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DMS-100 Family

XA-Core

Maintenance Manual

CSP22 Standard 12.03 April 2006

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DMS-100 Family

XA-Core

Maintenance Manual

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Publication history

April 2006

Standard release 12.03, supporting CSP22 for Customer Ready release. This change fixes the TOD Minor alarm clearing procedure.

December 2005

Standard release 12.02, supporting CSP22. Changes in this edition are as follows:

- In the chapter "Understanding the alarm system", in the procedure for clearing the PEtrbl minor alarm, added a step to busy the PE circuit pack before returning it to service.
- In the chapter "Preventive maintenance", in the information on SREx tests, added mention that the system will run a SREx test only if all communication paths to the message switches are functioning.

June 2005

Standard release 11.02, supporting CSP21. Changes in this edition are as follows:

- In the chapter "How to problem solve a MemLim alarm", added information on the following topics:
  - — the relationship between N+1 redundancy and triplex memory
  - — how to interpret the output of the STORE ALL USAGE command
- In the chapter "Introduction to routine maintenance procedures", added a procedure telling how to specify log throttling.
- In the chapter "Preventive maintenance", in the information on SREx tests, corrected the default SREx schedule.

March 2005

Standard release 10.05, supporting CSP20. Changes in this edition are as follows:

- In the chapter “Introduction to routine maintenance procedures”, in the section “How to delete a volume on an XA-Core disk”, added a caution against deleting volumes whose names contain FIDB and F2DB.

- In the chapter “Introduction to recovery procedures”, in the section “How to perform a warm restart in an XA-Core”, added a caution that if the XA-Core is connected to a USP, then during a warm restart of the XA-Core, connectivity to the USP will be lost.

January 2005

Standard release 10.04, supporting CSP20. 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 following sentence: “Operating company personnel cannot perform a manual REx when the switch CPU occupancy is greater than 40%.”

December 2004

Standard release 10.02, supporting CSP20. Changes in this edition are as follows:

- Added material covering the NTLX17AA (HCMIC) circuit pack, which was added in this release. Changes are as follows:

  — In the chapter “Understanding the alarm system”, updated the alarm clearing procedures for the following XAC alarms: IOtrbl minor, MScomm critical, major, and minor, RIBkey major and minor, RTIF critical, major, and minor, SysBTh major and minor, and TOD critical, major, and minor.

  — In the chapter “Introduction to card replacement”, added a procedure for replacing the NTLX17AA, and added NTLX17AA to Table 2-1.

  — In the chapter “Introduction to routine maintenance procedures”, added a procedure for upgrading the firmware in the NTLX17AA.

- Added material covering the checking of hardware and firmware against baseline specifications. Changes are as follows:

  — In the chapter “Understanding the alarm system”, added a procedure for clearing the Baseln major alarm

  — In the chapter “Introduction to card replacement”, updated many of the procedures to say that one possible reason for doing a replacement is to satisfy hardware baseline requirements. In each such procedure, the affected parts are the introductory paragraphs, the flowchart, and step 1 of the procedure.

  — In the chapter “Introduction to trouble locating and clearing procedures”, added information stating that if certain XA-Core components fail to satisfy baseline requirements, the system will bypass SREX tests in some cases, or will bypass the IO class of tests in other cases.

- Throughout the document, updated the names of image files shown in illustrations. The names formerly ended with the characters _CM. They now end with the characters _XA.

- In the chapter “Understanding the alarm system”, in the procedure for clearing the RExSch minor alarm, in the illustration of the CAPACITY MAP level, removed the COMPLEX field because the complexity statistic has been deleted.

- In the chapter “Introduction to card replacement”, updated the procedure for replacing the HIOP circuit pack, to cover the NTLX04CA version.

- In the chapter “Introduction to recovery procedures”, added a procedure for totally powering down the switch.

- In the chapter “Introduction to routine maintenance procedures”, updated the procedure for creating a volume on an XA-Core disk.

- In the chapter “Introduction to routine maintenance procedures”, added procedures for adding, removing, and re-arranging ethernet links.

August 2003

Standard release 09.02, supporting CSP19. Changes in this edition are as follows:

- Deleted the section covering the IOHits minor alarm from the chapter titled “Understanding the alarm system”, and deleted the alarm from the table in the chapter titled “Problem isolation and correction”.

- Added sections covering the SysBTh minor and major alarms to the chapter titled “Understanding the alarm system”, and added the alarms to the table in the chapter titled “Problem isolation and correction”.

- In the section covering the RExSch minor alarm in the chapter titled “Understanding the alarm system”, updated the description of the alarm and updated the test in step 7 of the alarm-clearing procedure, so that it refers to values found in the CAPACITY MAP level.

- In the chapter “Understanding the alarm system”, updated the procedures for clearing AMDI alarms and ETHR alarms, to take into account the possibility that the links may be hosted by HIOP circuit packs.

- In the chapter “Introduction to card replacement”, updated the replacement procedures for the following circuit packs and packlets: the NTLX04 circuit pack, the NTLX05 OC-3 two-port interface packlet (CMIC), the NTLX06 disk packlet, and the NTXL12 SIM circuit pack.

  — In the replacement procedure for the NTLX04 circuit pack, added steps that verify that the proper current DLL firmware load is listed in table XAFWLOAD.

  — In the replacement procedure for the NTLX05 OC-3 two-port interface packlet (CMIC), corrected the cross-references in what were then steps 7 and 8.

— In the replacement procedure for the NTLX06 disk packlet, added instructions telling what to do if the replacement disk is not formatted.

— In the replacement procedure for the NTLX12 SIM circuit pack, changed the sequences of instructions for removing and reattaching alarm and power cables.

- In the chapter titled "Introduction to routine maintenance procedures", added the procedure titled "How to delete a volume on an XA-Core disk".

November 2002

Standard 08.03, supporting CSP18. Major changes in this edition are as follows.

- In the chapter "Introduction to card replacement",

  — added mention of the NTLX07BA tape packlet

  — updated the replacement procedure for the tape packlet, to say that it is possible to replace an NTLX07AA with an NTLX07BA or vice versa

- In the chapter titled "Introduction to recovery procedures" updated the procedure titled "How to recover a dead XA-Core DMS Switch" by adding instructions for customers whose systems use Network Time Protocol (NTP).

- In the chapter titled "Introduction to routine maintenance procedures",

  — updated the procedure titled "Upgrading firmware on the occasion of a software upgrade", by adding steps for upgrading the firmware in the IOP circuit pack that contains the disk packlet that has the volume that contains the new firmware files

  — updated the procedure titled "How to check and adjust the XA-Core TOD", by instructing customers whose systems use Network Time Protocol (NTP) to verify the date and time before going into the NTPCI MAP level

  — updated the section titled "Selection of DAT tapes approved by Nortel Networks" to list the tapes that are recommended for use in the NTLX07BA tape packlet

October 2002

Standard 08.02, supporting CSP18. Major changes in this edition are as follows.

- In the chapter “Introduction to card replacement”,
  - — added mentions of the following items: the NTLX02DA PE circuit pack, the NTLX06AC disk packlet, and the NTLX04BA HIOP circuit pack
  - — updated the replacement procedure for the HIOP circuit pack, to say that it is possible to replace an NTLX04AA with an NTLX04BA
  - — revised the replacement procedure for the disk packlet
- In the chapter titled “Introduction to trouble locating and clearing procedures” and in the chapter titled “Preventive maintenance”, added information that REx tests will run only if all RTIF terminals have been set to emulate VT100 terminals.

July 2002

Standard 07.04, supporting CSP17. This edition contains updated instructions for upgrading firmware.

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 packlets 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 packlet. The Ethernet packlet 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 packlets to support hot insertion of packlets 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 packlet 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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Contents

XA-Core Maintenance Manual

Publication history v

About this document xxxiii

When to use this document xxxiii
How to check the version and issue of this document xxxiii
References in this document xxxiii
What precautionary messages mean xxxiv
How commands, parameters, and responses are represented xxxv
Input prompt (>) xxxv
Commands and fixed parameters xxxv
Variables xxxv
Responses xxxv

Chapter 1 — Understanding the alarm system 1-1

Introduction 1
Alarm reporting system 1
MAP alarm banner 2
Alarm severity and event hierarchy 3
MAP subsystem status summary field (SSSF) 7
Enabling and disabling of XA-Core alarms 9
Alarm enable MAP command 9
Alarm disable MAP command 9
Alarm raised MAP command 10
Alarms and log reports 10
XAC AMDI - Critical 11
Indication 11
Meaning 11
Impact 11
Common procedures 11
Action 11
XAC AMDI - Major 49
Indication 49

Meaning 49
Impact 49
Common procedures 49
Action 49
XAC Baseln - Major 87
Meaning 87
Baseln major alarm raised following an ONP 88
Impact 88
Common procedures 89
Action 90
XAC Config - Minor 95
Indication 95
Meaning 95
Impact 95
Common procedures 95
Action 95
XAC Disk - Minor 97
Indication 97
Meaning 97
Impact 97
Common procedures 97
Action 97
XAC ETHR - Critical 109
Indication 109
Meaning 109
Impact 109
Common procedures 110
Action 110
XAC ETHR - Major 139
Indication 139
Meaning 139
Impact 139
Common procedures 139
Action 140
XAC ETHR - Minor 169
Indication 169
Meaning 169
Impact 169
Common procedures 169
Action 169
XAC FWsoak - Minor 197
Indication 197
Meaning 197

Impact 197
Common procedures 197
Action 197
XAC FWvers - Major 199
Indication 199
Meaning 199
Impact 199
Common procedures 199
Next level of maintenance 199
Action 200
XAC Image - Critical 205
Indication 205
Meaning 205
Impact 205
Common procedures 205
Action 206
XAC ImgTst - Minor 209
Indication 209
Meaning 209
Impact 209
Common procedures 209
Action 210
XAC IOP - Minor 213
Indication 213
Meaning 213
Impact 213
Common procedures 213
Action 213
XAC IOtrbl - Minor 221
Indication 221
Meaning 221
Impact 222
Common procedures 222
Action 222
XAC LowPE - Critical 243
Indication 243
Meaning 243
Impact 243
If some PE capacity remains available 243
If no PE capacity remains available 243
Common procedures 244
Action 244
XAC LowPE - Major 251

Indication 251
Meaning 251
Impact 251
Common procedures 251
Action 251
XAC LowSM - Major 259
Indication 259
Meaning 259
Impact 259
Common procedures 259
Action 259
XAC LowSM - Minor 267
Indication 267
Meaning 267
Impact 267
Common procedures 267
Action 267
XAC MemLim - Major 275
Indication 275
Meaning 275
Impact 275
Common procedures 275
Action 275
XAC MemLim - Minor 279
Indication 279
Meaning 279
Impact 279
Common procedures 279
Action 279
XAC MScomm - Critical 283
Indication 283
Meaning 283
Impact 284
Common procedures 285
Action 285
XAC MScomm - Major 309
Indication 309
Meaning 309
Lack of redundancy of CMIC links 309
Misconfigured CMIC links 309
Impact 311
Common procedures 311
Action 311

XAC MScomm - Minor 347
Indication 347
Meaning 347
Impact 347
Common procedures 347
Action 347
XAC PEtrbl - Minor 373
Indication 373
Meaning 373
Impact 373
Common procedures 373
Action 373
XAC RExFlt - Minor 381
1-381
Indication 381
Meaning 381
Impact 381
Common procedures 381
Action 381
XAC RExSch - Minor 385
1-385
Indication 385
Meaning 385
Impact 386
Common procedures 386
Action 387
XAC RExTst - Minor 395
1-395
Indication 395
Meaning 395
Impact 395
Common procedures 395
Action 396
XAC RIBkey - Major 401
1-401
Indication 401
Meaning 401
Impact 401
Common procedures 401
Action 401
XAC RIBkey - Minnor 411
1-411
Indication 411
Meaning 411

Impact 411
Common procedures 411
Action 411
XAC RTIF - Critical 421
Indication 421
Meaning 421
Impact 421
Common procedures 421
Action 421
XAC RTIF - Major 441
Indication 441
Meaning 441
Impact 441
Common procedures 441
Action 441
XAC RTIF - Minor 461
Indication 461
Meaning 461
Impact 461
Common procedures 461
Action 461
XAC SMtrbl - Minor 471
Indication 471
Meaning 471
Impact 471
Common procedures 471
Action 471
XAC Split - Minor 479
Indication 479
Meaning 479
Impact 479
Common procedures 479
Action 479
XAC SysBTh - Major 485
Indication 485
Meaning 485
Impact 488
Common procedures 488
Action 488
XAC SysBTh - Minor 491
Indication 491
Meaning 491
Impact 494

