA	XHI001YD	F02LPMLOADS	XHI001YD	FW	current	48	
8	HIOP	NTLX04AA	XHI001YC	F02LPMLOADS	XHI001YC	DLL	current	0	

Note: If there are more tuples than will fit on the screen, proceed as follows. Type **LIST 10** to display tuples 1 to 10. Then type **DOWN 1** to move to tuple 11. Then type **LIST 10** to display tuples 11 to 20. Continue until you have displayed all the tuples.

- 18** Table XAFWLOAD lists firmware loads of loadtypes FW and DLL. Disregard the DLL (downloadable loader) firmware because it loads automatically, and is outside the control of the LOADFW command. For each type of circuit pack and packlet that accepts a firmware load, table XAFWLOAD can list new, current, and old versions of loadtype FW. For a given combination of FRU and PEC (for example, for PE NTLX02AA) there can be one current version of loadtype FW, one new version of loadtype FW, and any number of old versions. You can choose to load the current version of loadtype FW or the new version of loadtype FW. Decide which version you want to load into the circuit pack or packlet.
- 19** To exit from the table editor, type
>QUIT
 and press the Enter key.
- 20** Go to step 1.

How to backup an XA-Core office image from disk to tape

Application

Use this procedure to copy the office image files of an eXtended Architecture Core (XA-Core). Use this procedure to copy the office image files from a disk to a digital audio tape (DAT) cartridge in an XA-Core shelf.

Interval

Perform this procedure each week or as indicated in the routine maintenance schedule for your office.

Common procedures

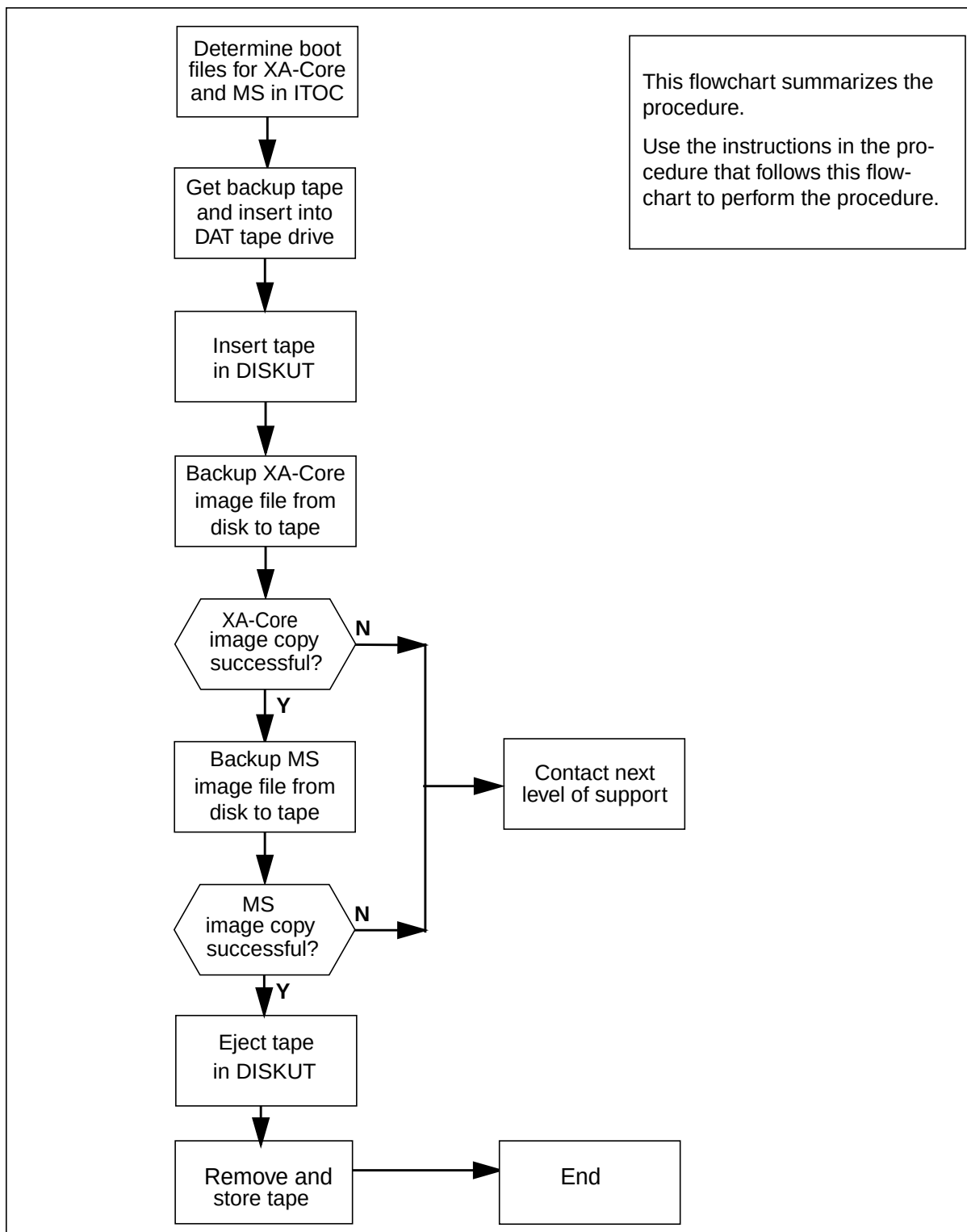
There are no common procedures.

Action

This procedure contains a summary flowchart as a summary of the procedure. Follow the exact steps to perform this procedure.

How to backup an XA-Core office image from disk to tape (continued)

Summary of How to backup an XA-Core office image from disk to tape



How to backup an XA-Core office image from disk to tape (continued)

How to backup an XA-Core office image from disk to tape

At the MAP

- 1 To access the MAP CI level display, type:

>QUIT ALL

and press the enter key.

Example of a MAP response:

CI:

- 2 To access the image table of contents (ITOC) user interface, type:

>ITOC CI

and press the enter key.

Example of a MAP response:

ITOC User Interface is now active.

ITOC CI:

- 3 To list the boot file for the XA-Core in ITOC, type:

>LISTBOOTFILE XA

and press the enter key.

Example of a MAP response:

Image Table Of Contents for XA :

A	Registered		Generic Device	File
L	Date	Time		Name
R	MM/DD/YYYY	HH:MM:SS		
0 *	05/17/1999	19:26:29	F02LIMAGE	
	IMG0517CY_CM			

Note: The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- 4 To list the boot file for the message switch (MS) in ITOC, type:

>LISTBOOTFILE MS

and press the enter key.

Example of a MAP response:

Image Table Of Contents for MS :

A	Registered		Generic Device	File
L	Date	Time		Name

How to backup an XA-Core office image from disk to tape (continued)

R MM/DD/YYYY HH:MM:SS

0 * 05/17/1999 19:26:29 F02LIMAGE
IMG0517CY_MS

- 5 Determine if the XA-Core and MS have image files that are autoload registered (ALR). The examples of a MAP response in steps 3 and 4 identify the ALR image files by an asterisk (*) in the ALR column.

If the image files are	Do
ALR	step 6
not ALR	step 24

- 6 Record the names of the office image files for XA-Core and MS that are ALR. Also record the volume name that has these office image files. The ALR image file is the file that you copy to the XA-Core tape.

Note 1: In the example of a MAP response in step 3, the name of the office image file for XA-Core is IMG0517CY_CM. Image file IMG0517CY_CM is ALR. Image file IMG0517CY_CM is in volume F02LIMAGE.

Note 2: In the example of a MAP response in step 4, the name of the office image file for the MS is IMG0517CY_MS. Image file IMG0517CY_MS is ALR. Image file IMG0517CY_MS is in volume F02LIMAGE.

- 7 To quit the ITOCCI user interface, type:

>QUIT

and press the enter key.

Example of a MAP response:

CI:

At the shelf

- 8 Determine from office records or office personnel if the DAT tape drive is clean. Refer to the XA-Core procedure "How to clean the XA-Core tape drive".

9



WARNING

Static electricity damage

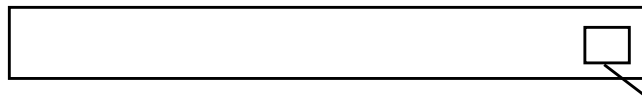
Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

How to backup an XA-Core office image from disk to tape (continued)

Get a tape cartridge that has the approval of Nortel Networks. Determine the tape planned for a backup of an office image. Determine the tape to use from the office records or from office personnel.

- 10 Make sure the tape write protection is at the position that permits recording (closed). The tape write protection is an entrance on one side of the tape that has a sliding door. The sliding door is open for write protection and closed to allow a write to the tape.

Write protection of DAT cartridge



Side-view of DAT cartridge

Position for write protection

- 11 Insert the DAT tape cartridge into the XA-Core tape drive and close the drive door. The XA-Core tape drive is in the input/output processor (IOP) card of the XA-Core shelf.

Note: Copy the XA-Core image file to tape first and the MS image file second.

At the MAP

- 12 To access the MAP disk utility, type:

>DISKUT

and press the enter key.

Example of a MAP response:

Disk utility is now active.

DISKUT:

- 13



WARNING

Files of tape lost when formatted

If the tape had files, the formatting of the tape loses the files. Make sure the tape has no files that your office needs.

To insert the tape in the MAP disk utility, type

>INSERTTAPE snnpTAPE WRITELABEL label_name

and press the enter key

where

How to backup an XA-Core office image from disk to tape (continued)

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

WRITELABEL is a parameter to format a tape.

label_name is the alphanumeric name of the tape label that records the data. The name can be up to 32 characters long. If blank spaces are in the label name then enclose the label name with quotation marks.

Example of MAP input:

>INSERTTAPE F02UTAPE WRITELABEL IMAGE_1

Example of a MAP response:

***** WARNING *****

Writing the label IMAGE_1 to tape volume F02UTAPE on node CM will destroy all files stored on this tape volume.

Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):

- 14** To confirm the command type:

>YES

and press the enter key.

Example of a MAP response:

The INSERT operation may take up to 5 minutes to tension the tape. A tape is now available to user on unit 0, node CM. Name IMAGE_1 has been written to the tape label.

- 15** To list the files in the volume that contains the office image, type:

>LISTFL vol_name

and press the enter key.

where

<vol_name> is the name of the disk volume that contains the office image files.

Example of MAP input:

>LISTFL F02LIMAGE

How to backup an XA-Core office image from disk to tape (continued)

Example of a MAP response:

File information for volume F02LIMAGE:

{NOTE: 1 BLOCK = 512 BYTES }

```

-----
FILE NAME                                O R I O O V FILE  MAX
NUM OF      FILE      LAST              R E T P L L CODE  REC
RECORDS      SIZE MODIFY                G C O E D D      LEN
IN          IN    DATE                  C N              FILE
BLOCKS
-----
IMG0517CY_MS                                I F Y              0  1020
7542      15360  990517
IMG0517CY_CM                                I F Y              0  1020
165180    329728  990517

```

Note: A volume can have more files listed by command LISTVOLS than by command LISTFL in the MAP disk utility. The difference in the number of files between the commands is because of directory files not displayed by command LISTFL.

- 16** Begin the disk to tape backup process. To create a backup copy of the XA-Core image file, type:

>BACKUP FILE file_name snnpTAPE

and press the enter key.

where

file_name is the name of the XA-Core image file that requires backup to tape
s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example

Example of MAP input:

>BACKUP FILE IMG0517CY_CM F02UTAPE

Example of a MAP response:

FTFS file IMG0517CY_CM on disk volume F02LIMAGE on node CM backed up as file IMG0517CY_CM on tape device F02UTAPE on node CM .

If the command was	Do
successful	step 17
not successful	step 24

How to backup an XA-Core office image from disk to tape (continued)

- 17 To create a backup copy of the MS image file, type:

>BACKUP FILE file_name snnpTAPE

and press the enter key.

where

file_name is the name of the MS image file that requires backup to tape

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example

Example of MAP input:

>BACKUP FILE IMG0517CY_MS F02UTAPE

Example of a MAP response:

FTFS file IMG0517CY_MS on disk volume F02LIMAGE on node CM backed up as file IMG0517CY_MS on tape device F02UTAPE on node CM .

If the command was	Do
successful	step 18
not successful	step 24

- 18 To check the backup copies of the image files on the tape, type:

>LISTFL snnpTAPE

and press the enter key.

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example

Example of MAP input:

>LISTFL F02UTAPE

How to backup an XA-Core office image from disk to tape (continued)

Example of a MAP response:

File information for tape volume F02UTAPE, node CM:
{Note: 1 BLOCK = 512 BYTES}

```
-----
CREATE  ORG FILE V      FILE    NUM OF  REC    FILE NAME
  DATE  TYPE CODE L      SIZE IN  RECORDS  LEN
         D      D      BLOCKS   IN FILE
-----
990520  IMAG    0      329070   165180  1020  IMG0517CY_CM
990520  IMAG    0      15026    7542   1020  IMG0517CY_MS
```

- 19** To eject the tape from the MAP disk utility after the backup procedure completes, type:

>EJECTTAPE snnpTAPE

and press the enter key.

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packet position of the IOP that has the tape device.

Example

Example of MAP input:

>EJECTTAPE F02UTAPE

Example of a MAP response:

The EJECT operation may take up to 5 minutes to position the tape to the beginning. Rewind of tape F02UTAPE, unit 0, on node CM is completed. This tape device is not available to the user now.

- 20** To exit the MAP disk utility and return to the MAP CI level, type:

and press the enter key.

>QUIT

Example of a MAP response:

CI:

How to backup an XA-Core office image from disk to tape (end)

At the shelf

21



WARNING

Static electricity damage

Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

Remove the tape cartridge from the tape drive. Set the tape write protection to the position that does not permit recording (open). The tape write protection is an entrance on one side of the tape that has a sliding door. The sliding door is open for write protection and closed to allow a write to the tape.

Example

Write protection of DAT cartridge



Side-view of DAT cartridge

Position for write protection

- 22 Store tape cartridge per office procedure.
- 23 Go to step 25.
- 24 For additional help, call the next level of support.
- 25 You have completed the backup procedure.

How to change XA-Core REx test intensity

Application

Use this procedure to change the XA-Core system routine exercise (REx) test schedule or REx test class. For a full explanation of all REx commands, refer to the XACMtc MAP level document.

The classes of REx tests have the following differences:

- PE class of REx test is:
 - A REx test on a processor element (PE) card that is a different PE card for each REx test performed.
 - The REx tests are out-of-service tests.
- SM class of REx test is:
 - A REx test on a shared memory (SM) card that is a different SM card for each REx test performed.
 - The REx tests are out-of-service tests.
- IO class of REx test is:
 - A REx test on an input/output processor (IOP) card and related packets. The REx test is on a different IOP card and related packets for each REx test performed.
 - The REx tests are out-of-service tests.
- BASE class of REx test is:
 - A REx test while in service on all PE, SM, and IOP cards (with related packets).
 - The BASE class also performs an image test.
 - By default, BASE REx tests run each day of the week except Thursday.

How to change XA-Core REx test intensity (continued)

- ALL class of REx test is:
 - A REx test while in service on all PE, SM, and IOP cards, and on all packlets.
 - A REx test while out of service on a different PE card, a different SM card, and a different IOP card (with related packlets) for each REx test.
- FULL class of REx test is:
 - A REx test while in service on all PE, SM, and IOP cards, and on all packlets.
 - A REx test while out of service on a different PE card, a different SM card, and a different IOP card (with related packlets) for each REx test.
 - The FULL class also performs an image test.
 - By default, FULL REx tests run each Thursday of the week.

Interval

Perform this procedure when the schedule or intensity of the XA REx test requires a change. Schedule REx tests for times in the day when call volume is low.

Common procedures

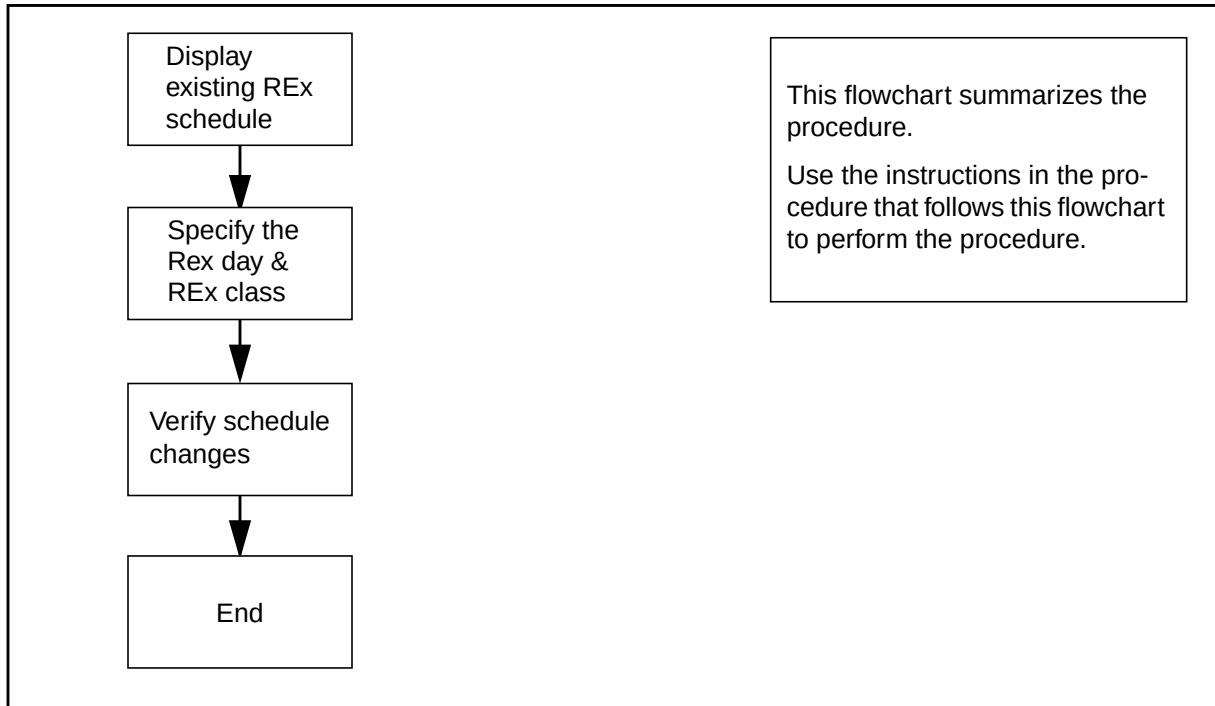
There are no common procedures.

Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

How to change XA-Core REx test intensity (continued)

Summary of How to change XA-Core REx test intensity



How to change XA-Core REx test intensity

At the MAP terminal

- 1 Access the XACMtc MAP level. At the CI MAP prompt, type:
>MAPCI;MTC;XAC;XACMTC
and press the enter key.
The following is a sample MAP display.

How to change XA-Core REX test intensity (continued)

XACMtc MAP level

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	.	.	.	.	.	.
XACMtc 0 Quit 2 3 4 5 6 7 8 9 10 11 Image 12 REXtst_ 13 REXInt_ 14 Alarm_ 15 16 17 Indicat_ 18 Query_ XMAP0 Time 14:12 >									
		Front:	11111111	Rear:	111111	SM	PE	IO	PKLT
			123456789012345678		456789012345	.	.	.	.
		Sta:	-----		-----	0	0	0	0
		Dep:							
		Traps:	Per Minute:	= 0	Total =	1			
		Last Image run at:	1999/02/15 13:13						
		restart type=	reload						
		Result =	pass						
		Last XARExtst run at:	1999/03/15 14:25						
		Last XARExtst Type:	full						
		Last XARExtst Result:	notRun						
		XACMTC:							

- 2 Display the current REX intensity schedule and REX test class assignment. At the XACMtc MAP level type:

>REXINT STATUS

and press the enter key.

The XACMtc MAP level displays the schedule for full and base REX tests.

Example of MAP response:

REXInt Status completed

Mon	Tue	Wed	Thu	Fri	Sat	Sun
base	base	base	full	base	base	base

- 3 To change the REX test class for any day, type:

>REXINT SETDAY <rex_day> <rex_class>

and press the enter key.

where

<rex_day> is the day of the week when a full REX test is on a schedule (rex_day values = mon, tue, wed, thu, fri, sat, sun)

<rex_class> is the type of REX test class (rex_class values = all, full, base, io, pe, sm)

Example of command use:

How to change XA-Core REx test intensity (end)

```
>REXINT SETDAY mon all
```

Example of MAP response:

```
rexint setday mon all
Warning: the REXInt SetDay command may alter REX
Intensity.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

- 4 To confirm the change, type:
>Y
and press the enter key.
- 5 To check that the switch accepted and saved changes to the REx schedule, type:
>REXINT STATUS
and press the enter key.

Example

Example of MAP response:

```
REXInt Status
Command Submitted
REXInt Status completed
Mon      Tue      Wed      Thu      Fri      Sat      Sun
all      base     base     full     base     base     base
```

- 6 Confirm that the REx intensity is changed. Examine the XACMtc MAP level.

If the XACMtc MAP level indicates	Do
the REx intensity is not changed	step 7
the REx intensity is changed	step 8

- 7 Call the next level of support.
- 8 Quit from the XACMtc MAP level and return to the CI MAP level, type:
>QUIT ALL
and press the Enter key.
- 9 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed

How to check and adjust the XA-Core TOD

Application

Use this procedure to check and adjust the setting of the time-of-day (TOD) in the XA-Core.

Interval

Perform this procedure daily.

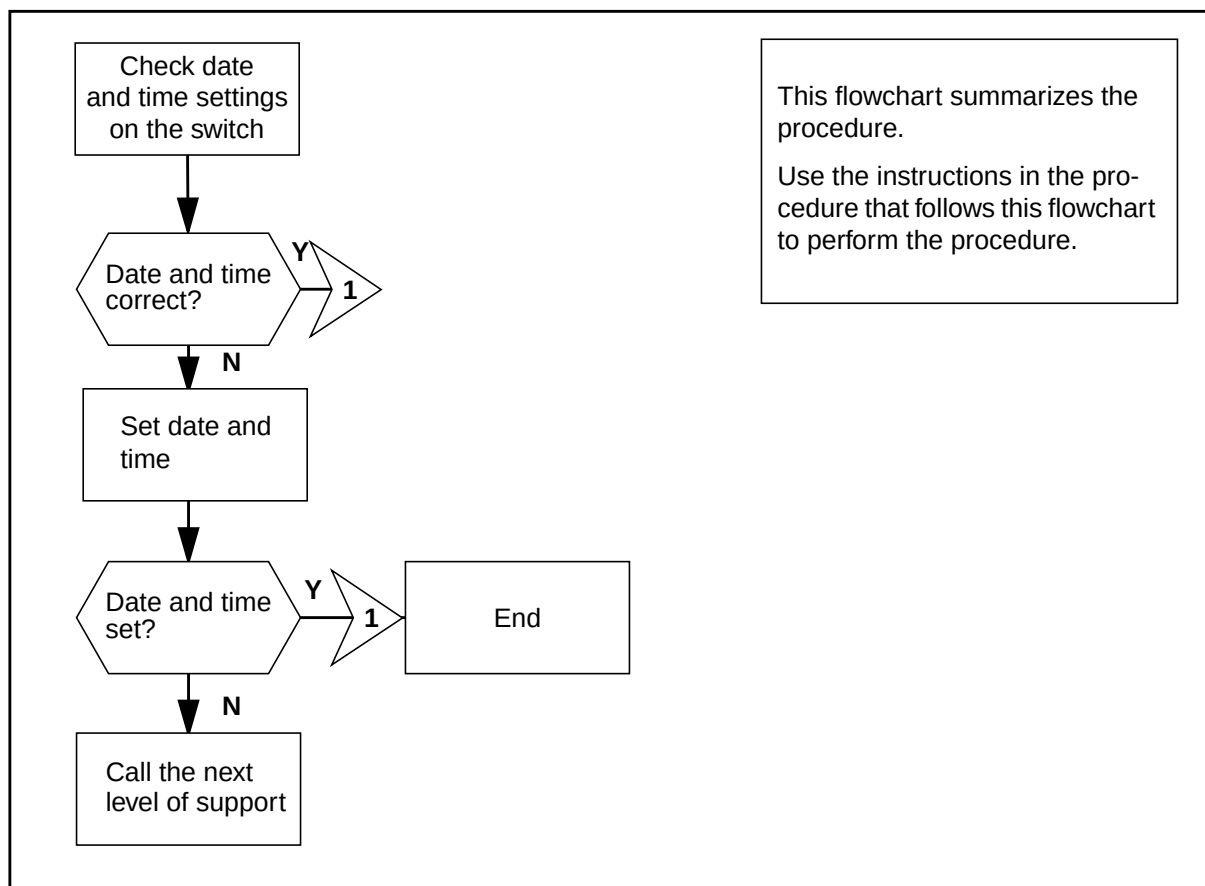
Common procedures

There are no common procedures.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of How to check and adjust the XA-Core TOD



How to check and adjust the XA-Core TOD (continued)

How to check and adjust the XA-Core TOD



CAUTION

Possible loss or damage of AMA data

If you fail either to use this procedure or to follow it correctly, you can lose or damage automatic message accounting (AMA) data. Because AMA data produces billings, loss or damage to AMA data results in revenue loss for the operating company. Call your next level of support before you start this procedure.

At the MAP terminal

- 1 In the German market only, switches can use Network Time Protocol as the timing reference for the time-of-day clock.

If the timing reference is	Do
NTP	step 7
not NTP	step 2

- 2 Determine if the switch has the correct date. At the CI MAP prompt, type:

>DATE

and press the Enter key.

Example of a MAP response:

Date is TUE. 29/JUN/1999 20:59:29:

- 3 Compare the time of day to the standard office time reference.

If the date is	Do
wrong	step 4
correct	step 5

- 4 Enter the correct date. At the CI MAP prompt type

>SETDATE <dd> <mm> <yyyy>

and press the Enter key

where

dd is the day (01 to 31)

mm is the month (01 to 12)

yyyy is the year (1976 to 2039)

Example input:

>SETDATE 30 06 1999

How to check and adjust the XA-Core TOD (continued)

Example of system response:

Date is WED. 30/JUN/1999 20:59:29

- 5 Determine if the time is correct. At the CI MAP prompt type

>TIME

and press the Enter key.

Example of a MAP response:

Time is 20:59:29

If the time of day is	Do
not correct	step 6
correct	step 14

- 6 Set the correct system time. At the CI MAP prompt, type

>SETTIME <hh> <mm> [timezone]

and press the Enter key.

where

<hh> is the hour (00 to 23)

<mm> is the minutes (00 to 59)

[timezone] is the offset time (in minutes) relative to Greenwich Mean Time (GMT). The default value is zero minutes.

Example of command use:

>SETTIME 08 24 1999

Example of system response:

Time is 08:24:00 on WED. 1999/06/30

Timezone is 0 minutes from GMT

If the time of day is	Do
not set	step 13
set	step 14

- 7 Go to the NTPCI directory. Enter the following command

>CI;NTPCI

and press the Enter key.

The prompt changes to the following:

>NTPCI

Note 1: If the NTPCI prompt does not appear and the system displays a message stating that the feature is not available, that indicates that the NTP is not being used as the timing reference for the time-of-day clock.

How to check and adjust the XA-Core TOD (continued)

Note 2: The switch can use Network Time Protocol as the timing reference only if the office parameter SNTP_CLIENT in table OFCENG has been set to y. For information on the office parameter, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-510.

	If the NTP client	Do
	has already started collecting time samples	step 8
	has not yet started collecting time samples	step 9
8	Start the collection of time samples. At the NTPCI MAP prompt, type >STARTNTP <timezone> and press the Enter key. where [timezone] is the offset time (in minutes) relative to Greenwich Mean Time (GMT). The range is -780 minutes to +720 minutes. The default value is zero minutes. Example of command use: >STARTNTP +60 <i>Example of system response:</i> SNTP client started collecting samples from its NTP source for given time zone value.	
9	Determine if the switch has the correct date. At the NTPCI MAP prompt, type: >QUERYNTPTIME and press the Enter key. In response, the system displays the following values: • TOD offset. This is the number of milliseconds by which the TOD differs from the NTP time. The value can be positive or negative • Round-trip delay. This is the number of milliseconds it took for the message to go from the computing module to the SuperNode Data Manager (SDM), and to return. • The daylight-savings time offset. The number of minutes offset applied to the local time for daylight savings time. • Time zone. The difference in minutes between local time and Greenwich Mean Time. • Best sample age. The age (in minutes) of the NTP time sample that was used to adjust the time-of-day clock. • SDM sync. This has the value Y or N, and indicates whether the SuperNode Data Manager has synchronized with its NTP server. • Core stratum. The NTP stratum value of the computing module core. • TOD time. The TOD time after adjusting with the TOD offset.	

How to check and adjust the XA-Core TOD (end)

- 10** Compare the displayed TOD time to the standard office time reference.

If the date is	Do
wrong	step 11
correct	step 14

- 11** Set the time-of-day value to the NTP time. At the NTPCI MAP prompt, type:

>SETTIMETONTP

and press the Enter key.

Example of a MAP response:

The TOD is adjusted to NTP time; synchronization successful.

Along with the confirmation message, the system displays the following values:

- TOD offset. This is the number of milliseconds by which the TOD differs from the NTP time. The value can be positive or negative
- Round-trip delay. This is the number of milliseconds it took for the message to go from the computing module to the SuperNode Data Manager (SDM), and to return.
- The daylight-savings time offset. The number of minutes offset applied to the local time for daylight savings time.
- Time zone. The difference in minutes between local time and Greenwich Mean Time.
- Best sample age. The age (in minutes) of the NTP time sample that was used to adjust the time-of-day clock.
- TOD time. The TOD time after adjusting with the TOD offset.

- 12** Exit from the NTPCI Map level. At the NTPCI MAP prompt, type

>QUIT

and press the Enter key.

If the time of day is	Do
not set	step 13
set	step 14

- 13** Call the next level of support.

- 14** You have completed this procedure.

How to clean the XA-Core tape drive

Application

Use this procedure to clean the recording heads in the digital audio tape (DAT) drive.

Interval

Perform this procedure as follows:

- If the tape cassette is new, clean the recording heads once after the first four hours of read/write operation. After the first cleaning, clean the recording heads after 25 hours of read/write operation or according to office standards.
- If the tape cassette is not new, clean after 25 hours of read/write operation or according to office standards

Common procedures

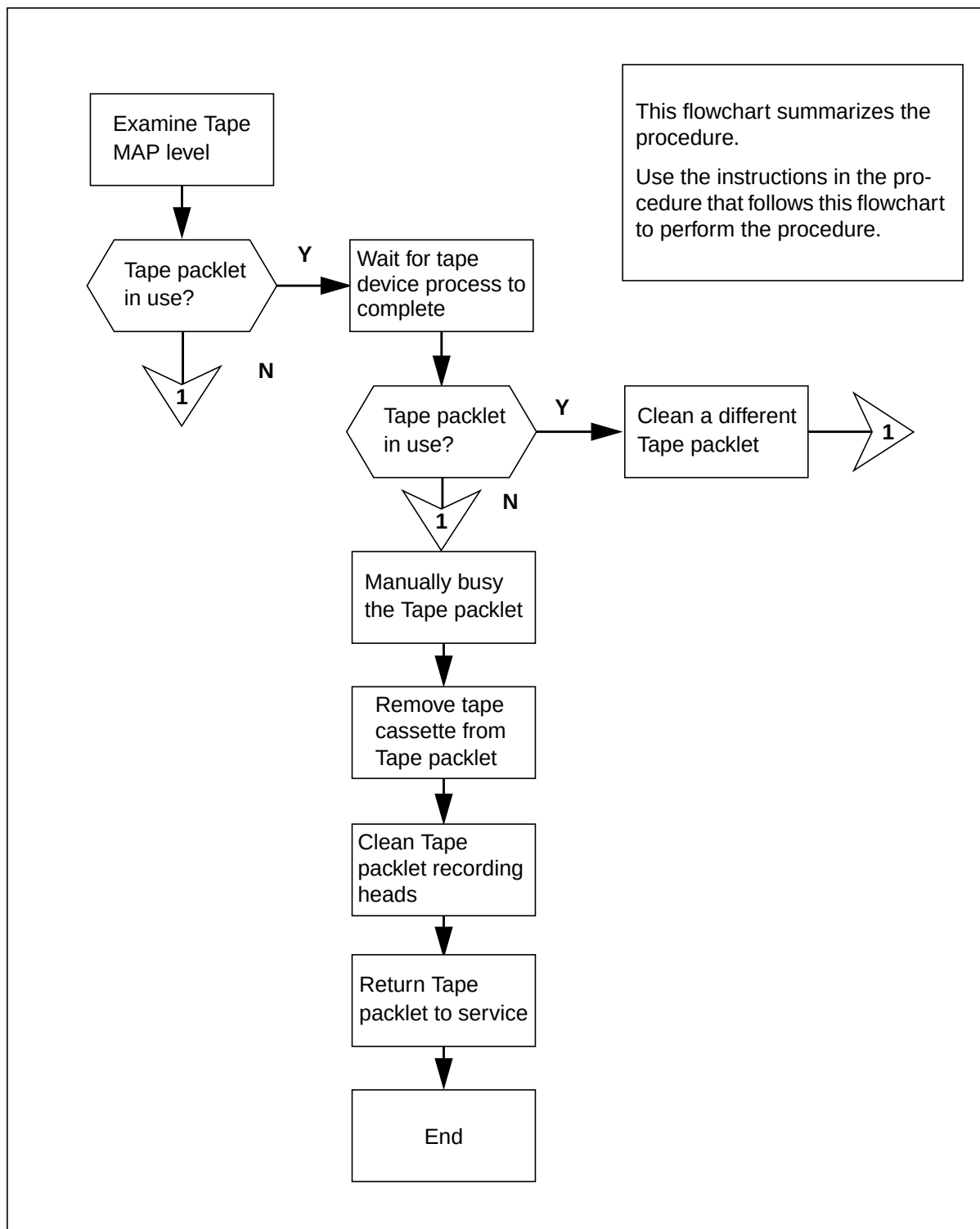
Refer to common procedure Selection of DAT tapes approved by Nortel Networks.

Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

How to clean the XA-Core tape drive (continued)

Summary of How to clean the XA-Core tape drive



How to clean the XA-Core tape drive (continued)

How to clean the DAT drive



WARNING

Possible DAT failure

Do not use an audio DAT cleaning cassette. The DAT drive can not identify an audio cleaning cassette. Use only an approved Nortel Networks (Northern Telecom) DAT cleaning cassette.



WARNING

Possible tape failure

If dust or particles collect at one or more of the recording heads, the heads cannot read or write to the tape.

At your current location

- 1 Get a Nortel Networks approved tape head cleaner (refer to common procedure).

At the MAP terminal

- 2 Access the XA-Core Tape MAP level. At the CI MAP prompt, type:
>MAPCI;MTC;XAC;TAPE
and press the Enter key.
- 3 Examine the Tape MAP level. Record the location of the Tape packet that you want to clean.

Note: The Tape MAP level displays the following information in the command interpreter output area:

- the user name under the User Name header
- the tape drive status under the Drive header (mounted/unmounted)

The following is a sample MAP display.

How to clean the XA-Core tape drive (continued)

- 5 Wait for the system software to complete the ONP or upgrade process. When the system software activities are complete, the MAP deletes the "System" user name and the tape drive state changes to unmounted.

If the system software process is complete and the Tape MAP level indicates that	Do
the tape is not rewound and the tape drive state is mounted	step 10
the tape is rewound and the tape drive state is unmounted	step 11
- 6 Notify the other user that you intend to clean the tape heads. The other user needs to complete tape device activities and perform an EJECTTAPE. Wait for the Tape MAP level to delete the other user name and indicate that the tape drive state is unmounted.

If the Tape MAP level indicates that	Do
the tape is not rewound and that the tape drive state is mounted	step 7
the tape is rewound and that the tape drive state is unmounted	step 11
- 7 Call the other user to make sure that all tape drive activities are complete.

If the other user has	Do
not completed tape drive activities	step 8
completed tape drive activities and rewound the tape	step 10
- 8 Clean a different tape drive. Continue to 3.
- 9 Access the DISKUT MAP level and rewind the tape.
 - a At the Tape MAP level type:

>QUIT all

 and press the enter key.
 - b Access the DISKUT MAP level. At the CI MAP prompt type:

>DISKUT

 and press the enter key.
 - c Rewind the tape. Use the tape location information from 3. At the DISKUT MAP level type:

>EJECTTAPE <device>

 and press the enter key.

where

How to clean the XA-Core tape drive (continued)

<device> is the name of the tape device.

Note: The system rejects the EJECTTAPE command if the system cannot identify you as the user of the tape device.

Example of command use:

>EJECTTAPE F02UTAPE

Example of system response:

Rewind of tape F02UTAPE on node <node_name> is completed. The tape device is not available to the user now

- d Exit from the DISKUT MAP level. At the DISKUT MAP prompt, type
>QUIT
and press the enter key.
- e Access the XA-Core Tape MAP level. At the CI MAP prompt, type
>MAPCI;MTC;XAC;TAPE
and press the enter key.

If the Tape MAP level indicates that	Do

the tape is not rewound and the tape drive state is mounted	step 10

the tape is rewound and the tape drive state is unmounted	step 11

- 10** Clear the tape drive state on the Tape MAP level. Manually busy the Tape packet and return the Tape packet to service.

- a Manually busy the Tape packet. At the Tape MAP level type

>BSY <nn> <s> <p>

and press the enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).

Example of command use:

>BSY 2 f u

Example of system response:

BSY 2 front upper complete

- b Return the Tape packet to service. At the Tape MAP level type

How to clean the XA-Core tape drive (continued)

>RTS <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command use:

>RTS 2 f u

Example of system response:

RTS 2 front upper passed

If the Tape MAP level indicates that	Do
the tape is rewound and the tape drive state is unmounted	step 11
the tape is not rewound and the tape drive state is mounted	step 19

11 At the Tape MAP level, manually busy the Tape packlet.

a Manually busy the Tape packlet. At the Tape MAP level type

>BSY <nn> <s> <p>

and press the enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).

Example of command use:

>BSY 2 f u

Example of system response:

BSY 2 front upper complete

How to clean the XA-Core tape drive (continued)

At the XA-Core physical shelf

- 12** Indicate the ManB Tape packet. At the Tape MAP level, type
>INDICAT card <nn> <s> <p>
 and press the Enter key
 where
 <nn> is the slot number parameter value to indicate the number of the
 physical shelf slot - 0 to 18
 <s> is the side parameter value to indicate the CP or packet location in the
 physical shelf - front (f) or rear (r)
 <p> is the upper (u) or lower (l) physical slot location of the packet in an
 input/output processor (IOP).
 Example of command usage:
>INDICAT card 2 f u
Example of system response:
 Card 2 front upper LED is indicating.

13



WARNING

Static electricity damage

Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the packet. The use of the wrist strap protects the packets against damage caused by electrostatic discharge (ESD).

Locate the correct Tape packet on the physical shelf. Use the location information recorded from 3.

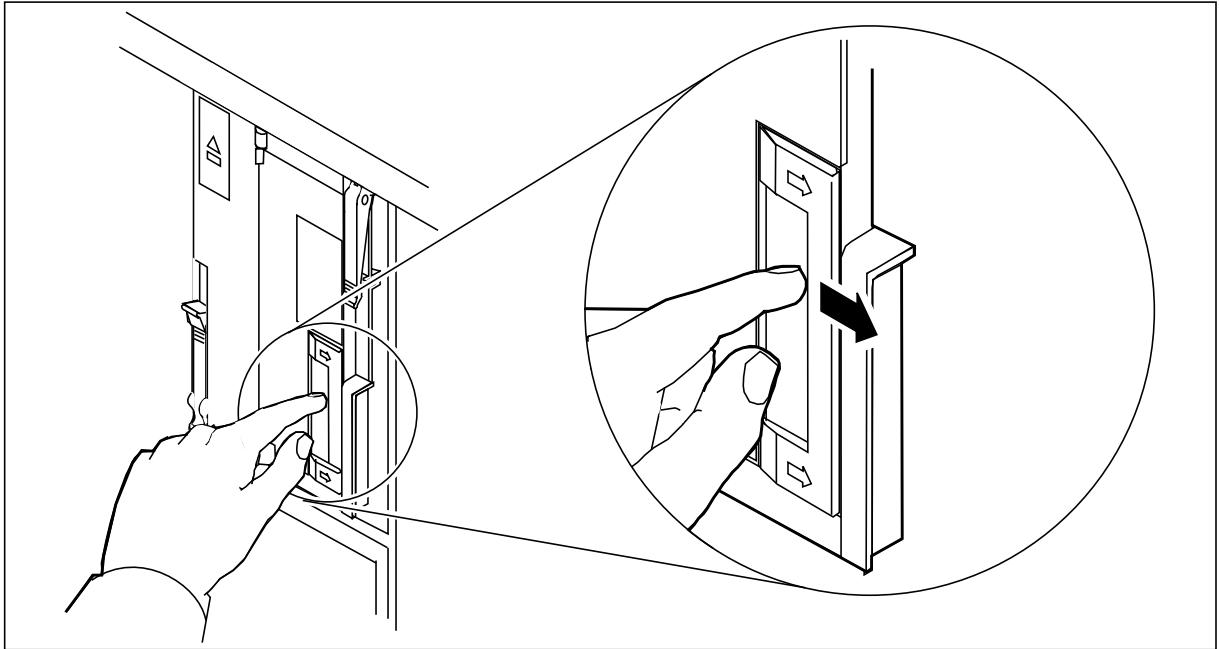
If there is	Do
a tape cassette in the tape cassette slot	step 14
no tape cassette in the tape cassette slot	step 15

- 14** Remove the tape cassette from the Tape packet (see the diagrams in this step). Perform the following steps:
- Push the door lock in the direction of the arrow to unlock. The cassette door unlocks. Open the cassette door.
 - Press the tape eject button. Wait for the tape cassette to partially eject for removal.

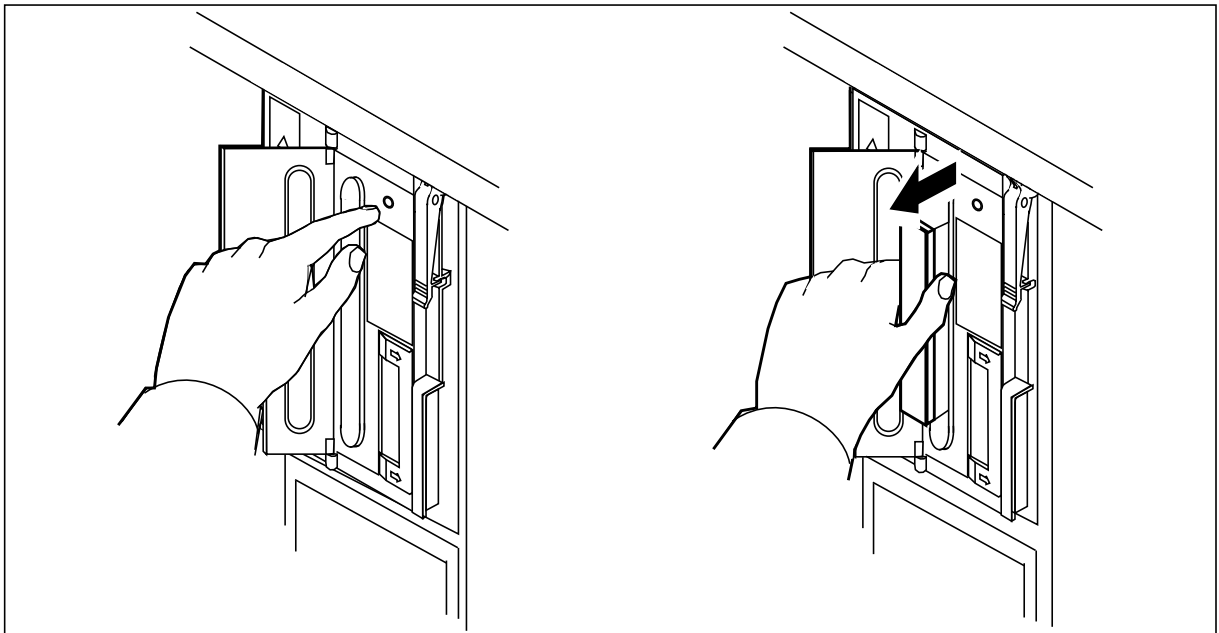
How to clean the XA-Core tape drive (continued)

- c Remove the tape cassette and place it in tape cassette case. Place the cassette in a safe location away from the physical shelf.

Open the tape cassette door



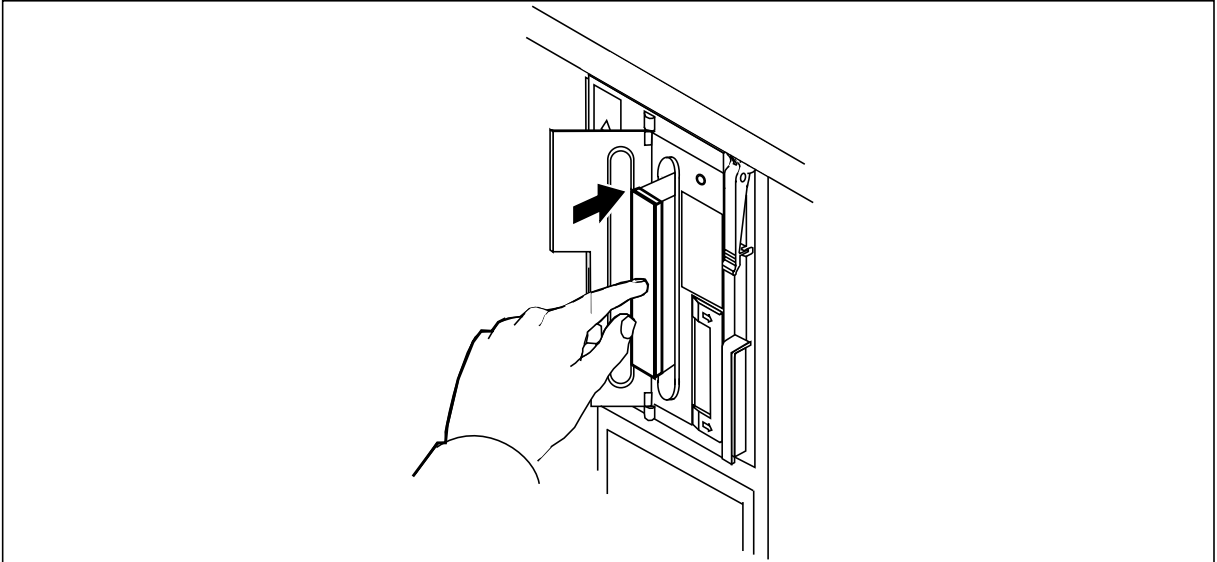
Eject and remove the tape cassette



- 15** Insert the tape cleaning cassette into the tape cassette slot. Push on the tape cassette until it locks in position. Do not close the tape door.

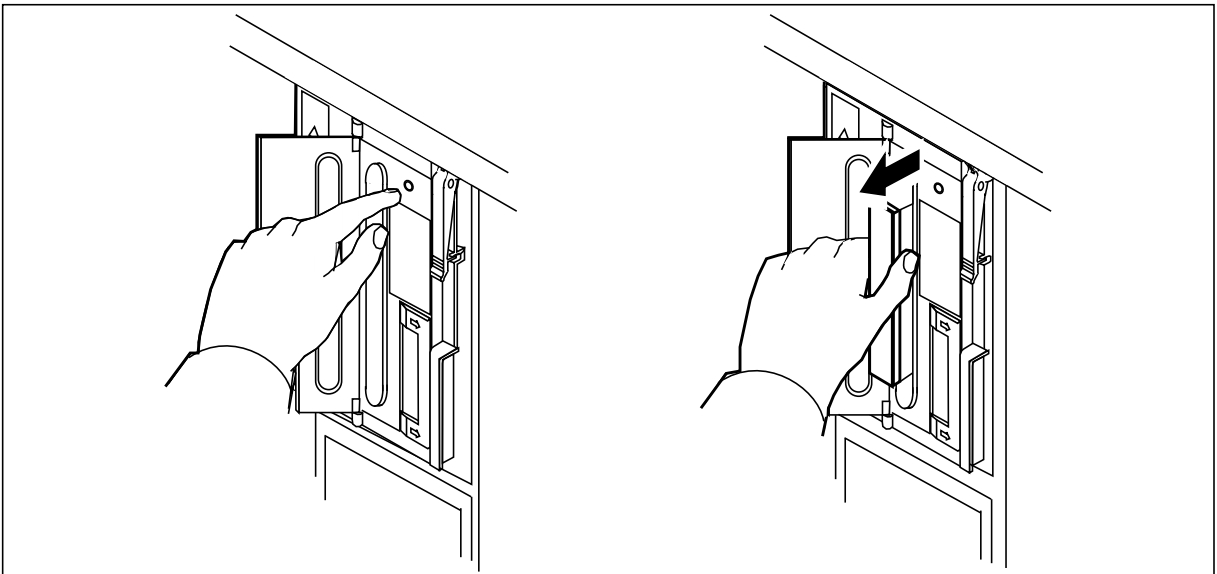
How to clean the XA-Core tape drive (continued)

Insert the tape cleaning cassette



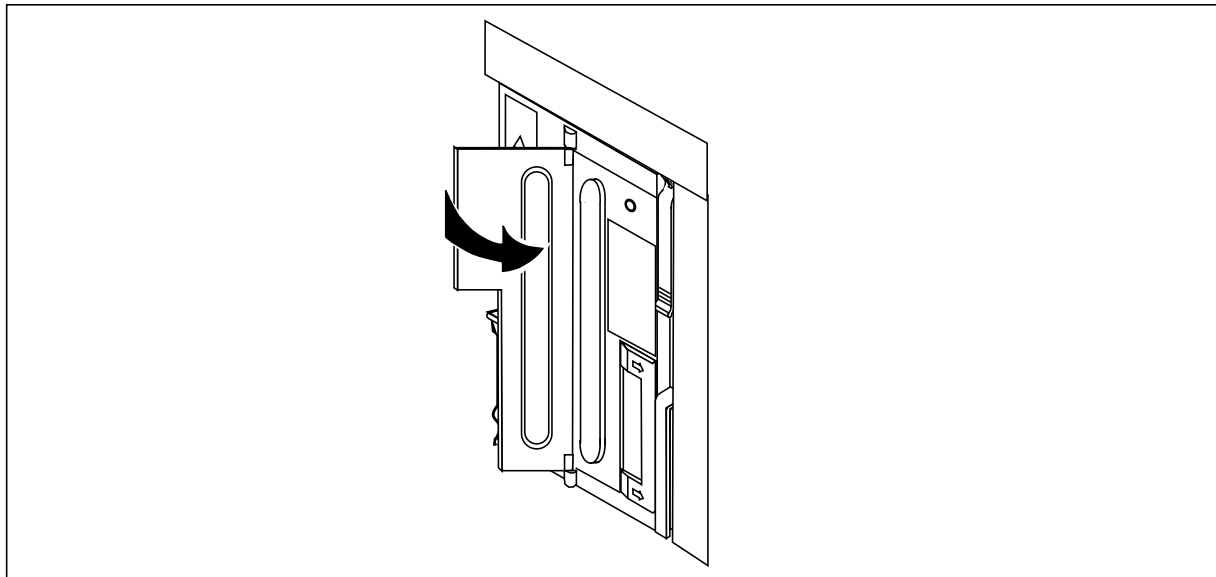
- 16 Wait until the tape cleaning cassette ejects from the tape slot. The tape cleaning process is automatic.
- 17 Remove the tape cleaning cassette from the tape slot. Close the tape cassette door. Place the tape cleaning cassette in the tape cleaning case.

Eject and remove the tape cleaner cassette



How to clean the XA-Core tape drive (end)

Close the tape cassette door



At the MAP terminal

- 18** Return the Tape packet to service. At the Tape MAP level type
>RTS <nn> <s> <p>
and press the Enter key
where
<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18
<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)
<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).
Example of command use:
>RTS 2 f u
Example of system response:
RTS of card <nn> <s> <p> Completed.

If the tape device	Do
does not return to service	step 19
returns to service	step 20

- 19** Call the next level of support.
20 You have completed this procedure.

How to copy all files of an XA-Core disk volume to tape

Application

Use this procedure to copy all the files of a disk volume in an eXtended Architecture Core (XA-Core). Use this procedure to copy the files from a disk to a digital audio tape (DAT) cartridge in an XA-Core shelf. Do not use this procedure to copy the office image files from disk to tape for an XA-Core. To copy the office image files, use the procedure “How to backup an XA-Core office image from disk to tape”.

Interval

Perform this procedure when required by your office.

Common procedures

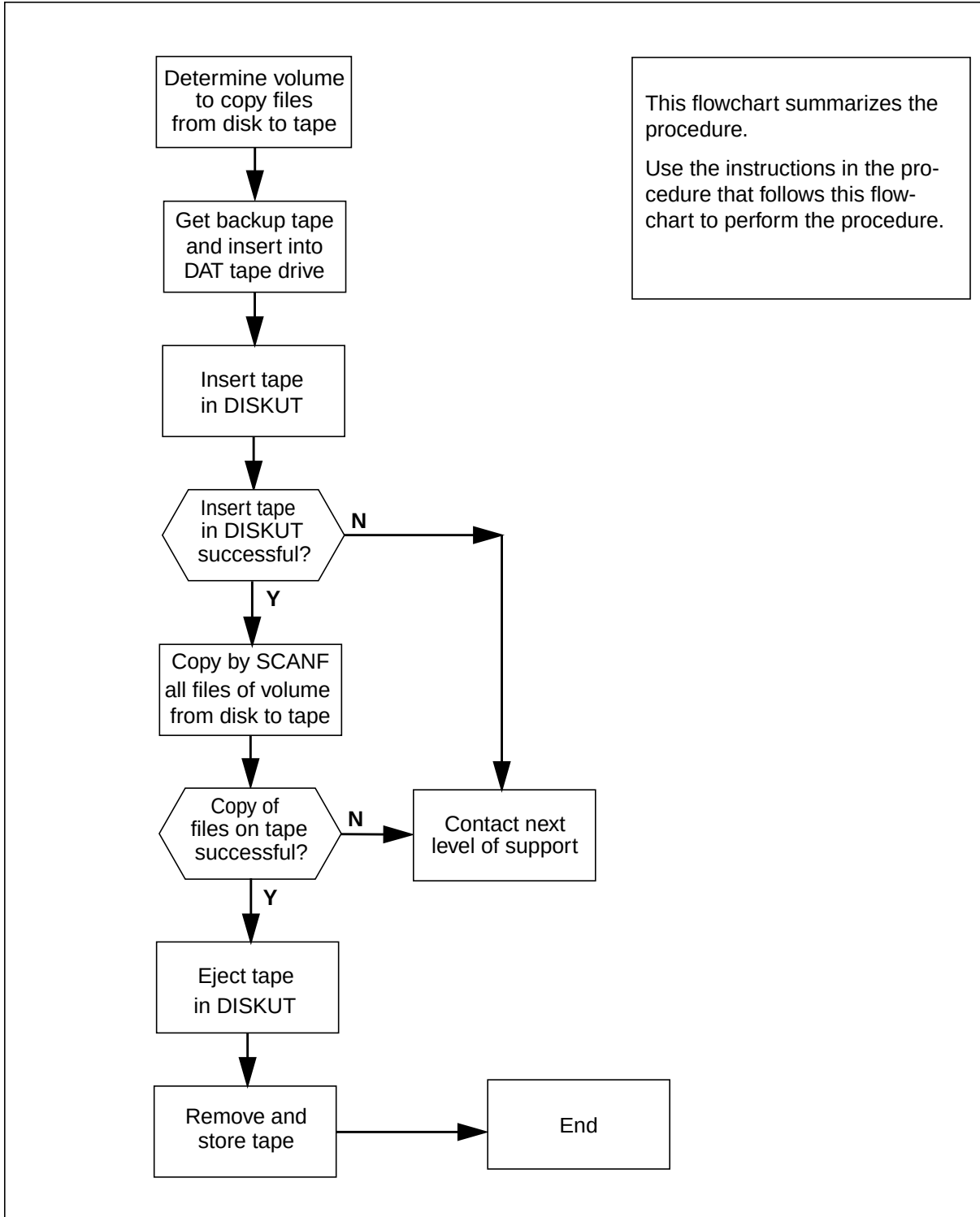
There are no common procedures.

Action

This procedure contains a summary flowchart as a summary of the procedure. Follow the exact steps to perform this procedure.

How to copy all files of an XA-Core disk volume to tape (continued)

Summary of How to copy all files of an XA-Core disk volume to tape



How to copy all files of an XA-Core disk volume to tape (continued)

How to copy all files of an XA-Core disk volume to tape

At the shelf

1



CAUTION

Use SCANF in this procedure with caution

SCANF is a powerful tool that is used to perform file operations, one of which is to allow open files to be copied. Use this command during periods of low activity to avoid loss of data.



CAUTION

Do not copy office image files

Do not use this procedure to copy the office image files from disk to tape for an XA-Core. To copy the office image files, use the procedure “How to backup an XA-Core office image from disk to tape”.

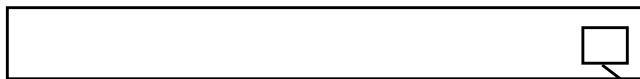
Determine the volume of the XA-Core that requires a copy of all files to a tape. Determine the volume from office records or from office personnel. Record the volume name.

- 2 Determine from office records or office personnel if the DAT tape drive is clean. Refer to the XA-Core procedure “How to clean the XA-Core tape drive”.
- 3 Get a tape cartridge that has the approval of Nortel Networks. Determine the tape planned for storage of all the files from a disk volume. Determine the tape to use from the office records or from office personnel. The tape must not have files that the office requires.
- 4 Make sure the tape write protection is at the position that permits recording (closed). The tape write protection is an entrance on one side of the tape that has a sliding door. The sliding door is open for write protection and closed to allow a write to the tape.

Example

Terminating

Write protection of DAT cartridge



Side-view of DAT cartridge

Position for write protection

How to copy all files of an XA-Core disk volume to tape (continued)

5



WARNING

Static electricity damage

Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

Insert the DAT tape cartridge into the XA-Core tape drive and close the drive door. The XA-Core tape drive is in the input/output processor (IOP) card of the XA-Core shelf.

At the MAP

- 6 To access the MAP CI level display, type:

>QUIT ALL

and press the enter key.

Example of a MAP response:

CI:

- 7 To access the MAP disk utility, type:

>DISKUT

and press the enter key.

Example of a MAP response:

Disk utility is now active.

DISKUT:

- 8 To insert the tape for access by the MAP disk utility, type

>INSERTTAPE snnpTAPE WRITELABEL label_name

and press the enter key

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf of the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

WRITELABEL is a parameter to format a tape. The tape must not have files that the office requires. A formatted tape has all the files on the tape deleted.

label_name is the alphanumeric name of the tape label that records the data. The name can be up to 32 characters long.

How to copy all files of an XA-Core disk volume to tape (continued)

Example of MAP input:

>INSERTTAPE F02UTAPE WRITELABEL IMAGE_1

Example of a MAP response:

***** WARNING *****

Writing the label IMAGE_1 to tape volume F02UTAPE on node CM will destroy all files stored on this tape volume.

Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):

- 9 To confirm the command type:

>YES

and press the enter key.

Example of a MAP response:

The INSERT operation may take up to 5 minutes to tension the tape. A tape is now available to user on unit 0, node CM. Name IMAGE_1 has been written to the tape label.

- 10 Determine if the INSERTTAPE command completed correctly..

If the INSERTTAPE command completed	Do
correctly	step 11
not correctly	step 24

- 11 To list the volumes contained on the node, type:

>LISTVOLS

and press the enter key.

Example of a MAP response:

Volumes found on the node CM:

```

-----
NAME      TYPE      TOTAL      FREE TOTAL  OPEN
ITOC      LARGEST                                BLOCKS    BLOCKS  FILES  FILES
FILES    FREE  SEGMENT
-----
F02LV1    FTFS    131072    130080     2     0
0      128032
F02LDLOG  FTFS    129024     2144    131     0
0      1536
F17LV1    FTFS     61440     60512     0     0
0      60512
F17LDLOG  FTFS     61440     1632     71     2
0      512
Total number of volumes found on node CM : 4

```

How to copy all files of an XA-Core disk volume to tape (continued)

- 12** Check the list of volumes in step 11 for the volume name that you recorded in step .

If the volume name is	Do
in the volume list	step 13
not in the volume list	step 24

- 13** To list the files in the disk volume that you need to copy to tape, type:
>LISTFL vol_name
 and press the enter key.
 where
 <vol_name> is the name of the disk volume that contains the files to copy to tape.

Example of MAP input:

>LISTFL F02LV1

Example of a MAP response:

File information for volume F02LV1:
 {NOTE: 1 BLOCK = 512 BYTES }

```

-----
FILE NAME          O R I O O V FILE    MAX
NUM OF FILE LAST   R E T P L L CODE    REC
RECORDS   SIZE MODIFY G C O E D D      LEN
IN        IN  DATE          C N          FILE
BLOCKS
-----
OLD_RECORD_FILES_01          I F Y          0
1020      7542   15360 990517
OLD_RECORD_FILES_02          I F Y          0
1020     165180  329728 990517

```

- 14** Record the file names in the disk volume. In the example of a MAP response in step 13, the file names are OLD_RECORD_FILES_01 and OLD_RECORD_FILES_02.

- 15** To copy all the files from the disk volume to the tape, type:

>SCANF vol_name COPY snnpTAPE

and press the enter key.

where

vol_name is the name of the disk volume that contains the files to copy to tape.

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

How to copy all files of an XA-Core disk volume to tape (continued)

nn is the number of the slot position on the XA-Core shelf of the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example

Example of MAP input:

>SCANF F02LV1 COPY F02UTAPE

Example of a MAP response:

Copy file: IMG0517CY_CM

10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

OLD_RECORD_FILES_01: 165180 records copied with success.

Copy file: IMG0517CY_MS

10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

OLD_RECORD_FILES_02: 7542 records copied with success.

Scanf: matched 2 of the 2 files encountered.

- 16** Determine if the SCANF command completed. In the MAP response of step 15, the completed SCANF command responded with the text, Scanf: matched 2 of the 2 files encountered.

If the SCANF command has	Do
completed	step 17
not completed	step 24

- 17** To check the copies of files on the tape, type:

>LISTFL snnpTAPE

and press the enter key.

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

How to copy all files of an XA-Core disk volume to tape (continued)

nn is the number of the slot position on the XA-Core shelf of the IOP that has the tape device.

p is the upper (U) or lower (L) packet position of the IOP that has the tape device.

Example of MAP input:

>LISTFL F02UTAPE

Example of a MAP response:

File information for tape volume F02UTAPE, node CM:
{Note: 1 BLOCK = 512 BYTES}

```
-----
CREATE  ORG FILE V      FILE      NUM OF  REC      FILE NAME
  DATE  TYPE CODE L      SIZE IN   RECORDS  LEN
                D      BLOCKS   IN FILE
-----
990520  IMAG    0      329070    165180  1020
OLD_RECORD_FILES_01
990520  IMAG    0      15026     7542   1020
OLD_RECORD_FILES_02
-----
```

- 18** Determine if all the files from the disk volume copied correctly to the tape. Check the file names in the MAP response of step 17 with the file names you recorded in step 14.

If all the files copied to tape	Do
correctly	step 19
not correctly	step 24

- 19** To eject the tape from the DAT tape drive after the backup procedure completes, type:

>EJECTTAPE <tape_device>

and press the enter key.

where

<tape_device> is the name of the DAT device

Example

Example of MAP input:

>EJECTTAPE F02UTAPE

Example of a MAP response:

The EJECT operation may take up to 5 minutes to position the tape to the beginning. Rewind of tape F02UTAPE, unit 0, on node CM is completed. This tape device is not available to the user now.

- 20** To exit the MAP disk utility and return to the MAP CI level, type:
and press the enter key.

>QUIT

How to copy all files of an XA-Core disk volume to tape (end)

Example of a MAP response:

CI:

At the shelf

21



WARNING

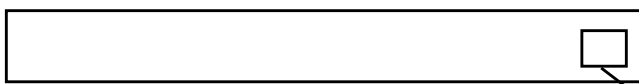
Static electricity damage

Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

Remove the tape cartridge from the tape drive. Set the tape write protection to the position that does not permit recording (open). The tape write protection is an entrance on one side of the tape that has a sliding door. The sliding door is open for write protection and closed to allow a write to the tape.

Example

Write protection of DAT cartridge



Side-view of DAT cartridge

Position for write protection

- 22** Store the tape cartridge per office procedure.
- 23** Go to step 25.
- 24** For additional help, call the next level of support.
- 25** You have completed the backup procedure.

How to create a test volume on XA-Core disks

Application

Use this procedure to create a test volume on a disk of the eXtended Architecture Core (XA-Core).

The test volume performs file transfer tests on a disk drive packlet. The tests make sure that the disk drive packlet functions correctly.

Interval

Perform this procedure on a new disk. Perform this procedure after installation of the new disk in the disk drive packlet in the input/output processor (IOP) card.

Common procedures

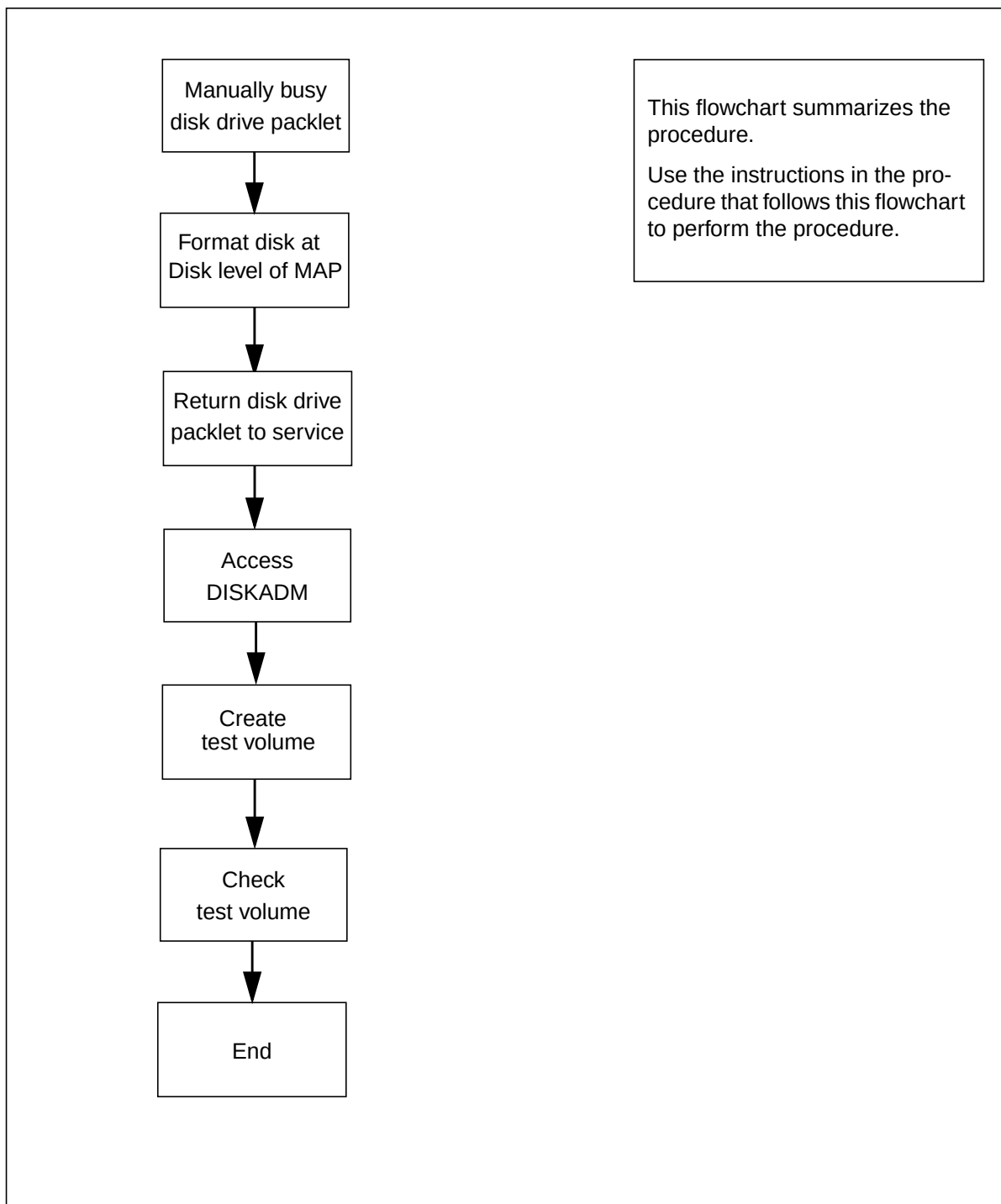
There are no common procedures.

Action

This procedure contains a summary flowchart as a summary of the procedure. Follow the exact steps to perform this procedure.

How to create a test volume on XA-Core disks (continued)

How to create a test volume on XA-Core disks



How to create a test volume on XA-Core disks (continued)

How to create a test volume on XA-Core disks



DANGER

This procedure is for use on a new disk only

Perform this procedure on a new disk only. Perform this procedure after installation of the new disk in the disk drive packlet in the input/output processor (IOP) card. If you fail either to use this procedure or follow it exactly, you can lose or damage automatic message accounting (AMA) data. Because AMA data produces billings, loss or damage to AMA data results in revenue loss for the operating company. Call your next level of support before you start this procedure.



CAUTION

Risk of service interruption

Call your next level of support before you start this procedure.

At the MAP terminal

- 1 To access the XA-Core Disk MAP level, type:

>MAPCI;MTC;XAC;DISK

and press the enter key.

The following is a sample MAP display.

How to create a test volume on XA-Core disks (continued)

DISK MAP level

```

XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.         .         .         .         .         .         .         .         .         .

Disk
0 Quit
2
3
4
5
6 Tst_
7 Bsy_
8 RTS_
9
10
11 Format
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

Front: 111111111 Rear: 111111 SM PE IO PKLT
123456789012345678 456789012345 . . . .
Sta: -. . . . . . . . . . . . . . . . . . 0 0 0 0
Dep:
Typ: * *
Slot: Side: Packet: Status:
7 2 Front Lower .
8 17 Front Lower .

DISK:

XMAP0
Time 14:12 >

```

- 2** To manually busy the disk drive packet, type:
- >BSY nn s p**
- and press the enter key
- where
- nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packet (number can have one digit or two digits)
- s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packet
- p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packet
- Example of command:
- BSY 2 F L**
- Example of a MAP response:*
- ```
bsy 2 f l
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```
- 3** To confirm the command from step 2, type:
- >YES**
- and press the enter key

## How to create a test volume on XA-Core disks (continued)

---

*Example of a MAP response:*

```
yes
Command Submitted.
Bsy 2 front lower completed
```

4



### **CAUTION**

#### **Risk of data loss from disk**

When you format the disk, you lose all files and volumes from the disk. Call your next level of support before you start this procedure.

To format the disk, type:

**>FORMAT nn s p**

and press the enter key

where

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packlet (number can have one digit or two digits)

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packlet

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packlet

Example of command:

**FORMAT 2 F L**

*Example of a MAP response:*

```
format 2 f l
Warning: Format of the disk will result in LOST DATA.
Proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

5

To confirm the format command from step , type:

**>YES**

and press the enter key

---

## How to create a test volume on XA-Core disks (continued)

---

*Example of a MAP response:*

```
yes
Command Submitted.
Format 2 front lower checking data
Format 2 front lower formatting disk
Format 2 front lower initializing
Format 2 front lower completed
```

- 6 To return the disk drive packlet to service, type:

**>RTS nn s p**

and press the enter key

where

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packlet (number can have one digit or two digits)

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packlet

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packlet

Example of command:

**RTS 2 F L**

*Example of a MAP response:*

```
rts 2 f l
Command Submitted.
RTS 2 front lower completed
```

| If the disk drive packlet is | Do      |
|------------------------------|---------|
| in service (.)               | step 7  |
| another state                | step 18 |

- 7 To display the CI level of the MAP, type:

**>QUIT ALL**

and press the enter key.

*Example of a MAP response:*

CI:

- 8 To access the administration of the disk device, type:

**>DISKADM snnp**

and press the enter key

where

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packlet

## How to create a test volume on XA-Core disks (continued)

---

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packlet (requires a two-digit number)

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packlet

Example of command:

### **DISKADM F02L**

*Example of a response to the disk administration command:*

Start up command sequence is in progress.

This may take a few minutes.

Administration of device F02L on CM is now active.

DISKADM; CM

- 9 To display the disk data space that is available, type:

**>DD**

and press the enter key

*Example of a response to the display disk command:*

Disk drive information for F02L

|                              |   |                         |
|------------------------------|---|-------------------------|
| Date last formatted          | : | 1999/02/18 12:25:03.716 |
| THU.                         |   |                         |
| Date last modified           | : | 1999/02/18 12:25:03.986 |
| THU.                         |   |                         |
| Total space for volumes      | : | 266221 blocks           |
| Total Free space             | : | 266221 blocks           |
| Size of largest free segment | : | 266221 blocks           |
| Total number of volumes      | : | 0                       |

1 Block = 512 bytes

**Note:** The number of blocks varies according to the total disk storage capacity.

- 10 To display the information of all the volumes on the disk, type:

**>DV**

and press the enter key

*Example of a response to the display volumes command:*

F02L contains no volumes.

- 11 To create a test volume on the disk, type:

**>CV name size FTFS LBLOCK**

and press the enter key

where

name is the name you call the test volume (eight characters maximum).

size is the size of the volume in megabytes.

FTFS is the type of volume described as fault tolerant file system (FTFS).

---

## How to create a test volume on XA-Core disks (continued)

---

LBLOCK is the size of the logical volume. The size can have 1, 2, 4, 8, or 16 kbytes when a number 1, 2, 4, 8, or 16 added after LBLOCK and a space. Default is 16 kbytes. A recommended size for one disk user is 16 kbytes. A recommended size for the maximum amount of disk users is 1 kbytes.

Example of command:

**CV TEST 50 FTFS LBLOCK 16**

*Example of a response to the create volume command that requests a confirmation is as follows:*

FTFS volume TEST will be created on F02L.

```
Volume size: 50 megabytes
First FID table extent size: 2047 entries
Volume Free Space Map size: 7936 segments
```

Do you want to continue?  
Please confirm ("YES", "Y", "NO", or "N"):

- 12** Determine if the volume creation exceeds a maximum.

*An example of the response to the create volume command that exceeds a maximum is as follows:*

CREATEVOL-1 command is aborted  
Not enough space on disk.

Retry command OR Quit and reenter DISKADM.

---

| If the response to the create volume command indicates | Do |
|--------------------------------------------------------|----|
|--------------------------------------------------------|----|

---

|                                 |         |
|---------------------------------|---------|
| a prompt to confirm the command | step 13 |
|---------------------------------|---------|

|                                   |         |
|-----------------------------------|---------|
| that the volume exceeds a maximum | step 18 |
|-----------------------------------|---------|

---

- 13** To confirm the create volume command from step 11, type:

**>YES**

and press the enter key

*Example of a MAP response:*

Creation of the volume is completed.

- 14** To display the information of all the volumes on the disk, type:

**>DV**

and press the enter key.

*Example of a response to the display volumes command:*

Information about FTFS volumes on F02L.