Common procedures 494
Action 494
XAC Tape - Minor 497
Indication 497
Meaning 497
Impact 497
Common procedures 497
Action 497
XAC TOD - Critical 509
Indication 509
Meaning 509
Impact 509
Common procedures 509
Action 509
XAC TOD - Major 521
Indication 521
Meaning 521
Impact 521
Common procedures 521
Action 521
XAC (or APPL) TOD - Minor 543
Indication 543
Meaning 543
Impact 543
Common procedures 543
Action 544
XAC WgSlot - Minor 565
Indication 565
Meaning 565
Impact 565
Common procedures 565
Action 566
XAC XATrap - Major 571
Indication 571
Meaning 571
Impact 571
Common procedures 571
Action 571

Chapter 2 — Introduction to card replacement 2-1
Chapter summary 1
Application information 1
Common procedures 1

Summary flowchart 1
Step-action instructions 1
XA-Core hardware components 2
C42 equipment cabinet 2
XA-Core shelf module 5
Circuit packs and packlets 7
Shelf layout 7
Shelf layout 10
Addition, removal, and replacement of circuit packs and packlets 12
Light emitting diode (LED) interpretation 12
OC-3 two port interface paddleboard 17
Application 17
Common procedures 17
Action 18
NTLX02 PE circuit pack 31
Application 31
Common procedures 32
Light emitting diode (LED) visual indicators 33
Action: replacing a PE circuit pack 33
NTLX03 single width IOP circuit pack 45
Application 45
Common procedures 46
Light emitting diode (LED) visual indicators 46
Action 46
NTLX03 dual width IOP circuit pack 69
Application 69
Common procedures 70
Light emitting diode (LED) strategy 70
Action 70
NTLX04 high performance input/output circuit pack 95
Application 95
Replacement rules 96
Rules for installing CA versions as replacements for AA or BA versions 97
Common procedures 97
Light emitting diode (LED) visual indicators 97
Action 97
NTLX05 OC-3 CMIC two port interface packlet 107
Application 107
Common procedures 108
Light emitting diode (LED) strategy 108
Action 108

NTLX05 OC-3 AMDI two port interface packlet 125
Application 125
Common procedures 126
Light emitting diode (LED) strategy 126
Action 126
NTLX06 disk packlet 141
Application 141
Common procedures 142
Light emitting diode (LED) strategy 142
Action 142
NTLX07 tape packlet 161
Application 161
Common procedures 163
Light emitting diode (LED) strategy 163
Action 163
NTLX08 RTIF packlet 183
Application 183
Common procedures 184
Light emitting diode (LED) strategy 184
Action 184
198
NTLX09 Ethernet packlet 199
Application 199
Common procedures 200
Light emitting diode (LED) strategy 200
Action 200
NTLX12 SIM circuit pack 215
Application 215
Common procedures 216
Light emitting diodes (LEDs) strategy 216
Description 216
Action 216
NTLX14 shared memory circuit pack 229
Application 229
Common procedures 231
Light emitting diode (LED) strategy 231
Action 231
NTLX17 high performance CMIC circuit pack 241
Application 241
Common procedures 242
Light emitting diode (LED) visual indicators 242
Action 242

NTLX20 filler circuit pack 251
Application 251
Common procedures 251
Light emitting diode (LED) visual indicators 252
Action 252
NTLX20 terminating filler circuit pack 257
Application 257
Common procedures 257
Light emitting diode (LED) visual indicators 258
Action 258

Chapter 3 — Introduction to recovery procedures 3-1

Chapter summary 1
Application 1
Interval 1
Common procedures 1
Action 1
How to boot an XA-Core in a DMS switch 3-3
Introduction 3
Application 3
Interval 3
Common procedures 3
Action 3
Emergency power conservation restoration 3-9
Introduction 9
Application 9
Interval 9
Common procedures 9
Action 10
Emergency power conservation shutdown 3-13
Introduction 13
Application 13
Interval 14
Common procedures 14
Action 14
Emergency shutdown of the switch 3-19
Introduction 19
Application 19
Interval 19
Common procedures 19
Action 19
How to perform a cold restart in an XA-Core 3-23
Introduction 23
Application 23

Interval 23
Common procedures 23
Action 23
How to perform a reload restart in an XA-Core 3-29
Introduction 29
Application 29
Interval 29
Common procedures 29
Action 29
How to perform a warm restart in an XA-Core 3-35
Introduction 35
Application 35
Interval 35
Common procedures 35
Action 35
How to recover a dead XA-Core DMS Switch 3-43
Introduction 43
Application 43
Interval 43
Common procedures 43
Action 43

Chapter 4 — Introduction to routine maintenance procedures 4-1
Chapter summary 1
Application 1
Interval 1
Common procedures 1
Action 1
Summary of XA-Core storage device commands and tasks 2
Routine maintenance schedule for XA-Core 4-7
Upgrading firmware on the occasion of a software upgrade 4-9
Introduction 9
Application 9
Structure of the component-specific procedures 10
First edit of table XAFWLOAD 10
Loading the firmware 10
Second edit of XAFWLOAD 10
Sequence of upgrades 11
Interval 11
Common procedures 12
Action 12
Upgrading NTLX02CA firmware following a software upgrade 4-17
Application 17
Interval 17

Common procedures 17
Action 17
Upgrading NTLX02DA firmware on the following a software upgrade 4-31
Application 31
Interval 31
Common procedures 31
Action 31
Upgrading IOP firmware following a software upgrade 4-45
Application 45
Interval 45
Prerequisite 45
Common procedures 45
Action 46
Upgrading HIOP firmware following a software upgrade 4-71
Introduction 71
Application 71
Interval 71
Common procedures 71
Action 71
Upgrading HCMIC firmware following a software upgrade 4-91
Introduction 91
Application 91
Interval 91
Common procedures 91
Action 91
Upgrading CMIC-packlet firmware following a software upgrade 4-103
Introduction 103
Application 103
Interval 103
Common procedures 103
Action 103
Upgrading AMDI-packlet firmware following a software upgrade 4-117
Introduction 117
Application 117
Interval 117
Common procedures 117
Action 117
Upgrading ETHR-packlet firmware following a software upgrade 4-131
Introduction 131
Application 131
Interval 131
Common procedures 131
Action 131
Loading current firmware in a new XA-Core component 4-145
Introduction 145

Application 145
Interval 145
Common procedures 145
Action 145
How to backup an XA-Core office image from disk to tape 4-151
Application 151
Interval 151
Common procedures 151
Action 151
How to change XA-Core REx test intensity 4-161
Application 161
Interval 162
Common procedures 162
Action 162
How to check and adjust the XA-Core TOD 4-167
Application 167
Interval 167
Common procedures 167
Action 167
How to clean the XA-Core tape drive 4-173
Application 173
Interval 173
Common procedures 173
Action 173
How to copy all files of an XA-Core disk volume to tape 4-185
Application 185
Interval 185
Common procedures 185
Action 185
How to create a test volume on XA-Core disks 4-195
Application 195
Interval 195
Common procedures 195
Action 195
How to create volumes on XA-Core disks 4-205
Application 205
Interval 205
Common procedures 205
Action 205
How to delete a volume on an XA-Core disk 4-215
Application 215
Interval 215
Common procedures 215
Action 215

How to perform XA-Core LED maintenance 4-221
Application 221
Interval 221
Common procedures 221
Action 221
How to record an XA-Core office image on a disk 4-229
Application 229
Interval 229
Common procedures 229
Action 229
How to replace XA-Core cooling unit air filters 4-245
Application 245
Interval 245
Common procedures 245
Action 245
How to restore an XA-Core office image from tape to disk 4-253
Application 253
Interval 253
Common procedures 253
Action 253
How to return XA-Core circuit packs, packlets, or assemblies to Nortel (Canada) 4-265
Application 265
Interval 265
Common procedures 265
Action 265
How to schedule automatic image taking for XA-Core 4-271
Application 271
Interval 271
Common procedures 271
Action 271
How to schedule tape drive maintenance in XA-Core 4-281
Application 281
Interval 281
Common procedures 281
Action 281
How to test wrist-strap grounding cords in XA-Core 4-283
Application 283
Interval 283
Common procedures 283
Action 283
Selection of DAT tapes approved by Nortel Networks 4-287
Application 287
Interval 287
Common procedures 287

Action 287
Recommended tapes for use in the NTLX07AA tape packlet 287
Recommended tapes for use in the NTLX07BA tape packlet 287
Recommended tape drive head cleaning cartridges 287
Adding, removing, or re-arranging ethernet links 4-289
Application 289
What this procedure does not cover 289
Rules governing ethernet links 289
Scenarios that you can perform 290
Prerequisites 291
Interval 292
Common procedures 292
Action 292
Adding tuples to table CMIPADDR 4-297
Application 297
Prerequisites 297
Interval 297
Common procedures 297
Action 298
Deleting tuples from table CMIPADDR 4-303
Application 303
Prerequisites 303
Interval 303
Common procedures 303
Action 304
Changing tuples in table CMIPADDR 4-307
Application 307
Prerequisites 307
Interval 307
Common procedures 307
Action 308
Establishing cable connections for new ethernet links 4-315
Application 315
Prerequisites 315
Interval 315
Common procedures 315
Action 316
Removing cable connections for ethernet links 4-323
Application 323
Prerequisites 323
Interval 323
Common procedures 323
Action 323

Moving the cable connections for existing ethernet links 4-331
Application 331
Prerequisites 331
Interval 331
Common procedures 331
Action 331
Testing ethernet links 4-341
Application 341
Prerequisites 341
Interval 341
Common procedures 341
Action 341
How to specify log throttling 4-345
Introduction 345
Application 345
Co-ordination of table LOGTHROT with table LOGCLASS 345
Prerequisites 347
Interval 347
Common procedures 347
Action 347

Chapter 5 — Introduction to trouble locating and clearing procedures 5-1
Chapter summary 1
Application 1
Interval 1
Common procedures 1
Action 1
How to perform a manual REx test on XA-Core 5-3
Application 3
Interval 3
Common procedures 3
Action 3
How to repair an XA-Core cooling unit 5-13
Application 13
Common procedures 13
Action 13

Chapter 6 — Preventive maintenance 6-1
Routine maintenance 1
Automatic maintenance 1
Processor bus matcher 1
Audits 1
Routine exercise (REx) tests 2

REx diagnostic tests 2
SREx 3
REx test classes 4
REx test results report 6
Indications of automatic test results 7
System recovery controller (SRC) 7
SRC activation 8

Chapter 7 — Problem isolation and correction 7-1
Diagnostic tools 1
Alarms 1
DMSMON 3
Log reports 3
Maintenance manager's morning report 3
Operational measurements 4
Alarm, log, and OM relationship 5
Sherlock 7
Switch performance monitoring system 7
TRAPINFO 8

Chapter 8 — How to problem solve a MemLim alarm 8-1
Background 1
Some commonly used terms 1
Addressable memory 3
The software image 4
Memory limits for XA-Core 5
Limits imposed by software 5
Limits imposed by hardware 6
Store allocation 7
MemLim algorithm 9
Available-memory and store types 9
Determining the MemLim alarm level 10
Memory fragmentation 13
XSMEMLIM diagnostic tools 13
XSMEMLIM command 13
STORE command 15
Forms of the STORE SCAN command 19
STORE OWNERS command 22
STORE SUMMARY command 22
STORE USAGE command 22
STORE AREAS command 23
STORE FRAGMENTATION command 23
STORE INFO command 23

STORE BLOCKADDR command 24
STORE PROBE command 24
STORE ATTRIBUTES command 24
Using the STORE command 24
Diagnosing a MemLim alarm 28
Relationship between N+1 redundancy and triplex memory 28
Background: N+1 redundancy for shared-memory circuit packs 29
Background: memory allocation 29
How N+1 sparing uses triplex memory 30
Optionality related to triplex memory 32

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 (North American market) or 297-9051-545 (International market)
- *Routine Maintenance Procedures*, 297-8001-546 (North American market) or 297-9051-546 (International market)

- *Log Report Reference Manual*, 297-8001-840 (North American market) or 297-9051-840 (International market)
- *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 - 1 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 r completed
```

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

1 Understanding the alarm system

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

Introduction

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.

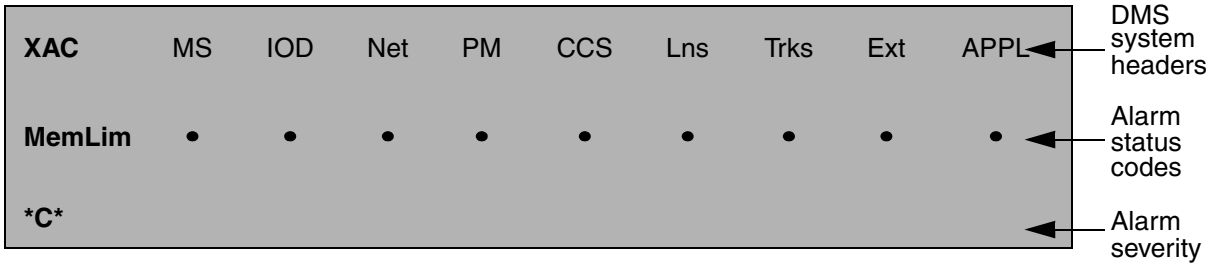
The form and sound of the audible notification can vary in each office. Audible indicators signal that one or more events have started an alarm. You must refer to the MAP or the logs to determine the source of the alarm condition. The MAP and alarm notification systems makes the period of time between 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



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

REExTst 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)	The memory available for allocation by the XA-Core operating system has dropped below one or both of the major memory limit alarm thresholds. Insufficient memory resources are available to perform calculations and system-related functions.
MemLim	(Minor)	The memory available for allocation by the XA-Core operating system has dropped below one or both of the minor memory limit alarm thresholds.
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.
SysBTh	(Minor)	In the last 42 to 48 hours, a monitored component has gone through a number of SysB transitions (in-service to system-busy), and the number of transitions equals or exceeds the minor threshold value. Note that only one SysBTh alarm can be raised at any time, and a SysBTh major alarm overrides a SysBTh minor alarm.

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

Alarm status code	Alarm severity	Alarm description
SysBTh	M (Major)	In the last 42 to 48 hours, a monitored component has gone through a number of SysB transitions (in-service to system-busy), and the number of transitions equals or exceeds the major threshold value. Note that only one SysBTh alarm can be arised at any time, and a SysBTh major alarm overrides a SysBTh minor alarm.
Image	M (Major)	XA-Core software load cannot withstand a restart.
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 packlet.
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 packlet
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 packlet. All IOPs and packlets remain in service.
IOP	(Minor)	System software has detected a non-critical fault on one or more IOP or packlet. All IOPs and packlets 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.

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

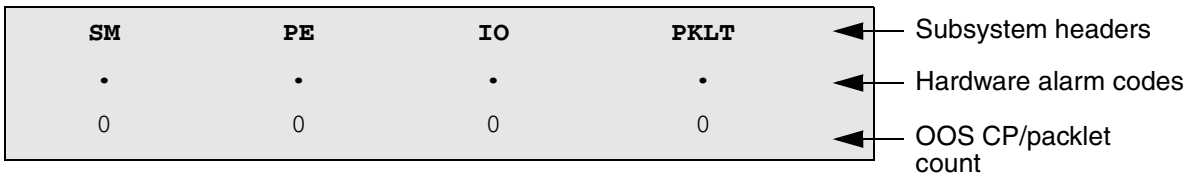
Alarm status code	Alarm severity	Alarm description
RIBkey	M (Major)	Two RIBkeys remain connected.
RIBkey	(Minor)	A single retrofit inactive boot key (RIBkey) remains connected to the RTIF local port.
WgSlot	(Minor)	A CP is in a wrong, or un-provisionable slot. The slot does not contain the correct CP or packlet type.
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



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

Fault/State	SM	PE	IO
Uncorrectable fault	SMfl	PEfl	IOPfl
Inactive CP/packlet	Splt	Splt	Splt
REx Test	RExTst	RExTst	RExTst
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 packlet (PKLT) hardware alarm codes. The PKLT field displays the alarm that matches the fault or state detected in a packlet. The PKLT field displays only the packlet alarm that matches the most critical hardware alarm.

Table 1-3 Fault/state conditions and PKLT SSSF alarms (Sheet 1 of 2)

Fault/State	CMIC	TOD	LINK	RTIF	Local	AMDI	ETHR	Remote	DISK	TAPE
Uncorrectable fault	CMICfl	TODfl	LINKfl	RTIFfl	LocPfl	AMDIfl	ETHRfl	RemPfl	DISKfl	TAPEfl
Inactive CP/packlet	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							

Table 1-3 Fault/state conditions and PKLT SSSF alarms (Sheet 2 of 2)

Fault/State	CMIC	TOD	LINK	RTIF	Local	AMDI	ETHR	Remote	DISK	TAPE
ManB packlet/link	CMICM		LINKM	RTIFM	LocPM	AMDIM	ETHRM	RemPM	DISKM	TAPEM
Dependent busy packlet/link	CMICC	TOD C	LINK C	RTIF C	LocP C	AMDIC	ETHRC	RemPC	DISKC	TAPEC
Packlet/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 ?	AMDI?	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. 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.

Alarm raised MAP command

You can find out which alarms are currently raised and whether those alarms are enabled or disabled by using Alarm_ MAP command with the <raised> parameter.

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:

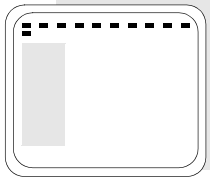
- severity of the log (represented by number of asterisks)
- type of log
- time and date