```
Volume Create Modify Size LBLK Max Max No.
System Data
```

## How to create a test volume on XA-Core disks (end)

| Name  | Date     | Date     | Mega  | Size   | No. of | No. of  | Boot |
|-------|----------|----------|-------|--------|--------|---------|------|
| Cache | Cache    |          |       |        | Files  | Segmnts |      |
|       | Y/M/D    | Y/M/D    | Bytes | kBytes | Files  | Segmnts |      |
| Files | Pages    | Pages    |       |        |        |         |      |
| TEST  | 99/02/18 | 99/02/18 | 50    | 16     | 2047   | 7936    |      |
| 0     | 6        | 6        |       |        |        |         |      |

**Note:** In the example of a MAP response, the test volume is TEST.

- 15 To quit the DISKADM utility, type:

>QUIT

and press the enter key

- 16 To check for the test volume, type:

>PRINT ROOTDIR

and press the enter key.

Example of a MAP response:

|          |        |      |      |
|----------|--------|------|------|
| MAP      | Device | Copy | 1800 |
| F02LTEST | Device | Copy | 84C2 |

**Note:** The test volume has the disk device identified as a prefix to the volume name. In the example of a MAP response, the test volume is F02LTEST.

- 17 Determine if the administration of the disk device created the test volume.

| If the administration of the disk device created the test volume | Do |
|------------------------------------------------------------------|----|
|------------------------------------------------------------------|----|

|           |         |
|-----------|---------|
| correctly | step 19 |
|-----------|---------|

|        |         |
|--------|---------|
| failed | step 18 |
|--------|---------|

- 18 For additional help, call the next level of support.

- 19 You have completed this procedure.

## How to create volumes on XA-Core disks

---

### Application

Use this procedure to create volumes on a disk of the eXtended Architecture Core (XA-Core).

### Interval

Perform this procedure on a disk that is not formatted or on a earlier formatted disk. Perform this procedure after installation of the disk in the disk drive packlet in the input/output processor (IOP) card.

### Common procedures

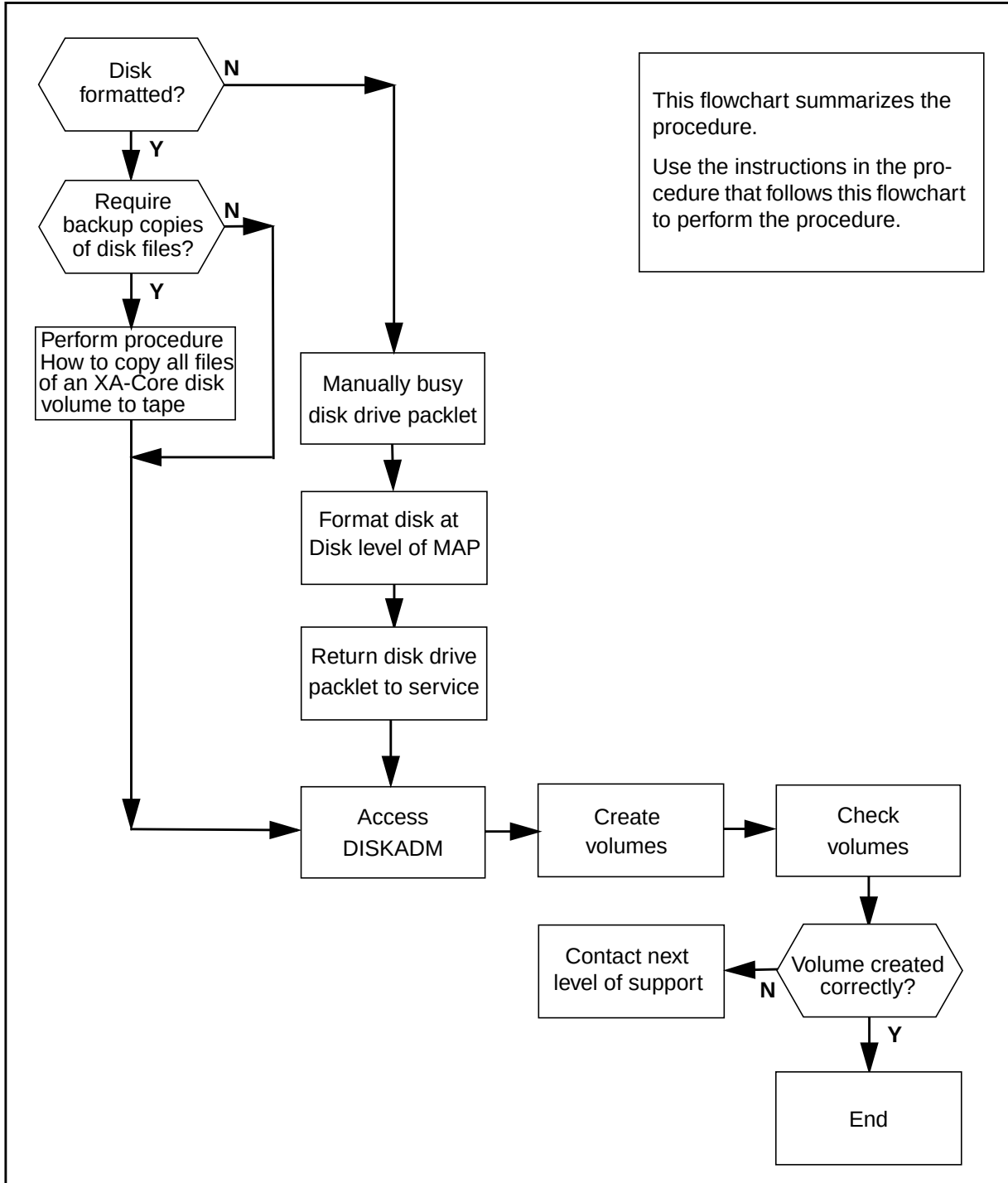
There are no commonon procedures.

### Action

This procedure contains a summary flowchart as a summary of the procedure. Follow the exact steps to perform this procedure.

## How to create volumes on XA-Core disks (continued)

### How to create volumes on XA-Core disks





## How to create volumes on XA-Core disks (continued)

### How to create volumes on XA-Core disks



#### CAUTION

##### Risk of service interruption

Call your next level of support before you start this procedure.



#### CAUTION

**Format operation on a disk deletes all files on the disk. Make sure all files on the disk have backup copies on tape.**

Perform this procedure on a disk that has backup copies of all files or is a new disk. Perform this procedure after installation of the disk in the disk drive packlet in the input/output processor (IOP) card. If you fail either to use this procedure or follow it exactly, you can lose or damage automatic message accounting (AMA) data. Because AMA data produces billings, loss or damage to AMA data results in revenue loss for the operating company. Call your next level of support before you start this procedure.

#### At the MAP terminal

- 1 Determine if the disk to create volumes on, is formatted or not formatted. Determine if the disk is formatted from office records or office personnel.

| If the disk is | Do     |
|----------------|--------|
| formatted      | step 2 |
| not formatted  | step 8 |

- 2 To access the MAP disk utility, type:

**>DISKUT**

and press the enter key.

*Example of a MAP response:*

Disk utility is now active.  
DISKUT:

- 3 To list the volumes contained on the node, type:

**>LISTVOLS**

and press the enter key.

## How to create volumes on XA-Core disks (continued)

*Example of a MAP response:*

Volumes found on the node CM:

```

NAME TYPE TOTAL FREE TOTAL OPEN
ITOC LARGEST BLOCKS BLOCKS FILES FILES
FILES FREE SEGMENT

F02LV1 FTFS 131072 130080 2 0
0 128032
F02LDLOG FTFS 129024 2144 131 0
0 1536
F17LV1 FTFS 61440 60512 0 0
0 60512
F17LDLOG FTFS 61440 1632 71 2
0 512
Total number of volumes found on node CM : 4
```

- 4** Determine if volumes are on the XA-Core disk.

| If the disk has | Do     |
|-----------------|--------|
| volumes         | step 5 |
| no volumes      | step 7 |

- 5** Make a backup copy of all files from the XA-Core disk to tape. Perform procedure, "How to copy all files of an XA-Core disk volume to tape". Perform this procedure one time on a separate tape for each disk volume. When you complete the procedure, return to this step.

- 6** Go to step 15.

- 7** To exit the MAP disk utility and return to the MAP CI level, type:  
and press the enter key.

**>QUIT**

*Example of a MAP response:*

CI:

- 8** To access the XA-Core Disk MAP level, type:

**>MAPCI;MTC;XAC;DISK**

and press the enter key.

*The following is a sample MAP display.*

## How to create volumes on XA-Core disks (continued)

### Example of a DISK MAP display

| XAC         | MS | IOD | Net                       | PM | CCS                  | Lns | Trks    | Ext | APPL |
|-------------|----|-----|---------------------------|----|----------------------|-----|---------|-----|------|
| .           | .  | .   | .                         | .  | .                    | .   | .       | .   | .    |
| Disk        |    |     | Front: 111111111          |    | Rear: 111111         |     | SM      | PE  | IO   |
| 0 Quit      |    |     | 123456789012345678        |    | 456789012345         |     | .       | .   | .    |
| 2           |    |     |                           |    |                      |     | 0       | 0   | 0    |
| 3           |    |     | Sta: .-.-.-.-.-.-.-.-.-.- |    | .-.-.-.-.-.-.-.-.-.- |     |         |     |      |
| 4           |    |     | Dep:                      |    |                      |     |         |     |      |
| 5           |    |     | Typ: *                    |    | *                    |     |         |     |      |
| 6 Tst_      |    |     | Slot:Side:                |    | Packlet:             |     | Status: |     |      |
| 7 Bsy_      |    |     | 2 Front                   |    | Lower                |     | .       |     |      |
| 8 RTS_      |    |     | 17 Front                  |    | Lower                |     | .       |     |      |
| 9           |    |     |                           |    |                      |     |         |     |      |
| 10          |    |     |                           |    |                      |     |         |     |      |
| 11 Format   |    |     | DISK:                     |    |                      |     |         |     |      |
| 12          |    |     |                           |    |                      |     |         |     |      |
| 13          |    |     |                           |    |                      |     |         |     |      |
| 14 Alarm_   |    |     |                           |    |                      |     |         |     |      |
| 15          |    |     |                           |    |                      |     |         |     |      |
| 16          |    |     |                           |    |                      |     |         |     |      |
| 17 Indicat_ |    |     |                           |    |                      |     |         |     |      |
| 18 Query_   |    |     |                           |    |                      |     |         |     |      |
| XMAP0       |    |     |                           |    |                      |     |         |     |      |
| Time 14:12  |    |     | >                         |    |                      |     |         |     |      |

- 9 To manually busy the disk drive packet, type:

**>BSY nn s p**

and press the enter key

where

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packet (number can have one digit or two digits)

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packet

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packet

Example of command input:

**BSY 2 F L**

*Example of a MAP response:*

bsy 2 f l

Warning: Bsy command will take it out of service.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

- 10 To confirm the command from step 9, type:

**>YES**

and press the enter key

## How to create volumes on XA-Core disks (continued)

---

*Example of a MAP response:*

```
yes
Command Submitted.
Bsy 2 front lower completed
```

**11**



**CAUTION**

**Risk of data loss from disk**

When you format the disk, you lose all files and volumes from the disk. Call your next level of support before you start this procedure.

To format the disk, type:

**>FORMAT nn s p FORCE**

and press the enter key

where

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packlet (number can have one digit or two digits)

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packlet

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packlet

Example of command input:

**FORMAT 2 F L FORCE**

*Example of a MAP response:*

```
format 2 f l
Warning: Format of the disk will result in LOST DATA.
Proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

**12**

To confirm the format command from step , type:

**>YES**

and press the enter key

---

## How to create volumes on XA-Core disks (continued)

---

*Example of a MAP response:*

```
yes
Command Submitted.
Format 2 front lower checking data
Format 2 front lower formatting disk
Format 2 front lower initializing
Format 2 front lower completed
```

- 13** To return the disk drive packlet to service, type:

**>RTS nn s p**

and press the enter key

where

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packlet (number can have one digit or two digits)

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packlet

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packlet

Example of command input:

**RTS 2 F L**

*Example of a MAP response:*

```
rts 2 f l
Command Submitted.
RTS 2 front lower completed
```

| If the disk drive packlet is | Do      |
|------------------------------|---------|
| in service (.)               | step 14 |
| another state                | step 25 |

- 14** To display the CI level of the MAP, type:

**>QUIT ALL**

and press the enter key.

*Example of a MAP response:*

CI:

- 15** To access the administration of the disk device, type:

**>DISKADM snnp**

and press the enter key

where

s is the front (F) or rear (R) shelf position of the IOP card that contains the disk drive packlet

## How to create volumes on XA-Core disks (continued)

---

nn is the number of the slot position of the input/output processor (IOP) card that contains the disk drive packlet (requires a two-digit number)

p is the upper (U) or lower (L) position of the IOP card that contains the disk drive packlet

Example of command input:

**DISKADM F02L**

*Example of a MAP response:*

Start up command sequence is in progress.  
This may take a few minutes.  
Administration of device F02L on CM is now active.  
DISKADM; CM

- 16** To display the disk data space that is available, type:

**>DISPLAYDISK**

and press the enter key

*Example of a MAP response:*

Disk drive information for F02L

```
Date last formatted : 1999/05/17 09:58:03.277
MON.
Date last modified : 1999/05/17 10:21:54.822
MON.
Total space for volumes : 4095 Mbytes
Total Free space : 3695 Mbytes
Size of largest free segment : 3695 Mbytes
Total number of volumes : 0
```

1 Block = 512 bytes

**Note:** The number of blocks varies according to the total disk storage capacity.

- 17** To display the information of all the volumes on the disk, type:

**>DISPLAYVOLS**

and press the enter key

*Example of a MAP response*

F02L contains no volumes.

- 18** To create a volume on the disk, type:

**>CREATEVOL vol\_name vol\_size FTFS LBLOCK logical\_size**

and press the enter key

where

vol\_name is the name you call the volume (eight characters maximum).

vol\_size is the size of the volume in megabytes.

logical\_size is the block size of the logical volume. The block size can have 1, 2, 4, 8, or 16 kbytes when a number 1, 2, 4, 8, or 16 is after LBLOCK and a space. The recommended size is the default value of 16 kbytes. A

---

## How to create volumes on XA-Core disks (continued)

---

recommended size for a disk volume that has peripheral module (PM) load files is 4 kbytes. The same disk volume can support concurrent loading of more than one PM load file. A decrease in the block size from 16 kbytes supports an increased number of concurrent loading processes but with less performance.

Example of command input:

**CREATEVOL VOLUME\_1 70 FTFS LBLOCK 4**

*Example of a MAP response:*

FTFS volume VOLUME\_1 will be created on F02L.

Volume size: 70 megabytes  
 First FID table extent size: 2047 entries  
 Volume Free Space Map size: 7936 segments

Do you want to continue?  
 Please confirm ("YES", "Y", "NO", or "N"):

- 19** Determine if the volume creation exceeds the largest free segment..

*An example of a MAP response to the create volume command that exceeds a maximum is as follows:*

CREATEVOL-1 command is aborted  
 Not enough space on disk.

Retry command OR Quit and reenter DISKADM.

---

| If the response to the create volume command indicates | Do |
|--------------------------------------------------------|----|
|--------------------------------------------------------|----|

---

|                                 |         |
|---------------------------------|---------|
| a prompt to confirm the command | step 20 |
|---------------------------------|---------|

|                                                  |         |
|--------------------------------------------------|---------|
| that the volume exceeds the largest free segment | step 25 |
|--------------------------------------------------|---------|

---

- 20** To confirm the create volume command from step 18, type:

**>YES**

and press the enter key

*Example of a MAP response:*

Creation of the volume is completed.

- 21** To display the information of all the volumes on the disk, type:

**>DISPLAYVOLS**

and press the enter key.

*Example of a MAP response:*

Information about FTFS volumes on F02L.

| Volume | Create | Modify | Size | LBLK | Max | Max | No. |
|--------|--------|--------|------|------|-----|-----|-----|
| System | Data   |        |      |      |     |     |     |

## How to create volumes on XA-Core disks (end)

| Name     | Date     | Date     | Mega  | Size   | No. of | No. of  | Boot  |
|----------|----------|----------|-------|--------|--------|---------|-------|
| Cache    | Cache    |          |       |        | Files  | Segmnts |       |
|          | Y/M/D    | Y/M/D    | Bytes | kBytes |        |         |       |
| Files    | Pages    | Pages    |       |        |        |         |       |
| -----    | -----    | -----    | ----- | -----  | -----  | -----   | ----- |
| VOLUME_1 | 99/02/18 | 99/02/18 | 70    | 4      | 22047  | 7936    | 0     |
| 6        | 6        |          |       |        |        |         |       |

**Note:** In the example of a MAP response, the test volume is VOLUME\_1.

- 22 To quit the DISKADM utility, type:

**>QUIT**

and press the enter key

- 23 To check for the volume that you created, type:

**>PRINT ROOTDIR**

and press the enter key.

*Example of a MAP response:*

|              |        |      |      |
|--------------|--------|------|------|
| MAP          | Device | Copy | 1800 |
| F02LVOLUME_1 | Device | Copy | 84C2 |

**Note:** The volume has the disk device identified as a prefix to the volume name. In the example of a MAP response, the volume is F02LVOLUME\_1.

- 24 Determine if the administration of the disk device created the volume. Check for the MAP response of step 23 to list the created volume.

| If the administration of the disk device created the volume | Do |
|-------------------------------------------------------------|----|
|-------------------------------------------------------------|----|

|           |         |
|-----------|---------|
| correctly | step 26 |
|-----------|---------|

|        |         |
|--------|---------|
| failed | step 25 |
|--------|---------|

- 25 For additional help, call the next level of support.

- 26 You have completed this procedure.



## How to perform XA-Core LED maintenance

---

### Application

Use this procedure to check that light-emitting diodes (LEDs) function correctly on all XA-Core circuit packs (CPs) and packlets. The LEDs indicate the working state and physical slot location of the CPs and packlets. If a red LED is not working, you cannot locate the CP or packlet on the physical shelf. If a red, amber or green LED is not working, you cannot accurately define the working state of the CP or packlet.

Use the `Indicat_` menu command with the `<testall>` parameter to light all LEDs on all CPs and packlets. Use the `Indicat_` command with the `<card>` and location parameters to light LEDs on a single CP or packlet. For a complete explanation of the `Indicat_` command, refer to the documents that describe XA-Core MAP level commands.

### Interval

Perform this procedure once every month.

### Common procedures

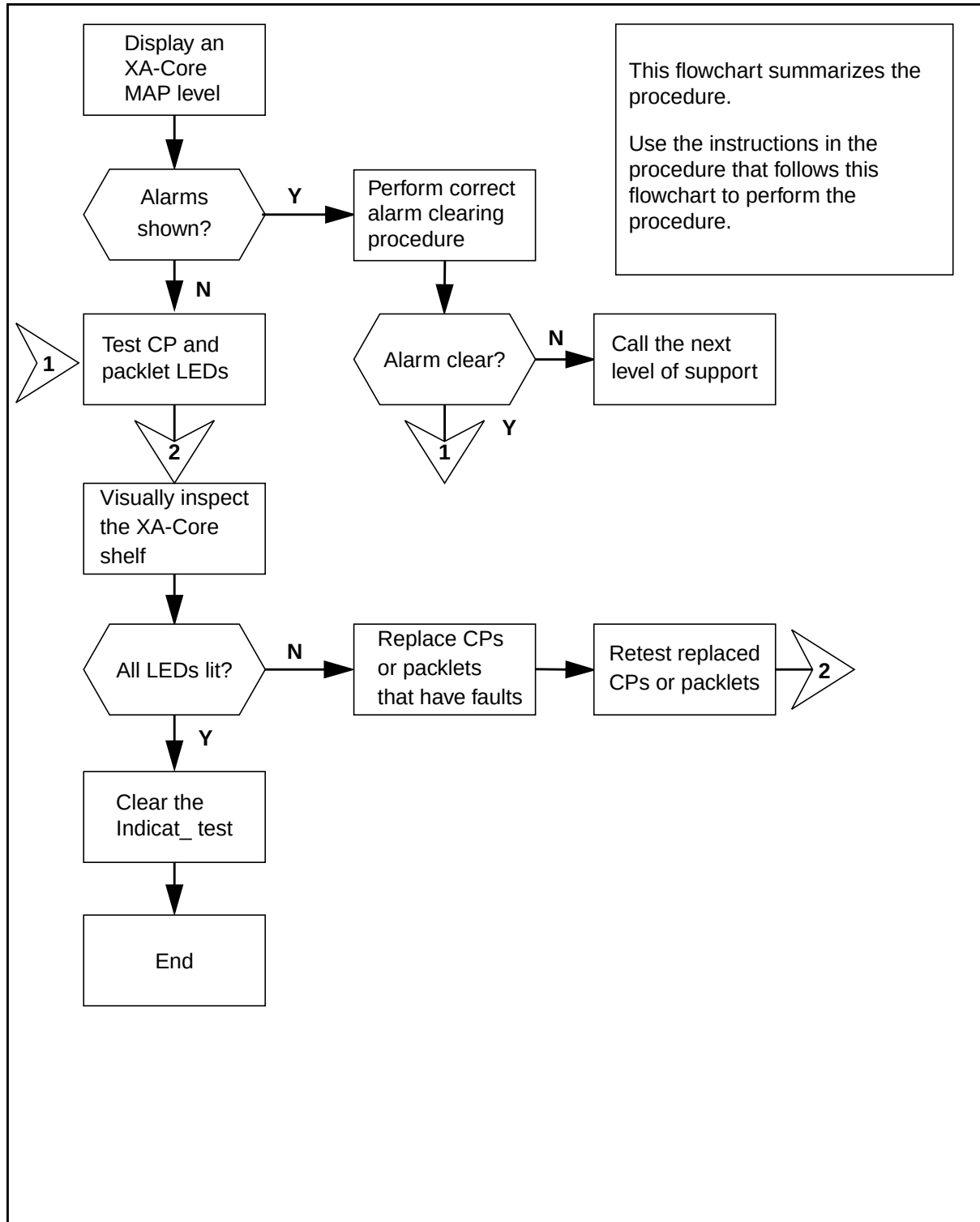
There are no common procedures.

### Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

## How to perform XA-Core LED maintenance (continued)

### Summary of How to perform XA-Core LED maintenance



## How to perform XA-Core LED maintenance (continued)

### How to perform LED maintenance

#### At the MAP terminal

- 1 Access any XA-Core MAP level (such as the XACMtc MAP level). At the CI MAP prompt, type:

**>MAPCI;MTC;XAC;XAMTC**

and press the Enter key.

- 2 Examine the MAP level. Record any alarms and the location of any OOS CPs or packlets.

*The following is a sample MAP display.*

#### XACMtc MAP level

| XAC         | MS | IOD                   | Net | PM               | CCS | Lns       | Trks | Ext  | APPL |
|-------------|----|-----------------------|-----|------------------|-----|-----------|------|------|------|
| .           | .  | .                     | .   | .                | .   | .         | .    | .    | .    |
| XACMtc      |    |                       |     |                  |     |           |      |      |      |
| 0 Quit      |    | Front: 11111111       |     | Rear: 11111      | SM  | PE        | IO   | PKLT |      |
| 2           |    | 123456789012345678    |     | 456789012345     | .   | .         | .    | .    |      |
| 3           |    | Sta: -. . . . .       |     | . . . . .        | 0   | 0         | 0    | 0    |      |
| 4           |    | Dep:                  |     |                  |     |           |      |      |      |
| 5           |    |                       |     |                  |     |           |      |      |      |
| 6           |    |                       |     |                  |     |           |      |      |      |
| 7           |    | Traps:                |     | Per Minute: = 0  |     | Total = 1 |      |      |      |
| 8           |    | Last Image run at:    |     | 1999/02/15 13:13 |     |           |      |      |      |
| 9           |    | restart type= reload  |     |                  |     |           |      |      |      |
| 10          |    | Result = pass         |     |                  |     |           |      |      |      |
| 11 Image    |    | Last XARExtst run at: |     | 1999/03/15 14:25 |     |           |      |      |      |
| 12 RExTst_  |    | Last XARExtst Type:   |     | full             |     |           |      |      |      |
| 13 RExInt_  |    | Last XARExtst Result: |     | notRun           |     |           |      |      |      |
| 14 Alarm_   |    |                       |     |                  |     |           |      |      |      |
| 15          |    | XACMTC:               |     |                  |     |           |      |      |      |
| 16          |    |                       |     |                  |     |           |      |      |      |
| 17 Indicat_ |    |                       |     |                  |     |           |      |      |      |
| 18 Query_   |    |                       |     |                  |     |           |      |      |      |
| XMAP0       |    |                       |     |                  |     |           |      |      |      |
| Time 14:12  |    |                       |     |                  |     |           |      |      |      |
| >           |    |                       |     |                  |     |           |      |      |      |

**If the MAP alarm banner displays**

**Do**

an alarm

step 3

no alarm

step 4

- 3 Perform the correct alarm clearing procedure. Return to this point when complete.
- 4 Test all CP and packlet LED indicators. At the MAP level type:  
**>INDICAT <testall> [timer]**  
 and press the Enter key  
 where

## How to perform XA-Core LED maintenance (continued)

---

<testall> is the parameter used to cause all LEDs to light. The <testall> parameter does not cause an audible alarm nor alarm notification on the MAP terminal. The amber LEDs on the shelf interface modules (SIM) CPs do not light. CP or packlet LEDs now under test continue to flash. You can use this parameter for all CP or packlet states (SysB, ManB, Cbsy, IsTb).

[timer] is the option used to indicate the time (in minutes) to light or flash LEDs. The XA-Core system turns the LEDs off when the time expires. The maximum time period is 999 min. If you do not define a time period, the default time period is 120 min.

Example of command use:

**>INDICAT testall 5**

*Example of system response:*

Indicate testall passed

### ***At the XA-Core physical shelf***

- 5** Perform a visual inspection of LEDs on all the CPs and packlets. Make sure that all LEDs light-up on all CPs and packlets.

**Note:** The amber LEDs on the SIMs do not light.

- 6** Record the physical slot location of any CP or packlet that does not have all LEDs lit.

---

| <b>If one or more LEDs are</b>                       | <b>Do</b> |
|------------------------------------------------------|-----------|
| not lit on one or more different CP or packlet types | step 7    |
| not lit on similar CP or packlet types               | step 9    |
| lit on all CPs and packlets                          | step 10   |

---

---

## How to perform XA-Core LED maintenance (continued)

---

**At the MAP terminal**

- 7 Test each of the suspect CPs or packlets individually. Use the CP or packlet location information recorded from 6. Perform the following:
  - a Clear the Indicat\_ <testall> command. At the MAP level type  
**>INDICAT <clearall>**  
 and press the Enter key  
 where  
 <clearall> is the parameter used to return all winking or testing LEDs on all CPs or packlets to a normal working state.  
 Example of command use:  
**>INDICAT clearall**  
*Example of system response:*  
 Indicate clearall passed
  - b Light all the LEDs on the suspect CP or packlet. At the MAP level type  
**>INDICAT <test> <nn> <s> [timer]**  
 or  
**>INDICAT <test> <nn> <s> <p> [timer]**  
 and press the Enter key  
 where  
 <test> is the parameter used to cause all LEDs on a single CP or packlet to light. The <test> parameter does not cause an audible alarm nor alarm notification on the MAP terminal. The amber LEDs on the shelf interface modules (SIM) CPs do not light. CP or packlet LEDs now under test continue to flash. You can use this parameter for all CP or packlet states (SysB, ManB, Cbsy, lStb). You can use the <test> parameter with the [timer] option.  
 <nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18  
 <s> is the side parameter value to indicate the CP or packlet location in the physical shelf - front (f) or rear (r)  
 <p> is the upper (u) or lower (l) physical slot location of the packlet in an input/output processor (IOP).  
 [timer] is the option used to indicate the time (in minutes) to light or flash LEDs. The XA-Core system turns the LEDs off when the time expires. The maximum time period is 999 min. If you do not define a time period,

## How to perform XA-Core LED maintenance (continued)

the default time period is 120 min. The Indicat\_ <clear> or <clearall> command returns CPs or packlets to a normal working state.

Example of command use:

**>INDICAT test 2 f 5**

or

**>INDICAT test 2 f u 5**

*Example of system response:*

Indicate test 2 front upper passed

- c Record the physical slot location of the CP or packlet that does not have all LEDs lit.

| If one or more LEDs are              | Do      |
|--------------------------------------|---------|
| not lit on one or more CP or packlet | step 8  |
| lit on all CPs and packlets          | step 10 |

- 8 Perform the correct CP or packlet replacement procedure. Return to this point when complete. Test the replacement CP or packlet individually. Use the CP or packlet location information recorded from 7. Perform the following steps:

- a Use the Indicat <clearall> command. At the MAP level type

**>INDICAT <clearall>**

and press the Enter key

where

<clearall> is the parameter used to return all winking or testing LEDs on all CPs or packlets to a normal working state.

Example of command use:

**>INDICAT clearall**

*Example of system response:*

Indicate clearall passed

- b Light all the LEDs on the replacement CP or packlet. At the MAP level type

- i **>INDICAT <test> <nn> <s> [timer]**

or

- i **>INDICAT <test> <nn> <s> <p> [timer]**

and press the Enter key

where

<test> is the parameter used to cause all LEDs on a single CP or packlet to light. The <testa> parameter does not cause an audible alarm nor alarm notification on the MAP terminal. The amber LEDs

---

## How to perform XA-Core LED maintenance (end)

---

on the shelf interface modules (SIM) CPs do not light. CP or packet LEDS now under test continue to flash. You can use this parameter for all CP or packet states (SysB, ManB, Cbsy, IsTb). You can use the <test> parameter with the [timer] option.

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 0 to 18

<s> is the side parameter value to indicate the CP or packet location in the physical shelf - front (f) or rear (r)

<p> is the upper (u) or lower (l) physical slot location of the packet in an input/output processor (IOP).

[timer] is the option used to indicate the time (in minutes) to light or flash LEDs. The XA-Core system turns the LEDs off when the time expires. The maximum time period is 999 min. If you do not define a time period, the default time period is 120 min.

Example of command use:

**>INDICAT test 2 f 5**

or

**>INDICAT test 2 f u 5**

*Example of system response:*

Indicate test 2 front (upper) passed

- ii Record the physical slot location of any replacement CP or packet that does not have all LEDs lit.

| If one or more LEDs are    | Do      |
|----------------------------|---------|
| not lit                    | step 9  |
| lit on all CPs and packets | step 10 |

**9** Call the next level of support.

**10** You have completed this procedure.

## **How to record an XA-Core office image on a disk**

---

### **Application**

Use this procedure to record the office image files of an eXtended Architecture Core (XA-Core). Use this procedure to record the office image on to a disk in an XA-Core shelf.

### **Interval**

Perform this procedure each day if the XA-Core has no automatic image taking. Perform this procedure as required by your office if the XA-Core has automatic image taking.

### **Common procedures**

There are no common procedures.

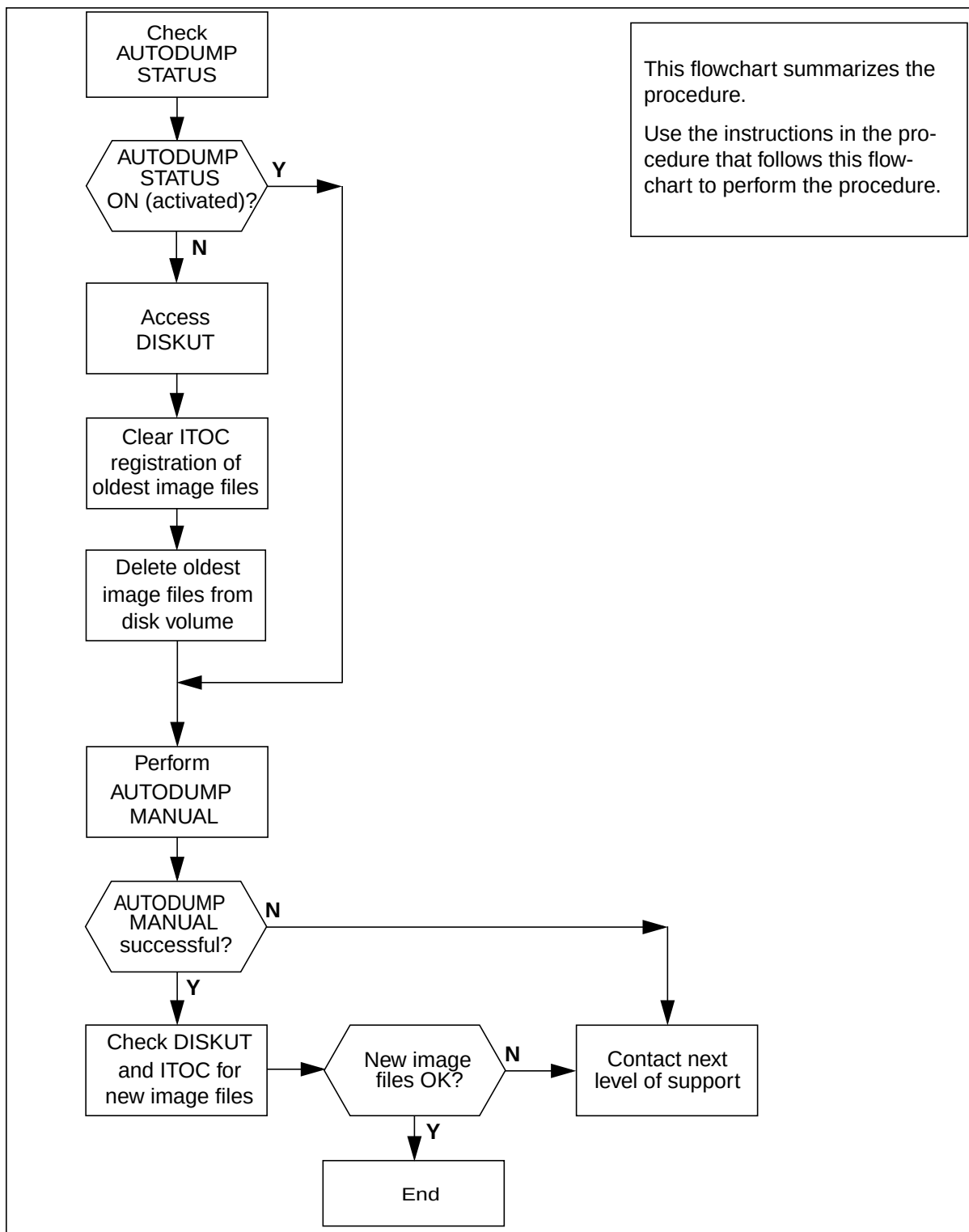
### **Action**

This procedure contains a summary flowchart as a summary of the procedure. Follow the exact steps to perform this procedure.



## How to record an XA-Core office image on a disk (continued)

### Summary of How to record an XA-Core office image on a disk



---

## How to record an XA-Core office image on a disk (continued)

---

### How to record an XA-Core office image on a disk



#### CAUTION

**Call your next level of support**

Do not try this procedure before you call your next level of support.

#### At the MAP

- 1** To access the MAP CI level display, type:

**>QUIT ALL**

and press the enter key.

*Example of a MAP response:*

CI:

- 2** To check the status of automatic image taking, type:

**>AUTODUMP STATUS**

and press the enter key.

*Example of a MAP response*

Successful Image: 990215\_CM  
Taken: 1999/03/17 21:47:32:04.138 WED.  
On Volume: F17LIMAGE

Successful Image: 990215\_MS  
Taken: 1999/03/17 21:47:32:04:138 WED.  
On Volume: F17LIMAGE

SCHEDULED-Image Dump is ON.

RETAIN option is OFF.

Next scheduled dump is MONDAY at 22:30 hours.  
Next image to be dumped on F02LIMAGE.

- 3** Determine if the retain option is off. XA-Core has the retain option on or off. In the example of a MAP response of step 2, the text RETAIN option is OFF indicates the retain option is off..

| If If RETAIN option is | Do     |
|------------------------|--------|
| ON                     | step 4 |
| OFF                    | step 8 |

- 4** To change the retain option, type:

**>AUTODUMP RETAIN**

---

## How to record an XA-Core office image on a disk (continued)

---

and press the enter key.

*Example of a MAP response:*

```

*** WARNING ***
This option RETAINS the PRIMARY LOAD ROUTE.
The PRIMARY LOAD ROUTE should be initially
set per NTP.
The RETAIN option will be ENABLED.
Please confirm ("YES", "Y", "NO", or "N"):

```

- 5 To confirm the command, type:

**>YES**

and press the enter key.

*Example of a MAP response:*

RETAIN option DISABLED.

- 6 To check the status of automatic image taking, type:

**>AUTODUMP STATUS**

and press the enter key.

*Example of a MAP response*

```

Successful Image: 990215_CM
Taken: 1999/03/17 21:47:32:04.138 WED.
On Volume: F17LIMAGE

```

```

Successful Image: 990215_MS
Taken: 1999/03/17 21:47:32:04:138 WED.
On Volume: F17LIMAGE

```

SCHEDULED-Image Dump is ON.

RETAIN option is OFF.

Next scheduled dump is MONDAY at 22:30 hours.

Next image to be dumped on F02LIMAGE.

- 7 Determine if the retain option is off. XA-Core has the retain option on or off. In the example of a MAP response of step 2, the text RETAIN option is OFF indicates the retain option is off.

| If If RETAIN option is | Do      |
|------------------------|---------|
| ON                     | step 40 |
| OFF                    | step 8  |

## How to record an XA-Core office image on a disk (continued)

- 8 Determine if the XA-Core has automatic image taking on or off. In the example of a MAP response of step 2, the text SCHEDULED-Image Dump is ON indicates the automatic image taking is on..

| If SCHEDULED-Image Dump is | Do      |
|----------------------------|---------|
| ON                         | step 27 |
| OFF                        | step 9  |

- 9 To access the MAP disk utility, type:

**>DISKUT**

and press the enter key.

*Example of a MAP response:*

Disk utility is now active.  
DISKUT:

- 10 Determine and record the XA-Core disk volume that the image dump goes on to. Determine the disk volume from office records or office personnel.

- 11 To list the files in the disk volume that you recorded in step 10, type:

**>LISTFL vol\_name**

and press the enter key.

where

<vol\_name> is the name of the disk volume that contains the office image files.

Example of MAP input:

**>LISTFL F02LIMAGE**

*Example of a MAP response:*

File information for volume F02LIMAGE:  
{NOTE: 1 BLOCK = 512 BYTES}

```

FILE NAME O R I O O V FILE MAX
NUM OF FILE LAST R E T P L L CODE REC
RECORDS SIZE MODIFY G C O E D D LEN
IN IN DATE C N FILE
BLOCKS

IMG0504CX_CM I F 0 1020
165180 329728 990506
IMG0504CX_MS I F 0 1020
7542 15360 990506
IMG0501CU_CM I F 0 1020
165180 329728 990501

```

## How to record an XA-Core office image on a disk (continued)

```
IMG0501CU_MS I F 0 1020
7542 15360 990501
```

- 12** Determine and record the file names of the oldest XA-Core and message switch (MS) images. The XA-Core image files have a CM suffix. The MS image files have an MS suffix.

**Note:** In the example of a MAP response in step 11, the oldest image file for XA-Core is IMG0501CU\_CM. In the example of a MAP response in step 11, the oldest image file for the MS is IMG0501CU\_MS

- 13** Determine if you can delete the files of the oldest XA-Core and MS images. Determine if file deletion is correct from office records or office personnel.

| If file deletion of oldest XA-Core and MS images is | Do      |
|-----------------------------------------------------|---------|
| correct                                             | step 14 |
| not correct                                         | step 40 |

- 14** To access the user interface for the image table of contents (ITOC) table, type:

**>ITOC CI**

and press the enter key.

*Example of a MAP response:*

```
ITOC User Interface is now active.
ITOC CI:
```

- 15**



### WARNING

#### Do not leave ITOC table empty

The ITOC table must not be empty of image files to boot the switch. Do not clear from the ITOC the last image files for the XA-Core and message switch (MS). Each XA-Core disk must have an XA-Core image file and an MS image file.

To list the image files for the XA-Core in the ITOC, type:

**>LISTBOOTFILE XA**

and press the enter key.

## How to record an XA-Core office image on a disk (continued)

Example of a MAP response:

Image Table Of Contents for XA :

| A   | Registered | Generic Device | File         |
|-----|------------|----------------|--------------|
| L   | Date       | Time           | Name         |
| R   | MM/DD/YYYY | HH:MM:SS       |              |
| 0 * | 05/04/1999 | 19:16:21       | F02LIMAGE    |
|     |            |                | IMG0504CX_CM |
| 0   | 05/01/1999 | 19:21:19       | F02LIMAGE    |
|     |            |                | IMG0501CU_CM |

**Note:** The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (\*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- 16** Determine if the ITOC table has more than one XA-Core image file.

| If more than one XA-Core image file is | Do      |
|----------------------------------------|---------|
| in the ITOC table                      | step 17 |
| not in the ITOC table                  | step 40 |

- 17** To clear the oldest image file for the XA-Core from the ITOC table, type:  
**>CLEARBOOTFILE XA FILE xacore\_image\_file**  
 where  
 and press the Enter key.  
 <xacore\_image\_file> is the name of the XA-Core image file that you recorded in step 12.

Example of MAP input:

**>CLEARBOOTFILE XA FILE IMG0501CU\_CM**

- 18** To list the image files for the MS in the ITOC table, type:  
**>LISTBOOTFILE MS**  
 and press the enter key.