- suspected problem
- list of suspected faulty components

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

This procedure refers to the replacement procedures for the AMDI packlet, for the IOP circuit pack, and for the HIOP circuit pack.

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)

Figure 1-3 Summary of clearing an AMDI alarm - Part 1

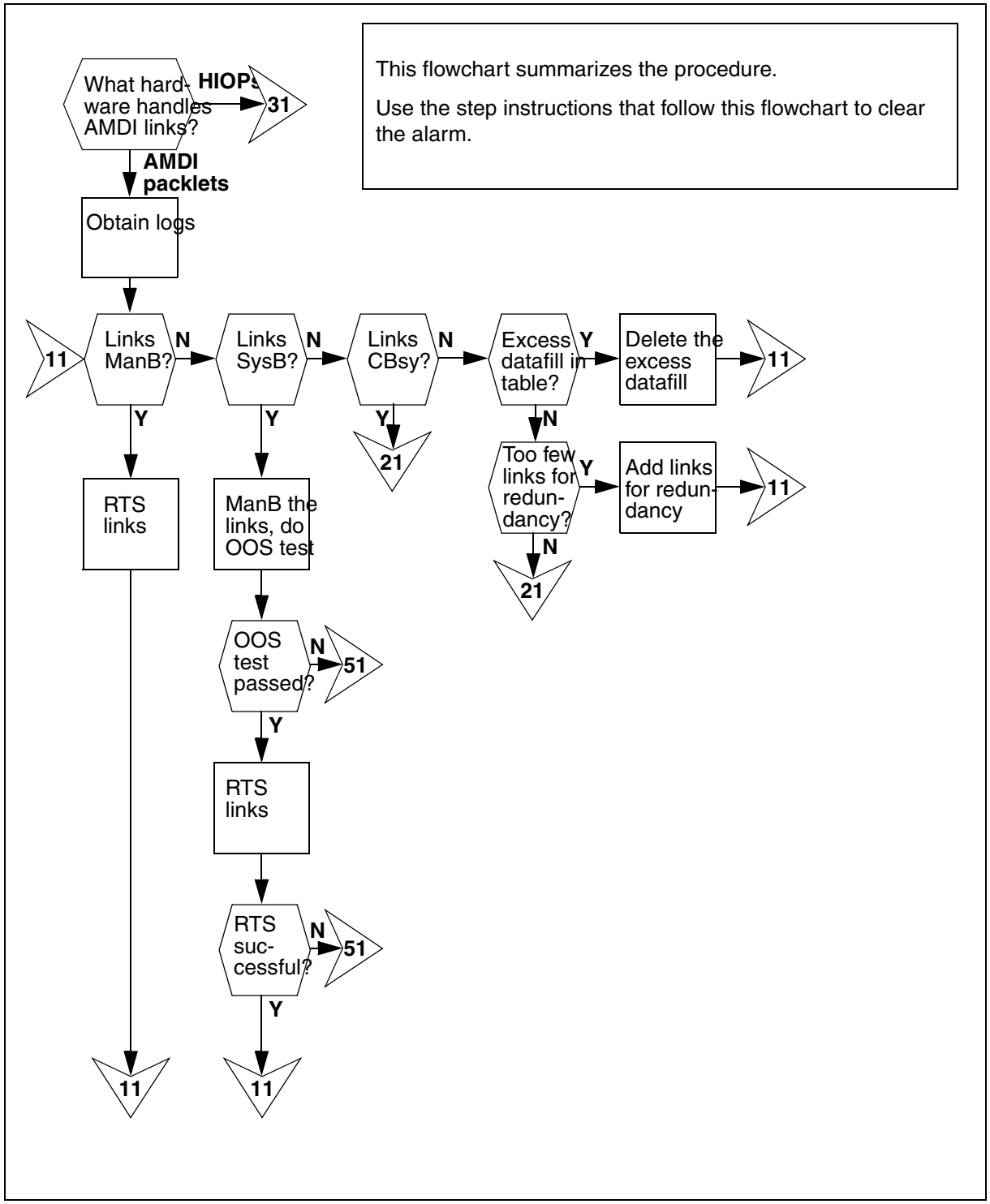
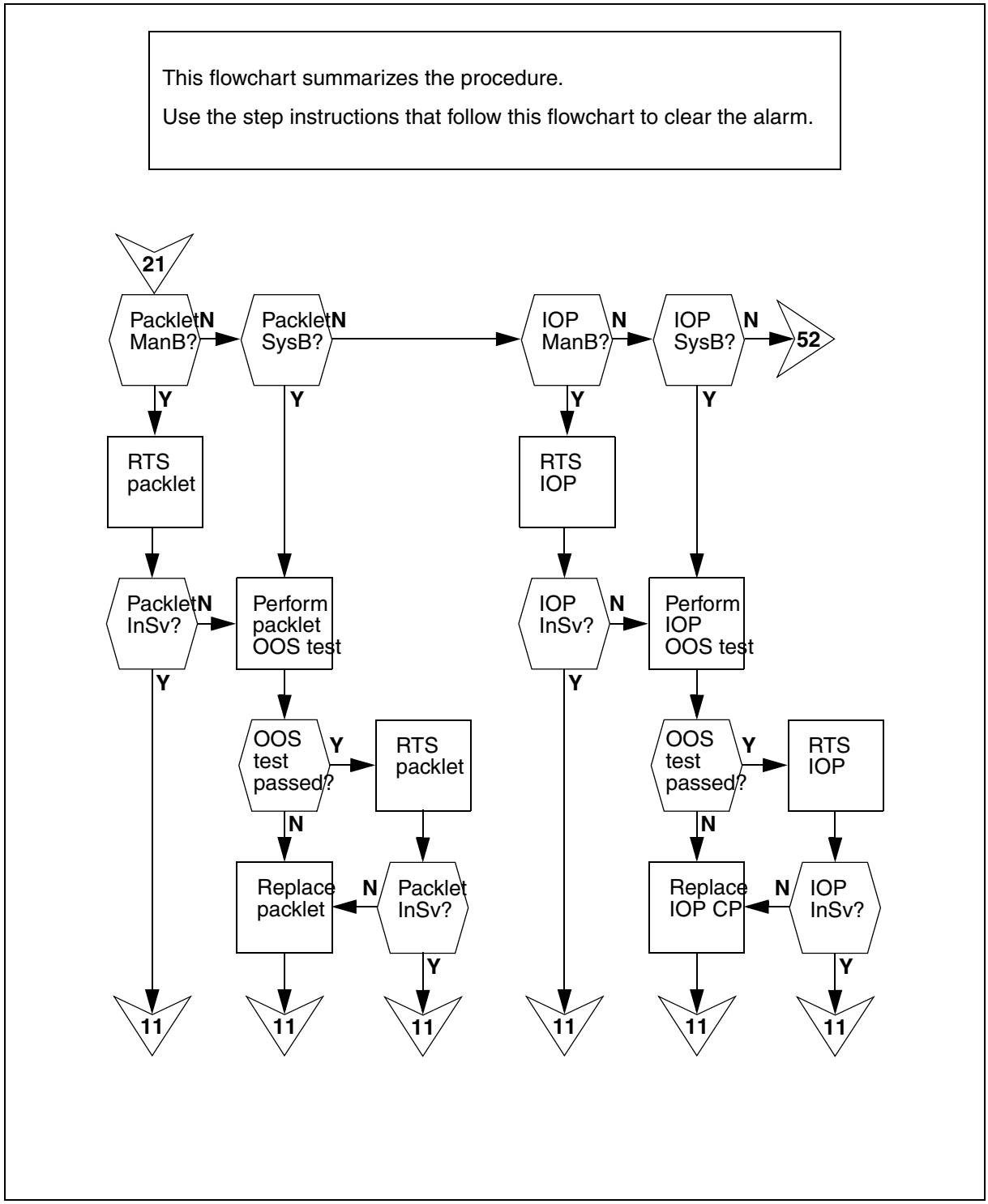
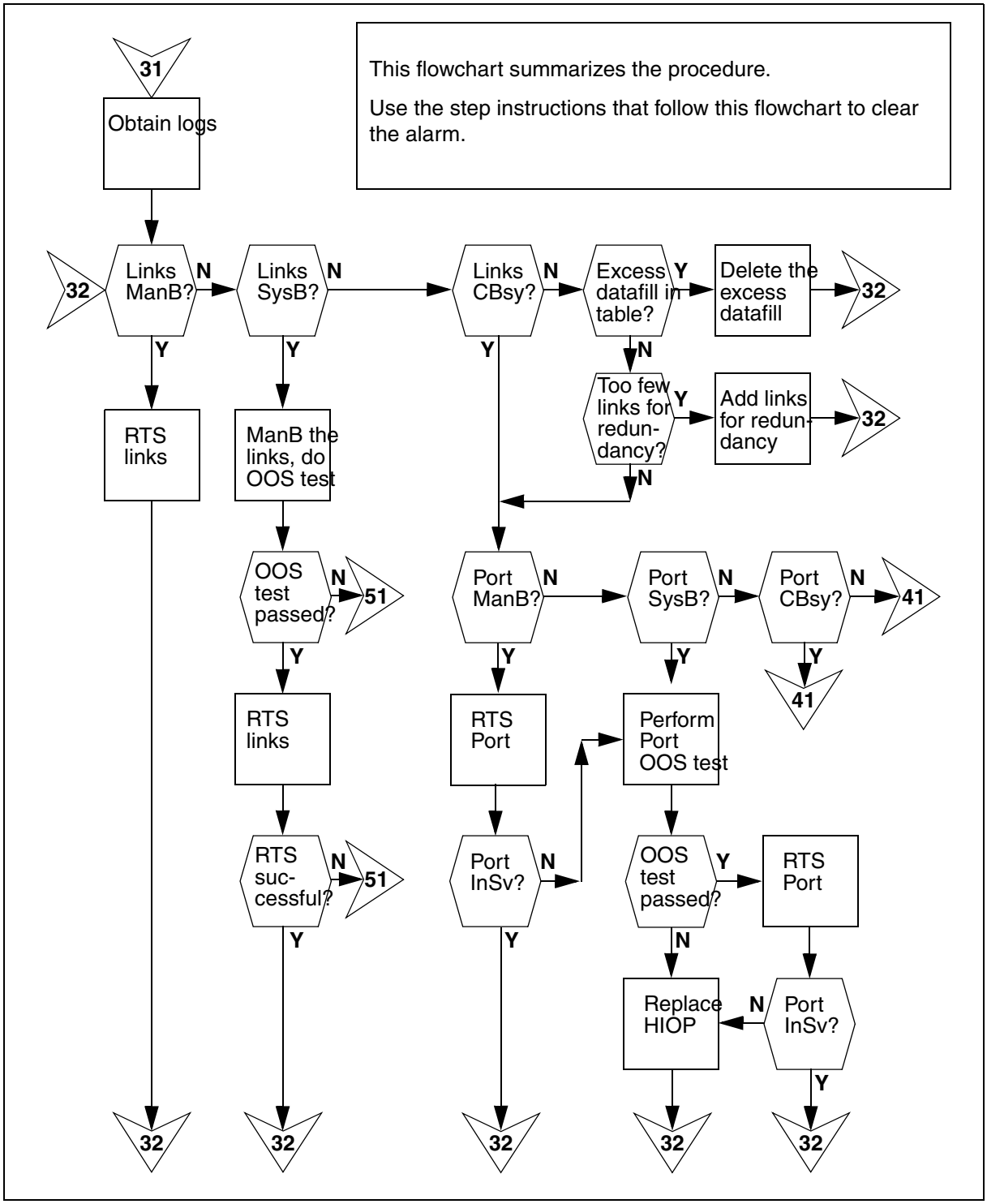


Figure 1-4 Summary of clearing an AMDI alarm - Part 2



XAC AMDI - Critical (continued)

Figure 1-5 Summary of clearing an AMDI alarm - Part 3

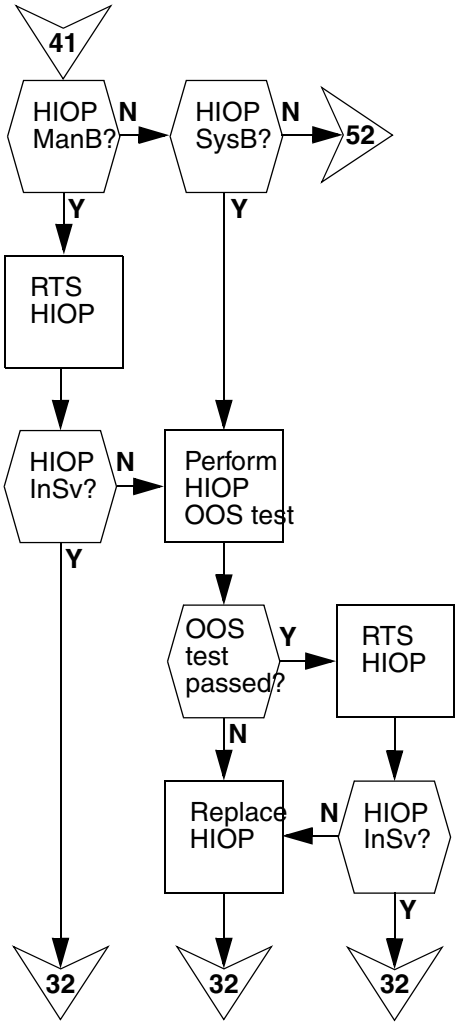


XAC AMDI - Critical (continued)

Figure 1-6 Summary of clearing an AMDI alarm - Part 4

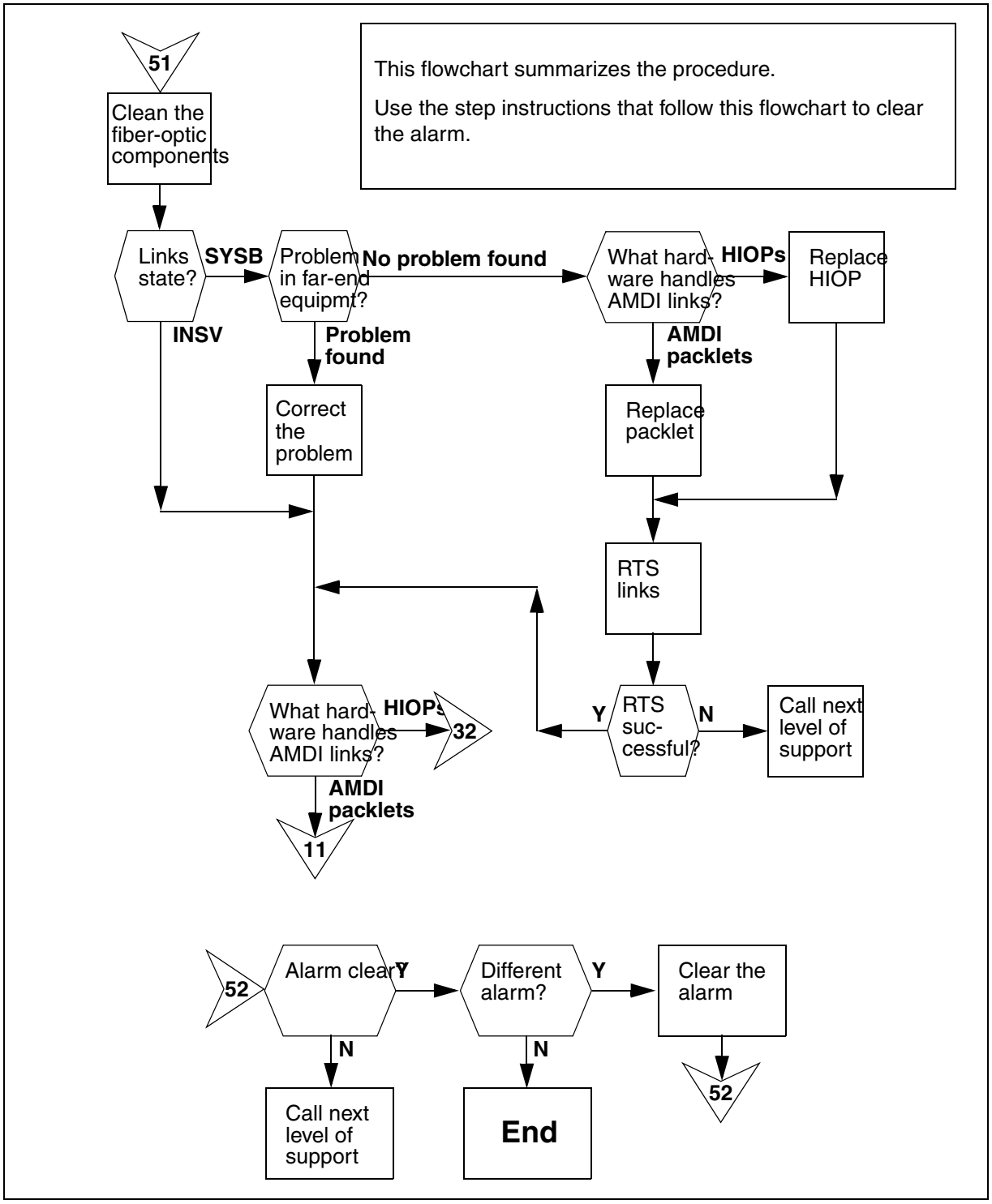
This flowchart summarizes the procedure.

Use the step instructions that follow this flowchart to clear the alarm.



XAC AMDI - Critical (continued)

Figure 1-7 Summary of clearing an AMDI alarm - Part 5



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.

At your current location

1 If you know the type of hardware that handles the AMDI links in the XA-Core, go to step 4. (The links can be handled either by Ethernet packlets or by HIOP circuit packs.) If you do not know the type of hardware, proceed to step 2.

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. Determine whether the AMDI links connect to AMDI packlets or to HIOP circuit packs.

The following examples show what the MAP level looks like in the two cases.

XAC AMDI - Critical (continued)

The following are sample MAP displays.

AMDI MAP level showing AMDI links connected to packlets

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

AMDI             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3               Dep:
 4               Typ:                      **      **
 5               Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_            5   Rear  Lower     .                       .      -
 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 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

AMDI MAP level showing AMDI links connected to HIOP circuit packs

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

AMDI             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ..-.-..-.-..     0      0      0       0
 3               Dep:
 4               Typ:                      *       *
 5               Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_            5   Rear                      .      .       .      .
 7 Bsy_           14   Rear                      .      .       .      .
 8 RTS_          XAC:
 9               AMDI:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Note: If the “Packlet” fields are blank, then the AMDI links connect to HIOP circuit packs.

XAC AMDI - Critical (continued)

4 Select the next step as follows.

If the AMDI links are connected to	Do
AMDI packlets	step 5
HIOP CPs	step 42

5 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 Exit from the log utility. At the Logutil prompt type

>QUIT

and press the Enter key.

If the logs	Do
do not indicate that the AMDI critical alarm condition is clear	step 6
indicate that the AMDI critical alarm condition is clear	step 79

6 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

XAC AMDI - Critical (continued)

7 Examine the IO MAP level. Record the working state and location of each 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
AMDI        .        .        .         .       .        .       .        .        .
*C*
IO                       Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit                  123456789012345678  456789012345      .      .      IOP M   RTIF C
 2                  Sta:-.-.--.-..----..-   M--.-------.      0      0      1       0
 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       S                                       AMDI C
10 LoadFW_            6   Rear       .                                       AMDI .
11                   13   Rear       .                                       AMDI .
12 Uneq_             14   Rear       M                                       AMDI C
13                   15   Rear       .               RTIF .                  CMIC .
14 Alarm_          XAC:
15                 IO:
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

Note: The information you gather in this step will be of use in step 10.

8 Access the XA-Core AMDI MAP level by typing

MAPCI;MTC;XAC;AMDI

and pressing the Enter key.

XAC AMDI - Critical (continued)

9 Examine the AMDI MAP level. Record the working state and location of each AMDI packlet.

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.

AMDI MAP level

```
 XAC       MS      IOD     Net     PM      CCS      Lns    Trks    Ext   APPL
AMDI       .       .       .       .       .        .      .       .     .
*C*
AMDI            Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit         123456789012345678  456789012345      .      .      .     .
 2              Sta:..-..-..- ..      ....------...     0      0      0     0
 3              Dep:                  F          F
 4              Typ:                  **         **
 5              Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_           5   Rear  Lower     .                       S      -
 7 Bsy_           6   Rear  Lower     .                       .      -
 8 RTS_          13   Rear  Lower     .                       .      -
 9               14   Rear  Lower     .                       S      -
10 LoadFW_      XAC:
11              AMDI:
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

Note: The information you gather in this step will be of use in step 10.

XAC AMDI - Critical (continued)

10 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter.

If the information from the logs, and from the IOP and AMDI MAP levels indicates	Do
AMDI link is in a ManB state	step 11
AMDI link is in a SysB state	step 12
AMDI link is in a CBsy state	step 20
AMDI packlet is in a ManB state	step 21
AMDI packlet is in a SysB state	step 22
AMDI packlet in a CBsy state	step 26
IOP CP is in a ManB state	step 27
IOP CP is in a SysB state	step 29
none of the conditions listed above exists, but there is an AMDI alarm	step 34
there is no alarm and all CPs, all ports, and all links are InSv	step 79

11 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).

<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:

RTS 14 r l link0

XAC AMDI - Critical (continued)

Example of system response:

```
RTS 14 rear lower link0 passed
```

If the AMDI links are	Do
in a SysB state	step 12
in a CBsy state	step 20
in an InSv state	step 6

12 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 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:

>BSY 14 r l link0

Example of system response:

```
BSY 14 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.

13 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.

<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:

XAC AMDI - Critical (continued)

>TST 14 r l link0

If the OOS test	Do
passed	step 14
did not pass	step 15

14 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).

<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:

RTS 14 r l link0

Example of system response:

```
RTS 14 rear lower link0 passed
```

If the AMDI links	Do
are in an InSv state	step 6
are not in an InSv state	step 15

15 Perform the Cleaning fiber-optic components and assemblies procedure. Refer to the correct NTP.

If the links are	Do
in an InSv state	step 6
in a SysB state	step 16

XAC AMDI - Critical (continued)

16 Check the far-end equipment for problems. (Problems in the far-end equipment are outside the scope of this document.)

If	Do
you find problems	step 17
you do not find problems	step 19

17 Correct problems in the far-end equipment.

18 Go to step 6 and proceed from there.

19 Replace the AMDI packlet to find out whether that makes it possible to return the AMDI links to service. Proceed as follows.

a Replace the AMDI packlet. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

b Return the AMDI 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>RTS 5 r l

Example of system response:

```
RTS 5 rear lower passed
```

c Return the AMDI links to service. Repeat this step for each 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).

<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:

XAC AMDI - Critical (continued)

RTS 5 r l link0

Example of system response:

```
RTS 14 rear lower link0 passed
```

If the AMDI links	Do
are in an InSv state	step 6
are not in an InSv state	step 78

20 You were directed to this step because you found that an AMDI link was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an AMDI packlet.

You are at the AMDI MAP level, where the working state of the packlet is displayed.

Select the next step as follows:

If the AMDI packlet is	Do
in a ManB state	step 21
in a SysB state	step 22
in a CBsy state	step 26

21 Return the OOS AMDI 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>RTS 5 r l

Example of system response:

```
RTS 5 rear lower passed
```

If the AMDI packlet is	Do
not in an InSv state	step 22
in an InSv state	step 6

22 Manually busy the AMDI packlet. 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>BSY 5 r l

Example of system response:

```
BSY 5 rear lower 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 AMDI packlet is	Do
in a ManB state	step 23
not in a ManB state	step 78

23 Perform an OOS test on the ManB AMDI packlet. 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

<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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>TST 5 r l

If the OOS test	Do
passed	step 24
did not pass	step 25

XAC AMDI - Critical (continued)

24 Return the AMDI 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>RTS 5 r l

Example of system response:

```
RTS 5 rear lower passed
```

If the AMDI packlet is	Do
in an InSv state	step 6
in a CBsy state	step 26
in any state other than InSv or CBsy	step 25

25 Replace the AMDI packlet. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

If the AMDI packlet is	Do
in an InSv state	step 6
in a SysB state	step 78

26 You were directed to this step because you found that an AMDI packlet was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an IOP CP.

Proceed as follows.

a Access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

b Find out the working state of the IOP CP.

If the IOP CP is	Do
in a ManB state	step 28
in a SysB state	step 30

27 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

28 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 - 1 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 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	step 7
not InSv	step 31

29 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

30 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 - 1 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 AMDI - Critical (continued)

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.

31 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 - 1 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 32
did not pass	step 33

32 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 - 1 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 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
not in an InSv state	step 33

If the IOP CP is	Do
in an InSv state	step 6

33 Replace the IOP CP. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 6
in a SysB state	step 78

34 If an AMDI alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill in table XAMDILNK. If a link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.

Note: The AMDI MAP level, which you accessed in step 8, lists the links that actually exist.

Proceed as follows

a Start the table editor and access table XAMDILNK. Type

>TABLE XAMDILNK

and press the Enter key.

Example of system response:

```
TABLE: XAMDILNK
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key

Example of system response:

MAP display example for table XAMDILNK if OC-3 AMDI packlets are used

LINKNO	GROUP	SLOT	PACKLET	PORT	PROTOCOL	LOOPBACK
0	0	5 REAR	LOWER	0	SONET	AMDI05RL0
1	0	14 REAR	LOWER	0	SONET	AMDI14RL0
3	1	13 REAR	LOWER	0	SONET	AMDI13RL0
4	1	6 REAR	LOWER	0	SONET	AMDI06RL0

c Compare the datafill in the table to the AMDI links that exist in the system.

If table XAMDILNK	Do
contains excess datafill	step 35

XAC AMDI - Critical (continued)

If table XAMDILNK	Do
does not contain excess datafill	step 38

35 Delete each tuple that specifies a link that does not actually exist.

For each tuple that needs to be deleted, proceed as follows.

a Use the POS command to move to the tuple that you want to delete. Type

>POS <linkno>

where

<linkno> is the link number, the leftmost field in the display

For example if link 4 does not exist, type

>POS 4

and press the Enter key.

Example of system response:

```
4 1 6 REAR LOWER 0 SONET AMDI06RL0
```

b Delete the tuple. Type

>DEL

and press the Enter key.

Example of system response:

```
TUPLE TO BE DELETED:
4 1 6 REAR LOWER 0 SONET AMDI06RL0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

c Confirm the deletion. type

>Y

and press the Enter key.

Example of system response:

```
TUPLE DELETED:
WRITTEN TO JOURNAL FILE AS JF NUMBER 543
```

36 Exit from the table editor. Type

>QUIT

and press the Enter key.

37 Go to step 6.

38 Check whether there are enough AMDI links to satisfy the system's minimum redundancy requirements. The links must be in groups of two. If a link is in a group all by itself, then redundancy requirements are not satisfied.

If	Do
redundant links are missing	step 39
redundant links are not missing	step 78

XAC AMDI - Critical (continued)

39 If redundant links are missing, then to clear the alarm you must configure the necessary links in table XAMDILNK and install the links. After doing these things, resume at step 6.

40 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 41
not clear	step 78
clear	step 79

41 Perform the correct alarm clearing procedure. Alarm clearing procedures are in this document, in the chapter titled “Understanding the alarm system”. Return to this point when complete.

If the alarm is	Do
not clear	step 78
clear	step 79

42 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.

XAC AMDI - Critical (continued)

d Exit from the log utility. At the Logutil prompt type

>QUIT

and press the Enter key.

If the logs	Do
do not indicate that the AMDI critical alarm condition is clear	step 43
indicate that the AMDI critical alarm condition is clear	step 79

43 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

44 Examine the IO MAP level. Record the working state of the system and the HIOP CPs. Also record the HIOP 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.

IO MAP level

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

IO              Front:   111111111  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     .              Tape .                  Disk .
 7 Bsy_          17   Front     .              Tape .                  Disk .
 8 RTS_           4   Rear      .              RTIF .                  CMIC .
 9                5   Rear      .              RTIF -      ETHR .      ADMI .
10 LoadFW_       14   Rear      .              RTIF -      ETHR .      ADMI .
11               15   Rear      .              RTIF .                  CMIC .
12 Uneq_       XAC:
13             IO:
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 47.

XAC AMDI - Critical (continued)

45 Access the XA-Core AMDI MAP level by typing

MAPCI;MTC;XAC;AMDI

and pressing the Enter key.

46 Examine the AMDI MAP level.

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.

AMDI MAP level

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

AMDI            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit         123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ..-.-..-.-..     0      0      0       0
 3              Dep:
 4              Typ:                    *       *
 5              Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_           5   Rear                      .      .       .      .
 7 Bsy_          14   Rear                      .      .       .      .
 8 RTS_         XAC:
 9              AMDI:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 47.

XAC AMDI - Critical (continued)

47 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter.

If the information from the logs, and from the IOP and AMDI MAP levels indicates	Do
AMDI link is in a ManB state	step 48
AMDI link is in a SysB state	step 49
AMDI link is in a CBsy state	step 57
AMDI port is in a ManB state	step 58
AMDI port is in a SysB state	step 59
AMDI port in a CBsy state	step 62
HIOP CP is in a ManB state	step 63
HIOP CP is in a SysB state	step 65
none of the conditions listed above exists, but there is an AMDI alarm	step 70
there is no alarm and all CPs, all ports, and all links are InSv	step 79

48 Return the OOS AMDI links to service. Repeat this step for each ManB link. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

RTS 14 r link0

XAC AMDI - Critical (continued)

Example of system response:

```
RTS 14 rear link0 passed
```

If the AMDI links are	Do
in a SysB state	step 49
in a CBsy state	step 57
in an InSv state	step 43

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

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

>BSY 14 r link0

Example of system response:

```
BSY 14 rear link0 passed
```

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

XAC AMDI - Critical (continued)

50 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> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

>TST 14 r l link0

If the OOS test	Do
passed	step 51
did not pass	step 52

51 Return the OOS AMDI links to service. Repeat this step for each ManB link. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

RTS 14 r link0

Example of system response:

```
RTS 14 rear link0 passed
```

If the AMDI links	Do
are in an InSv state	step 43
are not in an InSv state	step 52

XAC AMDI - Critical (continued)

52 Perform the Cleaning fiber-optic components and assemblies procedure. Refer to the correct NTP.

If the links are	Do
in an InSv state	step 43
in a SysB state	step 53

53 Check the far-end equipment for problems. (Problems in the far-end equipment are outside the scope of this document.)

If	Do
you find problems	step 54
you do not find problems	step 56

54 Correct problems in the far-end equipment.

55 Go to step 43 and proceed from there.

56 Replace the HIOP CP to find out whether that makes it possible to return the AMDI links to service. Proceed as follows.

a Replace the HIOP CP. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

b 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

c Return the AMDI ports to service. Repeat this step for each port. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

XAC AMDI - Critical (continued)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

RTS 5 r port0

Example of system response:

```
RTS 5 rear port0 passed
```

d Return the AMDI links to service. Repeat this step for each link. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

RTS 5 r link0

Example of system response:

```
RTS 5 rear link0 passed
```

If the AMDI links	Do
are in an InSv state	step 43
are not in an InSv state	step 78

57 You were directed to this step because you found that an AMDI link was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is the AMDI port.

Select the next step as follows:

If the AMDI port is	Do
in a ManB state	step 58
in a SysB state	step 59
in a CBsy state	step 62

XAC AMDI - Critical (continued)

58 Return the OOS AMDI ports to service. Repeat this step for each ManB port. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

RTS 14 r port0

Example of system response:

```
RTS 14 rear port0 passed
```

If the AMDI ports are	Do
in a SysB state	step 59
in a CBsy state	step 62
in an InSv state	step 43

59 Manually busy the OOS AMDI ports. Repeat this step for each SysB port. At the AMDI MAP level type

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

>BSY 14 r port0

Example of system response:

```
BSY 14 rear port0 passed
```

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

XAC AMDI - Critical (continued)

60 Perform an OOS test on the AMDI ports. Repeat this step for each ManB AMDI port. At the AMDI MAP level type

>TST <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

>TST 14 r port0

If the OOS test	Do
passed	step 61
did not pass	step 69

61 Return the OOS AMDI ports to service. Repeat this step for each ManB port. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

RTS 14 r port0

Example of system response:

```
RTS 14 rear port0 passed
```

If the AMDI ports are	Do
in a SysB state	step 69
in an InSv state	step 43

XAC AMDI - Critical (continued)

62 You were directed to this step because you found that an AMDI port was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an HIOP CP.