## How to record an XA-Core office image on a disk (continued)

*Example of a MAP response:*

Image Table Of Contents for XA :

|     | A Registered<br>L Date | Time     | Generic Device | File<br>Name |
|-----|------------------------|----------|----------------|--------------|
|     | R MM/DD/YYYY           | HH:MM:SS |                |              |
| 0 * | 05/04/1999             | 19:16:21 | F02LIMAGE      |              |
|     |                        |          | IMG0504CX_MS   |              |
| 1   | 05/01/1999             | 19:21:19 | F02LIMAGE      |              |
|     |                        |          | IMG0501CU_MS   |              |

**Note:** The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (\*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- 19** Determine if the ITOC table has more than one MS image file.

| <b>If more than one MS image file is</b> | <b>Do</b> |
|------------------------------------------|-----------|
|------------------------------------------|-----------|

|                   |         |
|-------------------|---------|
| in the ITOC table | step 20 |
|-------------------|---------|

|                       |         |
|-----------------------|---------|
| not in the ITOC table | step 40 |
|-----------------------|---------|

- 20** To clear the oldest image file for the MS from the ITOC table, type:

**>CLEARBOOTFILE MS FILE ms\_image\_file**

and press the Enter key.

where

<ms\_image\_file> is the name of the MS image file that you recorded in step 12.

Example of MAP input:

**>CLEARBOOTFILE MS FILE IMG0501CU\_MS**

- 21** To quit the MAP user interface for the ITOC table, type:

**>QUIT**

and press the enter key.

*Example of a MAP response:*

DISKUT:

- 22** To delete the oldest image file for XA-Core, type:

**>DELETEFL xacore\_image\_file**

and press the enter key.

where

## How to record an XA-Core office image on a disk (continued)

---

<xacore\_image\_file> is the name of the XA-Core image file that you recorded in step 12.

Example of MAP input:

**>DELETEFL IMG0501CU\_CM**

23 To confirm the command type:

**>YES**

and press the enter key.

24 To delete the oldest image file for the MS, type:

**>DELETEFL ms\_image\_file**

and press the enter key.

where

<ms\_file> is the name of the MS image file that you recorded in step 12.

Example of MAP input:

**>DELETEFL IMG0501CU\_MS**

25 To confirm the command type:

**>YES**

and press the enter key.

26 To quit the MAP disk utility, type:

**>QUIT**

and press the enter key.

*Example of a MAP response:*

CI:

27 To start an image taking record, type:

**>AUTODUMP MANUAL**

and press the enter key.

*Example of a MAP response:*

SCHEDULED Image Dump in approximately 5 minutes...  
Please refrain from using dump unsafe commands during the  
CM image dump.  
Quit to CI if possible.  
If you cannot refrain from using dump unsafe commands use  
the STOPDUMP command to abort AUTODUMP.  
Querying image size on node: MS0. Waiting for reply...  
Reply received.  
Querying image size on node: CM. Waiting for reply...  
Reply received.  
Checking to see if anyone using dump unsafe commands.  
Image Dump STARTED: 1999/06/18 03:52:20.150 FRI.  
Please refrain from using dump unsafe commands during the  
CM image dump.Quit to CI if possible.  
If you cannot refrain from using dump unsafe commands use  
the STOPDUMP command to abort AUTODUMP.



---

## How to record an XA-Core office image on a disk (continued)

---

Users will be notified when dump unsafe commands are allowed to be used.

Users can now use dump unsafe commands.

Image dump completed successfully.

Successful Image: S990618035204\_CM

Taken: 1999/06/18 03:52:20.150 FRI.

On Volume: F02LCUTOVER

Last Image: S990618035204\_CM

Successful Image: S990618035204\_MS

Taken: 1999/06/18 03:52:20.150 FRI.

On Volume: F02LCUTOVER

Last Image: S990618035204\_MS

- 28 To check the performance of the image taking record of step 27, type:

**>AUTODUMP HISTORY**

and press the enter key.

*Example of a MAP response.*

Autodump begins...

WARNING: Only 1 percent space left in the volume after this image is taken. There may not be enough space for subsequent images. Ensure that only recent CM and MS image and history file exist in the volume. Increase the volume size if necessary.

Stopping Journal File...

Journal File stopped.

Beginning Dump. START time: 1999/06/18 03:52:20.237 FRI.

Timeout initialized.

CM: Estimated image size is 155288 Kbytes.

CM: Unloading modules that are loaded as TEMPORARY...

CM: None found.

CM: Current autoload file: F02LPATCHES

TAM\_UNITCNA114DC\_W24\_CM

CM:

CM: Dumping Data Store.

CM:

CM: Dumping Program Store.

CM:

CM: Dumping Entry Record.

CM:

CM: Checking Data Store.

CM:

CM: Checking Program Store.

CM:

CM: Checking Entry Record.

CM:

CM: Successful DUMP and CHECK.

CM: 155287 blocks with 1033 corrections.

CM:

CM: Image from XA registered as file 11 in ITOC for XA.

CM: Active entry in ITOC for XA was NOT updated.

Image Dump Completed.

**How to record an XA-Core office image on a disk (continued)**

---

```
Timeout initialized.
MS0: Estimated image size is 7543 Kbytes.
MS0: Unloading modules that are loaded as TEMPORARY...
MS0: None found.
MS0: Current autoload file: F02LPATCHES
TAM_UNITCNA114DC_W24_C
MS0:
MS0: Dumping Data Store
MS0: .
MS0: Dumping Program Store.
MS0: Dumping Entry Record.
MS0:
MS0: Checking Data Store.
MS0:
MS0: Checking Program Store.
MS0: Checking Entry Record.
MS0: Successful DUMP and CHECK.
MS0: 7542 blocks with 101 corrections.
MS0:
MS0: Image from MS registered as file 3 in ITOC for MS.
MS0: Active entry in ITOC for MS was NOT updated.
Image Dump Completed.
Dump END time: 1999/06/18 04:17:37.297 FRI..
Renaming CM Image File from ACTIVE to SAFE:
CM Image File Renamed.
Renaming MS Image File from ACTIVE to SAFE:
MS Image File Renamed.
Rotating Journal File...
ROTATE Journal File Completed.
Store Usage:
DS: USED = 151357Kb AVAIL = 45699Kb TOTAL = 197056Kb
% USED
PS: USED = 95672Kb AVAIL = 31240Kb TOTAL = 126912Kb
% USED =
Starting Journal File...
Completed START Journal File.
Autodump ends...
```

- 29** Determine if the image taking record completed correctly.

---

| <b>Iff image taking record com-<br/>pleted</b> | <b>Do</b> |
|------------------------------------------------|-----------|
| correctly                                      | step 32   |
| not correctly                                  | step 30   |

---

- 30** To find additional information about the image taking record that completed not correctly, type:

**>AUTODUMP DEBUG**

and press the enter key.

---

## How to record an XA-Core office image on a disk (continued)

---

*Example of a MAP response.*

```
Creating image file name: A990618035204
Attempting to determine disk volume to use for dump:
BEGIN: get_image_size for node MS0:
Allocating MTS resources... Done.
Allocating event... Done.
Searching for dump controller... Done.
Sending query_image_size msg to dump controller... Done.
Image size for MS0 is 7724032 bytes.
Releasing MTS resources.
END: get_image_size - deallocating event.
BEGIN: get_image_size for node CM:
Allocating MTS resources... Done.
Allocating event... Done.
Searching for dump controller... Done.
Sending query_image_size msg to dump controller...
Done.
Image size for CM is 159014912 bytes.
Releasing MTS resources.
END: get_image_size - deallocating event.
Total image size (CM + MS) is: 166738944 bytes.
Calculating disk block requirements for a 166738944 byte
image
Beginning search for disk volume to use for dump:
Getting volume name for next volume in table: Done.
Getting volume id for F02LCUTOVER... Done.
Checking available disk space:
Getting volume information... Done.
Calculating requirements in disk blocks:
Image size: 325662 Disk space: 331648
Enough space exists to take an image
Updating protected variable active_volume
Updating protected variables for last image.
BEGIN: perform_autodump
Setting up dump parms.
Update_mode is: update
Allocating MTA resources... Done.
Allocating cleanup event... Done.
Searching for dump controller mailbox... Done.
BEGIN: over_nodes loop:
Preparing to dump CM:
Requesting permission from SAC to dump node CM
Permission received
*** Sending DUMP request to dump controller... Message
sent.
Timeout time is: 1999/06/18 06:52:21.590 FRI..
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Message
received:
```

## How to record an XA-Core office image on a disk (continued)

---

```
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Timed out.
Continuing...
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Message
received:
Sending event stopped notification to SAC. RC: 0
Preparing to dump MS:
Requesting permission from SAC to dump node MS0
Permission received
*** Sending DUMP request to dump controller... Message
sent.
Timeout time is: 1999/06/18 04:58:44.186 FRI..
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Timed out.
Continuing...
Waiting for messages from DUMP controller... Message
received:
Waiting for messages from DUMP controller... Timed out.
Continuing...
Waiting for messages from DUMP controller... Timed out.
Continuing...
Waiting for messages from DUMP controller... Message
received:
Sending event stopped notification to SAC. RC: 0
END: over_nodes loop
Deallocating autodump event
END: perform_autodump
Attempting to rename image file:
Searching for image file: A990618035204_CM...
Found image file: A990618035204_CM
Getting file information... Done.
Attempting to clear ITOC entry...
Done.
Renaming file: A990618035204_CM TO: S990618035204_CM...
Done.
Getting volume information... Done.
Getting file information... Done.
Retain option is UPDATE: Setting ACTIVE bootfile...
Setting bootfile...
Done.
Updating protected variables for last successful image.
Getting MS image file info:
Found image file: A990618035204_MS
Getting file information... Done.
Attempting to clear ITOC entry...
Done.
Renaming file: A990618035204_MS TO: S990618035204_MS...
Failed. Reason: File not found
Updating protected variables for successful dump.
```

---

## How to record an XA-Core office image on a disk (continued)

---

- 31** Record the information about the image taking record that completed not correctly.

Go to step 40.

- 32** To access the image table of contents (ITOC) user interface, type:

**>ITOCCI**

and press the enter key.

*Example of a MAP response:*

ITOC User Interface is now active.

ITOCCI:

- 33** To list the image files for the XA-Core in the ITOC, type:

**>LISTBOOTFILE XA**

and press the enter key.

*Example of a MAP response:*

Image Table Of Contents for XA :

| A | Registered |          | Generic Device | File |
|---|------------|----------|----------------|------|
| L | Date       | Time     |                | Name |
| R | MM/DD/YYYY | HH:MM:SS |                |      |

-----

0 \* 05/04/1999 19:16:21 F02LIMAGE  
IMG0504CX\_CM

0 05/17/1999 19:26:29 F02LIMAGE  
IMG0517CY\_CM

**Note:** The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (\*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- 34** Determine if the XA-Core image file is in the ITOC correctly.

| If the XA-Core image file is in the ITOC | Do |
|------------------------------------------|----|
|------------------------------------------|----|

|           |         |
|-----------|---------|
| correctly | step 35 |
|-----------|---------|

|               |         |
|---------------|---------|
| not correctly | step 40 |
|---------------|---------|

- 35** To list the image files for the MS in the ITOC, type:

**>LISTBOOTFILE MS**

and press the enter key.

## How to record an XA-Core office image on a disk (end)

*Example of a MAP response:*

Image Table Of Contents for XA :

|     | A Registered<br>L Date            Time<br>R MM/DD/YYYY HH:MM:SS | Generic Device | File<br>Name |
|-----|-----------------------------------------------------------------|----------------|--------------|
| 0 * | 05/04/1999 19:16:21                                             | F02LIMAGE      | IMG0504CX_MS |
| 1   | 05/17/1999 19:26:29                                             | F02LIMAGE      | IMG0517CY_MS |

**Note:** The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (\*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

- 36** Determine if the MS image file is in the ITOC correctly.

| If the MS image file is in the ITOC | Do |
|-------------------------------------|----|
|-------------------------------------|----|

|           |         |
|-----------|---------|
| correctly | step 37 |
|-----------|---------|

|               |         |
|---------------|---------|
| not correctly | step 40 |
|---------------|---------|

- 37** Determine if office procedures require a backup copy on tape of the office image files of XA-Core that you recorded.

| If office procedures require | Do |
|------------------------------|----|
|------------------------------|----|

|               |         |
|---------------|---------|
| a backup copy | step 38 |
|---------------|---------|

|                |         |
|----------------|---------|
| no backup copy | step 41 |
|----------------|---------|

- 38** Perform the procedure "How to backup an XA-Core office image from disk to tape". When you have completed this procedure, return to this step.

- 39** Go to step 41

- 40** For additional help, call the next level of support.

- 41** You have completed the procedure.

## How to replace XA-Core cooling unit air filters

---

### Application

Use this procedure to replace a cooling unit filter in XA-Core, in a standard C-42 cabinet frame. The part number of the cooling unit filter is A0662028.

The cooling unit filter is a single, slide-out tray assembly located above the cooling unit fan drawers. Access the cooling unit filter from the front of the cabinet. The fan drawers of the cooling unit are in the lower front section of the cabinet.

### Interval

Replace the cooling unit filter every six weeks.

### Common procedures

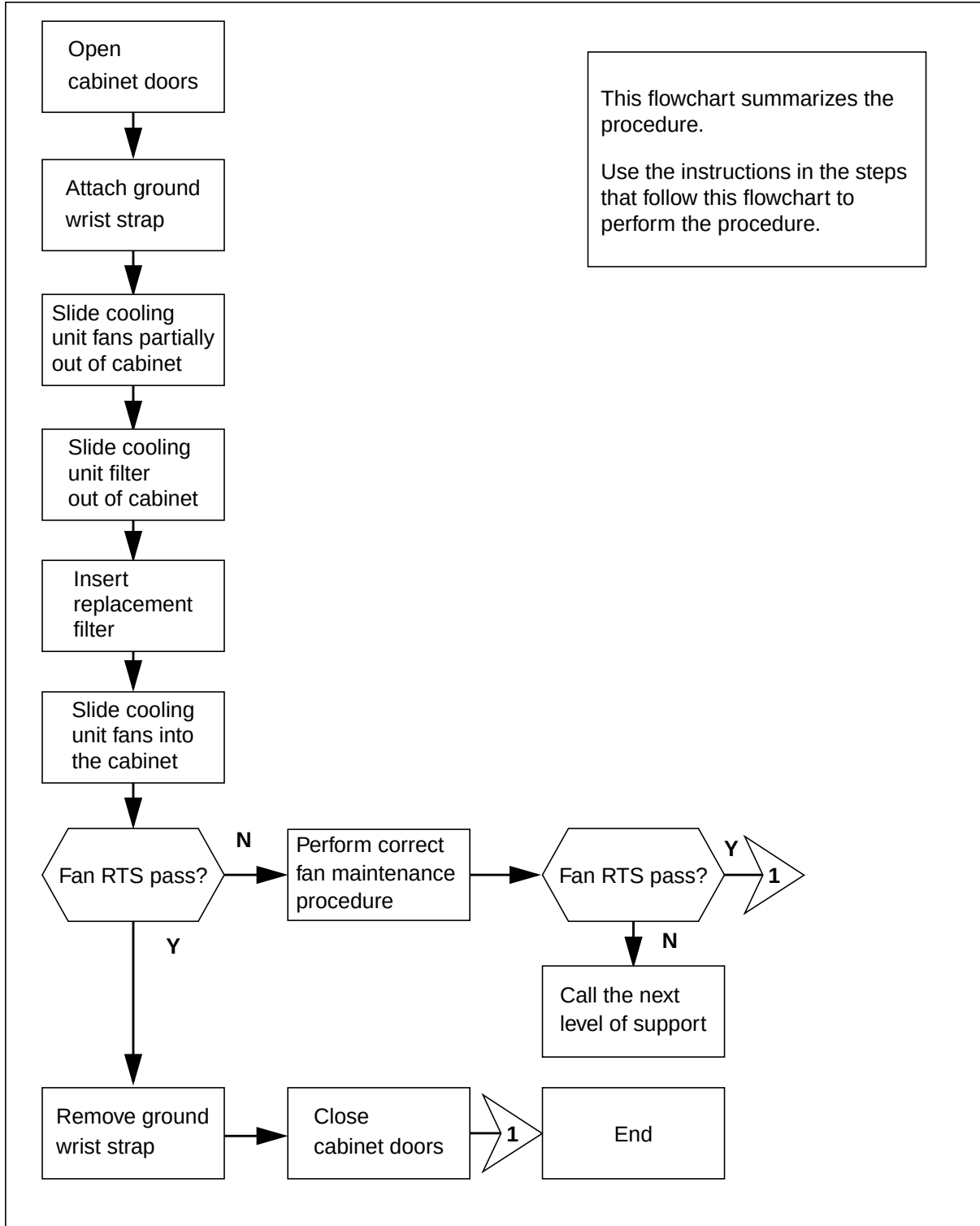
There are no common procedures.

### Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

## How to replace XA-Core cooling unit air filters (continued)

### How to replace XA-Core cooling unit air filters





---

## How to replace XA-Core cooling unit air filters (continued)

---

### How to replace an XA Core cooling unit filter



#### **WARNING**

##### **Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



#### **CAUTION**

##### **Loss of service**

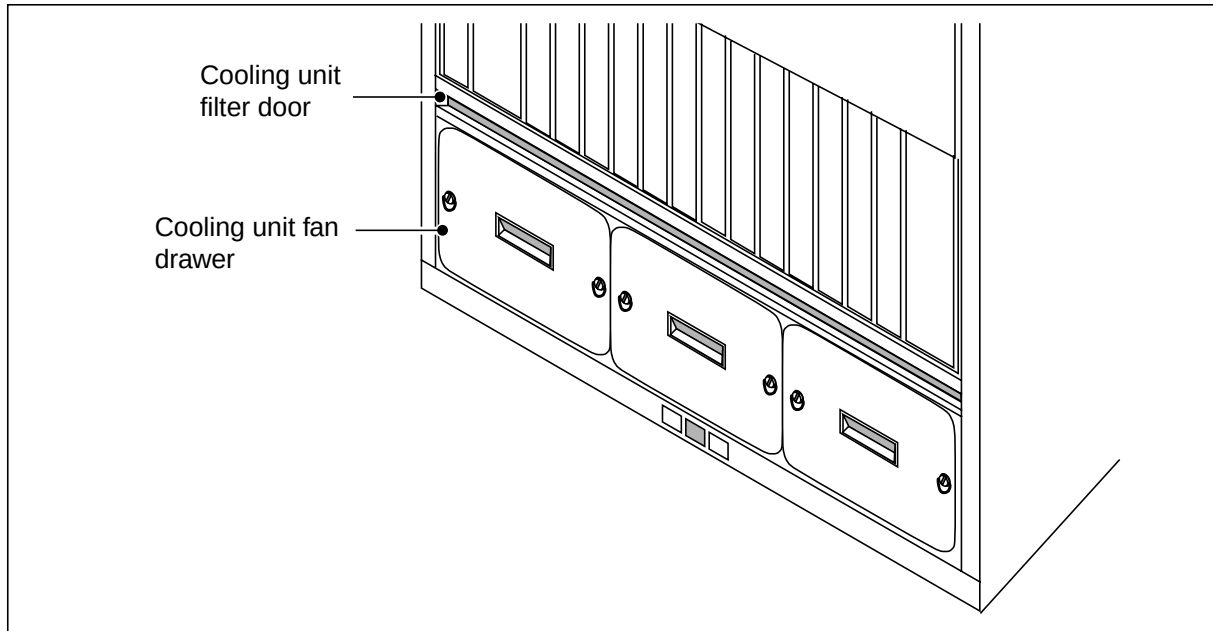
Read and make sure you thoroughly understand the instructions in this procedure before performing the filter replacement. Do not allow the cooling unit to remain un-powered for more than 2 min.

#### ***At the XA-Core cabinet***

- 1** Get a new, replacement cooling unit filter (part number A0662028). Do not re-use old filters.
- 2** Open the front doors of the XA-Core cabinet completely.
- 3** Locate the following in the lower front section of the cabinet.
  - The cooling unit fans.
  - The cooling unit filter. The cooling unit filter is a single, slide-out tray assembly.

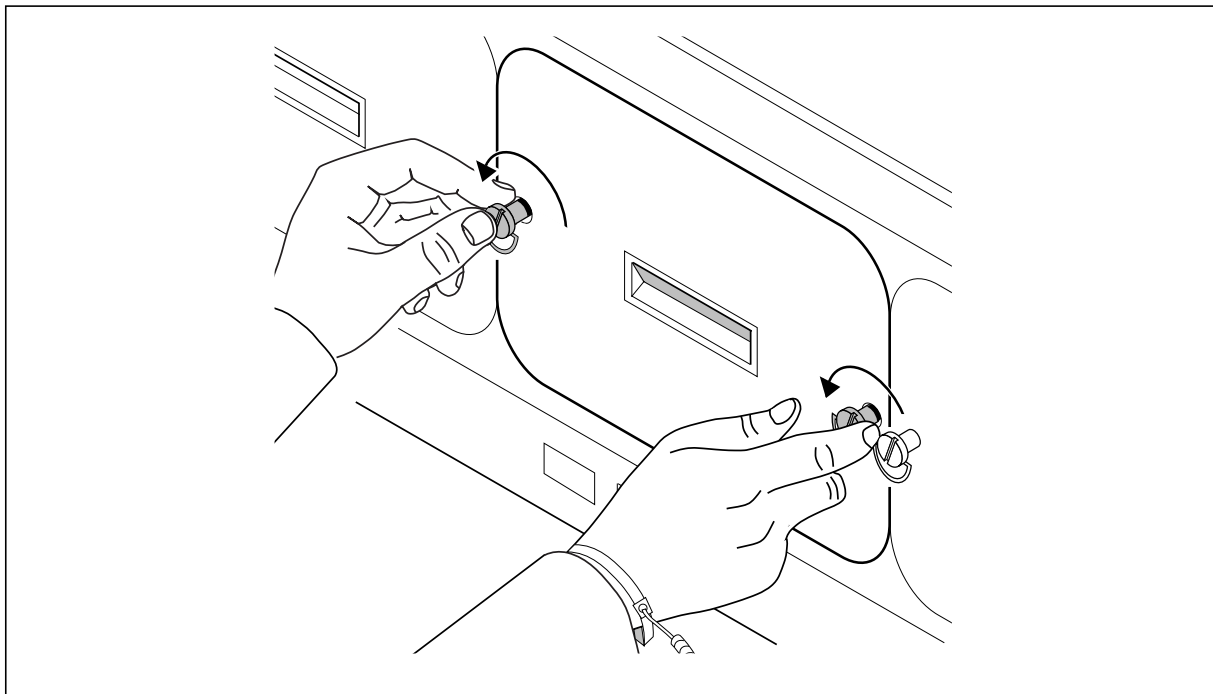
## How to replace XA-Core cooling unit air filters (continued)

### XA-Core cooling unit fan drawer and filter door locations



- 4 Loosen the locking screws on the cooling unit fan drawers. Turn the locking screws in a counter-clockwise direction.

### Loosen the locking screws on the cooling unit fan drawers



---

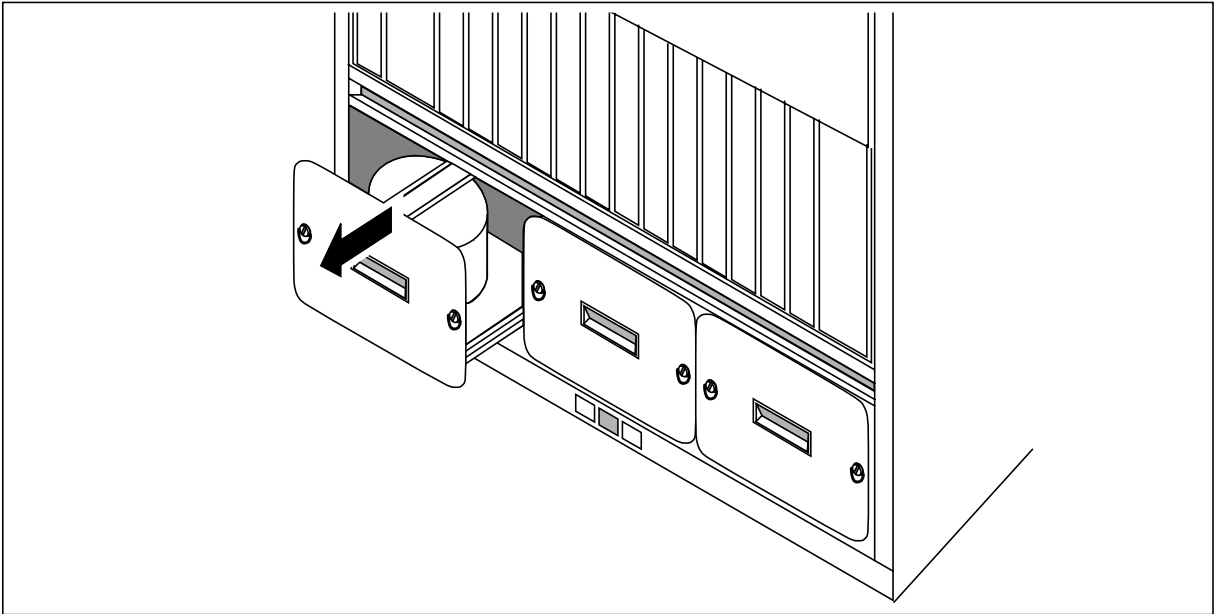
## How to replace XA-Core cooling unit air filters (continued)

---

- 5 Pull all three fan drawers partially away from the cabinet. Wait 30 sec. to allow the cooling unit fans to spin down.

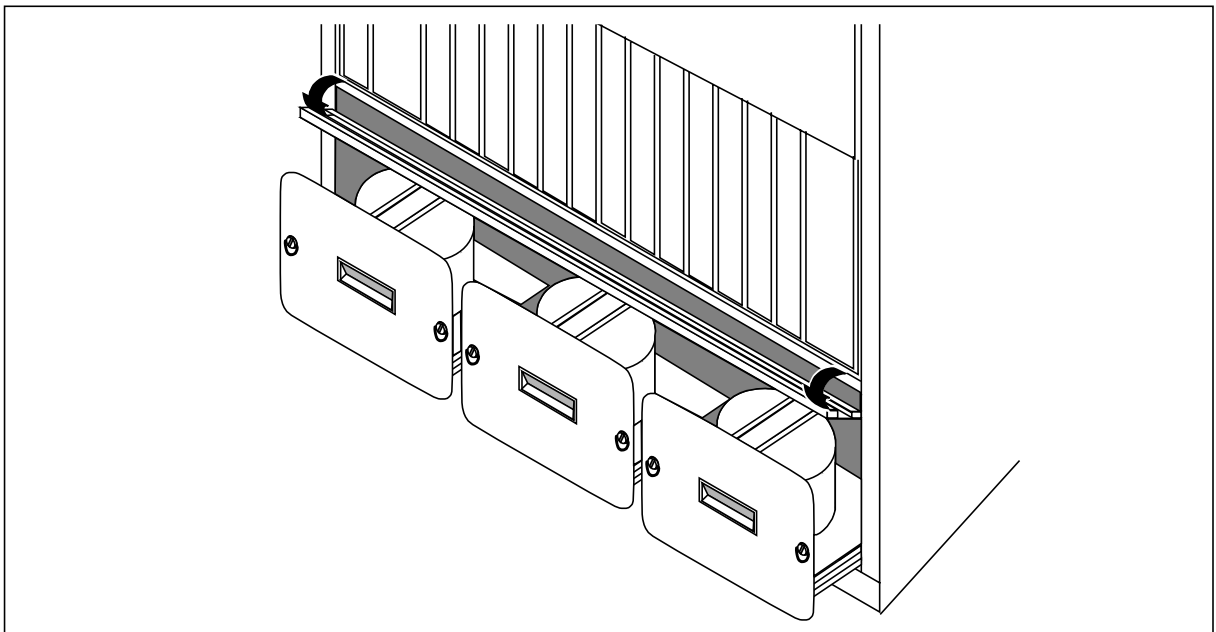
**Note:** The FSP blower LED will light. An FSP major alarm appears on the MAP level under the EXT alarm banner header.

### Open the cooling unit fan drawers



- 6 Open the cooling unit filter door as shown in the diagram in this step.

### Open the cooling unit filter door

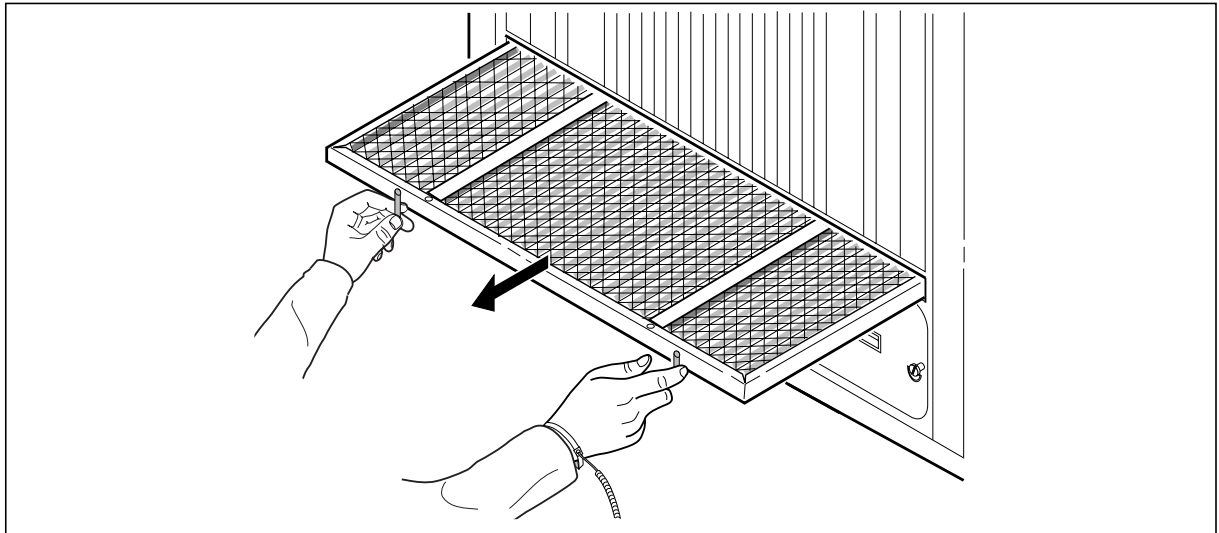


## How to replace XA-Core cooling unit air filters (continued)

- 7 Hold the tabs of the cooling unit filter and carefully pull the filter toward you. Pull the filter completely away from the cooling unit. Make sure that you do not hit the filter during removal. Sudden movement of the filter can cause dust to fall into the cabinet.

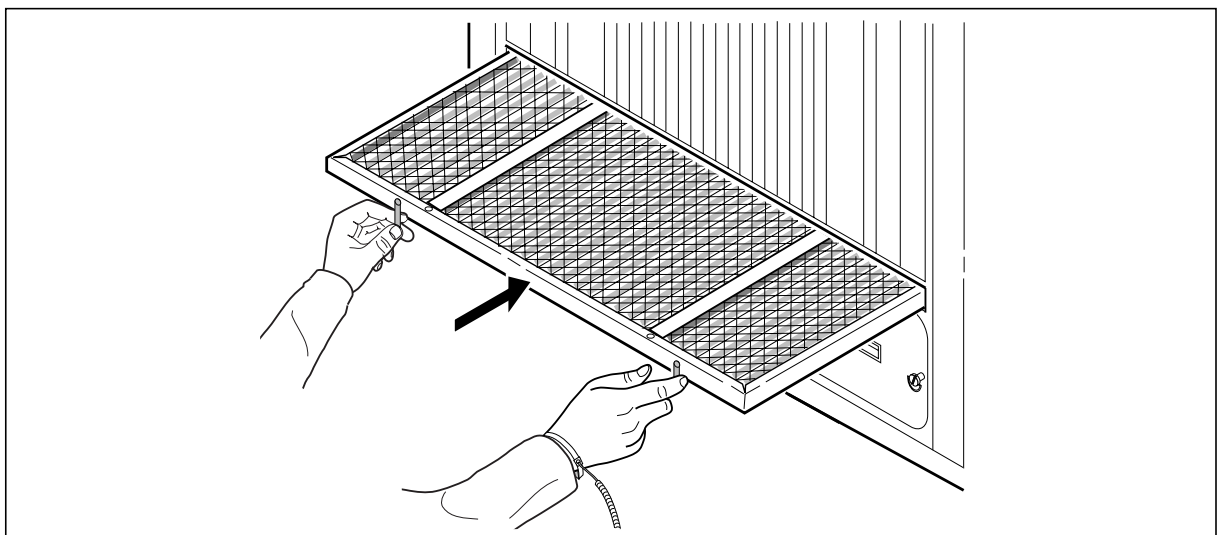
**Note:** Before you remove the cooling unit filter, note the position of the filter in the cabinet. Make sure that the wire mesh side of the replacement filter is face-up.

### Remove the cooling unit filter



- 8 Insert the replacement cooling unit filter. Align the replacement filter with the filter guides. Carefully push the filter until the filter is completely in the cabinet. Make sure that the wire mesh side is face-up.

### Insert the replacement cooling unit filter



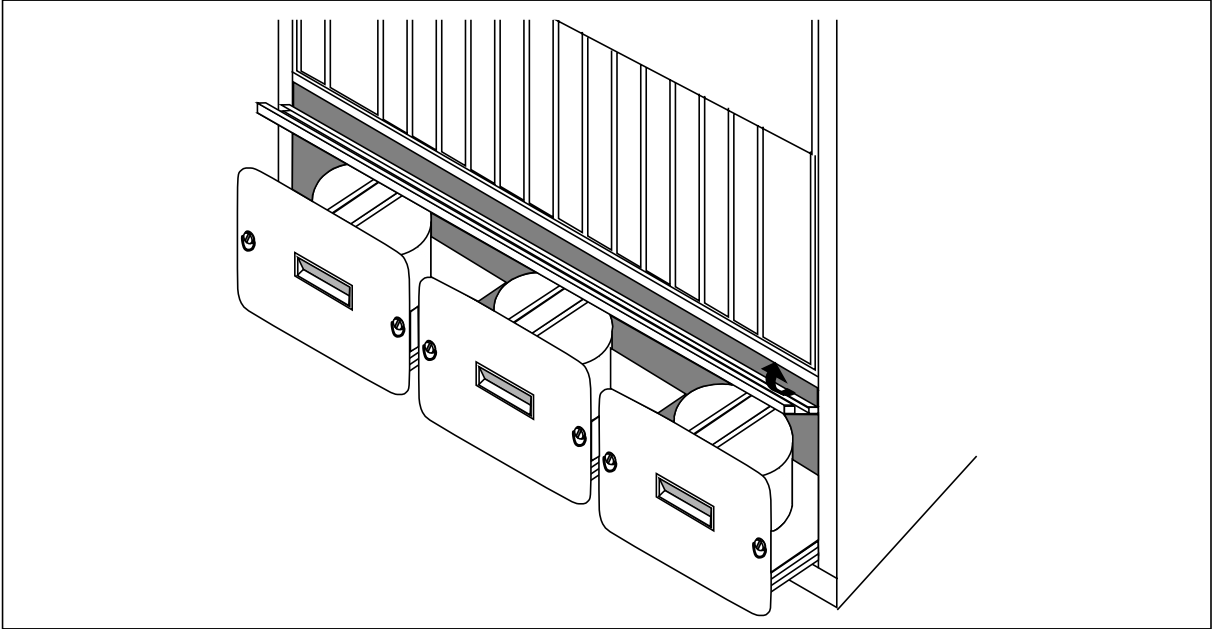
---

## How to replace XA-Core cooling unit air filters (continued)

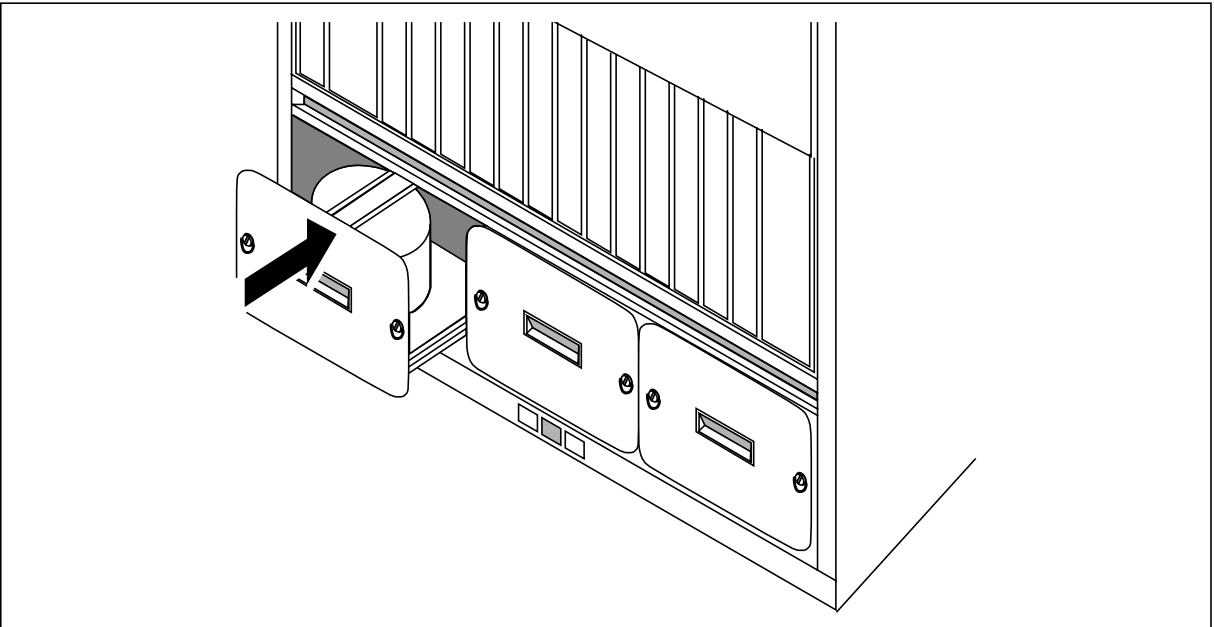
---

- 9 Close the cooling unit filter door as shown in the diagram in this step. Push on the filter door until it locks into place.

**Close the cooling unit filter door**



**Close the cooling unit fan drawers**



- 10 Power up all three cooling unit fans. Push all three fan drawers one at a time completely into the cabinet.

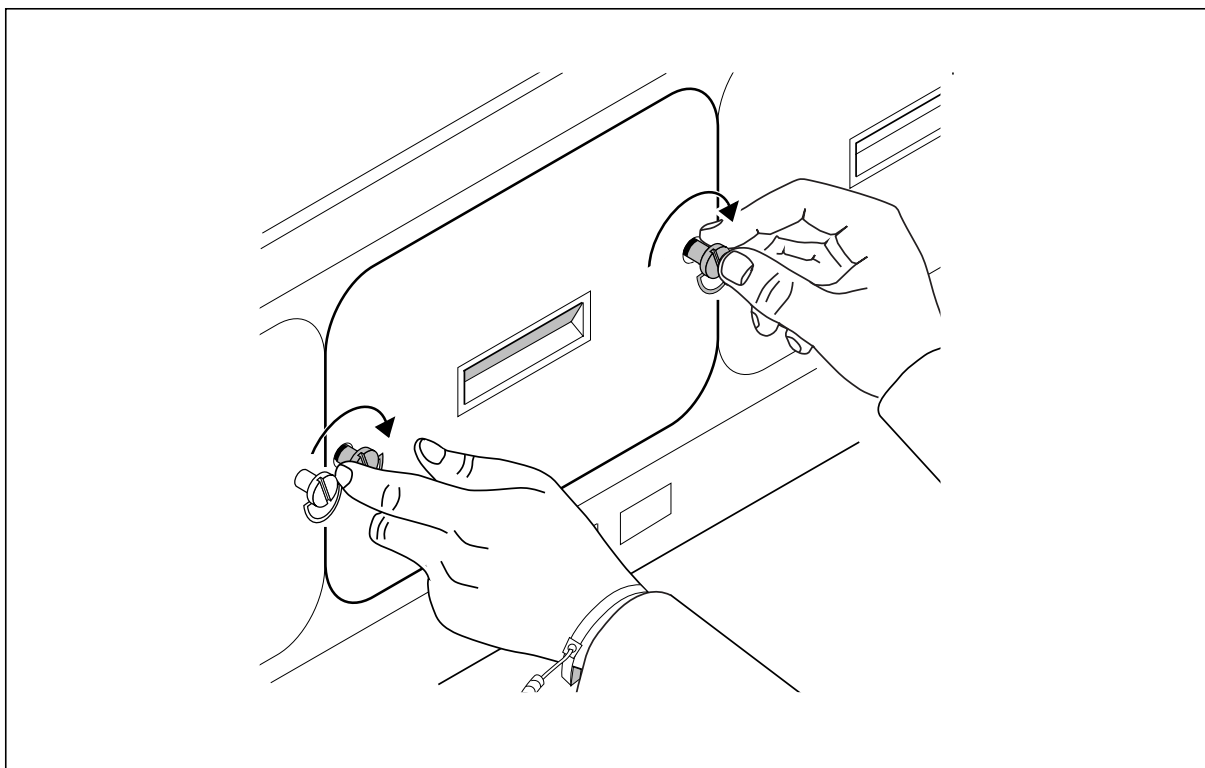
## How to replace XA-Core cooling unit air filters (end)

- 11** Make sure that the fans power up. Make sure that the green LEDs light on all fan drawers.

| If the cooling unit fans are | Do      |
|------------------------------|---------|
| not in service               | step 12 |
| in service                   | step 13 |

- 12** Refer to the correct cooling unit maintenance procedure. Return to this point when complete.
- 13** Tighten the locking screws on the cooling unit fan drawers. Turn the locking screws in a clockwise direction.

### Tighten the locking screws on the cooling unit fan drawers



- 14** Disconnect the wrist strap lead from the FSP.
- 15** Close the cabinet doors completely.
- 16** You have completed this procedure. Return to the procedure that sent you to this procedure and continue as indicated.

## **How to restore an XA-Core office image from tape to disk**

---

### **Application**

Use this procedure to copy the office image files of an eXtended Architecture Core (XA-Core). Use this procedure to copy the office image files from a digital audio tape (DAT) cartridge to a disk in an XA-Core shelf.

### **Interval**

Perform this procedure as required.

### **Common procedures**

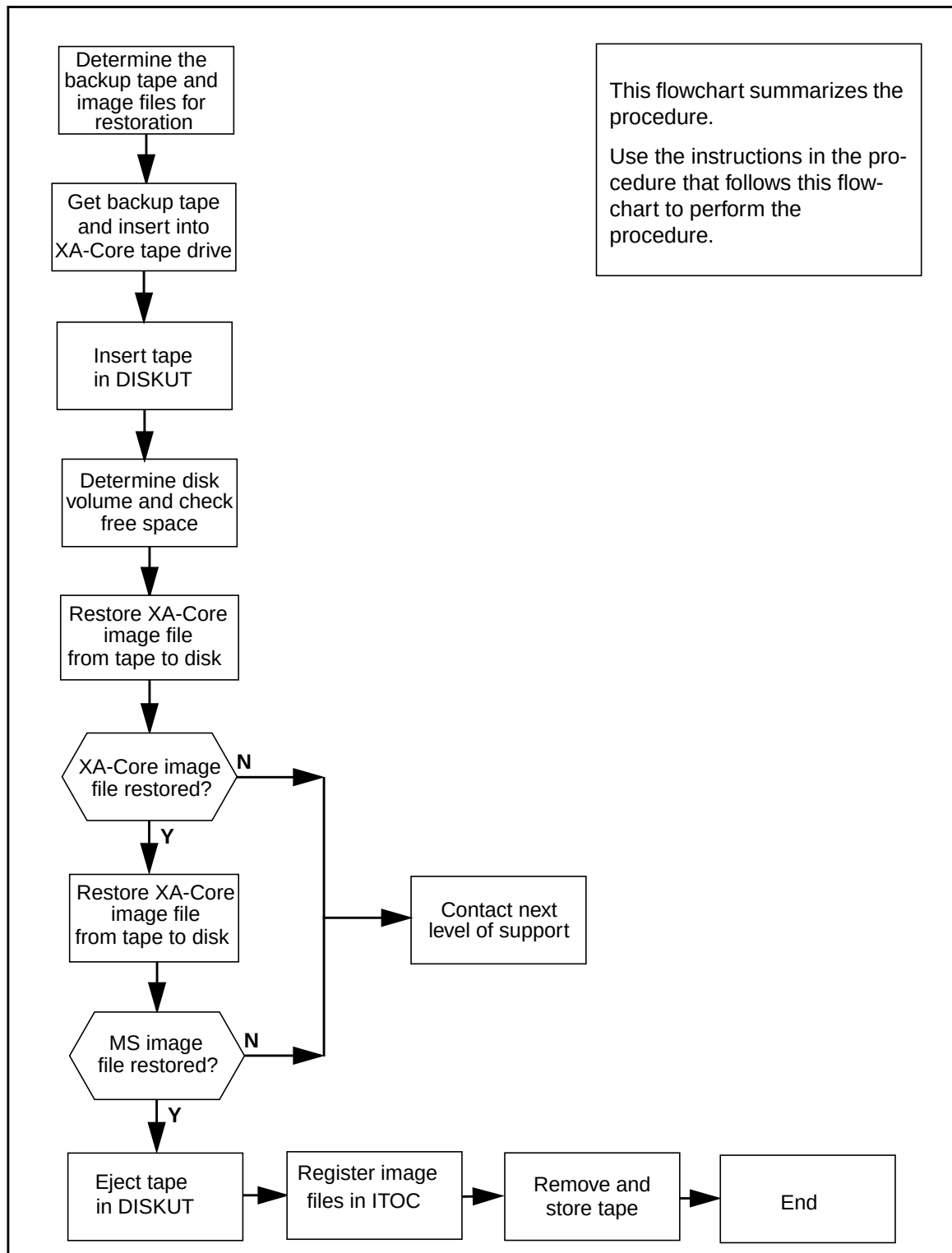
There are no common procedures.

### **Action**

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

## How to restore an XA-Core office image from tape to disk (continued)

### Summary of How to restore an XA-Core office image from tape to disk heads





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## How to restore an XA-Core office image from tape to disk (continued)

---

### How to restore an XA-Core office image from tape to disk

#### *At the shelf*

- 1 Determine the DAT tape that contains the office images for restoration to the XA-Core. Determine the tape from office records or office personnel.
- 2 Determine the tape files that have the images for the XA-Core and the message switch (MS). These tape files are for restoration to the XA-Core.
- 3 Determine from office records or office personnel if the DAT tape drive is clean. Refer to the XA-Core procedure "How to clean the XA-Core tape drive".
- 4



#### **WARNING**

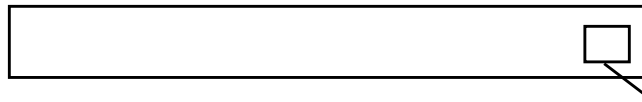
##### **Static electricity damage**

Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packet. The use of the wrist strap protects the packets against damage caused by electrostatic discharge (ESD).

Get the tape cartridge that contains the office images for restoration found in step 1.

- 5 Make sure that the protection tab for tape write permission is at the position that does not permit recording (open). The tape write protection is an entrance on one side of the tape that has a sliding door. The sliding door is open for write protection and closed to allow a write to the tape.

#### **Write protection of DAT cartridge**



Side-view of DAT cartridge

Position for write protection

- 6 Insert the tape cartridge into the XA-Core tape drive and close the drive door. The XA-Core tape drive is in the input/output processor (IOP) card of the XA-Core shelf.

**Note:** Restore the XA-Core image file first and the MS image file second.

## How to restore an XA-Core office image from tape to disk (continued)

---

### *At the MAP*

- 7 To access the MAP CI level display, type:

**>QUIT ALL**

and press the enter key.

*Example of a MAP response:*

CI:

- 8 To access the MAP disk utility, type:

**>DISKUT**

and press the enter key.

*Example of a MAP response:*

Disk utility is now active.

DISKUT:

- 9 To insert the tape, type

**>INSERTTAPE snnpTAPE**

and press the enter key

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example of MAP input:

**>INSERTTAPE F02UTAPE**

*Example MAP response:*

The INSERT operation may take  
up to 5 minutes to tension the tape.

Tape IMAGE\_1, unit 0, is now available to user on node CM

- 10 To list the files in the tape, type:

**>LISTFL snnpTAPE**

and press the enter key.

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example of MAP input:

## How to restore an XA-Core office image from tape to disk (continued)

### >LISTFL F02UTAPE

Example of a MAP response:

File information for tape volume F02UTAPE, node CM:  
{Note: 1 BLOCK = 512 BYTES}

```

CREATE ORG FILE V FILE NUM OF REC FILE NAME
 DATE TYPE CODE L SIZE IN RECORDS LEN
 D BLOCKS IN FILE

990520 IMAG 0 329070 165180 1020 IMG0517CY_CM
990520 IMAG 0 15026 7542 1020 IMG0517CY_MS

```

**Note 1:** In the example of a MAP response, IMG0517CY\_CM is the name of the XA-Core image file on tape. The name of the XA-Core image file is the same name as recorded in step 2.

**Note 2:** In the example of a MAP response, IMG0517CY\_MS is the name of the MS image file on tape. The name of the MS image file is the same name as recorded in step 2.

- 11 Determine the name of the disk volume for the restoration of the image from tape. Determine the disk volume from office records or office personnel. Record the disk volume name.
- 12 To list the volumes contained on the node, type:

### >LISTVOLS

and press the enter key.

Example of a MAP response:

Volumes found on the node CM:

```

NAME TYPE TOTAL FREE TOTAL OPEN
ITOC LARGEST BLOCKS BLOCKS FILES FILES
FILES FREE SEGMENT

F02LIMAGE_1 FTFS 819200 473088 5 0
2 473088
F02LIMAGE_2 FTFS 409600 408672 0 0
0 408672

```

Total number of volumes found on node CM : 2

- 13 To check the free space of the disk volume for restoration, type:

### >VOLINFO vol\_name

and press the enter key.

where

vol\_name is the name of the disk volume for image restoration.

Example of MAP input:

## How to restore an XA-Core office image from tape to disk (continued)

>VOLINFO F02LIMAGE\_2

*Example MAP response:*

Information for disk volume F02LIMAGE\_2 on node CM :  
-----

```

Type Code : FTFS
Version : 2
Name : IMAGE_RES
Number : 1
Valid : YES
When Created : 1999/05/20 11:06:24.278 THU.
When last modified : 1999/05/20 11:06:31.835
THU.
Logical block size in Kbytes : 16
Volume Size in Kbytes : 204800
Total free space in Kbytes : 204336
Total free space in blocks : 408672
Free segments : 1
Largest free area in Kbytes : 204336
Data cache pages : 24
System cache pages : 24
Files on volume : 1
Open files : 0
Max open files : 170
FID table version : 1
FID table last modified : 1999/05/20 11:06:24.278
THU.
extents in FID table : 1
FID table init alloc size : 352
FID table incr alloc size : 352
Free Space Map Version : 1
HD version # : 1

```

**Note:** In the example of a MAP response in step 12, the image restoration is on disk volume F02LIMAGE\_2.

- 14** To restore the XA-Core image file from tape to disk, type:

>RESTORE FILE vol\_name snnpTAPE xa\_file\_name

and press the enter key.

where

vol\_name is the name of the disk volume to receive the restored file

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

xa\_file\_name is the name of the XA-Core image file on tape

Example of MAP input:

## How to restore an XA-Core office image from tape to disk (continued)

**>RESTORE FILE F02LIMAGE\_2 F02UTAPE IMG0517CY\_CM**

| If the command was | Do      |
|--------------------|---------|
| successful         | step 15 |
| not successful     | step 28 |

- 15** To restore the MS image file from tape to disk, type:  
**>RESTORE FILE vol\_name snnpTAPE ms\_file\_name**  
 and press the enter key.  
 where  
 vol\_name is the name of the disk volume to receive the restored file  
 s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.  
 nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.  
 p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.  
 ms\_file\_name is the name of the MS image file on tape

Example of MAP input:

**>RESTORE FILE F02LIMAGE\_2 F02UTAPE IMG0517CY\_MS**

| If the command was | Do      |
|--------------------|---------|
| successful         | step 16 |
| not successful     | step 28 |

- 16** To list the office image files in the disk volume that contains the restored office image, type:  
**>LISTFL vol\_name**  
 and press the enter key.  
 where  
 <vol\_name> is the name of the disk volume that contains the office image files.  
 Example of MAP input:  
**>LISTFL F02LIMAGE\_2**

## How to restore an XA-Core office image from tape to disk (continued)

*Example of a MAP response:*

File information for volume F02LIMAGE\_2:

{NOTE: 1 BLOCK = 512 BYTES }

```

FILE NAME O R I O O V FILE MAX
NUM OF FILE LAST R E T P L L CODE REC
RECORDS SIZE MODIFY G C O E D D LEN
IN IN DATE C N FILE
BLOCKS

IMG0517CY_CM I F 0 1020
165180 329728 990520
IMG0517CY_MS I F 0 1020
7542 15360 990520

```

- 17** To eject the tape from the tape drive, type:

**>EJECTTAPE snnpTAPE**

and press the enter key.

where

s is the front (F) or rear (R) shelf position of the input output processor (IOP) that has the tape device.

nn is the number of the slot position on the XA-Core shelf for the IOP that has the tape device.

p is the upper (U) or lower (L) packlet position of the IOP that has the tape device.

Example of MAP input:

**>EJECTTAPE F02UTAPE**

*Example of a MAP response:*

The EJECT operation may take up to 5 minutes to position the tape to the beginning. Rewind of tape F02UTAPE, unit 0, on node CM is completed. This tape device is not available to the user now.

- 18** To exit the MAP disk utility and return to the CI MAP level, type:

**>QUIT**

and press the enter key.

*Example of a MAP response:*

CI:

- 19** To access the image table of contents (ITOC) user interface, type:

**>ITOC CI**

and press the enter key.

## How to restore an XA-Core office image from tape to disk (continued)

*Example of a MAP response:*

ITOC User Interface is now active.  
ITOCCI:

- 20 To register the restored image file for the XA-Core to the ITOC type:

**>SETBOOTFL XA** xa\_file\_name entry\_no alr\_or\_notalr

and press the enter key.

where

xa\_file\_name is the name of the XA-Core image file restored from the tape.

entry\_no is the entry number in the ITOC to insert the XA-Core image file into (range is from 0 to 15).

alr\_or\_notalr indicates if the file is the autoloader registered (ALR) image file or not the ALR file (NOTALR) for the XA-Core. The default value is NOTALR.

Example of MAP input:

**>SETBOOTFL XA** IMG0517CY\_CM 0 ALR

*Example of a MAP response:*

IMG0517CY\_CM is registered in XA ITOC.  
The updated ITOC is listed directly below.

Image Table Of Contents for XA :

|   | A Registered |                     | Generic Device | File         |
|---|--------------|---------------------|----------------|--------------|
|   | L Date       | Time                |                | Name         |
|   | R MM/DD/YYYY | HH:MM:SS            |                |              |
| 0 | *            | 05/20/1999 13:23:22 | F02LIMAGE_2    | IMG0517CY_CM |
| 1 |              | 05/15/1999 11:19:41 | F02LIMAGE_1    | IMG0517CX_CM |

**Note 1:** The example of a MAP response identifies the autoloader registered (ALR) image file by an asterisk (\*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

**Note 2:** The command LISTBOOTFL XA in ITOCCI produces the same MAP response as this step.

- 21 Determine if the restored image file for the XA-Core is in ITOC correctly.

| If the         | Do      |
|----------------|---------|
| successful     | step 22 |
| not successful | step 28 |

- 22 To register the restored image file for the MS to the ITOC type:

**>SETBOOTFL MS** ms\_file\_name entry\_no alr\_or\_notalr

## How to restore an XA-Core office image from tape to disk (continued)

and press the enter key.

where

ms\_file\_name is the name of the MS image file restored from the tape.

entry\_no is the entry number in the ITOC to insert the MS image file into (range is from 0 to 15).

alr\_or\_notalr indicates if the file is the autoload registered (ALR) image file or not the ALR file (NOTALR) for the MS. The default value is NOTALR.

Example of MAP input:

**>SETBOOTFL MS IMG0517CY\_MS 0 ALR**

*Example of a MAP response:*

IMG0517CY\_MS is registered in MS ITOC.  
The updated ITOC is listed directly below.

Image Table Of Contents for MS :

|   | A Registered |                     | Generic Device | File         |
|---|--------------|---------------------|----------------|--------------|
|   | L Date       | Time                |                | Name         |
|   | R MM/DD/YYYY | HH:MM:SS            |                |              |
| 0 | *            | 05/20/1999 13:24:38 | F17LIMAGE_2    | IMG0517CY_MS |
| 1 |              | 05/15/1999 11:19:44 | F17LIMAGE_1    | IMG0517CX_MS |

**Note 1:** The example of a MAP response identifies the autoload registered (ALR) image file by an asterisk (\*) in the ALR column. Each image file has an index number at the beginning of the tuple line. The ALR image in the example of a MAP response has an index number of 0. The XA-Core selects the ALR image file first to boot the switch. If the ALR image file does not boot the switch then the XA-Core selects the next image file. The next image file is by sequence of the index number from the top of the table.

**Note 2:** The command LISTBOOTFL MS in ITOCCI produces the same MAP response as this step.

- 23** Determine if the restored image file for the MS is in ITOC correctly.

| If the command was | Do      |
|--------------------|---------|
| successful         | step 24 |
| not successful     | step 28 |

- 24** To quit the ITOCCI user interface, type:

**>QUIT**

and press the enter key.

*Example of a MAP response:*

CI:



---

## How to restore an XA-Core office image from tape to disk (end)

---

*At the shelf*

25



**WARNING**

**Static electricity damage**

Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

Remove tape cartridge from the tape drive. Set the tape write protection to the position that does not permit recording (open). The tape write protection is an entrance on one side of the tape that has a sliding door. The sliding door is open for write protection and closed to allow a write to the tape.

**Write protection of DAT tape cartridge**



Side-view of DAT cartridge

Position for write protection

- 26 Store tape cartridge per office procedure.
- 27 Go to step 29.
- 28 For additional help, call the next level of support.
- 29 You have completed the backup procedure.

## **How to return an XA-Core circuit pack, packlet, or assembly to Nortel Networks (Canada)**

---

### **Application**

Use this procedure to return a circuit pack (CP), packlet or assembly to Nortel Networks for repair or replacement in Canada.

### **Interval**

Perform this procedure as required.

### **Common procedures**

There are no common procedures.

### **Action**

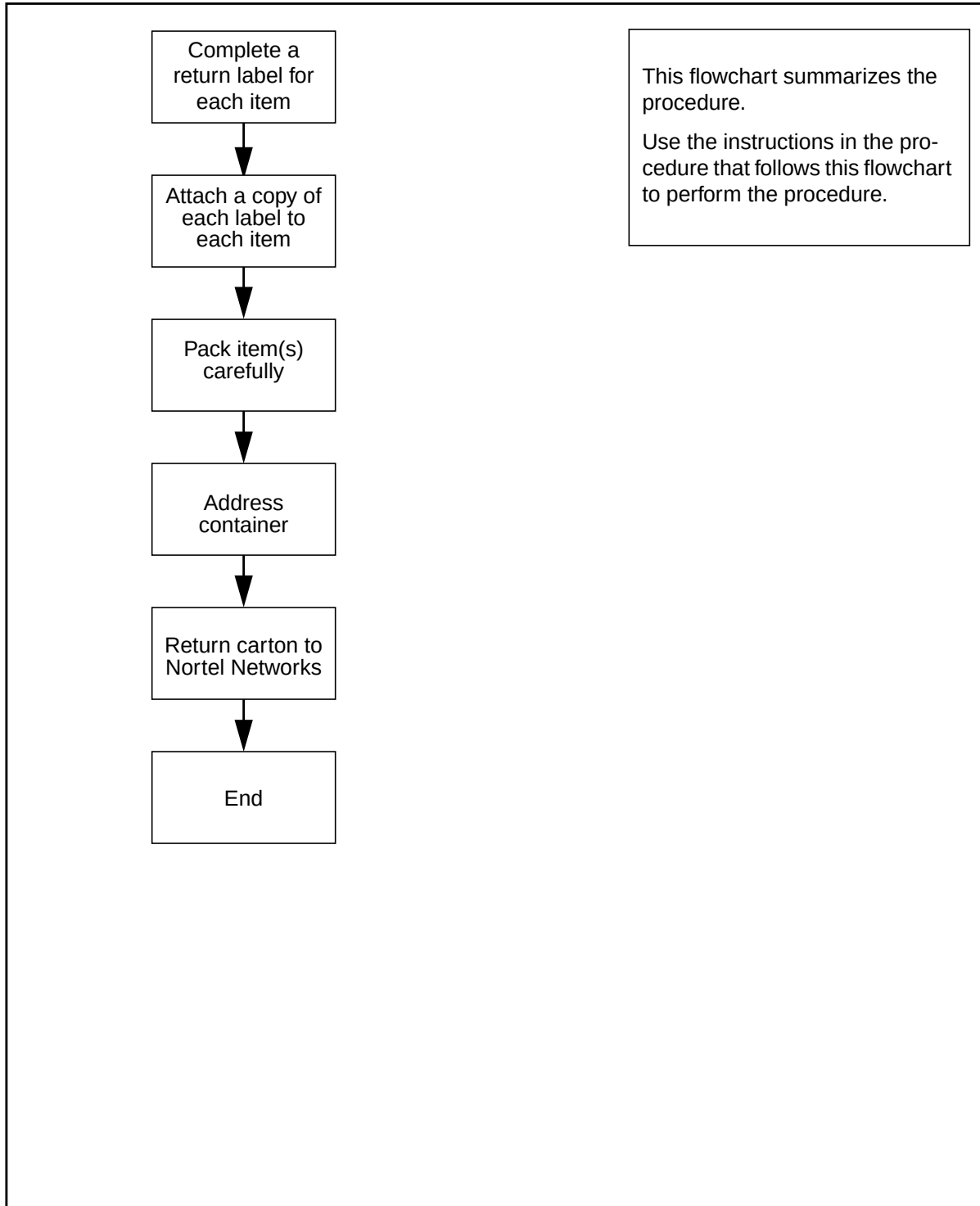
The following flowchart is only a summary of this procedure. Use the instructions in the steps follow the flowchart to perform the procedure.

---

## How to return an XA-Core circuit pack, packlet, or assembly to Nortel

---

### Summary of How to return an XA-Core circuit pack, packlet, or assembly to Nortel Networks (Canada)



## How to return an XA-Core circuit pack, packlet, or assembly to Nortel

---

### How to return a circuit pack (CP), packlet, or assembly to Nortel Networks

#### *At your current location*

- 1 Place the CP, packlet, or assembly into an electrostatic discharge (ESD) protective bag.
- 2 Complete one repair/return tag for each CP, packlet, or assembly that you return.

Include the following information on the repair/return tag:

- fault code that best describes the indications of the CP, packlet or assembly failure
- summary description of the failure
- return material authorization (RMA) number from customer service
- peripheral module (PM) software load name, if a PM-type failure
- unit serial number
- Nortel Networks product engineering code (PEC)
- unit release number
- name of your company
- office identifier code (shipping address)
- your name
- your site code (point of installation)
- any other relevant information

**Note:** If you need assistance to complete the repair/return tag, call 1-800-668-5511.

#### **Example**

## How to return an XA-Core circuit pack, packlet, or assembly to Nortel

### Example repair/return tag (front and rear views)

| In Service Return Tag                                                                                                                                                                                                                                                                                               |         | ○                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| NT Code                                                                                                                                                                                                                                                                                                             | Release | Ticket No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>123456</b> |
| Serial Number                                                                                                                                                                                                                                                                                                       |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| <div style="display: flex; justify-content: space-between;"> <span>Simplex</span> <span>Duplex</span> </div>                                                                                                                                                                                                        |         | <div style="display: flex; justify-content: space-between;"> <span>PCL - CSP Load</span> <span>PCL - CSP</span> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |
| PM Load / PM                                                                                                                                                                                                                                                                                                        |         | MTX - Base Load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Fault Identification codes                                                                                                                                                                                                                                                                                          |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| <b>Subscriber</b><br><input type="checkbox"/> 1 No Dialtone<br><input type="checkbox"/> 2 Noisy<br><input type="checkbox"/> 3 Cut off<br><input type="checkbox"/> 4 Pre trip<br><input type="checkbox"/> 5 Can't hear<br><input type="checkbox"/> 6 Can't be heard<br><input type="checkbox"/> 7 Transmission fades |         | <b>Failure Freq.</b><br><input type="checkbox"/> 23 Intermittent<br><input type="checkbox"/> 24 Permanent<br><b>Failure Located By</b><br><input type="checkbox"/> 25 Logutil Report<br><input type="checkbox"/> 26 System Check<br><input type="checkbox"/> 27 Extended Diagnostic Monitor<br><input type="checkbox"/> 28 Card - Shelf Alarm                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| <b>Diagnostics</b><br><input type="checkbox"/> 8 BSY - RTS<br><input type="checkbox"/> 9 Built in Test Failure<br><input type="checkbox"/> 10 Automatic passes<br><input type="checkbox"/> 11 Automatic fails<br><input type="checkbox"/> 12 Manual passes<br><input type="checkbox"/> 13 Manual fails              |         | <b>Failure Mode</b><br><input type="checkbox"/> A ALT - LTP Failure<br><input type="checkbox"/> B Bad Audio Path<br><input type="checkbox"/> C C/O relay<br><input type="checkbox"/> D Drop Call<br><input type="checkbox"/> F Flux Cancel<br><input type="checkbox"/> I Fails to Load (Flash, etc)<br><input type="checkbox"/> K PLL Fault<br><input type="checkbox"/> L Loop Detect<br><input type="checkbox"/> M No Communication<br><input type="checkbox"/> N Noise<br><input type="checkbox"/> P Pad Test<br><input type="checkbox"/> Q RAM-ROM Test<br><input type="checkbox"/> R Cannot Reset<br><input type="checkbox"/> S RSSI / SINAD<br><input type="checkbox"/> T Transhybrid loss<br><input type="checkbox"/> U No Power Up<br><input type="checkbox"/> O Other (Specify) |               |
| <b>Maintenance</b><br><input type="checkbox"/> 14 Routine trouble-shooting<br><input type="checkbox"/> 15 Change on spec<br><input type="checkbox"/> 16 Dead on arrival<br><input type="checkbox"/> 29 Old Rel - Update<br><input type="checkbox"/> 30 Surplus                                                      |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| <b>Card List</b><br><input type="checkbox"/> 18 No list<br><input type="checkbox"/> 19 1st pack on list<br><input type="checkbox"/> 20 Other pack on list<br><input type="checkbox"/> 21 Not on list                                                                                                                |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Log Message                                                                                                                                                                                                                                                                                                         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Confirmed ALT / LTP test results                                                                                                                                                                                                                                                                                    |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Failure Description                                                                                                                                                                                                                                                                                                 |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Return Authorization Number                                                                                                                                                                                                                                                                                         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| <b>R M A</b>                                                                                                                                                                                                                                                                                                        |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Frame Type / Shelf & Slot Nos.                                                                                                                                                                                                                                                                                      |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Office ID                                                                                                                                                                                                                                                                                                           |         | Office name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |
| Returned by: (Telco)                                                                                                                                                                                                                                                                                                |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| Craftsperson                                                                                                                                                                                                                                                                                                        |         | Phone No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |

### Instructions

Instructions to fill in Return Tag (To be completed upon replacement of failure unit or circuit pack).

- Provide description of pack and fault at time of failure.
- Write down the Return Material Authorization (RMA) Number in the Box provided.
- Check appropriate box in each category, and the log message number if applicable.
- Obtain the PM Load name via the Query PM command at a map location.
- Copy the pack serial no. (bar code label on face plate). Older vintage packs have an ink stamp on the solder side of the PC board.
- Print the name and date (bottom line).
- Attach original copy to circuit pack.
- Place circuit pack in appropriate packing material (antistatic bag). This must be done directly after the pack is extracted from the operating environment to prevent additional component failure.

## How to return an XA-Core circuit pack, packlet, or assembly to Nortel

---

- 3 Attach the original copy of the return/repair tag to each unit that you return.
- 4 Keep a copy of each label and store it in a safe place for later reference.
- 5 Place the CP, packlet, or assembly in a Nortel Networks shipping carton and close the carton. Provide enough protection for the unit you are returning. If you cannot locate a Nortel Networks shipping carton, use any suitable carton. Perform the following:
  - include packing paper in carton
  - surround CP, packlet, or assembly in bubble pack or foam
  - fasten the CP, packlet, or assembly to the sides of the carton to prevent movement during shipment
- 6 Address the shipping carton as follows:

Nortel Networks Canada Limited,  
Customer Service Operations,  
c/o Wesbell Distribution Resources Inc,  
2365 Matheson Blvd. East,  
Rec. Door #1-4  
Mississauga, Ontario, Canada  
L4W 5C2  
Phone/Tel 1-800-668-5511  
ATTN: Replacement/Repair Operations
- 7 Call Wesbell Distribution Resources for carton pickup.

**Note:** Wesbell Distribution Resources Inc. (Ph: 905-624-8410) (Fax: 905-624-2522).
- 8 You have completed this procedure.

## **How to schedule automatic image taking for XA-Core**

---

### **Application**

Use this procedure to enable and schedule the automatic image taking for the eXtended Architecture Core (XA-Core). This procedure makes a record of the office image to a disk in the XA-Core shelf.

### **Interval**

This procedure is a task performed on the decision of the office manager.

### **Common procedures**

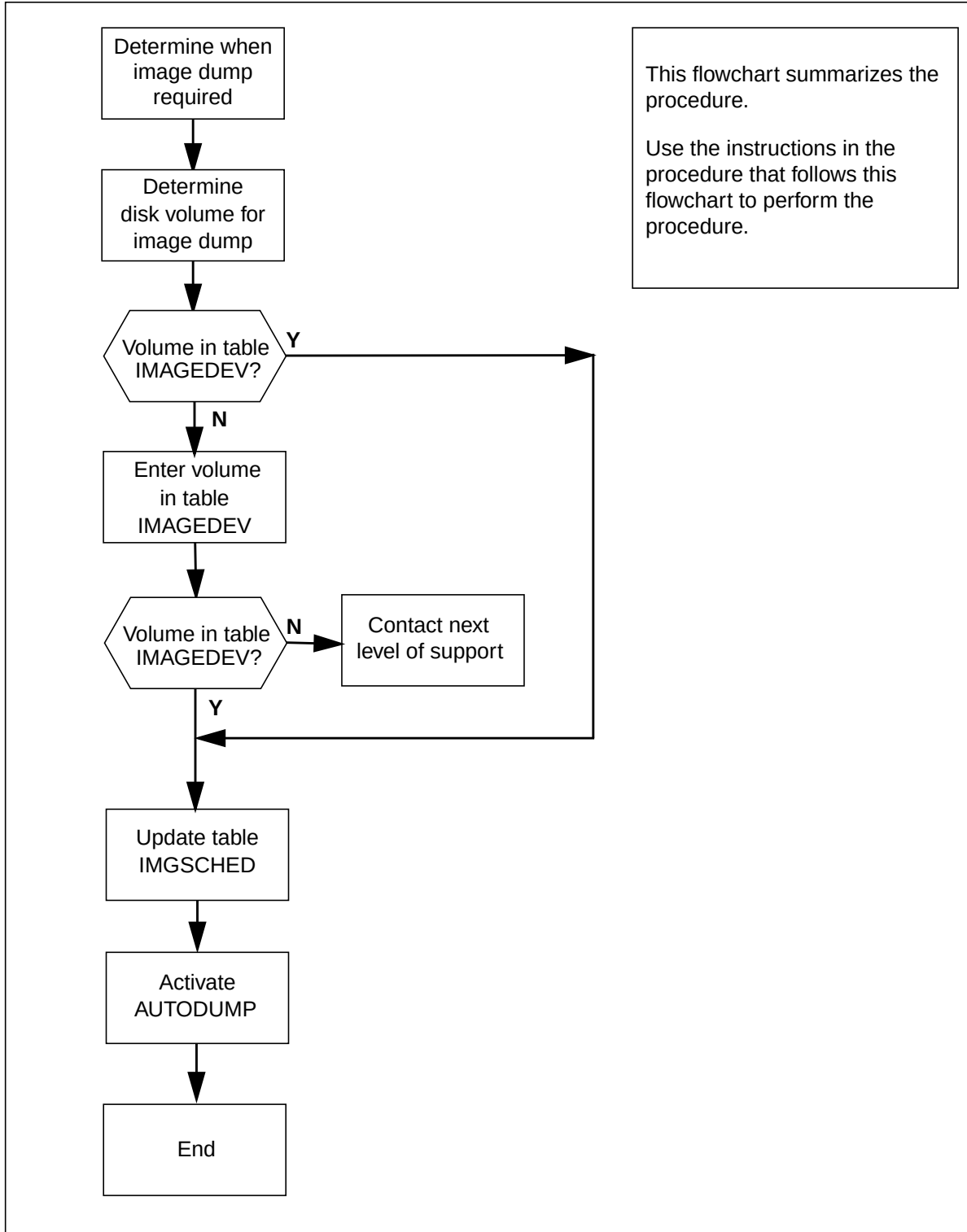
There are no common procedures.

### **Action**

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

## How to schedule automatic image taking for XA-Core (continued)

### Summary of How to schedule automatic image taking for XA-Core





## How to schedule automatic image taking for XA-Core (continued)

### How to schedule automatic image taking for XA-Core

#### At your current location

- 1 Determine and record the days and times to have an office image dump. Determine the days and times from office personnel or office records.
- 2 Determine and record the volume names that stores the image files. Determine the volume names from office personnel or office records.

#### At the MAP

- 3 To access the CI level of the MAP display, type:

**>QUIT ALL**

and press the Enter key

- 4 To access the MAP disk utility, type:

**>DISKUT**

and press the enter key.

*Example of a MAP response:*

Disk utility is now active.  
DISKUT:

- 5 To list the volumes on the XA-Core node, type:

**>LISTVOLS CM**

and press the enter key.

*Example of a MAP response:*

Volumes found on the node CM:

```

NAME TYPE TOTAL FREE TOTAL OPEN
ITOC LARGEST BLOCKS BLOCKS FILES FILES
FILES FREE SEGMENT

F02LIMAGE FTFS 819200 473088 5 0
2 473088

```

Total number of volumes found on node CM : 1

**Note:** The XA-Core node is node CM.

- 6 Determine if the list of volumes on node CM in step 5 has the volume name that stores the image files. You recorded the volume name that stores the image files in step 2.

| If node CM has            | Do      |
|---------------------------|---------|
| the volume of image files | step 7  |
| no volume of image files  | step 37 |

---

## How to schedule automatic image taking for XA-Core (continued)

---

- 7 To quit the MAP disk utility, type:

**>QUIT**

and press the enter key.

- 8 To access table IMAGEDEV, type:

**>TABLE IMAGEDEV**

and press the enter key.

*Example of a MAP response:*

TABLE: IMAGEDEV

- 9 To list the tuples in table IMAGEDEV, type:

**>LIST ALL**

and press the enter key.

*Example of a MAP response:*

```
TOP
 VOLNAME ACTIVE

 F17LVOLUME_1 Y
BOTTOM
```

*Example of a MAP response to an empty table IMAGEDEV:*

EMPTY TABLE

- 10 Check if the image volume from office records is in the list of table IMAGEDEV in step 9. You recorded the name of the image volume that stores the image files in step 2.

| If the image volumes is | Do      |
|-------------------------|---------|
| in table IMAGEDEV       | step 15 |
| not in table IMAGEDEV   | step 11 |

- 11 To add a tuple for the image volume recorded in step 2, type.

**>ADD volume\_name Y**

and press the enter key.

where

volume\_name is the name of the volume used for automatic image dumps

Y is confirmation that the volume is active.