Proceed as follows.

a Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

b Find out the state of the HIOP CP.

c Select the next step as follows:

If the HIOP CP is	Do
in a ManB state	step 64
in a SysB state	step 66

63 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

64 Return the OOS 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the HIOP CP is	Do
not in an InSv state	step 66
in an InSv state	step 44

65 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

XAC AMDI - Critical (continued)

66 Manually busy the OOS HIOP 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 - 1 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
```

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 CP is	Do
in a ManB state	step 67
not in a ManB state	step 78

67 Perform an OOS test on the ManB HIOP 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 - 1 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:

>TST 5 r

If the OOS test	Do
passed	step 68
did not pass	step 69

XAC AMDI - Critical (continued)

68 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the HIOP CP is	Do
not in an InSv state	step 69
in an InSv state	step 44

69 Replace the HIOP CP. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

If the HIOP CP is	Do
in an InSv state	step 44
in a SysB state	step 78

70 If an AMDI alarm has been raised, but there is no evidence that any hardware, port, or link is busy or defective, check whether there is excess datafill in table XAMDILNK. If a link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.

Note: The AMDI MAP level, which you accessed in step 45, lists the links that actually exist.

Proceed as follows

a Start the table editor and access table XAMDILNK. Type

>TABLE XAMDILNK

and press the Enter key.

Example of system response:

```
TABLE: XAMDILNK
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key

XAC AMDI - Critical (continued)

Example of system response:

Example of the contents of table XAMDILNK

LINKNO	GROUP	SLOT	PACKLET	PORT	PROTOCOL	LOOPBACK
0	0	5 REAR	NONE	0	SONET	AMDI05R0
1	1	5 REAR	NONE	1	SONET	AMDI05R1
3	0	14 REAR	NONE	0	SONET	AMDI14R0
4	1	14 REAR	NONE	1	SONET	AMDI14R1

c Compare the datafill in the table to the AMDI links that exist in the system.

If table XAMDILNK	Do
contains excess datafill	step 71
does not contain excess datafill	step 74

71 Delete each tuple that specifies a link that does not actually exist.

For each tuple that needs to be deleted, proceed as follows.

a Use the POS command to move to the tuple that you want to delete. Type

>POS <linkno>

where

<linkno> is the link number, the leftmost field in the display

For example if link 4 does not exist, type

>POS 4

and press the Enter key.

Example of system response:

```
4 1 14 REAR NONE 1 SONET AMDI14R1
```

b Delete the tuple. Type

>DEL

and press the Enter key.

Example of system response:

```
TUPLE TO BE DELETED:
4 1 14 REAR NONE 1 SONET AMDI14R1
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

c Confirm the deletion. type

>Y

and press the Enter key.

Example of system response:

XAC AMDI - Critical (end)

```
TUPLE DELETED:
WRITTEN TO JOURNAL FILE AS JF NUMBER 543
```

72 Exit from the table editor. Type

>QUIT

and press the Enter key.

73 Go to step 43.

74 Check whether there are enough AMDI links to satisfy the system's minimum redundancy requirements. The links must be in groups of two. If a link is in a group all by itself, then redundancy requirements are not satisfied.

If	Do
redundant links are missing	step 75
redundant links are not missing	step 78

75 If redundant links are missing, then to clear the alarm you must configure the necessary links in table XAMDILNK and install the links. After doing these things, resume at step 43.

76 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 77
not clear	step 78
clear	step 79

77 Perform the correct alarm clearing procedure. Alarm clearing procedures are in this document, in the chapter titled "Understanding the alarm system". Return to this point when complete.

If the alarm is	Do
not clear	step 78
clear	step 79

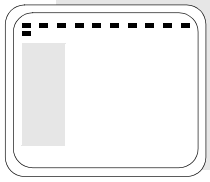
78 Call the next level of support.

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

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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 an ATM multi-node data interface (AMDI) majoralarm.

Meaning

One AMDI link in at least one group (as defined in table XAMDILNK) is 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

This procedure refers to the replacement procedures for the AMDI packlet, for the IOP circuit pack, and for the HIOP circuit pack.

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)

Figure 1-8 Summary of clearing an AMDI alarm - Part 1

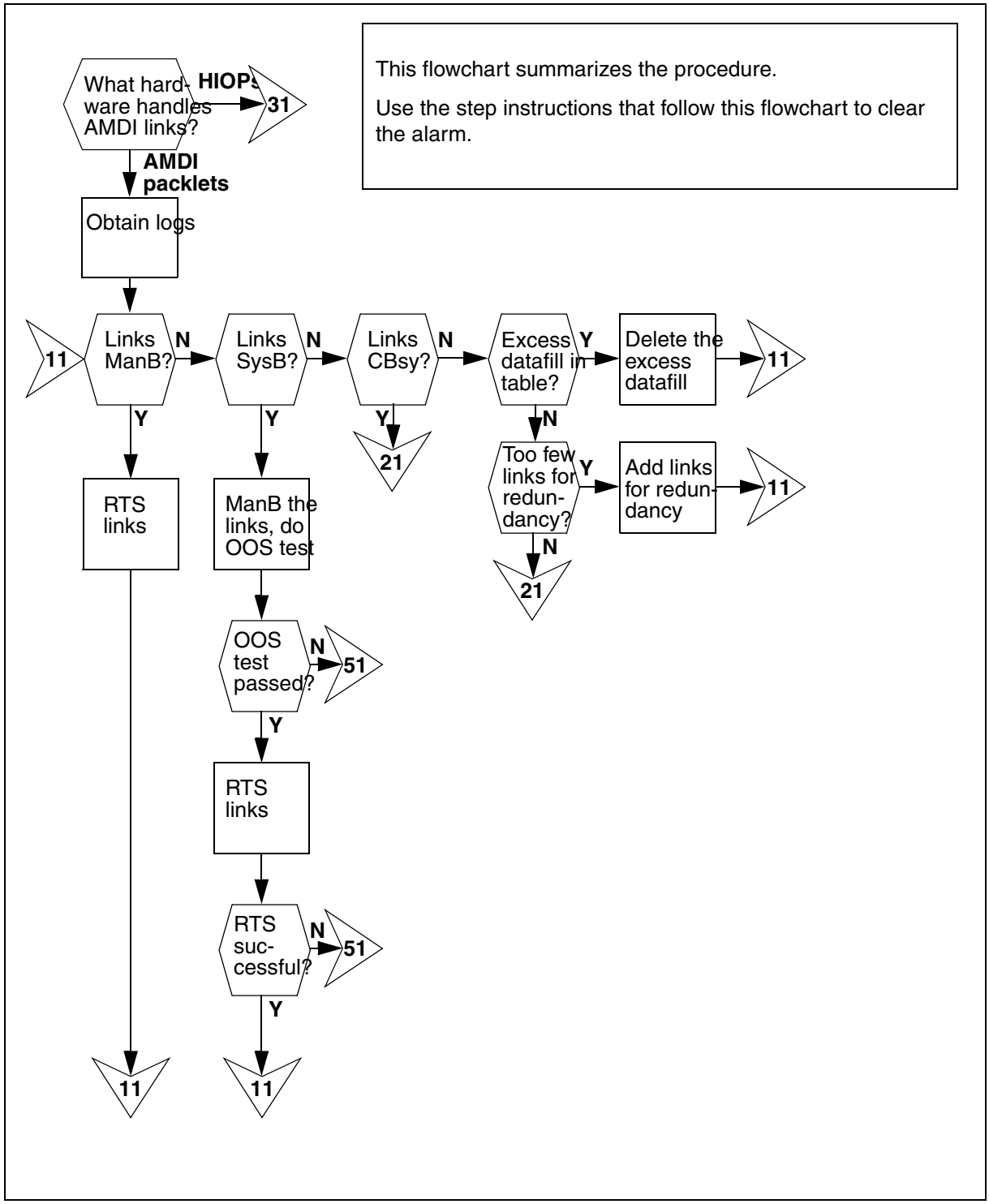
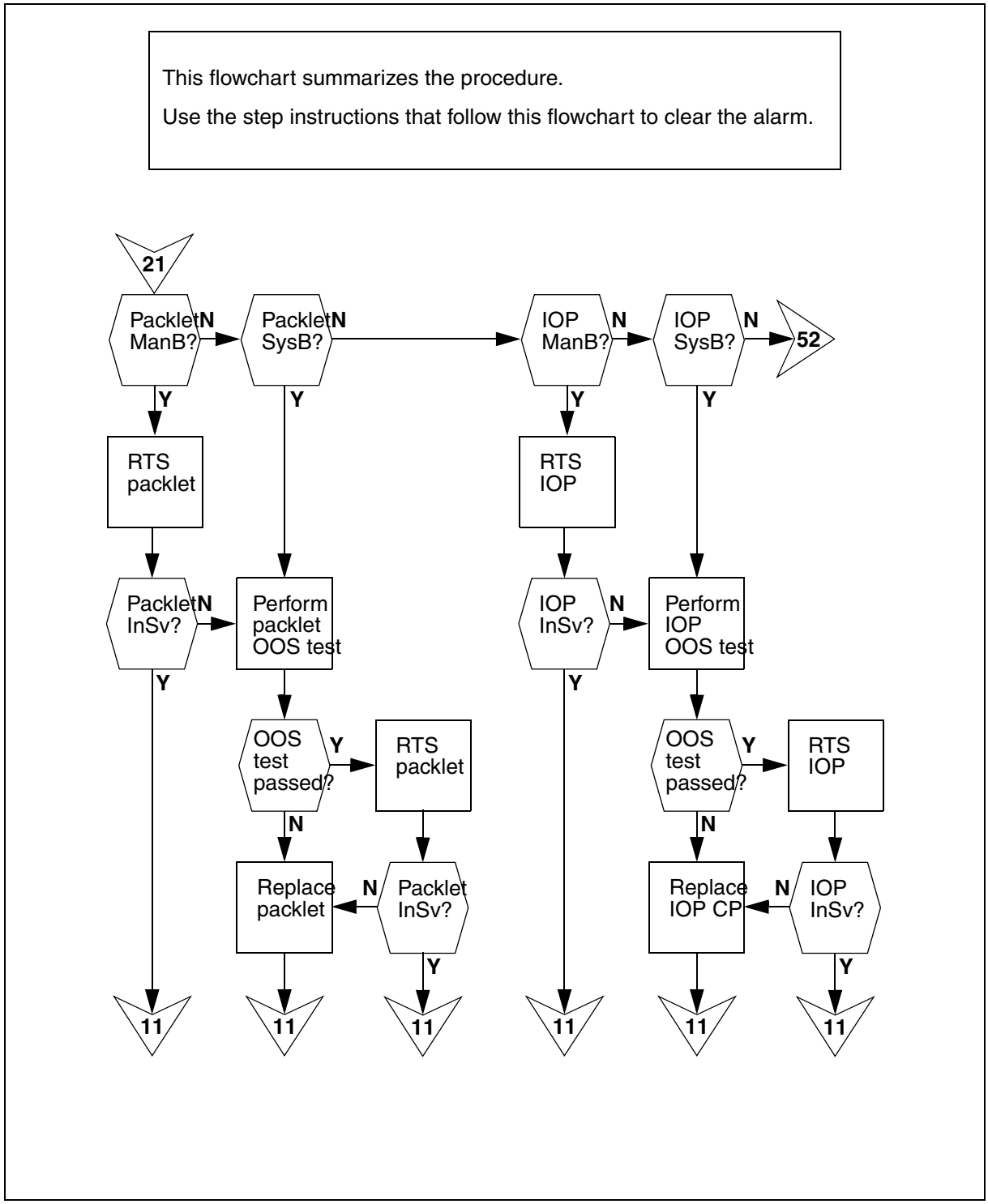


Figure 1-9 Summary of clearing an AMDI alarm - Part 2



XAC AMDI - Major (continued)

Figure 1-10 Summary of clearing an AMDI alarm - Part 3

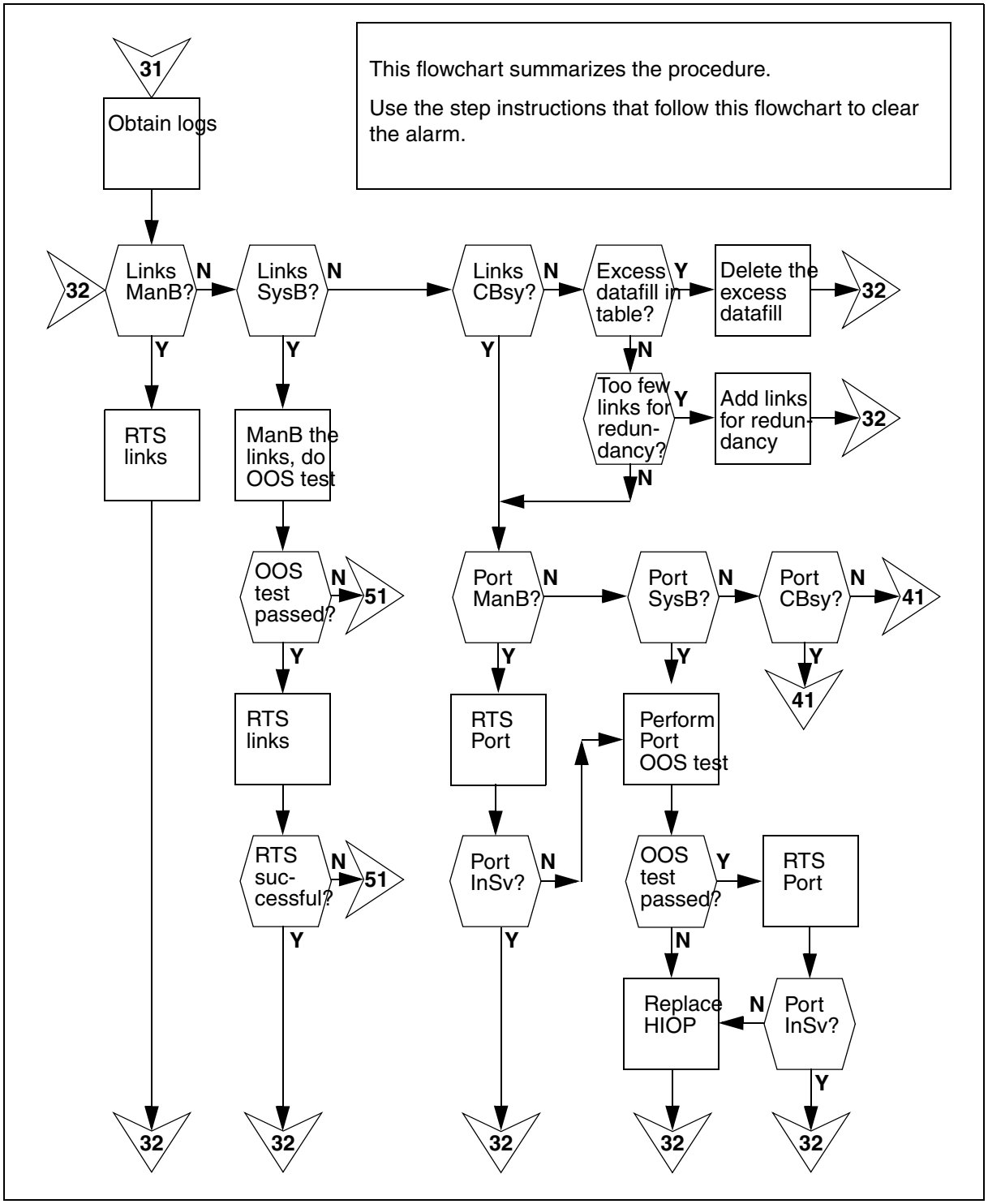
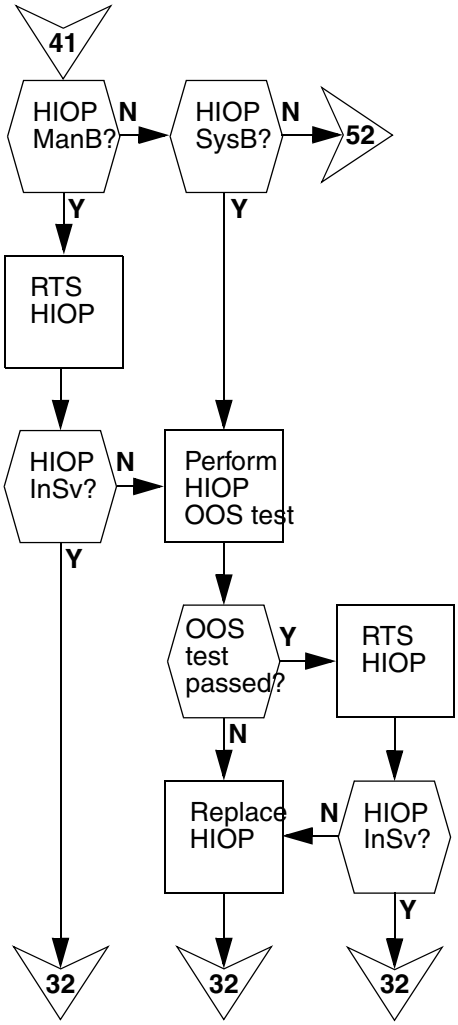


Figure 1-11 Summary of clearing an AMDI alarm - Part 4

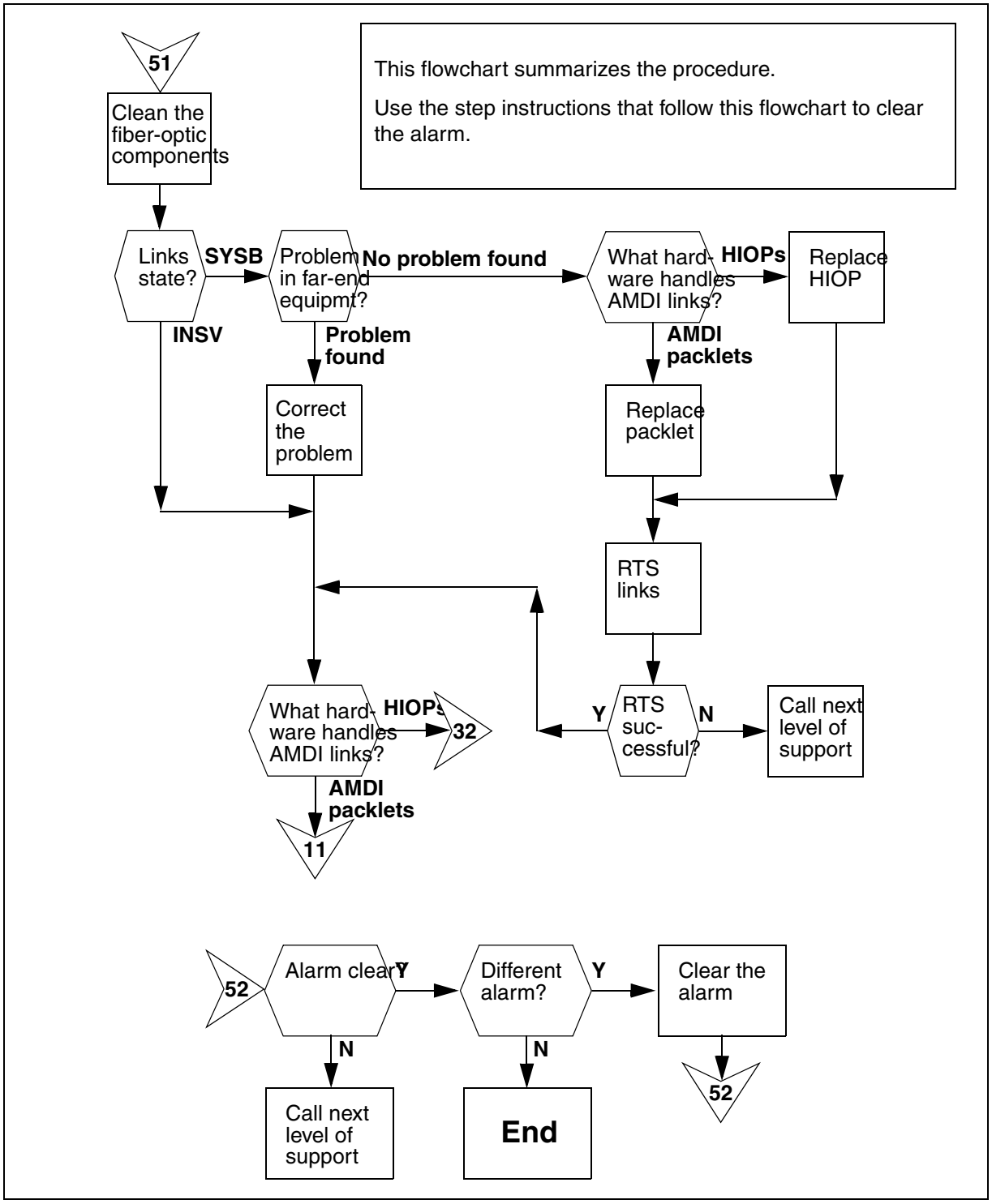
This flowchart summarizes the procedure.

Use the step instructions that follow this flowchart to clear the alarm.



XAC AMDI - Major (continued)

Figure 1-12 Summary of clearing an AMDI alarm - Part 5



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.

At your current location

1 If you know the type of hardware that handles the AMDI links in the XA-Core, go to step 4. (The links can be handled either by Ethernet packlets or by HIOP circuit packs.) If you do not know the type of hardware, proceed to step 2.

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. Determine whether the AMDI links connect to AMDI packlets or to HIOP circuit packs.

The following examples show what the MAP level looks like in the two cases.

XAC AMDI - Major (continued)

The following are sample MAP displays.

AMDI MAP level showing AMDI links connected to packlets

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

AMDI             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3               Dep:
 4               Typ:                      **      **
 5               Slot:  Side:  Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_            5    Rear   Lower     .                        .      -
 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 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

AMDI MAP level showing AMDI links connected to HIOP circuit packs

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

AMDI             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ..-.-..-.-..     0      0      0       0
 3               Dep:
 4               Typ:                      *       *
 5               Slot:  Side:  Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_            5    Rear                      .      .        .      .
 7 Bsy_           14    Rear                      .      .        .      .
 8 RTS_          XAC:
 9               AMDI:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

Note: If the “Packlet” fields are blank, then the AMDI links connect to HIOP circuit packs.

XAC AMDI - Major (continued)

4 Select the next step as follows.

If the AMDI links are connected to	Do
AMDI packlets	step 5
HIOP CPs	step 42

5 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 Exit from the log utility. At the Logutil prompt type

>QUIT

and press the Enter key.

If the logs	Do
do not indicate that the AMDI critical alarm condition is clear	step 6
indicate that the AMDI critical alarm condition is clear	step 79

6 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

XAC AMDI - Major (continued)

7 Examine the IO MAP level. Record the working state and location of each 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
AMDI       .       .       .        .      .       .      .       .       .
*C*
IO              Front:   111111111  Rear: 111111     SM    PE     IO      PKLT
 0 Quit         123456789012345678  456789012345     .     .      IOP M   RTIF C
 2              Sta:-.-.--.-..----..-  M--.-------.     0     0      1       0
 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      S                                      AMDI C
10 LoadFW_        6   Rear      .                                      AMDI .
11               13   Rear      .                                      AMDI .
12 Uneq_         14   Rear      M                                      AMDI C
13               15   Rear      .              RTIF .                  CMIC .
14 Alarm_      XAC:
15             IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

Note: The information you gather in this step will be of use in step 10.

8 Access the XA-Core AMDI MAP level by typing

MAPCI;MTC;XAC;AMDI

and pressing the Enter key.

XAC AMDI - Major (continued)

9 Examine the AMDI MAP level. Record the working state and location of each AMDI packlet.

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.

AMDI MAP level

```
 XAC       MS      IOD     Net     PM      CCS      Lns    Trks    Ext   APPL
AMDI       .       .       .       .       .        .      .       .     .
*C*
AMDI            Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit         123456789012345678  456789012345      .      .      .      .
 2              Sta:..-..-..- ..    ....------...      0      0      0      0
 3              Dep:                F          F
 4              Typ:                **         **
 5              Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_           5   Rear  Lower     .                       S      -
 7 Bsy_           6   Rear  Lower     .                       .      -
 8 RTS_          13   Rear  Lower     .                       .      -
 9               14   Rear  Lower     .                       S      -
10 LoadFW_      XAC:
11              AMDI:
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 10.

XAC AMDI - Major (continued)

10 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter.

If the information from the logs, and from the IOP and AMDI MAP levels indicates	Do
AMDI link is in a ManB state	step 11
AMDI link is in a SysB state	step 12
AMDI link is in a CBsy state	step 20
AMDI packlet is in a ManB state	step 21
AMDI packlet is in a SysB state	step 22
AMDI packlet in a CBsy state	step 26
IOP CP is in a ManB state	step 27
IOP CP is in a SysB state	step 29
none of the conditions listed above exists, but there is an AMDI alarm	step 34
there is no alarm and all CPs, all ports, and all links are InSv	step 79

11 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).