Example of MAP input:

**>ADD F02LIMAGE Y**

*Example of a MAP response:*

```
TUPLE TO BE ADDED:
 F02LIMAGE Y
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

---

## How to schedule automatic image taking for XA-Core (continued)

---

- 12** To confirm the command, type:

**>Y**

and press the enter key.

*Example of a MAP response:*

TUPLE ADDED

- 13** To check the tuple addition to table IMAGEDEV, type:

**>LIST ALL**

and press the enter key.

*Example of a MAP response:*

```

TOP
 VOLNAME ACTIVE

 F17LVOLUME_1 Y
 F02LIMAGE Y
BOTTOM

```

---

| If addition of the image volume is | Do |
|------------------------------------|----|
|------------------------------------|----|

---

|           |         |
|-----------|---------|
| completed | step 14 |
|-----------|---------|

|               |         |
|---------------|---------|
| not completed | step 37 |
|---------------|---------|

---

- 14** To quit from table IMAGEDEV, type:

**>QUIT**

and press the enter key.

- 15** To access table IMGSCHEDE, type

**>TABLE IMGSCHEDE**

and press the Enter key.

*Example of a MAP response:*

Table: IMGSCHEDE

- 16** To display the table of contents, type:

**>LIST ALL**

**and press the Enter key.**

*Example of a MAP display:*

```

TOP
 DAY DUMPHOUR DUMPMIN CMMS ISN
ACTIVE

 MONDAY 21 0 N N N
 TUESDAY 21 0 N N N
 WEDNESDAY 21 0 N N N

```

---

## How to schedule automatic image taking for XA-Core (continued)

---

|          |    |   |   |   |   |
|----------|----|---|---|---|---|
| THURSDAY | 21 | 0 | N | N | N |
| FRIDAY   | 21 | 0 | N | N | N |
| SATURDAY | 21 | 0 | N | N | N |
| SUNDAY   | 21 | 0 | N | N | N |
| BOTTOM   |    |   |   |   |   |

**Note 1:** Fields DUMPHOUR and DUMPMIN control the time at which the dump performs. The default time is 21:00. You can modify the time according to separate office requirements. You must perform image dumps during hours that have minimum traffic.

**Note 2:** You can not set the ACTIVE field to Y if both the CMMS and ISN fields are N.

- 17** To access the tuple for the first day you must activate an automatic image dump, type:

**>POSITION day**

and press the Enter key.

where

day is the day for which you must activate automatic image taking, for example, MONDAY

**Note:** You recorded the days and times for office image dumps in step 2.

Example of MAP input:

**POSITION MONDAY**

*Example of a MAP response:*

|        |    |   |   |   |   |
|--------|----|---|---|---|---|
| MONDAY | 21 | 0 | N | N | N |
|--------|----|---|---|---|---|

- 18** To start an edit of the tuple, type:

**>CHANGE**

and press the Enter key.

*Example of a MAP response:*

Enter Y to continue processing or N to quit.

- 19** To confirm the command, type:

**>Y**

and press the Enter key.

*Example of a MAP response:*

DUMPHOUR: 21

- 20** To enter the required dump hour, type:

**>dump\_hour**

and press the Enter key.

where

dump\_hour is the dump hour you must enter, for example 21,

**Note:** You recorded the days and times for office image dumps in step 2.

---

## How to schedule automatic image taking for XA-Core (continued)

---

*Example of a MAP response:*

DUMPMIN: 0

- 21 To enter the required dump minutes, type:

**>dump\_minutes**

and press the Enter key.

where

dump\_minutes is the dump minutes, for example 30, you must enter

**Note:** You recorded the days and times for office image dumps in step 2.

*Example of a MAP response:*

CMMS: N

- 22 To enable the automatic image dump on nodes CM and MS, type:

**>Y** or N

and press the Enter key.

**Note:** You can not set the ACTIVE field to Y if both the CMMS and ISN fields are N.

*Example of a MAP response:*

ISN: N

- 23 To enable the automatic image dump on node ISN, type:

**>Y** or N

and press the Enter key.

**Note:** You can not set the ACTIVE field to Y if both the CMMS and ISN fields are N.

*Example of a MAP response:*

ACTIVE: N

- 24 To make the automatic image dump active for the selected day, type:

**>Y**

and press the Enter key.

*Example of a MAP response:*

TUPLE TO BE CHANGED:

|        |    |    |   |   |   |
|--------|----|----|---|---|---|
| MONDAY | 22 | 30 | Y | Y | Y |
|--------|----|----|---|---|---|

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

- 25 To confirm the tuple change, type:

**>Y**

and press the Enter key.

*Example of a MAP response:*

TUPLE CHANGED

## How to schedule automatic image taking for XA-Core (continued)

- 26 To check the tuple revisions to table IMGSCHEd, type:

**>LIST ALL**

and press the Enter key.

*Example of a MAP response:*

```

TOP
 DAY DUMPHOUR DUMPMIN CMMS ISN
ACTIVE

 MONDAY 22 30 Y N Y
 TUESDAY 21 0 N N N
 WEDNESDAY 21 0 N N N
 THURSDAY 21 0 N N N
 FRIDAY 21 0 N N N
 SATURDAY 21 0 N N N
 SUNDAY 21 0 N N N
BOTTOM

```

| If all the tuple entries are | Do      |
|------------------------------|---------|
| complete                     | step 28 |
| not complete                 | step 27 |

- 27 Repeat steps 17 to 25 for each day you must have an automatic image dump. You recorded the days and times for office image dumps in step 2.

- 28 To quit from table IMGSCHEd, type:

**>QUIT**

and press the Enter key.

- 29 To activate the autodump facility for the days and times you indicated, type:

**>AUTODUMP ON**

and press the Enter key.

*Example of a MAP response:*

SCHEDULED-Image Dump is ON.

Next scheduled dump is MONDAY at 22:30 hours.

Next image to be dumped on F02LIMAGE.

**Note:** The MAP response identifies the disk and volume name that the image dumps to. The switch software selects from table IMAGEDEV the disk and volume to dump the image to.

- 30 To check the status of automatic image taking, type:

**>AUTODUMP STATUS**

and press the enter key.

---

## How to schedule automatic image taking for XA-Core (continued)

---

### *Example of a MAP response*

Successful Image: 990215\_CM  
 Taken: 1999/03/17 21:47:32:04.138 WED.  
 On Volume: F17LIMAGE

Successful Image: 990215\_MS  
 Taken: 1999/03/17 21:47:32:04:138 WED.  
 On Volume: F17LIMAGE

SCHEDULED-Image Dump is ON.

RETAIN option is ON.

Next scheduled dump is MONDAY at 22:30 hours.  
 Next image to be dumped on F02LIMAGE.

- 31** Determine if the XA-Core has automatic image taking on or off. In the example of a MAP response of step 30, the text SCHEDULED-Image Dump is ON indicates the automatic image taking is on..

| If SCHEDULED-Image Dump is | Do |
|----------------------------|----|
|----------------------------|----|

|    |         |
|----|---------|
| ON | step 32 |
|----|---------|

|     |         |
|-----|---------|
| OFF | step 37 |
|-----|---------|

- 32** Determine if the retain option is off. XA-Core has the retain option on or off. In the example of a MAP response of step 30, the text RETAIN option is OFF indicates the retain option is off..

| If RETAIN option is | Do |
|---------------------|----|
|---------------------|----|

|    |         |
|----|---------|
| ON | step 33 |
|----|---------|

|     |         |
|-----|---------|
| OFF | step 37 |
|-----|---------|

- 33** To change the retain option, type:

**>AUTODUMP RETAIN**

and press the enter key.

*Example of a MAP response:*

```

*** WARNING ***
This option RETAINS the PRIMARY LOAD ROUTE.
The PRIMARY LOAD ROUTE should be initially
set per NTP.
The RETAIN option will be ENABLED.
Please confirm ("YES", "Y", "NO", or "N"):
```

- 34** To confirm the command, type:

**>YES**

and press the enter key.

*Example of a MAP response:*

RETAIN option DISABLED.

## How to schedule automatic image taking for XA-Core (end)

---

- 35** To check the status of automatic image taking, type:

**>AUTODUMP STATUS**

and press the enter key.

*Example of a MAP response*

Successful Image: 990215\_CM  
Taken: 1999/03/17 21:47:32:04.138 WED.  
On Volume: F17LIMAGE

Successful Image: 990215\_MS  
Taken: 1999/03/17 21:47:32:04:138 WED.  
On Volume: F17LIMAGE

SCHEDULED-Image Dump is ON.

RETAIN option is OFF.

Next scheduled dump is MONDAY at 22:30 hours.

Next image to be dumped on F02LIMAGE.

- 36** Determine if the retain option is off. XA-Core has the retain option on or off. In the example of a MAP response of step 35, the text RETAIN option is OFF indicates the retain option is off..

---

| If RETAIN option is | Do      |
|---------------------|---------|
| ON                  | step 37 |
| OFF                 | step 38 |

---

- 37** For additional help, call the next level of support.

- 38** You have completed this procedure.



---

## How to schedule tape drive maintenance in XA-Core

---

### Application

Use the following procedure to schedule maintenance for the digital audio tape (DAT) drive.

### Interval

Perform this procedure approximately every 180 days (6 months).

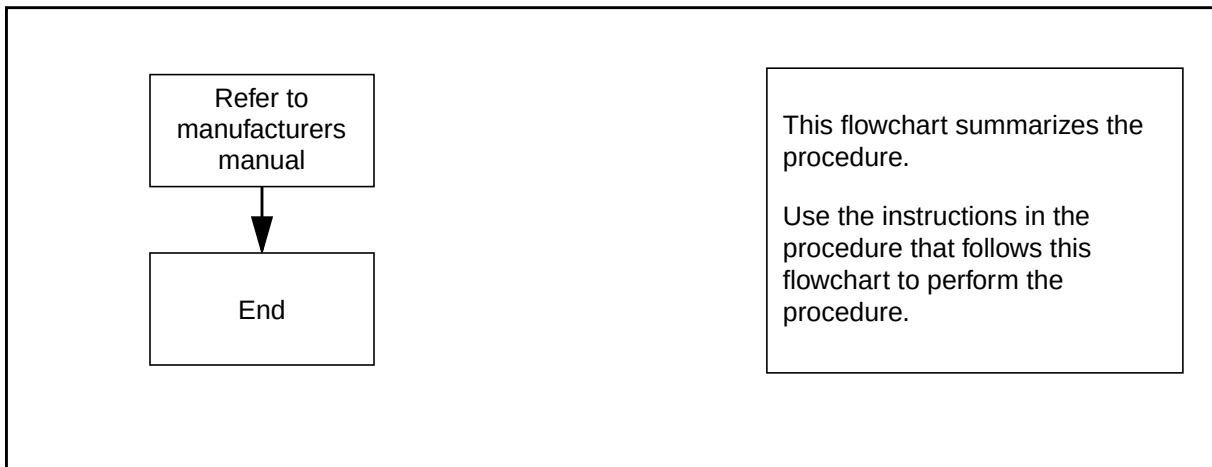
### Common procedures

There are no common procedures.

### Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

#### Summary of How to schedule tape drive maintenance in XA-Core



#### How to schedule tape drive maintenance in XA-Core

##### *At your current location*

- 1 Set up a routine maintenance schedule according to the information contained in the manufacturer's equipment manual.
- 2 You have completed this procedure.

---

## How to test wrist-strap grounding cords in XA-Core

---

### Application

Use this procedure to test the resistance of wrist-strap grounding cords in the. The resistance must have minimum and maximum values as follows.

- The resistance must be low enough to allow static electricity to discharge from the human body.
- The resistance must be high enough to prevent electrocution if the equipment develops a short circuit while you are wearing the wrist strap.

### Interval

Perform this procedure every 30 days (monthly).

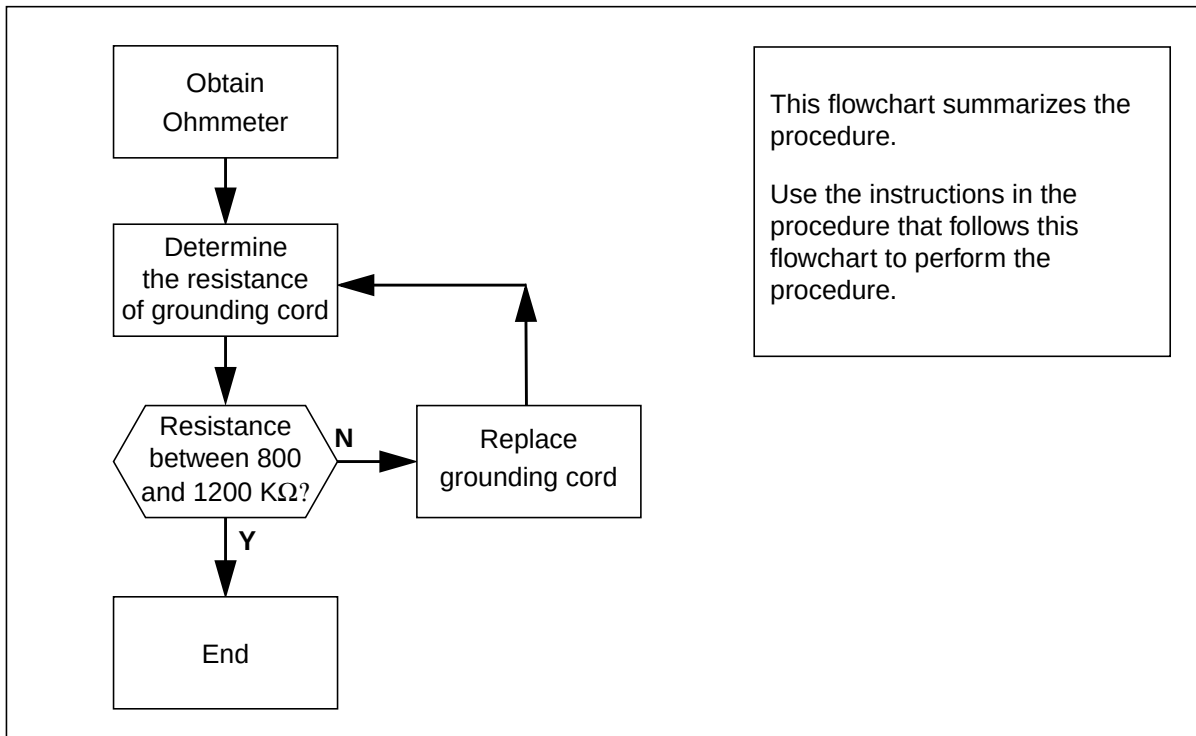
### Common procedures

There are no common procedures.

### Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

#### How to test wrist-strap grounding cords in XA-Core



## How to test wrist-strap grounding cords in XA-Core (end)

### How to test wrist-strap grounding cords for XA-Core



#### **DANGER**

##### **Risk of electrocution**

Do not use a grounding cord with a resistance less than 800 KW. A resistance lower than 800 KW opens you to the risk of electrocution. Electrocution can occur if the equipment short-circuits while you are wearing the wrist strap.



#### **WARNING**

##### **Risk of static damage to electronic equipment**

Do not use a grounding cord with a resistance greater than 1200 KW. A resistance greater than 1200 KW cannot conduct static charges correctly to ground nor protect electronic equipment against possible damage from electrostatic discharge.

#### **At the XA-Core shelf**

- 1 Get an ohmmeter.
- 2 Disconnect the grounding cord from the wrist strap.
- 3 Use the ohmmeter to measure the resistance between the opposite ends of the grounding cord.

| <b>If the resistance is</b>              | <b>Do</b> |
|------------------------------------------|-----------|
| between 800 KW and 1200 KW               | 7         |
| less than 800 KW or greater than 1200 KW | 4         |

- 4 Discard the grounding cord that has faults.
- 5 Get a new grounding cord.
- 6 Test the new grounding cord.

| <b>If the resistance is</b>              | <b>Do</b> |
|------------------------------------------|-----------|
| between 800 KW and 1200 KW               | 7         |
| less than 800 KW or greater than 1200 KW | 4         |

- 7 Connect again the wrist strap to the grounding cord.
- 8 You have completed this procedure.

## Selection of DAT tapes approved by Nortel Networks

---

### Application

Use this procedure to select digital audio tape (DAT) drive tapes approved by Nortel Networks. This procedure is to be used whenever a DAT tape is replaced, and whenever a new DAT tape is used following the cleaning of DAT drive tape heads.

### Interval

Tapes are replaced based on office usage routines and on the DAT drive head cleaning frequency recommended by Nortel Networks for new and used tapes.

### Common procedures

This procedure does not refer to any common procedures.

### Action

Follow the recommendations provided in these paragraphs.

#### Recommended tapes

The brands approved by Nortel Networks are:  
Hewlett Packard (HP), Maxell, 3M, Verbatim

The tape lengths approved by Nortel Networks are:  
60 Meter (60M) and 90 Meter (90M) tapes from any of the manufacturers listed above.

**Note:** The use of 120 Meter (120M) tapes of any brand is not recommended by Nortel Networks.

#### Recommended tape drive head cleaning cartridges

The types of DAT drive head cleaning cartridges approved by Nortel Networks are listed under CPC code A0627569.

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## 5 Introduction to trouble locating and clearing procedures

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### Introduction

This chapter describes how to perform trouble locating and clearing maintenance procedures on the DMS SuperNode (SN) and DMS SuperNode SE (SNSE) XA-Core (XAC). Each procedure contains the following sections:

- application
- interval
- common procedures
- action

### Application

This section describes the purpose of the procedure.

### Interval

This section describes when to perform the procedure.

### Common procedures

This section lists common procedures used during the routine maintenance procedure. A common procedure is a series of steps that repeats in maintenance procedures. Common procedures include card removal and replacement.

### Action

This section provides a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## How to perform a manual REx test on XA-Core

---

### Application

Use this procedure to perform a manual routine exercise (REx) test on an eXtended Architecture Core (XA-Core).

### Interval

A manual REx test is a test of software and hardware performed when required. Before performance of the REx test, operating company personnel must determine if the switch has stability. The switch needs stability to support testing and without a change to switch operations. Operating company personnel cannot perform a manual REx when the switch CPU occupancy is greater than 40%. Operating company personnel cannot perform a manual REx when the switch is in an E2 condition (potential degradation or outage). REx tests are available in groups called REx test classes. Perform a manual REx test on one of REx test classes. The classes are as follows.

- PE
- SM
- IO
- BASE
- ALL
- FULL

For detailed information on REx tests, see the descriptions of the REx test classes and the description of the REx test results report, in the chapter titled “Preventive maintenance” in this document.

### Common procedures

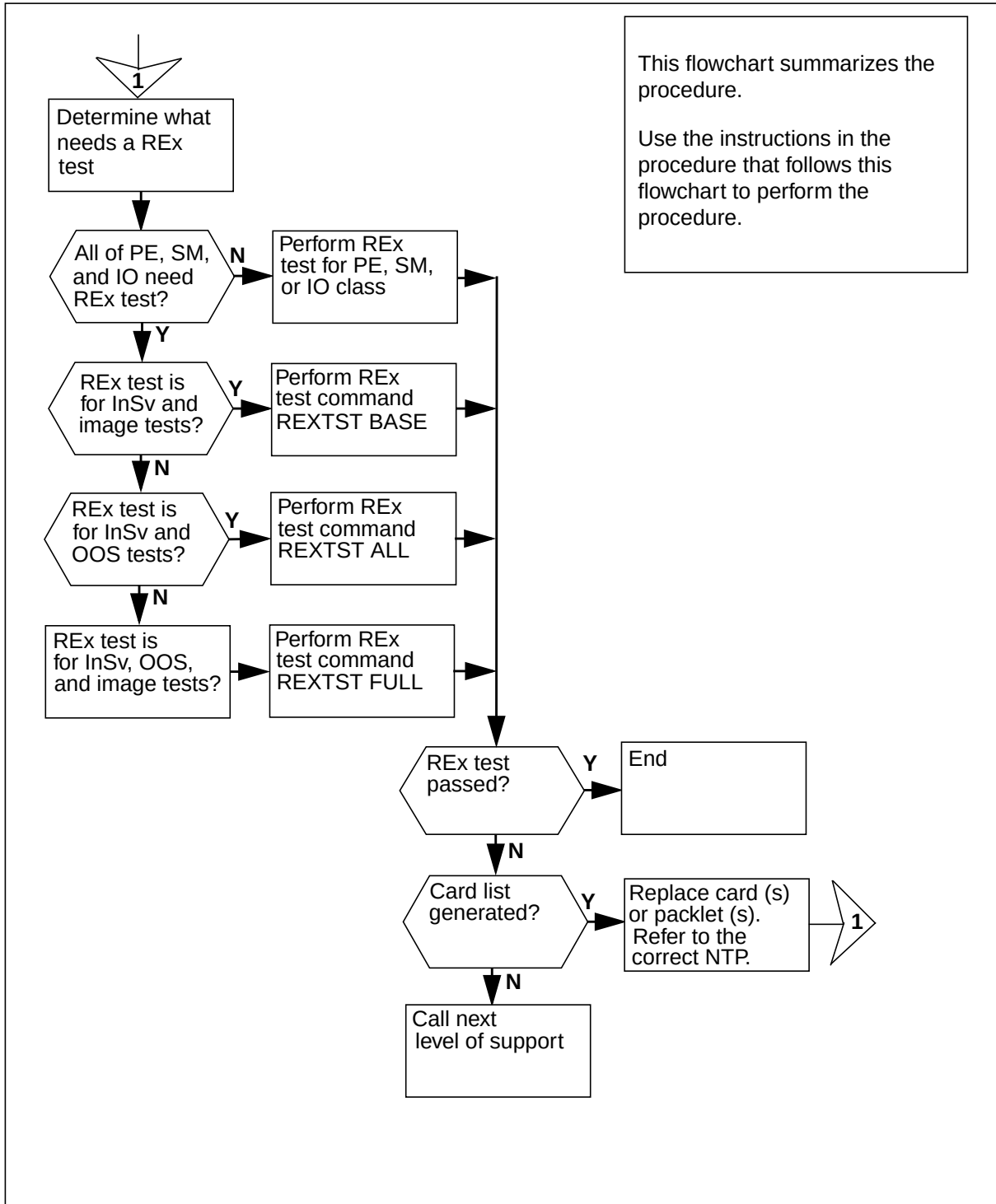
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of exact steps. Use the flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

## How to perform a manual REx test on XA-Core (continued)

### How to perform a manual REx test on XA-Core



## How to perform a manual REx test on XA-Core (continued)

### How to perform a manual REx test on XA-Core



#### CAUTION

##### Possible service degradation

Confirm with office personnel to make sure that a REx test can perform now. Nortel Networks recommends that REx tests start during a low traffic period because of the high level of processing required.

#### At your current location

- 1 To access the XACMTC level of the MAP display, type:

**>MAPCI;MTC;XAC;XACMTC**

and press the enter key.

*The following is a sample MAP display.*

| XAC         | MS | IOD                      | Net | PM               | CCS | Lns | Trks      | Ext  | APPL |
|-------------|----|--------------------------|-----|------------------|-----|-----|-----------|------|------|
| .           | .  | .                        | .   | .                | .   | .   | .         | .    | .    |
| XACMtc      |    |                          |     |                  |     |     |           |      |      |
| 0 Quit      |    | Front: 111111111         |     | Rear: 111111     | SM  | PE  | IO        | PKLT |      |
| 2           |    | 123456789012345678       |     | 456789012345     | .   | .   | .         | .    |      |
| 3           |    | Sta: -.-.-.-.-.-.-.-.-.- |     | .-.-.-.-.-.-.-   | 0   | 0   | 0         | 0    |      |
| 4           |    | Dep:                     |     |                  |     |     |           |      |      |
| 5           |    |                          |     |                  |     |     |           |      |      |
| 6           |    |                          |     |                  |     |     |           |      |      |
| 7           |    | Traps:                   |     | Per Minute: = 0  |     |     | Total = 1 |      |      |
| 8           |    | Last Image run at:       |     | 1999/02/15 13:13 |     |     |           |      |      |
| 9           |    | restart type= reload     |     |                  |     |     |           |      |      |
| 10          |    | Result = pass            |     |                  |     |     |           |      |      |
| 11 Image    |    | Last XARExTst run at:    |     | 1999/03/15 14:25 |     |     |           |      |      |
| 12 RExTst_  |    | Last XARExTst Type:      |     | full             |     |     |           |      |      |
| 13 RExInt_  |    | Last XARExTst Result:    |     | notRun           |     |     |           |      |      |
| 14 Alarm_   |    |                          |     |                  |     |     |           |      |      |
| 15          |    | XACMTC:                  |     |                  |     |     |           |      |      |
| 16          |    |                          |     |                  |     |     |           |      |      |
| 17 Indicac_ |    |                          |     |                  |     |     |           |      |      |
| 18 Query_   |    |                          |     |                  |     |     |           |      |      |
| XMAP0       |    |                          |     |                  |     |     |           |      |      |
| Time 14:12  |    |                          |     |                  |     |     |           |      |      |
| >           |    |                          |     |                  |     |     |           |      |      |



---

## How to perform a manual REx test on XA-Core (continued)

---

- 2 Determine what needs a test by the REx test.

| If the REx test is for             | Do      |
|------------------------------------|---------|
| PE cards                           | step 3  |
| SM cards                           | step 6  |
| IOP cards and related packlets     | step 9  |
| all PE, SM, and IOP cards/packlets | step 12 |

- 3 To start a REx test on all of the PE cards, type:

**>REXTST RUN PE CONTINUE**

and press the enter key.

*Example of a MAP display*

Warning: the RExTst command may affect component redundancy.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

| If the MAP response indicates | Do      |
|-------------------------------|---------|
| a need to confirm             | step4   |
| anything else                 | step 26 |

- 4 To confirm the command, type:

**>YES**

and press the enter key.

*Example of a MAP display:*

Command submitted.

RExTst PE InSv test is running

RExTst PE Out of Service test is running

RExTst completed

RExTst Test run at 19:06:41, Class: pe, Result: pass.

- 5 Go to step 21.

- 6 To start a REx test on all of the SM cards, type:

**>REXTST RUN SM CONTINUE**

and press the enter key

*Example of a MAP display*

Warning: the RExTst command may affect component redundancy.

Proceed (Y or N)?

**How to perform a manual REx test on XA-Core** (continued)

---

Please confirm ("YES", "Y", "NO", or "N"):

| If the MAP response indicates | Do      |
|-------------------------------|---------|
| a need to confirm             | step7   |
| anything else                 | step 26 |

- 7** To confirm the command, type:  
>YES  
and press the enter key.  
*Example of a MAP display:*  
Command submitted.  
RExTst SM InSv test is running  
  
RExTst SM Out of Service test is running  
  
RExTst completed  
RExTst Test run at 19:08:36, Class: sm, Result: pass.

- 8** Go to step 21.

- 9** To start a REx test on all of the IO cards, type:

>**REXTST RUN IO CONTINUE**

and press the enter key

*Example of a MAP display*

Warning: the RExTst command may affect component redundancy.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

| If the MAP response indicates | Do      |
|-------------------------------|---------|
| a need to confirm             | step10  |
| anything else                 | step 26 |

- 10** To confirm the command, type:  
>YES  
and press the enter key.  
*Example of a MAP display:*  
Command submitted.  
RExTst IOP InSv test is running  
  
RExTst IOP Out of Service test is running  
  
RExTst completed  
RExTst Test run at 19:15:10, Class: io, Result: pass.

---

## How to perform a manual REx test on XA-Core (continued)

---

- 11** Go to step 21.
- 12** Determine the range of REx test required. The range of REx tests are:

- in-service (InSv) tests
- out-of-service (OOS) tests
- image tests

| If the REx test is for     | Do      |
|----------------------------|---------|
| InSv and OOS tests         | step 13 |
| InSv and image tests       | step 16 |
| InSv, OOS, and image tests | step 19 |

- 13** Start InSv and OOS REx tests on the cards, packlets, and links of the PE, SM, and IO subsystems. The InSv REx tests are on all the cards, packlets, and links of the PE, SM, and IO subsystems. The OOS REx tests are on one card of the PE, SM, and IO subsystems (with related packlets). To start the ALL class of REx tests, type:

**>REXTST RUN ALL CONTINUE**

and press the enter key.

*Example of a MAP display*

Warning: the REXtst command may affect component redundancy.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

| If the MAP response indicates | Do      |
|-------------------------------|---------|
| a need to confirm             | step14  |
| anything else                 | step 26 |

- 14** To confirm the command, type:

**>YES**

and press the enter key.

*Example of a MAP display:*

Command submitted.

RExtst PE InSv test is running

RExtst SM InSv test is running

RExtst IOP InSv test is running

RExtst PE Out of Service test is running

RExtst SM Out of Service test is running

RExtst IOP Out of Service test is running

## How to perform a manual REx test on XA-Core (continued)

---

RExTst completed  
RExTst Test run at 19:19:17, Class: all, Result: pass.

- 15** Go to step 21.

- 16** Start InSv REx tests on all cards, packlets, and links of the PE, SM, and IO subsystems. To start the BASE class of REx tests, type:

>REXTST RUN BASE CONTINUE

and press the enter key.

*Example of a MAP display:*

Warning: the RExTst command may affect component redundancy.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

---

| If the MAP response indicates | Do      |
|-------------------------------|---------|
| a need to confirm             | step17  |
| anything else                 | step 26 |

---

- 17** To confirm the command, type:

>YES

and press the enter key.

*Example of a MAP display:*

Command submitted.

RExTst PE InSv test is running

RExTst SM InSv test is running

RExTst IOP InSv test is running

RExTst Image test is running

RExTst completed

RExTst Test run at 19:24:23, Class: base, Result: pass.

- 18** Go to step 21.

- 19** Start InSv and OOS REx tests on the cards, packlets, and links of the PE, SM, and IO subsystems. The InSv REx tests are on all the cards, packlets, and links of the PE, SM, and IO subsystems. The OOS REx tests are on one card of the PE, SM, and IO subsystems (with related packlets). An image test also starts. To start the FULL class of REx tests, type:

>REXTST RUN FULL CONTINUE

and press the enter key

---

## How to perform a manual REx test on XA-Core (continued)

---

### *Example of a MAP display*

Warning: the RExTst command may affect component redundancy.

Proceed (Y or N)?

Please confirm ("YES", "Y", "NO", or "N"):

| <b>If the MAP response indicates</b> | <b>Do</b> |
|--------------------------------------|-----------|
| a need to confirm                    | step 20   |
| anything else                        | step 26   |

- 20** To confirm the command, type:

>YES

and press the enter key.

### *Example of a MAP display:*

Command submitted.

RExTst PE InSv test is running

RExTst SM InSv test is running

RExTst IOP InSv test is running

RExTst PE Out of Service test is running

RExTst SM Out of Service test is running

RExTst IOP Out of Service test is running

RExTst Image test is running

RExTst completed

RExTst Test run at 19:29:37, Class: full, Result: pass.

- 21** Determine from the MAP display if the REx test passed.

| <b>If the MAP response indicates</b>                                         | <b>Do</b> |
|------------------------------------------------------------------------------|-----------|
| the REx test passed                                                          | step27    |
| the REx test failed and you have not replaced all the cards on the card list | step22    |
| the REx test failed and you replaced all the cards on the card list          | step26    |
| other response                                                               | step26    |

- 22** Record the location, description, slot number, and product engineering code (PEC), including suffix, of all the cards and packlets on the list.

- 23** Select a card or packlet from the list of step that needs replacement.

## **How to perform a manual REx test on XA-Core (end)**

---

- 24 Perform the correct procedure to replace the card or packlet in step 23. When you complete the procedure, return to this point.
- 25 Go to step 1.
- 26 For additional help, call the personnel responsible for the next level of support.
- 27 You have completed this procedure.

## How to repair an XA-Core cooling unit

---

### Application

Use this procedure to identify and correct faults in an XA-Core cooling unit.

### Definition

An XA-Core cooling unit consists of three fan drawers and a cooling unit filter. Replace one or cooling unit fan drawers to repair a cooling unit fault. An XA-Core cooling unit fault can cause components in the XA-Core cabinet to overheat and fail.

### Common procedures

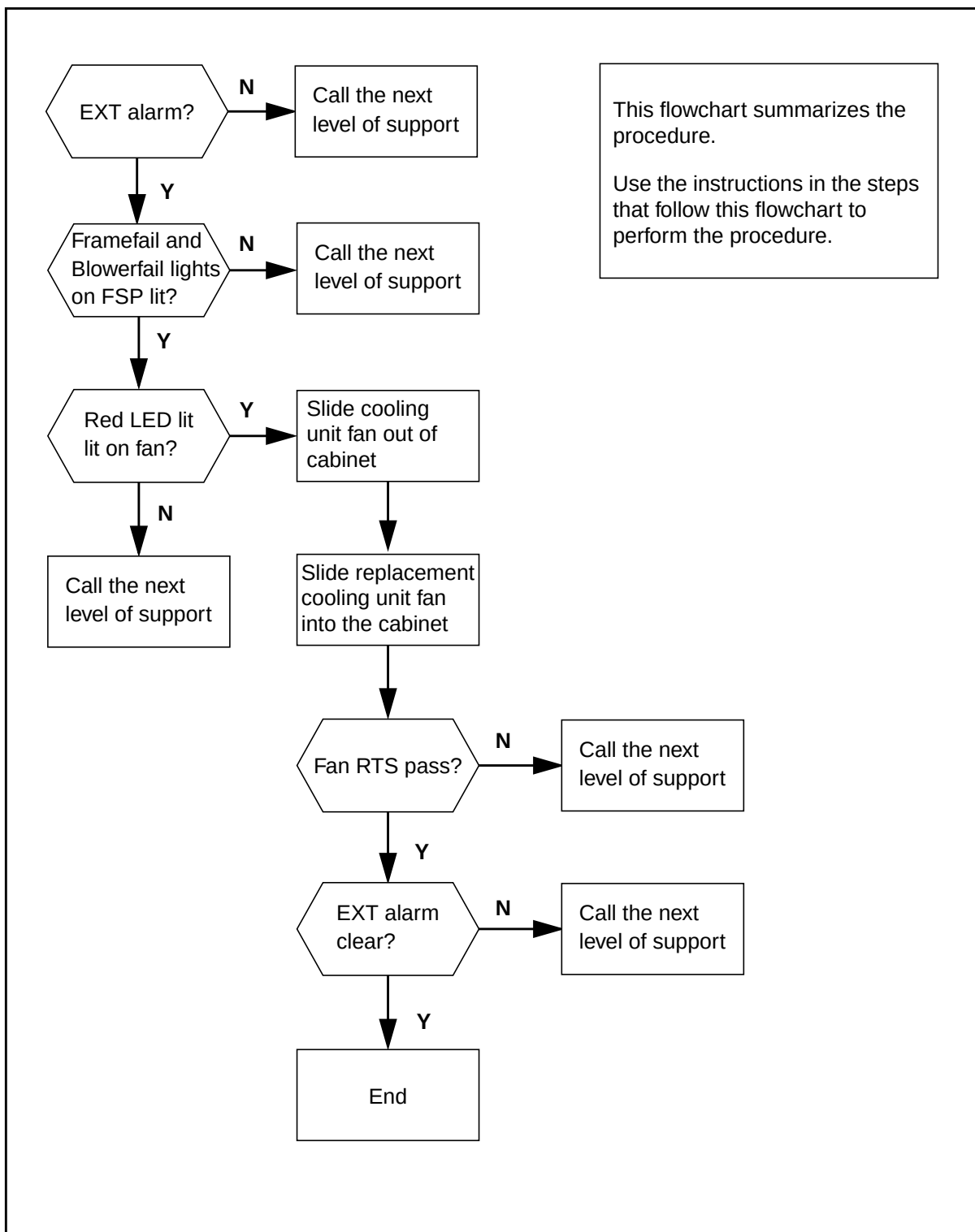
There are no common procedures.

### Action

This procedure contains a summary flowchart as an summary of the procedure. Follow the exact steps to perform this procedure.

## How to repair an XA-Core cooling unit (continued)

### How to repair an XA-Core cooling unit





## How to repair an XA-Core cooling unit (continued)

### How to repair an XA-Core cooling unit



#### **DANGER**

##### **Next level of support**

If the cooling unit configuration you find in the cabinet is different from the following description, call your next level of support.



#### **WARNING**

##### **Risk of static electricity damage**

Make sure that you have protection against electrostatic discharge (ESD). Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling circuit packs or packlets.



#### **CAUTION**

##### **Loss of service**

Read and make sure you thoroughly understand the instructions in this procedure before performing the cooling unit fan replacement. Do not allow the cooling unit to remain un-powered for more than 2 min.

#### **At the XA-Core MAP**

- 1 Examine the EXT MAP level. Determine the location of the cabinet that has a problem cooling unit fan.

| <b>If the EXT FSP alarm is</b> | <b>Do</b> |
|--------------------------------|-----------|
| active                         | step 2    |
| not active                     | step 14   |

#### **At the XA-Core cabinet**

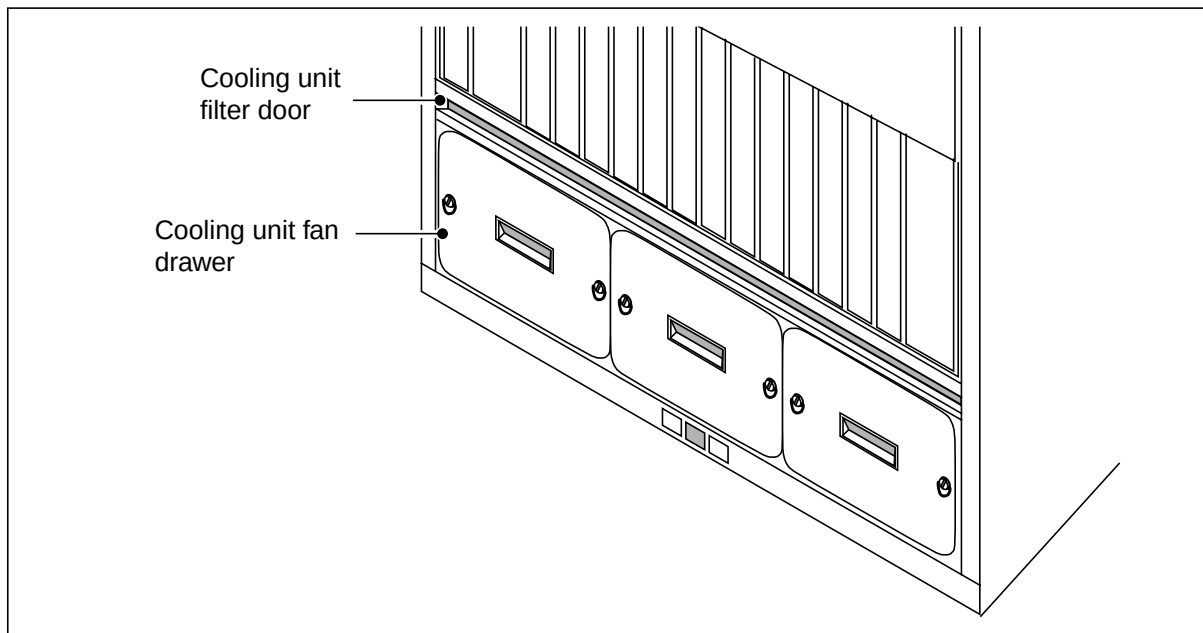
- 2 Check that the FRAME and BLOWER FAIL alarm lamps are lit on the frame supervisory panel (FSP).

| <b>If the FANFAIL and BLOWER-FAIL lamps are</b> | <b>Do</b> |
|-------------------------------------------------|-----------|
| on                                              | step 3    |
| off                                             | step 14   |

## How to repair an XA-Core cooling unit (continued)

- 3 Open the front doors of the XA-Core cabinet completely.
- 4 Locate the cooling unit fan drawers in the lower front section of the cabinet.

### XA-Core cooling unit fan drawer and filter door locations



- 5 Determine if all fans are in a working state. Check the red LEDs on the fan drawers.

| If a red LED is | Do      |
|-----------------|---------|
| lit             | step 6  |
| not lit         | step 14 |

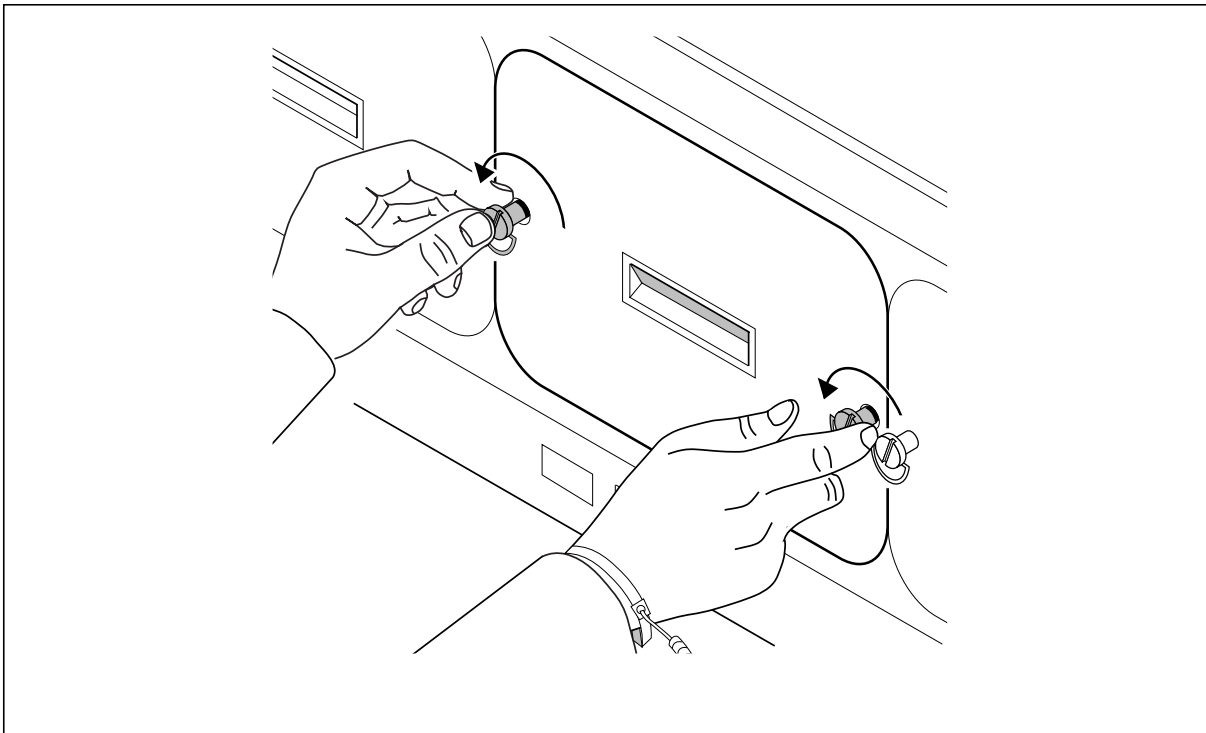
- 6 Get a replacement cooling unit fan.
- 7 Loosen the locking screws on the trouble cooling unit fan drawer.
  - a Turn the locking screws in a counter-clockwise direction.
  - b Pull the fan drawer halfway from the slot in the cooling unit.
  - c Wait for the fan to spin down.

---

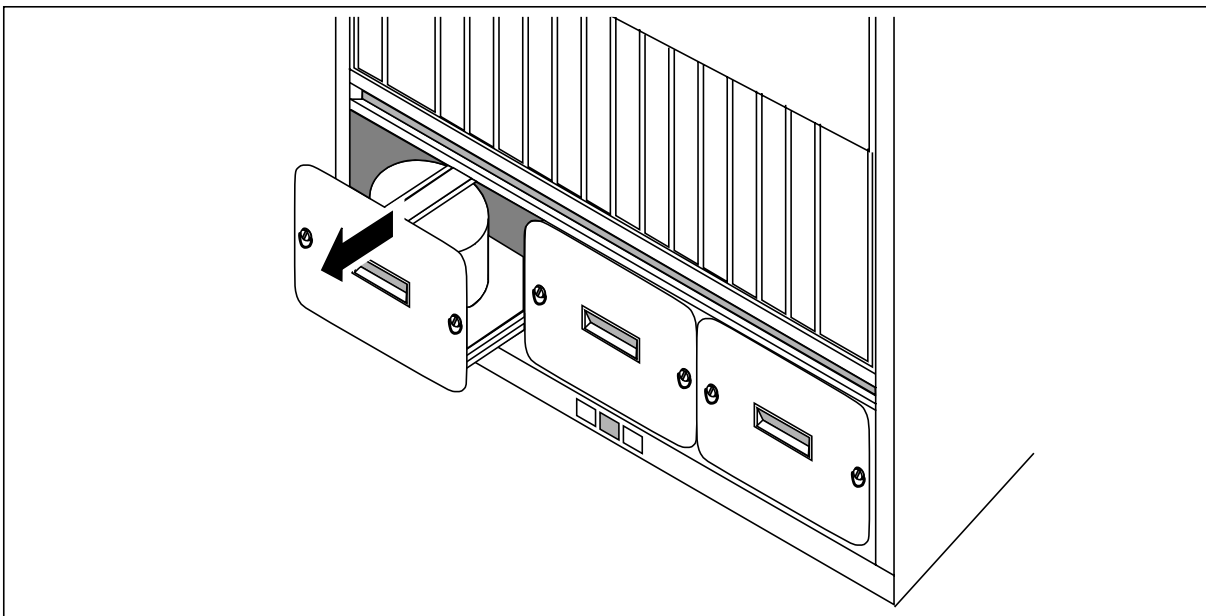
## How to repair an XA-Core cooling unit (continued)

---

**Loosen the locking screws on the cooling unit fan drawers**



**Open the cooling unit fan drawer**



## How to repair an XA-Core cooling unit (continued)

8



### **DANGER**

#### **Loss of cooling unit**

If you leave the cooling unit disconnected for an extended period of time can cause the equipment in the cabinet to overheat.

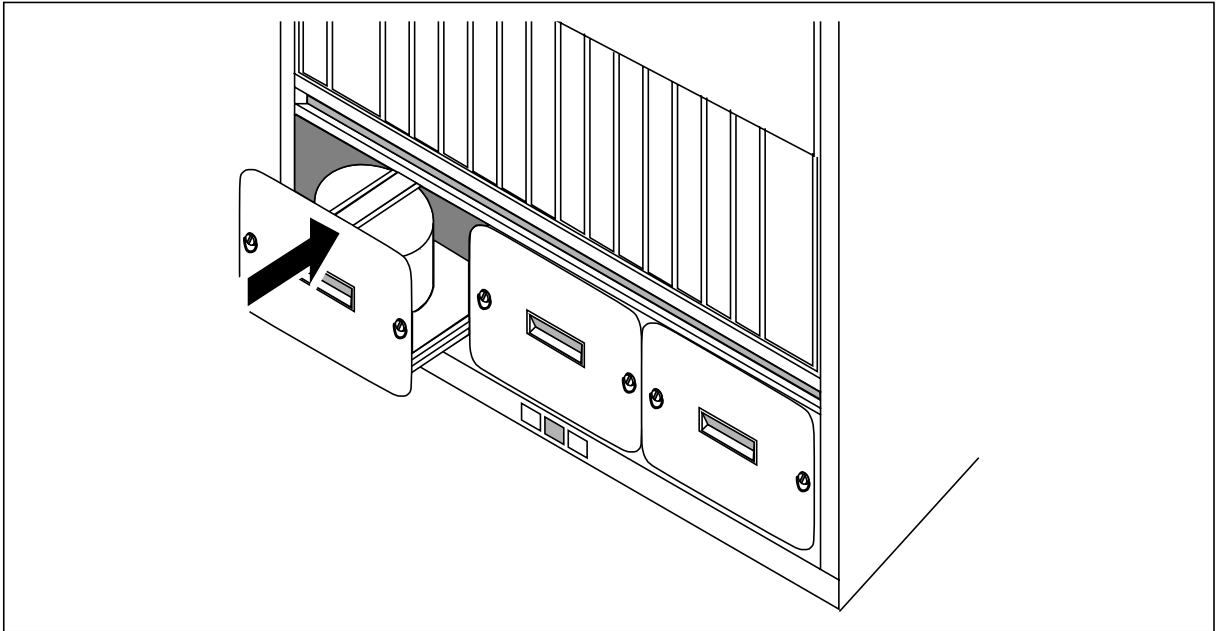
Remove the fan drawer completely from the cooling unit shelf and place in a safe location away from the physical shelf.

9

Insert the replacement fan drawer into the empty cooling unit slot.

- a Align the fan drawer with the physical shelf slot. Slide the fan drawer into the physical slot. Do not force the fan drawer into the physical slot.
- b Use your fingers or thumbs to push on the side edges of the fan drawer faceplate. Push on the faceplate until the fan drawer is fit into position.

### **Close the cooling unit fan drawers**



10

Make sure that the fans power up. Make sure that the green LEDs light on all fan drawers.

| <b>If the cooling unit fans are</b> | <b>Do</b> |
|-------------------------------------|-----------|
| in service                          | step 11   |
| not in service                      | step 14   |

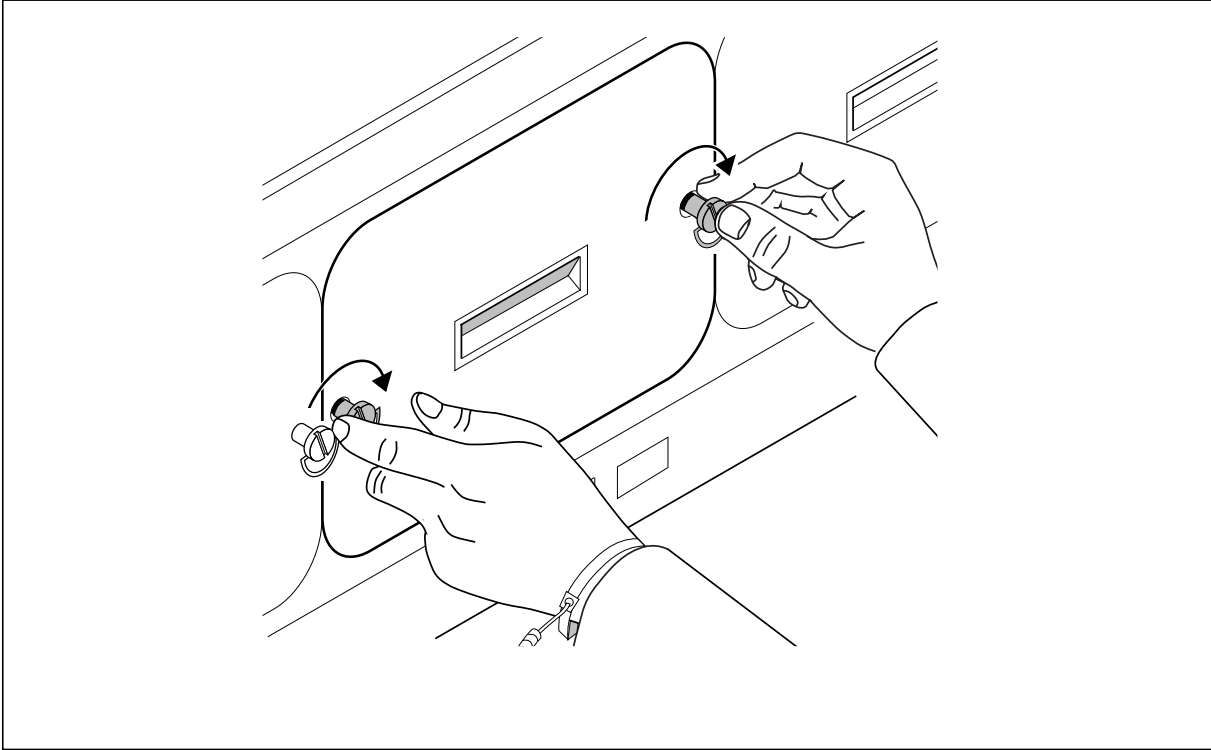
---

## How to repair an XA-Core cooling unit (end)

---

- 11** Tighten the locking screws on the cooling unit fan drawers. Turn the locking screws in a clockwise direction.

**Tighten the locking screws on the cooling unit fan drawers**



- 12** Determine if the FRAME and BLOWER FAIL alarm lights are off.

| If FRAME and FAN FAIL lamps are | Do      |
|---------------------------------|---------|
| off                             | step 13 |
| on                              | step 14 |

**At the XA-Core MAP terminal**

- 13** Determine if the FSP alarm on the EXT MAP level is clear.

| If FRAME and FAN FAIL lamps are | Do      |
|---------------------------------|---------|
| on                              | step 14 |
| off                             | step 15 |

- 14** Call the next level of support.

- 15** You have completed this procedure. Return to the procedure that sent you to this procedure and continue as indicated.



---

## 6 Preventive maintenance

---

This chapter describes preventive maintenance for the XA-Core.

This chapter includes the following sections:

- Routine maintenance.
- Automatic maintenance describes the system-run processes that detect, repair, and report problems.
- System recovery controller (SRC) describes the control of recovery activities by the SRC.

### **Routine maintenance**

Routine procedures, if performed according to a schedule, prevent faults in both the hardware and the software of the switch. Refer to the chapter titled “Introduction to routine maintenance procedures” in this document.

### **Automatic maintenance**

The XA-Core provides automatic maintenance through the following activities:

- processor bus matcher
- Audits
- Routine exercise (REx) tests
- System recovery controller (SRC)

#### **Processor bus matcher**

The processor bus matcher is in the RHINO processor which is an enhanced version of the high-speed instruction prefetcher path optimizer (Hippo) containing 512 Kilobytes of on board SRAM.

#### **Audits**

Audits are background processes that the switch runs to monitor the state of the XA-Core. Audits of software provide background processes that check the accuracy of applications and of resource data. Audits of hardware provide diagnostic tests of hardware. Audits run for both in-service and out-of-service

conditions of hardware. The in-service diagnostics of audits prevent isolation of the circuit pack or packlet under test. An in-service diagnostic checks hardware except when the hardware is under normal operation of the software. The out-of-service diagnostics of audits are complete tests of a circuit packs or packlets. Separate diagnostic tests of hardware are in the audits or in the routine exercise (REx) tests but normally not both.

### **Routine exercise (REx) tests**

Routine exercise (REx) tests are maintenance tests that the switch runs to check the state of the XA-Core. REx tests of software check the accuracy of software applications and of resource data. REx tests of hardware identify hardware failures before an outage or performance degradation occurs. The correction of hardware failures that REx tests identify prevents an outage or performance degradation. The system REx (SREx) test controller has software that runs the REx tests for automatic execution at time intervals. The SREx tests run on the complete switch. SREx tests run when the CPU occupancy for CallP + Maintenance is less than 40%. Software table REXSCHED defines the time intervals for SREx tests. Table REXSCHED also provides the ability to enable or disable separate REx tests. A REXTST command at the MAP terminal can request a manual REx test on part of the XA-Core when required. A RExTst indication appears on the MAP display when the switch executes a REx test.

### **REx diagnostic tests**

The REx tests perform diagnostic tests of hardware under two conditions. REx tests perform diagnostic tests on hardware that is in service and out of service. The in-service diagnostic tests of REx tests check all XA-Core functions and hardware that the XA-Core audits have not checked. The in-service diagnostics of REx tests prevent isolation of the circuit pack or packlet under test. The out-of-service diagnostic tests of REx checks fault detection of XA-Core hardware through error insertion. Error insertion for an out-of-service diagnostic on hardware requires the circuit pack or packlet to be in isolation. The out-of-service diagnostic of a REx test is not a complete test like the out-of-service diagnostic of an audit. An out-of-service diagnostic of a REx test checks hardware except when the hardware is under normal operation of the software.

REx tests have no check of the IDPROM of a circuit pack against software table PECINV. A check of the IDPROM occurs automatically in XA-Core during the addition of the circuit pack to the shelf.

The SREx tests run automatically each night, normally at the default time of 1:30 a.m. Normally on Wednesday, the full SREx test runs. On all other nights of the week, the base SREx test normally runs. Entries in software tables can modify the schedule for SREx tests. The entries for REx schedule are in table REXSCHED and office parameter NODEREXCONTROL of table OFCVAR.



Refer to the procedure, “How to change XA-Core REx intensity” in this document.

Before the REx test begins, the switch automatically checks the dedicated stability threshold counters. The stability threshold counters perform a monitor of parity fault counts of the static random access memory (SRAM). If there are too many SRAM parity faults in a determined time before the request for a REx test, the switch responds as follows:

- The MAP displays a warning and confirmation prompt when a manual request for a REx test is not good. The manual REx test can abort or can execute.
- The switch aborts the beginning an automatic REx test at the planned time and generates a log report. The log indicate the reason for no REx test. When two automatic REx tests that follow one another cancel in one day, a RExSch minor alarm occurs.

A monitor of the switch stability continues during a REx test. The switch aborts the REx test when a mismatch, trap, link closure, or restart occurs during a REx test.

### **REx test classes**

REx tests are available in groups called classes. The classes of REx test are as follows:

- PE
- SM
- IO
- BASE
- ALL
- FULL

The classes of REx tests have the following differences:

- PE class of REx test is:
  - A REx test on a processor element (PE) circuit pack of an XA-Core that is a different PE circuit pack for each REx test performed.
  - The REx tests are out-of-service tests.
- SM class of REx test is:
  - A REx test on a shared memory (SM) circuit pack of an XA-Core that is a different SM circuit pack for each REx test performed.
  - The REx tests are out-of-service tests.

- IO class of REx test is:
  - A REx test on a chosen input/output processor (IOP) circuit pack and REx tests on the packlets in that IOP circuit pack.
  - If the XA-Core contains an unstable IOP circuit pack or an unstable packlet, the system chooses the IOP that is unstable or that contains the unstable packlet, and it tests that IOP and its packlets. For the unstable IOP or packlet, the system just sets the test result to “failed”.

**Note:** An unstable IOP circuit pack or packlet is one whose bounce counter has reached the value specified in the `XA_IO_STATE_CHANGE_ALARM_THRESH` office parameter, which is in table OFCENG. For information on the office parameter, see the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.
  - If the XA-Core does not contain any unstable IOP circuit packs or packlet, then each time the IO class of REx test runs, the system chooses a different IOP circuit pack, and tests that IOP and its packlets.
  - The REx tests are out-of-service tests.
- BASE class of REx test is:
  - A REx test while in service on all PE circuit packs, SM circuit packs, IOP circuit packs, and related packlets of an XA-Core.
  - An image test is performed. During an image test, the XA-Core splits into two sides. The image test checks the sanity of the switch’s software within the shared memory (SM) circuit packs of the XA-Core. The split XA-Core has an active side and an inactive side. The image test cannot start and split the XA-Core if one SM circuit pack only is available to the active side. The active side needs a minimum of two SM circuit packs for the XA-Core to split. Each side of the split XA-Core has one copy of the software image. The image test occurs on the image copy of the inactive side.
  - By default, BASE REx tests run each day of the week except Thursday.
- ALL class of REx test is:
  - A REx test while in service on all PE circuit packs, SM circuit packs, IOP circuit packs, and related packlets of an XA-Core.
  - A REx test while out of service on a different PE circuit pack, a different SM circuit pack, and an IOP circuit pack (with related packlets) of an XA-Core. The PE and SM circuit packs are different for

each REx test. The system chooses the IOP circuit pack according to the rules outlined for the IO class of REx test.

- FULL class of REx test is:
  - A REx test while in service on all PE circuit packs, SM circuit packs, IOP circuit packs, and related packlets of an XA-Core.
  - A REx test while out of service on a different PE circuit pack, a different SM circuit pack, and an IOP circuit pack (with related packlets) of an XA-Core. The PE and SM circuit packs are different for each REx test. The system chooses the IOP circuit pack according to the rules outlined for the IO class of REx test.
  - An image test is performed. During an image test, the XA-Core splits into two sides. The image test checks the sanity of the switch's software within the shared memory (SM) circuit packs of the XA-Core. The split XA-Core has an active side and an inactive side. The image test cannot start and split the XA-Core if one SM circuit pack only is available to the active side. The active side needs a minimum of two SM circuit packs for the XA-Core to split. Each side of the split XA-Core has one copy of the software image. The image test occurs on the image copy of the inactive side.
  - By default, FULL REx tests run each Thursday of the week.

### **REx test results report**

When there is a REx test, the switch generates log report XAC415 to indicate a pass or failure of the REx test. The switch issues a RExTst minor alarm under the XAC header of the alarm banner when the REx test fails. Log report XAC415 reports on a REx test failure to indicate the following:

- reason for REx test failure
- category
- list of hardware detected for possible problem

When a system REx test cannot complete, the switch generates a failure reason. The following conditions of the switch prevent the system REx test from completing:

- can not interrupt another maintenance activity in process
- system resources not available to run the REx test (recommend REx test occur during low traffic periods)

When a REx test fails, another REx test that passes is the only way to clear the RExTst minor alarm. For the detailed instructions to clear the RExTst minor alarm, refer to the chapter, refer to the chapter titled "Understanding the alarm system" in this document.

When a system REx test cannot start on two daily attempts that follow one another, the switch issues a RExSch minor alarm. The RExSch minor alarm appears under the XAC header of the alarm banner. A system REx test cancels because faults exceed the thresholds monitored by the switch. The switch monitors thresholds for stability faults to identify repeating problems. Entries in software tables list the values of the thresholds.

### **Indications of automatic test results**

The following indicators warn operating company personnel of the results of automatic maintenance tests.

- alarms
- logs
- operational measurements (OM)

Operating company personnel can monitor the indicators for directions and patterns. When monitored, operating company personnel can detect and correct small problems before the small problems become larger problems.

For detail information about clearing alarms, refer to the chapter, “Problem isolation and correction” of this document. Also, refer to the chapter titled “Understanding the alarm system” in this document.

For additional information about logs, refer to the chapter titled “Understanding XA-Core log reports” in the *XA-Core Reference Manual*, 297-8991-810.

For additional information about OMs, refer to the chapter, “Operational measurements” of this document. Also, refer to the chapter, “XA-Core operational measurements” in the *XA-Core Reference Manual*, 297-8991-810.

### **System recovery controller (SRC)**

The system recovery controller (SRC) controls recovery activities in the switch. The SRC arranges the recovery of switch nodes in the correct sequence. The SRC recovers a node after recovery of other nodes that the node requires for correct recovery. The SRC plans the recovery activities to reduce the period of the outage.

The SRC makes several recovery attempts when a node cannot recover. The SRC makes more detail analysis with each recovery attempt. If needed, the SRC reloads a node’s software and return the node to service. This reload of a node’s software occurs when required because the node is out of service during the reload.

The SRC also controls recovery activities on switch nodes outside of the XA-Core module.

The SRC performs the following functions:

- SRC dependency manager controls the correct sequence of recovery of the switch nodes
- SRC group manager arranges switch nodes together in groups for broadcast loading when required
- SRC concurrent activity manager balances the amount of recovery work with other switch activities
- SRC starts recovery applications and monitors each step of the applications for quick completion

### **SRC activation**

The following events make active the SRC to query and when needed, begin the recovery activities:

- warm restart of the XA-Core
- cold restart of the XA-Core
- reload restart of the XA-Core
- loss of software load in a peripheral module (PM)
- manual RESTART SWACT, ABORT SWACT, or NORESTART SWACT of the XA-Core

A restart restores the software of the support operating system (SOS) of the switch to a state that has stability. The reset terminal interface (RTIF) indicates the completion of a restart. The shape of the cursor on the RTIF display changes every second to indicate a completion of the restart. This change of the cursor shape for each second indicates basic operation of the SOS.



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## 7 Problem isolation and correction

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This chapter describes the resident tools used to problem solve fault conditions on the eXtended Architecture Core (XA-Core). The XA-Core is on the DMS SuperNode and SuperNode SE switches. For information on nonresident tools, refer to the *Technical Assistance Manuals*.

### Diagnostic tools

This chapter describes the following diagnostic tools:

- alarms
- DMS monitoring (DMSMON) tool
- log reports
- maintenance manager's morning report (AMREPORT)
- operational measurements (OM)
- OM-log-alarm cross-reference table (Table 7-1 on page 7-5)
- Sherlock
- switch performance monitoring system (SPMS)
- TRAPINFO

### Alarms

Alarms are the main indicators of problems with the system. Alarms provide information about the following types of problems:

- equipment failure
- equipment that operates at a performance degrade
- equipment reached defined capacity level of the operating company
- full or partial system sanity
- software errors
- automatic recovery attempt that is unsuccessful
- reboot that is not authorized

- auto transfer to standby
- inability to transfer from a fault condition to standby
- loss of communication between entities or subsystems
- loss of ability to store operational information (*data exceeds threshold*)
- failure of inter-node transmission
- loss of communication with operation support systems
- power distribution failure
- security violations
- fire and intrusion

Three levels of severity divide the alarms:

- minor
- major
- critical

A minor alarm means a problem that does not cause a loss of service.. Examples of minor alarm conditions include the following:

- conditions that may lead to a major alarm if not corrected
- one piece of a pool of equipment that has been busied
- service degradation that has fallen below a threshold of an operating company

A major alarm means that one-half of a duplicated system is out of service. The major alarm may cause a loss of service. There is no backup if another fault occurs on the active system. A switch generates a major alarm when service degrades below a threshold of an operating company.

A critical alarm means a problem that causes a loss of service. Examples of critical alarm conditions include the following:

- loss of call processing capability (*dead system*)
- partial or full loss of system sanity
- service degradation that has fallen below a threshold of an operating company

Each alarm has a log report for reference. The log report give more detailed information about the problem than the alarm.



XA-Core system alarms appear under the XAC header of the MTC level of the MAP. For more information on alarms, refer to the chapter titled “Understanding the alarm system” in this document.

## **DMSMON**

DMSMON monitors changes in operation when operating company personnel change a release load. DMSMON formats the information into a report for manual or automatic generation. The type of information in the report includes the following:

- counts of internal events (*e.g. warm and cold restarts*) and downtime information
- system trap information
- counts of log reports
- hardware counts (*configuration information*)

For additional information about the DMSMON tool, refer to the *DMS Family Commands Reference Manual*, 297-1001-822.

## **Log reports**

Log reports are a primary source of information about the components of the XA-Core. Some logs can isolate a problem to a single component. Other logs help to identify problems attributed to more than one component.

Log reports include the following information:

- severity of the log report (represented by the number of asterisks)
- type of log
- time and day
- suspected problem
- list of suspected cards

For information about the XA-Core related logs, refer to the chapter titled “understanding XA-Core log reports” in the *XA-Core Reference Manual*, 297-8991-810.

## **Maintenance manager’s morning report**

AMREPORT provides a 24-h summary of performance, administrative, and maintenance information. The AMREPORT information helps maintenance

programs for correction and prevention of problems. The switch produces AMREPORT as a log report that includes the following information:

- switch performance information
  - SPMS indicators
  - call processing performance
  - processor element (PE) occupancy
  - network integrity
  - peripheral module (PM) switch of activity (SWACT) information
  - software performance: trap and SWER counts
  - footprint (FP) and OM log counts
  - information on SWACT of XMS-based peripheral module (XPM)
- scheduled test results
  - automatic line test (ALT)
  - automatic trunk test (ATT)
- switch operations
  - image dump results
  - patch summary
  - outage indicators
  - integrity check of table data
  - unscheduled XPM REx test

For additional information about AMREPORT, refer to the *Digital Switching Systems DMS-100 Family Maintenance Managers Morning Report*, 297-1001-535.

### **Operational measurements**

Operational measurements (OMs) provide load and performance information. The OM system controls collection, display, and report generation of OM data for the operating company.

For additional information about XA-Core related OMs, refer to the chapter titled “XA-Core operational measurements” in the *XA-Core Reference Manual*, 297-8991-810.

### Alarm, log, and OM relationship

The following table displays the relations among alarms, logs, and OMs.

**Table 7-1 Relations among alarms, logs, and OMs (Sheet 1 of 2)**

| Alarms | Event Log                                                | Event-clear Log                        | Related OM registers                                                                                              |
|--------|----------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| RExTst | XAC615 REx started                                       | XAC415 REx report                      | XARXPE, XARXIO, XARXSM, XARXBASE, XARXFULL, XARXABRT, XARXALL                                                     |
| FWsoak | XAC631 FW soaking started, XAC635 FW soaking in progress | XAC632 FW soaking completed            | none                                                                                                              |
| ImgTst | none                                                     | none                                   | none                                                                                                              |
| Split  | XAC618 Split mode entered                                | XAC619 Split mode exited               | XAPEMAJU, XAMSMPXU, XARSMPXU, XASSMPXU                                                                            |
| Config | none                                                     | none                                   | none                                                                                                              |
| FWvers | XAC300 FWversion mismatch                                | XAC630 FW version mismatch cleared     | none                                                                                                              |
| MemLim | XAC801 MemLim (Memory Limit)                             | XAC601 MemLim condition cleared        | XASM, XASMCRIU                                                                                                    |
| LowPE  | XAC302 Low Processor Element (PE)                        | XAC602 LowPE condition cleared         | XAPE, XAPECRIU, XAPEMAJU, XARXPE                                                                                  |
| LowSM  | XAC300 Low Shared Memory (SM)                            | XAC600 LowSM condition cleared         | XASM, XAMSMPXU, XARSMPXU, XASSMPXU                                                                                |
| MScomm | XAC303 Message Switch (MS) communication problem         | XAC603 MScomm alarm cleared            | XACMIC, XAIOP, XARXIO, XALKMAJU                                                                                   |
| AMDI   | XAC309 AMDI link problem                                 | XAC609 AMDI link condition cleared     | XAMDI, XAMDILNK, XAMDMAJU, XAMDCRIU                                                                               |
| ETHR   | XAC329 ETHR link problem                                 | XAC629 ETHR link condition cleared     | XETHRMJU, XETHRCRU, XETHR, XETHRPRT, XETHRLNK                                                                     |
| IOHits | none                                                     | none                                   | XAIOP, XAHIO, XACMIC, XARTIF, XALOC, XAREMP, XADISK, XATAPE, XAMDI, XAMDIPRT, XAMDILNK, XETHR, XETHRPRT, XETHRLNK |
| Image  | XAC308 Image test report                                 | XAC608 Image test passed/alarm cleared | XARXBASE, XARXFULL                                                                                                |

**Table 7-1 Relations among alarms, logs, and OMs (Sheet 2 of 2)**

| Alarms | Event Log                                      | Event-clear Log                      | Related OM registers                                          |
|--------|------------------------------------------------|--------------------------------------|---------------------------------------------------------------|
| TOD    | XAC304 Time of Day clock (TOD) problem         | XAC604 TOD alarm cleared             | XAIOP, XACMIC                                                 |
| XATrap | XAC814 XATrap                                  | XAC614 XATrap alarm cleared          | XATRAP                                                        |
| Disk   | XAC306 Disk problem                            | XAC606 Disk alarm cleared            | XADISK                                                        |
| RTIF   | XAC305 Reset Terminal Interface (RTIF) problem | XAC605 RTIF alarm cleared            | XARTIF, XAIOP, XALOCP, XAREMP                                 |
| RExSch | XAC413 REx Schedule failure                    | XAC613 RExSch alarm cleared          | none                                                          |
| RExFlt | none                                           | none                                 | XARXPE, XARXIO, XARXSM, XARXBASE, XARXFULL, XARXABRT, XARXALL |
| Tape   | XAC307 Tape problem                            | XAC607 TAPE alarm cleared            | XATAPE, XAIOP                                                 |
| PEtrbl | XAC322 PE trouble                              | XAC622 PEtrbl alarm cleared          | none                                                          |
| IOtrbl | XAC324 IOP trouble                             | XAC624 IOtrbl alarm cleared          | none                                                          |
| IOflt  | XAC312 IOP fault                               | XAC612 IOP alarm cleared             | none                                                          |
| SMtrbl | XAC323 SM trouble                              | XAC623 SMtrbl alarm cleared          | none                                                          |
| RIBkey | XAC325 RIBKey detected                         | XAC625 RIBKey removed                | none                                                          |
| WgSlot | XAC321, XAC327 Wrong slot                      | XAC627 WgSlot cleared (card removed) | none                                                          |

### Sherlock

Sherlock is a data collection tool for immediate use after a service outage. Sherlock automatically collects the data required to analyze the cause of the failure. Only one person can use Sherlock at a time.

Sherlock initiates a set of parallel processes that collect all the data available for the specified type of service failure. Sherlock sends the data to a series of temporary files. A person cannot access or control the data except if the person stops the Sherlock process before data collection completes.

Once data collection completes, Sherlock creates data and console files on a specified storage device. Sherlock also erases the temporary files. The data file name is SHRKyyyymmddhhmmss(Z). The Z means the file is a compressed file. The name of the console file is SHERLOCK\$OUT. The console file contains all the messages and responses sent to the terminal. The console file also contains some additional messages (e.g. time stamps).

For additional information about how to use Sherlock, refer to the *DMS Family Commands Reference Manual*, 297-1001-822.

### **Switch performance monitoring system**

The switch performance monitoring system (SPMS) monitors all areas of switch operation and outputs regular reports on performance. The reports show different points of view.

The base for SPMS reports is the index values of OMs that the switch generates. The time covered in the SPMS report ranges from 0.5 h to one month. This range of time provides a monitor of day-to-day events and of a longer period of switch performance.

Plans for the switch performance index use SPMS results for administration purposes. The operating company can use the overall office performance index, any section of lower-level indexes, or both.

SPMS consists of three sections as follows:

- service section
- maintenance performance section
- provided resources section

For additional information about SPMS, refer to *Switch Performance Monitoring System Application Guide*, 297-1001-330.

### **TRAPINFO**

TRAPINFO displays information about software traps. TRAPINFO gets information from the log utility and displays the information in one of several formats.

For additional information about how the TRAPINFO tool, refer to the *DMS Family Commands Reference Manual*, 297-1001-822.



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## 8 How to problem solve a MemLim alarm

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### Background

#### Some commonly used terms

In this document, the following definitions are used.

**Table 8-1 Definitions of commonly used terms (Sheet 1 of 2)**

| Term             | Definition                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| memory-module    | This is the basic unit of memory managed by the maintenance software. A module is 32 megabytes in size. Maintenance transfers store to the operating system's store-allocator when requested by the store-allocator. The amount transferred is one memory-module (32 megabytes) at a time. Any given module that has been transferred may only be used as data-store or program-store, never both types within the same module. |
| vast-area        | This is the basic unit of memory managed by the operating system's store-allocator. A vast-area is 64 kilobytes is size.                                                                                                                                                                                                                                                                                                        |
| spare-memory     | This is memory that has not been transferred to the store-allocator. It is wholly owned by Maintenance. It always exists as a integral number of memory-modules.                                                                                                                                                                                                                                                                |
| available-memory | This is memory that is owned by the store-allocator but that has not been allocated to any application software. This is always an integral number of vast-areas.                                                                                                                                                                                                                                                               |
| used-memory      | This is memory that is owned by the store-allocator that has been partially or completely allocated to application software. It is always an integral number of vast-areas.                                                                                                                                                                                                                                                     |

**Table 8-1 Definitions of commonly used terms (Sheet 2 of 2)**

| Term               | Definition                                                                                                                                                                                                                                                                                    |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| free-memory        | This is memory that is owned by the store-allocator and that has been assigned a particular store-type but that has not yet been allocated to any application software. It consists of the fragments of used vast-areas (see above), that are not allocated.                                  |
| addressable-memory | This is the total amount of memory that can be addressed in the system. This number depends on the number of shared-memory cards in the SM-configuration. For example, a 5-card system has 768 megabytes of addressable-memory and a 10-card system has 1728 megabytes of addressable-memory. |
| physical-memory    | This is the total amount of memory installed in the XA-Core shelf. Currently, the only memory card supported for XA-Core has 12 modules of 32 megabytes each, for a per-card total of 384 megabytes.                                                                                          |
| data-store         | This is memory that can be used for storing data. There are several types of data-store (DS), such as temporary data-store (DSTEMP), protected data-store (DSPROT), etc.                                                                                                                      |
| program-store      | This is memory that can be used for storing program instructions. There are several types of program-store, such as protected program store (PSPROT) and fast program store (PSRAM).                                                                                                          |
| software-image     | This is the total memory that is occupied by the software's instructions, rounded to the nearest 32 megabyte boundary, plus the total memory that is occupied by the software's data, also rounded to the nearest 32 megabyte boundary.                                                       |

### Addressable memory

Memory on an XA-Core is arranged such that the addressable memory range is in duplex (meaning that there are two copies of this data), and, in addition, one shared-memory card's worth of the addressable memory range is in triplex (meaning three copies). The amount of addressable memory (abbreviated here as AM) is defined by the following formula:



$$AM = \left( \frac{N-1}{2} \right) \times 384$$

where N is the number of cards, and the result is given in megabytes. The value 384 is the number of megabytes on one SM card. For example, a five-card system (N=5) has a addressable memory range of 768M. The following table, lists the addressable memory ranges against the number of shared-memory cards for systems of various sizes (note that not all of these sizes are supported in all CSPs).

**Table 8-2 Configured address space against the number of shared-memory cards**

| Number of SM cards (N) | Addressable memory (AM) |
|------------------------|-------------------------|
| 5                      | 768                     |
| 6                      | 960                     |
| 7                      | 1152                    |
| 8                      | 1344                    |
| 9                      | 1536                    |
| 10                     | 1728                    |

### The software image

The term image used here is defined to be the total memory that is occupied by the software's instructions, rounded to the nearest 32 megabyte boundary, plus the total memory that is occupied by the data of the software, also rounded to the nearest 32 megabyte boundary.

The image is loaded into the addressable memory on boot and it may then grow (or possibly shrink) dynamically over time. As applications request store from the support operating system (SOS), the memory resources owned by SOS are depleted. When these memory resources shrink below a certain threshold, SOS requests store to be transferred from the unused portion of the addressable memory range into the image, thereby increasing the size of the image.

One way to calculate the size of the image on a given switch running a given software load is using the value for the spare memory displayed by the store all usage command. This spare memory is the total number of kilobytes in the

unused portion of the addressable memory range, i.e. the part of the addressable memory range that does not belong to the image. The image then is all the memory that is not spare. For a 5-card system, for example, there could be 262144 kilobytes of spare reported by store all usage out of the total addressable memory range of 768 megabytes. We calculate the image by subtracting this from the total addressable memory as follows (note that kilobytes are converted to megabytes by dividing by 1024).

$$I = AM - \frac{(SPARE)}{1024} = 768 - \left( \frac{262144}{1024} \right) = 512$$

## Memory limits for XA-Core

### Limits imposed by software

The XA-Core memory configuration gives different upper bounds on the amounts of PS and DS for different software releases. The following table indicates these amounts.

**Table 8-3 Upper bounds of PS and DS**

| CSP        | Start of PS | End of PS | Delta |
|------------|-------------|-----------|-------|
| 10.4       | #30000000   | #4FFFFFFF | 512M  |
| 12, 13, 14 | #30000000   | #3FFFFFFF | 256M  |

The following table defines the memory limitations for data store (DS) for the various releases of the XA-Core software. These limits are the ones imposed by the layout of the memory configuration.

**Table 8-4 Memory limitations for data store**

| CSP    | Start of PS | End of PS | Delta |
|--------|-------------|-----------|-------|
| 10.4   | #50000000   | #7FFFFFFF | 768M  |
| 12     | #40000000   | #7FFFFFFF | 1024M |
| 13, 14 | #40000000   | #AFFFFFFF | 1792M |

### Limits imposed by hardware

The above tables show the limits on the amounts of PS and DS as determined by the XA-Core memory configurations imposed by software. These limits are further constrained by hardware limitations and configurations.

The limit on the amount of shared-memory PS that may be used currently depends on the amount of local PS available on the PE. There are eight 32M modules on a PE. One of these modules is reserved. That leaves seven 32M modules or 224MB. It does not matter whether the memory configuration limits PS at address 3FFFFFFF or address 4FFFFFFF since the maximum amount of shared-memory PS is 224MB which corresponds to a maximum address of #3e000000.

Both PS and DS are limited by the number of shared-memory cards installed in the XA-Core. The maximum number of cards permitted is dependent on the particular software release. The following table gives the numbers of cards and resulting amounts of physical and addressable memory.

**Table 8-5 Number of SM cards and physical and addressable memory**

| Number of SM cards | Physical memory | Addressable memory |
|--------------------|-----------------|--------------------|
| 5                  | 1920M           | 768M               |
| 7                  | 2688M           | 1152M              |
| 10                 | 3840M           | 1728M              |

Each SM card has twelve 32M modules on it for a total of 384MB. The physical memory is then just the number of cards times 384MB. The amount of addressable memory takes into consideration that one card is a spare card and hence is not counted and also that each memory module has a copy (is in duplex), as discussed above.

Since shared memory includes both PS and DS, the addressable memory maximums in the above table refer to PS plus DS. Therefore, the maximum amounts of DS that can be used will depend on the amount of PS used and vice versa. The following table gives the maximum amounts of DS possible for two example loads -- one in which the maximum amount of PS is used and one in which a typical amount of PS is used, 128MB.

**Table 8-6 Maximum amount of data store for two example loads**

| Addressable Memory | Max PS configuration |                  | Max DS configuration |                  |
|--------------------|----------------------|------------------|----------------------|------------------|
|                    | Used PS              | Max DS Available | Used PS              | Max DS Available |
| 768M               | 224M                 | 544M             | 128M                 | 640M             |
| 1152M              | 224M                 | 928M             | 128M                 | 1024M            |
| 1728M              | 224M                 | 1504M            | 128M                 | 1600M            |

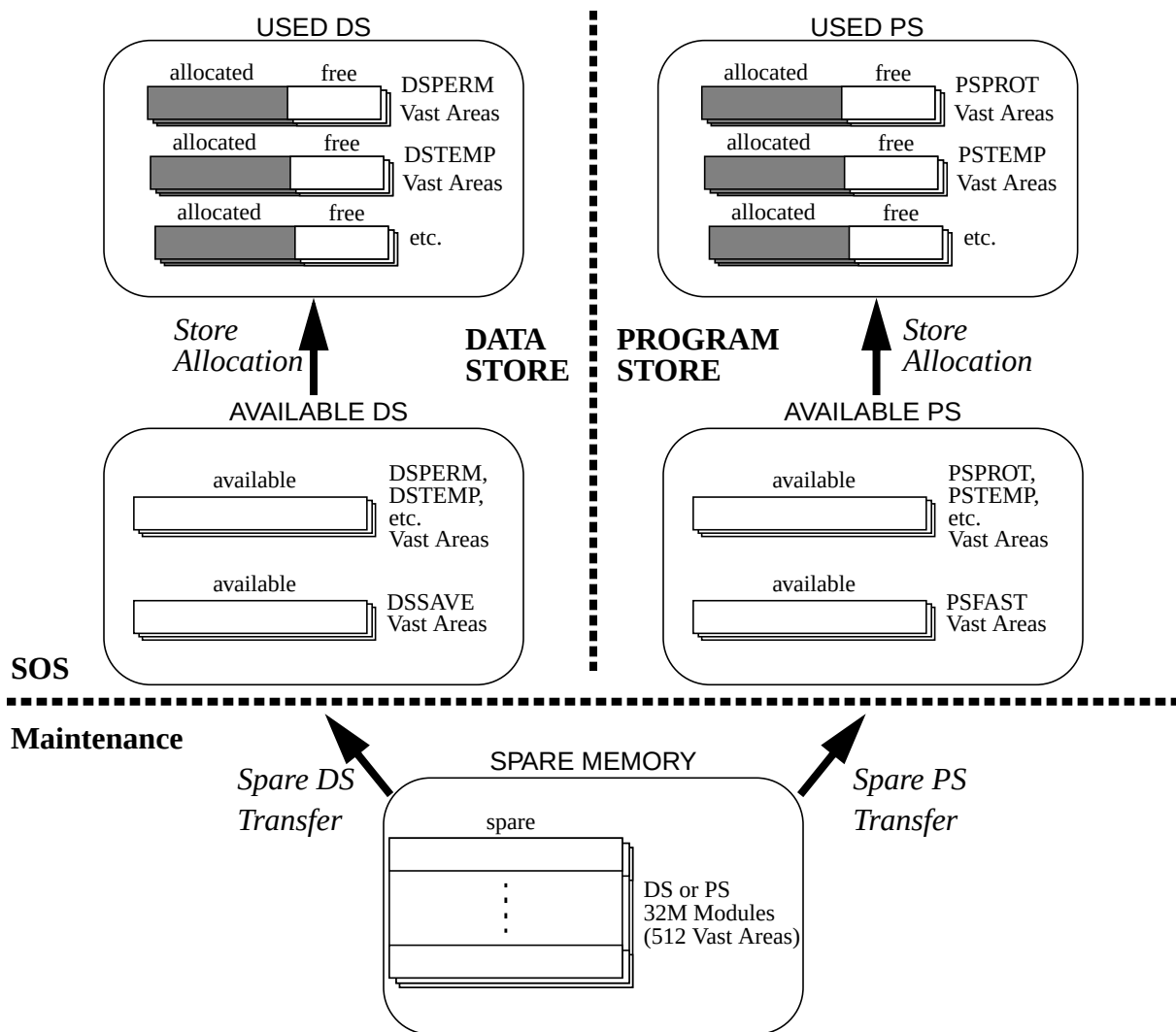
## Store allocation

The support operating system (SOS) has a store-allocator, the purpose of which is to allocate memory to applications. Figure 8-1 shows the various pools of memory maintained by SOS and Maintenance and shows the interactions between these pools.

It can be seen from the upper two-thirds of the figure, that SOS maintains separate pools for data-store (DS) and program-store (PS) and that within these categories, there is a further subdivision between available store (DS and PS) and used store (DS and PS). Within the category of used store, the store-allocator recognizes separate pools of vast-areas of specific store-types. For example, the figure lists DSPERM and DSTEMP vast-areas for DS and PSPROT and PSTEMP vast-areas for PS. There are many other store-types not shown. These used vast-areas are partially or completely allocated to application software. The parts, or blocks, of a vast-area allocated to one or more applications are collectively labeled as allocated, while the remaining fragments, or blocks, not allocated, are labeled as free.

The store allocator also keeps separate pools of vast-areas in the available store categories (DS and PS). However, unlike the used store, the pools of vast-areas in the available store categories are flexible in that, typically, vast-areas from these pools may be allocated to one of several possible store-types. The figure shows a pool of available vast-areas that may be assigned to DSPERM and DSTEMP, among others not shown. A second pool of available vast-areas is applicable to the DSSAVE store-type. On the PS side, a pool of available vast-areas is listed that may be assigned to PSPROT and PSTEMP, among others not shown. A second pool of available PS is shown that may be applied to the PSFAST store-type.

The lower portion of the figure shows the spare memory maintained by Maintenance. This memory is handled in blocks of 32 megabytes called modules. One 32M module contains 512 vast-areas. These modules do not have any store-type associated with them while they are managed by Maintenance.

**Figure 8-1 Memory pools and store allocation from spare to available to used memory pools.**

When an application makes a request for a specific amount of a specific type of store, say 10 kilobytes of DSTEMP, the store-allocator first looks through its pool used vast-areas of the requested type, in this case DSTEMP, looking for a free block large enough to accommodate the request, in this case, 10 kilobytes. If such a block is found, then this block is allocated to the application.

If, however, no such block exists in the list of used vast-areas, then the store-allocator goes to the appropriate pool of available vast-areas from which a new vast-area of the requested type may be obtained. If an available vast-area exists in the appropriate pool, in this example this is the pool from which DSPERM, DSTEMP, etc., are allocated, then this vast-area is permanently

assigned the requested store-type, DSTEMP. The 10 kilobyte block is given to the application and the now-used vast-area is added to the list of used vast-areas.

If the appropriate pool of available memory is empty, the store-allocator requests a new module from the Maintenance system. Maintenance then transfers a new module to the store allocator for use as either data-store or program-store, as required. In this example, if the pool of available memory from which DSTEMP is allocated was depleted, Maintenance would transfer a module to be used as data-store. The store-allocator would replenish the pool from which DSTEMP is allocated and proceed to assign the DSTEMP store-type to a new vast-area and then allocate the requested 10K block, as discussed above. The process of transferring a module from Maintenance to the store-allocator is called store-transfer or sometimes spare-transfer (since the pool of modules owned by Maintenance is referred to as the spare-memory).

## **MemLim algorithm**

### **Available-memory and store types**

In order to operate properly, an XA-Core requires available resources of both data-store and program-store. There are many sub-types of memory within these two broad categories that each must be available if the switch is to be fully functional.

Program-store and data-store are allocated from a common pool of memory-modules. As discussed above, once a module has been allocated to DS or PS, the whole module must be used for this one type (DS or PS).

Not all of the DS store-types or PS store-types are allocated from a common pool of DS or PS. For example, the memory used for DSSAVE is reserved for DSSAVE alone. Similarly, DSSCRATCH is also not allocated from the common pool of available-memory for DS. Therefore, although there may be plenty of memory left for, say, DSSAVE, there may be none left for DSSTACK or DSTEMP. In this situation, the switch would not function properly, A similar argument is applicable to PS.

This is illustrated by an example. Suppose that a particular switch is configured to have five shared-memory cards, or 768 megabytes of addressable-memory. Suppose that the software load running on the switch requires 98 megabytes of program-store. The number of modules needed for PS in this case would be four, or 128 megabytes. However, of this 128 megabytes, only 100 megabytes is used, leaving 30 megabytes available.

Subtracting 128 megabytes from 768 megabytes gives 640 megabytes, the remaining memory that can be used for DS. Suppose the software requires 632 megabytes of DS. This leaves 8 megabytes of available-memory for DS.

The total available-memory is then 30 megabytes of PS plus 8 megabytes of DS, or 38 megabytes in total. However, of the 8 megabytes of available DS, a certain portion will be for DSSAVE only, say two vast-areas or 128 kilobytes, and a certain portion will be for DSSCRATCH only, say 125 vast-areas or 8000 kilobytes. Since 8 megabytes is 128 vast-areas, this leaves 128 minus 125, minus 2, or just one vast-area of 64 kilobytes for DSTEMP, DSPROT, DSPERM, etc.

It can be seen from this example then, that in raising the MemLim alarm, it is important to treat PS and DS separately and to examine the availability of the store-types within the DS and PS categories.

### **Determining the MemLim alarm level**

The MemLim alarm algorithm treats the program-store and data-store store-types separately. The minor alarm is based on the total available DS or PS memory. The major alarm pays attention to the availability of a critical set of DS types and a critical set of PS types.

The following is the algorithm for determining the MemLim alarm level based on the usage of data-store.

1. Determine if a DS store-transfer is possible.
  - a. Determine if there is any spare-memory. If there is none, a store-transfer is not possible. Otherwise, proceed to step 1b).
  - b. If there is some spare-memory then determine if the address-space for DS will be exceeded by a store-transfer. If yes, then a store-transfer is not possible.
  - c. If a store-transfer is possible, then there is no alarm situation. Otherwise proceed to step 2.
2. Determine the amount of available DS reported by SOS.
  - a. If the available DS for the critical subset of DS store types is eight vast-areas or less, then the system raises the MemLim MAJOR alarm.
  - b. Otherwise, if the total available DS is less than 32 megabytes, then the system raises the MemLim MINOR alarm.

Now look at the algorithm for raising the MemLim alarm based on the usage of program store.

3. Determine if a PS store-transfer is possible.
  - a. Determine if there is any spare-memory. If there is none, a store-transfer is not possible. Otherwise, proceed to step 3b).
  - b. If there is some spare-memory, then determine if the address-space for PS will be exceeded by a store-transfer or if the PE cards have exhausted their local spare-memory. If yes, then a store-transfer is not possible.

If a store-transfer is possible, then there is no alarm situation. Otherwise proceed to step 4.

4. Determine the amount of available PS reported by SOS.
  - a. If the available PS for the critical subset of PS store types is one vast-area or less, then the system raises the MemLim MAJOR alarm.
  - b. Otherwise, if the total available PS is less than eight megabytes, then the system raises the MemLim MINOR alarm.
5. These independent DS and PS alarm results are combined so that the highest applicable alarm level is reported on the MAP and in the logs. The following “truth table” defines how the DS and PS alarms are combined.

**Table 8-7 Truth table for combining DS and PS alarms**

| <b>DS Alarm Test Result</b> | <b>PS Alarm Test Result</b> | <b>MemLim Alarm Status</b> |
|-----------------------------|-----------------------------|----------------------------|
| none                        | none                        | none                       |
| Minor                       | none                        | Minor                      |
| Major                       | none                        | Major                      |
| none                        | Minor                       | Minor                      |
| Minor                       | Minor                       | Minor                      |
| Major                       | Minor                       | Major                      |
| none                        | Major                       | Major                      |
| Minor                       | Major                       | Major                      |
| Major                       | Major                       | Major                      |



---

## Memory fragmentation

As indicated in the background section, used-memory refers to vast-areas that are at least partially allocated. The remaining parts that are not allocated are referred to as free. These free areas can be of any size. When an application needs memory, if it is looking for a small block, it the store allocator might be able to find a vast-area of the right store-type that has a free block on it large enough to satisfy the application's request. However, if no used vast-areas of the right type have a block of sufficient size, a new available vast-area will need to be used.

The MemLim algorithm does not consider the free blocks as being available. The reason for this is that it is necessary to be sure that future requests for any store-type and of any size can be satisfied, not just smaller requests or requests for certain store-types.

## XSMEMLIM diagnostic tools

### XSMEMLIM command

There is a need for the ability to display the numerical data used in calculating the MemLim alarm status. The XSMEMLIM command is designed to provide this data.

**Table 8-8 The XSMEMLIM command**

|             |                                                                        |
|-------------|------------------------------------------------------------------------|
| SYNTAX      | XSMEMLIM                                                               |
| DESCRIPTION | Displays information about the memory limits and related alarm status. |
| EXAMPLE     | xsmemlim                                                               |

In order to display this information, use the XSMEMLIM command as follows:

Command input:

```
>xsmemlim
```

The following is an example MAP response display:

## Memory Limits Statistics

Total addressable memory: 786432 Kbytes

Spare memory: 0 Kbytes

| Store<br>Alarm Type | Available<br>Memory Crt | Available<br>Memory Any | Major<br>Limit | Minor<br>Limit | Transfers<br>Okay |
|---------------------|-------------------------|-------------------------|----------------|----------------|-------------------|
| Status              | (Kbytes)                | (Kbytes)                | (Kbytes)       | (Kbytes)       |                   |
| DS                  | 576                     | 8704                    | 512            | 32768          | NO                |
| minor               |                         |                         |                |                |                   |
| PS                  | 23552                   | 27712                   | 64             | 8192           | NO                |
| no alarm            |                         |                         |                |                |                   |
| TOTAL               | 24128                   | 36416                   |                |                |                   |

MemLim Alarm Status: minor

In the DS row there are 576 kilobytes of available store in the critical set of store-types and there are 8704 kilobytes of available store in total. The limits for the major and minor alarms are 512 kilobytes and 32768, respectively. Since 8704 is less than 32768, and 576 is greater than 512, the MemLim minor is asserted. There are more than 27 megabytes of available PS.

Suppose that another vast-area of DSTEMP was allocated on a switch in the state shown in the above XSMEMLIM sample output. The the XSMEMLIM command, if run again, would show the following:

Command input:

&gt;xsmemlim

The following is an example MAP response display:

## Memory Limits Statistics

Total addressable memory: 786432 Kbytes

Spare memory: 0 Kbytes

| Store<br>Alarm Type | Available<br>Memory Crt | Available<br>Memory Any | Major<br>Limit | Minor<br>Limit | Transfers<br>Okay |
|---------------------|-------------------------|-------------------------|----------------|----------------|-------------------|
| Status              | (Kbytes)                | (Kbytes)                | (Kbytes)       | (Kbytes)       |                   |
| DS                  | 512                     | 8640                    | 512            | 32768          | NO                |
| major               |                         |                         |                |                |                   |
| PS                  | 23552                   | 27712                   | 64             | 8192           | NO                |
| no alarm            |                         |                         |                |                |                   |
| TOTAL               | 24064                   | 36352                   |                |                |                   |

MemLim Alarm Status: major

The number of kilobytes of available-memory in the critical set of store-types is now 512 and equal to the major limit. For this reason, the MemLim major is raised.

**STORE command**

The SOS store-allocator provides a command that may be used to investigate many aspects of store-allocation. Information is available on:

- amounts of allocated and free store for each store type
- amounts of available DS and PS
- amount of spare memory
- which applications are using which type of store, and how much
- many others

A brief overview of the STORE command follows.

The syntax of the STORE command is of the form

```
store <store-type> <parameter> [<option>...]
```

The <store-type> argument may be any of the store-types listed in Table 8-9, or ALL, to perform the store command on all store-types; or DS, to perform the command on all data-store types; or PS to perform the command on all program-store types; or DUMPDS, to perform the command on all types of DS that are dumped; or DUMPPS, to perform the command on all types of PS that

are dumped; or VALIDDS, to perform the command on all valid DS types; or VALIDPS, to perform the command on all valid PS types.

The <parameter> argument may be any one of the parameters listed in Table 8-10 on page 8-17. Depending on the selected parameter, there may be one or more options specified.

**Table 8-9 List of store-types for the STORE command. (Sheet 1 of 3)**

| Store-type               | Description                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------|
| dstemp_blocking          | Temporary data store                                                                                                         |
| dsram_blocking           | Permanent protected data store                                                                                               |
| dsperm_blocking          | Permanent unprotected data store                                                                                             |
| pstemp_write_blocking    | Temporary program store                                                                                                      |
| dssave_blocking          | Permanent data store saved over reboots.                                                                                     |
| psprot_write_blocking    | Permanent program store                                                                                                      |
| dssram_blocking          | Fastest DSTEMP (68k)                                                                                                         |
| pssram_write_blocking    | Fastest PSPROT (68k)                                                                                                         |
| dsipl_write_blocking     | DS used by genimage for IPLUNLOAD modules                                                                                    |
| psipl_write_blocking     | PS used by genimage for IPLUNLOAD modules                                                                                    |
| dsfprot_write_blocking   | Fast DSPROT (68k)                                                                                                            |
| dsfperm_blocking         | Fast DSPERM (68k)                                                                                                            |
| dsdbunprot_blocking      | Unprotected DABM store similar to DSUNPROT                                                                                   |
| psfast_write_blocking    | Fastest PSPROT unused by GENIMAGE.                                                                                           |
| dspperm_blocking         | Permanent data store saved over reloads                                                                                      |
| dsdbtemp_blocking        | Temporary DABM data store.                                                                                                   |
| dsdbperm_blocking        | Permanent DABM data store saved over restarts.                                                                               |
| dsdbprot_write_blocking  | Protected DABM data store saved over restarts.                                                                               |
| psalien_write_blocking   | XS store used by SOS to boot unix                                                                                            |
| dsxprot_write_blocking   | XS store shared by Unix and SOS                                                                                              |
| dsxperm_blocking         | XS store shared by Unix and SOS                                                                                              |
| dsxtemp_blocking         | XS store shared by Unix and SOS                                                                                              |
| psxshare_write_blocking  | XS shared program store (SOS/VM)                                                                                             |
| dsstack_blocking         | Process Stacks and Private Segments                                                                                          |
| dssos_blocking           | O.S. Private Info (PCBs, PSTs, Pool headers.)                                                                                |
| dssosprot_write_blocking | O.S. Protected Private Info (Robust Queues).                                                                                 |
| dsunprot_blocking        | Unprotected store saved over all restarts except reboot                                                                      |
| dsscratch                | Scratch memory, Similar to DSFPERM but contents not guaranteed to survive a context switch. On XA-Core this is local memory. |
| dsstor_blocking          | Reserved for those additional storetypes needed on both the old and new store allocator.                                     |

**Table 8-9 List of store-types for the STORE command. (Sheet 2 of 3)**

| Store-type                | Description                                                                              |
|---------------------------|------------------------------------------------------------------------------------------|
| dsstorprot_write_blocking | Reserved for those additional storetypes needed on both the old and new store allocator. |
| dstemp_write_blocking     | Temporary data store                                                                     |
| dsram_write_blocking      | Fastest DSPERM                                                                           |
| dsprot_blocking           | Permanent protected data store                                                           |
| dsperm_write_blocking     | Permanent unprotected data store                                                         |
| pstemp_blocking           | Temporary program store                                                                  |
| dssave_write_blocking     | Permanent data store saved over reboots.                                                 |
| psprot_blocking           | Permanent program store                                                                  |
| dssram_write_blocking     | Fastest DSTEMP (68k)                                                                     |
| pssram_blocking           | Fastest PSPROT (68k)                                                                     |
| dsipl_blocking            | DS used by genimage for IPLUNLOAD modules                                                |
| psipl_blocking            | PS used by genimage for IPLUNLOAD modules                                                |
| dsfprot_blocking          | Fast DSPROT (68k)                                                                        |
| dsfperm_write_blocking    | Fast DSPERM (68k)                                                                        |
| dsdbunprot_write_blocking | Unprotected DABM store similar to DSUNPROT                                               |
| psfast_blocking           | Fastest PSPROT unused by GENIMAGE.                                                       |
| dspperm_write_blocking    | Permanent data store saved over reloads                                                  |
| dsdbtemp_write_blocking   | Temporary DABM data store.                                                               |
| dsdbperm_write_blocking   | Permanent DABM data store saved over restarts.                                           |
| dsdbprot_blocking         | Protected DABM data store saved over restarts.                                           |
| psalien_blocking          | XS store used by SOS to boot unix                                                        |
| dsxprot_blocking          | XS store shared by Unix and SOS                                                          |
| dsxperm_write_blocking    | XS store shared by Unix and SOS                                                          |
| dsxtemp_write_blocking    | XS store shared by Unix and SOS                                                          |
| psxshare_blocking         | XS shared program store (SOS/VM)                                                         |
| dsstack_write_blocking    | Process Stacks and Private Segments                                                      |
| dsstack_write_blocking    | Process Stacks and Private Segments                                                      |
| dssos_write_blocking      | O.S. Private Info (PCBs, PSTs, Pool headers.)                                            |
| dsfprot_blocking          | O.S. Protected Private Info (Robust Queues).                                             |
| dsunprot_write_blocking   | Unprotected store saved over all restarts except reboot                                  |
| dsstor_write_blocking     | Reserved for those additional storetypes needed on both the old and new store allocator. |
| dsstorprot_blocking       | Reserved for those additional storetypes needed on both the old and new store allocator. |
| dstemp_mixed_blocking     | Temporary data store                                                                     |

**Table 8-9 List of store-types for the STORE command. (Sheet 3 of 3)**

| Store-type                | Description                                                                              |
|---------------------------|------------------------------------------------------------------------------------------|
| dsram_mixed_blocking      | Fastest DSPERM                                                                           |
| dsprot_mixed_blocking     | Permanent protected data store                                                           |
| dsperm_mixed_blocking     | Permanent unprotected data store                                                         |
| pstemp_mixed_blocking     | Temporary program store                                                                  |
| dssave_mixed_blocking     | Permanent data store saved over reboots.                                                 |
| psprot_mixed_blocking     | Permanent program store                                                                  |
| dssram_mixed_blocking     | Fastest DSTEMP (68k)                                                                     |
| pssram_mixed_blocking     | Fastest PSPROT (68k)                                                                     |
| dsipl_mixed_blocking      | DS used by genimage for IPLUNLOAD modules                                                |
| psipl_mixed_blocking      | PS used by genimage for IPLUNLOAD modules                                                |
| dsfprot_mixed_blocking    | Fast DSPROT (68k)                                                                        |
| dsfperm_mixed_blocking    | Fast DSPERM (68k)                                                                        |
| dsdbunprot_mixed_blocking | Unprotected DABM store similar to DSUNPROT                                               |
| psfast_mixed_blocking     | Fastest PSPROT unused by GENIMAGE.                                                       |
| psfast_mixed_blocking     | Fastest PSPROT unused by GENIMAGE.                                                       |
| dspperm_mixed_blocking    | Permanent data store saved over reloads                                                  |
| dsdbtemp_mixed_blocking   | Temporary DABM data store.                                                               |
| dsdbperm_mixed_blocking   | Permanent DABM data store saved over restarts.                                           |
| dsdbprot_mixed_blocking   | Protected DABM data store saved over restarts.                                           |
| psalien_mixed_blocking    | XS store used by SOS to boot unix                                                        |
| dsxprot_mixed_blocking    | XS store shared by Unix and SOS                                                          |
| dsxperm_mixed_blocking    | XS store shared by Unix and SOS                                                          |
| dsxtemp_mixed_blocking    | XS store shared by Unix and SOS                                                          |
| psxshare_mixed_blocking   | XS shared program store (SOS/VM)                                                         |
| dsstack_mixed_blocking    | Process Stacks and Private Segments                                                      |
| dssos_mixed_blocking      | O.S. Private Info (PCBs, PSTs, Pool headers.)                                            |
| dsfprot_mixed_blocking    | O.S. Protected Private Info (Robust Queues).                                             |
| dsunprot_mixed_blocking   | Unprotected store saved over all restarts except reboot                                  |
| dsstor_mixed_blocking     | Reserved for those additional storetypes needed on both the old and new store allocator. |
| dsstorprot_mixed_blocking | Reserved for those additional storetypes needed on both the old and new store allocator. |

**Table 8-10 STORE command parameter options**

| Parameter     | Description                                                                                          |
|---------------|------------------------------------------------------------------------------------------------------|
| SCAN          | Print information about specific blocks of store.                                                    |
| OWNERS        | Print information about store sorted by owner.                                                       |
| SUMMARY       | Print a summary of information about each specified store-type.                                      |
| USAGE         | Print information about the usage of the specified store-types.                                      |
| AREAS         | Print information about each specified store area.                                                   |
| FRAGMENTATION | Print statistics about the current levels of fragmentation.                                          |
| INFO          | Print miscellaneous information about the specified store-types.                                     |
| BLOCKADDR     | Print information about the block of store at a specific address.                                    |
| PROBE         | Probe for memory hardware configuration information at the specified address.                        |
| ATTRIBUTES    | Print the memory attributes (blocking, write_blocking, etc.) for the store at the specified address. |

### Forms of the STORE SCAN command

The following tables show the available forms of the STORE SCAN command

**Table 8-11 The STORE SCAN BLOCKS command**

|             |                                                                                                                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN BLOCKS <from> <to> [VERBOSE]                                                                                                                                                                     |
| DESCRIPTION | This form of the STORE SCAN command displays information about all the blocks of store that lie between the <from> address and the <to> address. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan blocks #4012366a #4012ffff                                                                                                                                                                                 |

**Table 8-12 The STORE SCAN RANGE command**

|             |                                                                                                                                                                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN RANGE <from> <to><br>[VERBOSE]                                                                                                                                                                                                         |
| DESCRIPTION | This form of the STORE SCAN command displays a summary of information about each store-type represented in the set of blocks that lie between the address <from> and the address <to>. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan range #4012366a #4012ffff                                                                                                                                                                                                                        |

**Table 8-13 The STORE SCAN BLKSIZE command**

|             |                                                                                                                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN BLKSIZE [<from>] [<to>]<br>[VERBOSE]                                                                                                                                                              |
| DESCRIPTION | This form of the STORE SCAN command displays information about blocks that have a size within the specified bounds <from> bytes up to <to> bytes. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan blksize #00000010 #00000050                                                                                                                                                                                 |

**Table 8-14 The STORE SCAN MODULE command**

|             |                                                                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN MODULE <name><br>[VERBOSE]                                                                                                                               |
| DESCRIPTION | This form of the STORE SCAN command displays information about the blocks owned by the specified module. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan module 'willtrap'                                                                                                                                                  |

**Table 8-15 The STORE SCAN PROCESS command**

|             |                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN PROCESS <name><br>[VERBOSE]                                                                                                                               |
| DESCRIPTION | This form of the STORE SCAN command displays information about the blocks owned by the specified process. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan process 'daddy'                                                                                                                                                     |



**Table 8-16 The STORE SCAN USER command**

|             |                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN USER <name> [VERBOSE]                                                                                                                                           |
| DESCRIPTION | This form of the STORE SCAN command displays information about the blocks of store owned by the specified user. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan user 'someuser'                                                                                                                                                           |

**Table 8-17 The STORE SCAN ID command**

|             |                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN ID <id1> <id2> [VERBOSE]                                                                                                                                                    |
| DESCRIPTION | This form of the STORE SCAN command displays information about the blocks of store owned by the specified numeric owner ID. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ds scan id #030B #0000                                                                                                                                                                        |

**Table 8-18 The STORE SCAN ALL command**

|             |                                                                                                                                                                                          |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN ALL [VERBOSE]                                                                                                                                                    |
| DESCRIPTION | This version of the STORE SCAN command displays information about all of the blocks of the specified store-type. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ps scan all                                                                                                                                                                        |

**Table 8-19 The STORE SCAN FREE command**

|             |                                                                                                                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SCAN FREE [VERBOSE]                                                                                                                                                        |
| DESCRIPTION | This version of the STORE SCAN command displays information about all of the free blocks of the specified store-type. The optional flag VERBOSE may be specified to display more information. |
| EXAMPLE     | store ps scan free                                                                                                                                                                            |

**STORE OWNERS command**

The STORE OWNERS command displays information about blocks of memory where the block information is listed in sorted-order to that the owners with the most store can be easily determined.

**Table 8-20 The STORE OWNERS command**

|             |                                                                                                                                                                                                                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> OWNERS [<n>] [<min>] [<max>]                                                                                                                                                                                                                                                                  |
| DESCRIPTION | This commands displays the information about blocks of store sorted in decreasing order of total store allocated by owner. The option <n> may be used to limit the display to n owners. The options <min> and <max> may be used to select only owners of blocks of size ranging from <min> bytes to <max> bytes. |
| EXAMPLE     | store dtemp owners 10                                                                                                                                                                                                                                                                                            |

**STORE SUMMARY command**

The STORE SUMMARY command displays summary information about all the blocks the blocks of the specified store-types. The summary data includes information on free and allocated blocks in terms of their maximum, minimum, and total sizes.

**Table 8-21 The STORE SUMMARY command**

|             |                                                                                 |
|-------------|---------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> SUMMARY                                                      |
| DESCRIPTION | Display a summary of information on all the blocks of the specified store-type. |
| EXAMPLE     | store dtemp_blocking summary                                                    |

**STORE USAGE command**

The STORE USAGE command displays information about the current usage of the specified store-types. This information includes the numbers of allocated and free kilobytes for each store-type.

**Table 8-22 The STORE USAGE command**

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> USAGE                                           |
| DESCRIPTION | Displays information about the usage of the specified store-types. |
| EXAMPLE     | store dtemp_blocking usage                                         |

## STORE AREAS command

The STORE AREAS command displays information about all the vast-areas of the specified store-types. Note that this can be a very large display that might take many minutes to display on a MAP terminal. There are options to this command that can filter the output to display only those areas of interest.

**Table 8-23 The STORE AREAS command**

|             |                                                                                                                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> AREAS [<from>] [<to>] [<status>]                                                                                                                                                                                                                               |
| DESCRIPTION | Displays information about all the vast-areas of the specified store-types. The option starting and ending address <from> and <to> may be specified to narrow the set of areas displayed. The optional status selector may be any one of avail, beingformed, inuse, or corrupted. |
| EXAMPLE     | store pstemp areas inuse                                                                                                                                                                                                                                                          |

## STORE FRAGMENTATION command

The STORE FRAGMENTATION command displays statistics about the fragmentation present in the memory-system.

**Table 8-24 The STORE FRAGMENTATION command**

|             |                                        |
|-------------|----------------------------------------|
| SYNTAX      | STORE <store-type> FRAGMENTATION       |
| DESCRIPTION | Displays the fragmentation statistics. |
| EXAMPLE     | store all fragmentation                |

## STORE INFO command

The STORE INFO command displays information about each specified store-type.

**Table 8-25 The STORE INFO command**

|             |                                                       |
|-------------|-------------------------------------------------------|
| SYNTAX      | STORE <store-type> INFO [VERBOSE]                     |
| DESCRIPTION | Displays information about the specified store-types. |
| EXAMPLE     | store dstemp info verbose                             |

**STORE BLOCKADDR command**

The STORE BLOCKADDR command display information about the block of memory at the specified address.

**Table 8-26 The STORE BLOCKADDR command**

|             |                                                                      |
|-------------|----------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> BLOCKADDR <address>                               |
| DESCRIPTION | Displays information about the block of memory at the given address. |
| EXAMPLE     | store ds blockaddr #4489FC00                                         |

**STORE PROBE command**

The STORE PROBE command displays memory hardware related information for the specified address.

**Table 8-27 The STORE PROBE command**

|             |                                                                   |
|-------------|-------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> PROBE <address>                                |
| DESCRIPTION | Displays memory hardware information about the specified address. |
| EXAMPLE     | store ds probe #4489E000                                          |

**STORE ATTRIBUTES command**

The STORE ATTRIBUTES command displays the memory attribute for the memory-line at the specified address. Use this command to determine the memory at the specified address is write blocking, or blocking, etc.

**Table 8-28 The STORE ATTRIBUTES command**

|             |                                                                  |
|-------------|------------------------------------------------------------------|
| SYNTAX      | STORE <store-type> ATTRIBUTES <address>                          |
| DESCRIPTION | Displays the attribute for the memory line at the given address. |
| EXAMPLE     | store ds attributes #419D0000                                    |

**Using the STORE command**

The following are some examples showing how the STORE command can be used to display information about memory.

To display information about store usage across all store-types, use the STORE command as follows:

Command input:

```
>store all usage
```

The following is an example MAP response display:

```
Info based on inuse DS areas
Storetype Used Free Total % Used
DSTEMP_B 14525Kb 66Kb 14591Kb 99%
DSPROT_W 17114Kb 165Kb 17279Kb 99%
DSPERM_B 70159Kb 48Kb 70207Kb 99%
DSSAVE_B 1306Kb 37Kb 1343Kb 97%
DSFPROT_W 26Kb 38Kb 64Kb 40%
DSPPERM_B 2Kb 61Kb 63Kb 3%
DSSTACK_B 5076Kb 108Kb 5184Kb 97%
DSSOS_B 525Kb 50Kb 575Kb 91%
DSUNPROT_B 10701Kb 50Kb 10751Kb 99%
DSSCRATCH 55Kb 8Kb 63Kb 87%
DSSTOR_B 1005Kb 82Kb 1087Kb 92%
DSSTORPROT_W 3406Kb 113Kb 3519Kb 96%
DSTEMP_W 55Kb 8Kb 63Kb 87%
DSPROT_B 6Kb 57Kb 63Kb 9%
DSPERM_W 2868Kb 11Kb 2879Kb 99%
DSSOS_W 460Kb 51Kb 511Kb 90%
DSUNPROT_W 1Kb 62Kb 63Kb 1%
DSTEMP_M 183Kb 8Kb 191Kb 95%
DSPROT_M 8Kb 55Kb 63Kb 12%
DSPERM_M 225Kb 30Kb 255Kb 88%
DSSOS_M 35Kb 28Kb 63Kb 55%
TOTAL DS 127750Kb 1136Kb 128886Kb 99%

TOTAL BASED ON ALL DS AREAS
TOTAL DS: USED = 127750Kb AVAIL = 11385Kb TOTAL = 139135Kb
%USED = 91%

Info based on inuse PS areas
Storetype Used Free Total % Used
PSPROT_W 5344Kb 95Kb 5439Kb 98%
PSSRAM_W 445Kb 2Kb 447Kb 99%
PSFAST_W 27643Kb 516Kb 28159Kb 98%
FIRMWARE_DLL 4160Kb 0Kb 4160Kb 100%
TOTAL PS 37593Kb 613Kb 38206Kb 87%

TOTAL BASED ON ALL PS AREAS
TOTAL PS: USED = 37593Kb AVAIL = 27942Kb TOTAL = 65535Kb
%USED = 51%
```

To display the top ten users of DSTEMP\_BLOCKING store. use the STORE command as follows:

Command input:

```
>store dstemp_blocking owners 10
```

The following is an example MAP response display:

```
Collecting DSTEMP_B owner information... please wait...

Statistics for owners of DSTEMP_B, ordered by total size
Blocks TotalSize Min Max OwnerId Process Module
User
 845 #006E39A0 #000000060 #00006020 #017A,#0000 MPBMSUI
 1212 #0012D780 #0000000E0 #0000F020 #6000,#5002
 1051 #00121A80 #000000040 #00005940 #0180,#0000 MTSKERN
 7 #0004C0E0 #00002020 #0000E020 #03D6,#0000 SSCIDEBG
 136 #00045100 #00000820 #00000820 #0BDA,#0000
BLKMONUI
 34 #00044580 #000000C0 #00004020 #03DA,#0000
XLTRSMUI
 3 #0002FA60 #0000FE20 #0000FE20 #04F8,#0000 VMCTCT
 9 #0002F200 #000000040 #000080A0 #0746,#0000 DKCACHUI
 66 #0002BF60 #000000E0 #00010000 #0107,#0000
XLFIDBUI
 173 #000296A0 #000000040 #00003E00 #018D,#0000
SIPDATPI
```

To display information about blocks of memory in a particular address range, use the STORE SCAN command as follows:

Command Input:

```
>store all scan blocks #40000000 #40010000
```

The following is an example MAP response display:

The following is an example MAP response display:

```
Store block data for: DSSAVE_B
Start Size Storetype OwnerId Process Module User
#40000000 #000005A0 DSSAVE_B #00A3,#0000
.
.
.
#4000E0E0 #00001000 DSSAVE_B #00BA,#0000 TRAPDEFS

Storetype Ttl Ttl Min Max Avail
 Blks Size Blk Blk 64k
 Free Free Free Free Pages
DSSAVE_B 1 #00000F20 #00000F20 #00000F20 0
Totals: 1 #00000F20 0

Storetype Ttl Ttl Min Max Inuse
 Blks Size Blk Blk 64k
 Allcd Allcd Allcd Allcd Pages
DSSAVE_B 16 #0000F0E0 #00001000 #000052E0 2
Totals: 16 #0000F0E0 2
```

To display information about memory owned by a particular module, use the STORE command as follows:

Command input:

```
>store psprot_write_blocking scan module stor
```

The following is an example MAP response display:

```
store dsperm scan module willtrap

Storetype Ttl Ttl Min Max
 Blks Size Blk Blk
 Owned Owned Owned Owned
DSPERM_B 1 #000000C0 #000000C0 #000000C0
Totals: 1 #000000C0
```

## Diagnosing a MemLim alarm

When a MemLim alarm (major or minor) appears on the shared-memory level of the maintenance map, or when a MemLim log appears in the XAC log stream, the following actions may be taken to determine the cause of the alarm.

The first step is to use the XSMEMLIM command. The output of this command directly shows whether the alarm is due to a shortage of available program store or a shortage of available data store.

If there is a shortage of program store indicated by XSMEMLIM then it may be that the maximum physical limit of 224 megabytes of program store is near to being reached. Or it may be that there is no spare memory and the remaining available memory to SOS is less than the MemLim threshold.

If the XSMEMLIM tool shows that the alarm is due to a shortage of data store, then it may be that the spare memory has been all used up and the remaining available data store is less than a MemLim threshold.

The STORE command can be used to determine how store is being used and if there is an errant process or module that is allocating too much memory.





DMS-100 Family

## **XA-Core**

### Maintenance Manual

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