<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:

RTS 14 r l link0

XAC AMDI - Major (continued)

Example of system response:

```
RTS 14 rear lower link0 passed
```

If the AMDI links are	Do
in a SysB state	step 12
in a CBsy state	step 20
in an InSv state	step 6

12 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 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:

>BSY 14 r l link0

Example of system response:

```
BSY 14 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.

13 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.

<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:

XAC AMDI - Major (continued)

>TST 14 r l link0

If the OOS test	Do
passed	step 14
did not pass	step 15

14 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).

<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:

RTS 14 r l link0

Example of system response:

```
RTS 14 rear lower link0 passed
```

If the AMDI links	Do
are in an InSv state	step 6
are not in an InSv state	step 15

15 Perform the Cleaning fiber-optic components and assemblies procedure. Refer to the correct NTP.

If the links are	Do
in an InSv state	step 6
in a SysB state	step 16

16 Check the far-end equipment for problems. (Problems in the far-end equipment are outside the scope of this document.)

If	Do
you find problems	step 17
you do not find problems	step 19

17 Correct problems in the far-end equipment.

18 Go to step 6 and proceed from there.

19 Replace the AMDI packlet to find out whether that makes it possible to return the AMDI links to service. Proceed as follows.

a Replace the AMDI packlet. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

b Return the AMDI 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>RTS 5 r l

Example of system response:

```
RTS 5 rear lower passed
```

c Return the AMDI links to service. Repeat this step for each 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).

<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:

XAC AMDI - Major (continued)

RTS 5 r l link0

Example of system response:

```
RTS 14 rear lower link0 passed
```

If the AMDI links	Do
are in an InSv state	step 6
are not in an InSv state	step 78

20 You were directed to this step because you found that an AMDI link was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an AMDI packlet.

You are at the AMDI MAP level, where the working state of the packlet is displayed.

Select the next step as follows:

If the AMDI packlet is	Do
in a ManB state	step 21
in a SysB state	step 22
in a CBsy state	step 26

21 Return the OOS AMDI 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>RTS 5 r l

Example of system response:

```
RTS 5 rear lower passed
```

If the AMDI packlet is	Do
not in an InSv state	step 22
in an InSv state	step 6

22 Manually busy the AMDI packlet. At the AMDI MAP level type

>BSY <nn> <s> <p>

XAC AMDI - Major (continued)

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

<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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>BSY 5 r l

Example of system response:

```
BSY 5 rear lower 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 AMDI packlet is	Do
in a ManB state	step 23
not in a ManB state	step 78

23 Perform an OOS test on the ManB AMDI packlet. 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

<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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>TST 5 r l

If the OOS test	Do
passed	step 24
did not pass	step 25

XAC AMDI - Major (continued)

24 Return the AMDI 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 - 1 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 indicating the packlet location, upper (u) or lower (l).

Example of command use:

>RTS 5 r l

Example of system response:

```
RTS 5 rear lower passed
```

If the AMDI packlet is	Do
in an InSv state	step 6
in a CBsy state	step 26
in any state other than InSv or CBsy	step 25

25 Replace the AMDI packlet. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

If the AMDI packlet is	Do
in an InSv state	step 6
in a SysB state	step 78

26 You were directed to this step because you found that an AMDI packlet was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an IOP CP.

Proceed as follows.

a Access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

b Find out the working state of the IOP CP.

If the IOP CP is	Do
in a ManB state	step 28
in a SysB state	step 30

27 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

28 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 - 1 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 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	step 7
not InSv	step 31

29 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

30 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 - 1 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 AMDI - Major (continued)

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.

31 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 - 1 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 32
did not pass	step 33

32 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 - 1 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 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
not in an InSv state	step 33

If the IOP CP is	Do
in an InSv state	step 6

33 Replace the IOP CP. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 6
in a SysB state	step 78

34 If an AMDI alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill in table XAMDILNK. If a link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.

Note: The AMDI MAP level, which you accessed in step 8, lists the links that actually exist.

Proceed as follows

a Start the table editor and access table XAMDILNK. Type

>TABLE XAMDILNK

and press the Enter key.

Example of system response:

```
TABLE: XAMDILNK
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key

Example of system response:

MAP display example for table XAMDILNK if OC-3 AMDI packlets are used

LINKNO	GROUP	SLOT	PACKLET	PORT	PROTOCOL	LOOPBACK
0	0	5 REAR	LOWER	0	SONET	AMDI05RL0
1	0	14 REAR	LOWER	0	SONET	AMDI14RL0
3	1	13 REAR	LOWER	0	SONET	AMDI13RL0
4	1	6 REAR	LOWER	0	SONET	AMDI06RL0

c Compare the datafill in the table to the AMDI links that exist in the system.

If table XAMDILNK	Do
contains excess datafill	step 35

XAC AMDI - Major (continued)

If table XAMDILNK	Do
does not contain excess datafill	step 38

35 Delete each tuple that specifies a link that does not actually exist.

For each tuple that needs to be deleted, proceed as follows.

a Use the POS command to move to the tuple that you want to delete. Type

>POS <linkno>

where

<linkno> is the link number, the leftmost field in the display

For example if link 4 does not exist, type

>POS 4

and press the Enter key.

Example of system response:

```
4 1 6 REAR LOWER 0 SONET AMDI06RL0
```

b Delete the tuple. Type

>DEL

and press the Enter key.

Example of system response:

```
TUPLE TO BE DELETED:
4 1 6 REAR LOWER 0 SONET AMDI06RL0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

c Confirm the deletion. type

>Y

and press the Enter key.

Example of system response:

```
TUPLE DELETED:
WRITTEN TO JOURNAL FILE AS JF NUMBER 543
```

36 Exit from the table editor. Type

>QUIT

and press the Enter key.

37 Go to step 6.

38 Check whether there are enough AMDI links to satisfy the system's minimum redundancy requirements. The links must be in groups of two. If a link is in a group all by itself, then redundancy requirements are not satisfied.

If	Do
redundant links are missing	step 39
redundant links are not missing	step 78

XAC AMDI - Major (continued)

39 If redundant links are missing, then to clear the alarm you must configure the necessary links in table XAMDILNK and install the links. After doing these things, resume at step 6.

40 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 41
not clear	step 78
clear	step 79

41 Perform the correct alarm clearing procedure. Alarm clearing procedures are in this document, in the chapter titled “Understanding the alarm system”. Return to this point when complete.

If the alarm is	Do
not clear	step 78
clear	step 79

42 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.

XAC AMDI - Major (continued)

d Exit from the log utility. At the Logutil prompt type

>QUIT

and press the Enter key.

If the logs	Do
do not indicate that the AMDI critical alarm condition is clear	step 43
indicate that the AMDI critical alarm condition is clear	step 79

43 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

44 Examine the IO MAP level. Record the working state of the system and the HIOP CPs. Also record the HIOP 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.

IO MAP level

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

IO              Front:   111111111  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     .              Tape .                  Disk .
 7 Bsy_          17   Front     .              Tape .                  Disk .
 8 RTS_           4   Rear      .              RTIF .                  CMIC .
 9                5   Rear      .              RTIF -      ETHR .      ADMI .
10 LoadFW_       14   Rear      .              RTIF -      ETHR .      ADMI .
11               15   Rear      .              RTIF .                  CMIC .
12 Uneq_       XAC:
13             IO:
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

Note: The information you gather in this step will be of use in step 47.

XAC AMDI - Major (continued)

45 Access the XA-Core AMDI MAP level by typing

MAPCI;MTC;XAC;AMDI

and pressing the Enter key.

46 Examine the AMDI MAP level.

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.

AMDI MAP level

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

AMDI            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit         123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ..-.-..-.-..     0      0      0       0
 3              Dep:
 4              Typ:                    *        *
 5              Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_           5   Rear                      .      .       .      .
 7 Bsy_          14   Rear                      .      .       .      .
 8 RTS_         XAC:
 9              AMDI:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 47.

XAC AMDI - Major (continued)

47 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter.

If the information from the logs, and from the IOP and AMDI MAP levels indicates	Do
AMDI link is in a ManB state	step 48
AMDI link is in a SysB state	step 49
AMDI link is in a CBsy state	step 57
AMDI port is in a ManB state	step 58
AMDI port is in a SysB state	step 59
AMDI port in a CBsy state	step 62
HIOP CP is in a ManB state	step 63
HIOP CP is in a SysB state	step 65
none of the conditions listed above exists, but there is an AMDI alarm	step 70
there is no alarm and all CPs, all ports, and all links are InSv	step 79

48 Return the OOS AMDI links to service. Repeat this step for each ManB link. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

RTS 14 r link0

XAC AMDI - Major (continued)

Example of system response:

```
RTS 14 rear link0 passed
```

If the AMDI links are	Do
in a SysB state	step 49
in a CBsy state	step 57
in an InSv state	step 43

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

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

>BSY 14 r link0

Example of system response:

```
BSY 14 rear link0 passed
```

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

XAC AMDI - Major (continued)

50 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> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

>TST 14 r l link0

If the OOS test	Do
passed	step 51
did not pass	step 52

51 Return the OOS AMDI links to service. Repeat this step for each ManB link. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

RTS 14 r link0

Example of system response:

```
RTS 14 rear link0 passed
```

If the AMDI links	Do
are in an InSv state	step 43
are not in an InSv state	step 52

52 Perform the Cleaning fiber-optic components and assemblies procedure. Refer to the correct NTP.

If the links are	Do
in an InSv state	step 43
in a SysB state	step 53

53 Check the far-end equipment for problems. (Problems in the far-end equipment are outside the scope of this document.)

If	Do
you find problems	step 54
you do not find problems	step 56

54 Correct problems in the far-end equipment.

55 Go to step 43 and proceed from there.

56 Replace the HIOP CP to find out whether that makes it possible to return the AMDI links to service. Proceed as follows.

a Replace the HIOP CP. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

b 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

c Return the AMDI ports to service. Repeat this step for each port. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

XAC AMDI - Major (continued)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

RTS 5 r port0

Example of system response:

```
RTS 5 rear port0 passed
```

d Return the AMDI links to service. Repeat this step for each link. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the link. The two possible values are link0 or link1.

Example of command use:

RTS 5 r link0

Example of system response:

```
RTS 5 rear link0 passed
```

If the AMDI links	Do
are in an InSv state	step 43
are not in an InSv state	step 78

57 You were directed to this step because you found that an AMDI link was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is the AMDI port.

Select the next step as follows:

If the AMDI port is	Do
in a ManB state	step 58
in a SysB state	step 59
in a CBsy state	step 62

XAC AMDI - Major (continued)

58 Return the OOS AMDI ports to service. Repeat this step for each ManB port. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

RTS 14 r port0

Example of system response:

```
RTS 14 rear port0 passed
```

If the AMDI ports are	Do
in a SysB state	step 59
in a CBsy state	step 62
in an InSv state	step 43

59 Manually busy the OOS AMDI ports. Repeat this step for each SysB port. At the AMDI MAP level type

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

>BSY 14 r port0

Example of system response:

```
BSY 14 rear port0 passed
```

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

XAC AMDI - Major (continued)

60 Perform an OOS test on the AMDI ports. Repeat this step for each ManB AMDI port. At the AMDI MAP level type

>TST <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

>TST 14 r port0

If the OOS test	Do
passed	step 61
did not pass	step 69

61 Return the OOS AMDI ports to service. Repeat this step for each ManB port. At the AMDI MAP level type

>RTS <nn> <s> <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 in the physical shelf - front (f) or rear (r)

<port> is the parameter that defines the port. The two possible values are port0 or port1.

Example of command use:

RTS 14 r port0

Example of system response:

```
RTS 14 rear port0 passed
```

If the AMDI ports are	Do
in a SysB state	step 69
in an InSv state	step 43

XAC AMDI - Major (continued)

62 You were directed to this step because you found that an AMDI port was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an HIOP CP.

Proceed as follows.

a Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

b Find out the state of the HIOP CP.

c Select the next step as follows:

If the HIOP CP is	Do
in a ManB state	step 64
in a SysB state	step 66

63 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

64 Return the OOS 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the HIOP CP is	Do
not in an InSv state	step 66
in an InSv state	step 44

65 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

XAC AMDI - Major (continued)

66 Manually busy the OOS HIOP 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 - 1 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
```

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 CP is	Do
in a ManB state	step 67
not in a ManB state	step 78

67 Perform an OOS test on the ManB HIOP 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 - 1 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:

>TST 5 r

If the OOS test	Do
passed	step 68
did not pass	step 69

68 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the HIOP CP is	Do
not in an InSv state	step 69
in an InSv state	step 44

69 Replace the HIOP CP. The replacement procedure is in this document, in the chapter titled “Introduction to card replacement”. Return to this point when complete.

If the HIOP CP is	Do
in an InSv state	step 44
in a SysB state	step 78

70 If an AMDI alarm has been raised, but there is no evidence that any hardware, port, or link is busy or defective, check whether there is excess datafill in table XAMDILNK. If a link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.

Note: The AMDI MAP level, which you accessed in step 45, lists the links that actually exist.

Proceed as follows

a Start the table editor and access table XAMDILNK. Type

>TABLE XAMDILNK

and press the Enter key.

Example of system response:

```
TABLE: XAMDILNK
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key

XAC AMDI - Major (continued)

Example of system response:

Example of the contents of table XAMDILNK

LINKNO	GROUP	SLOT	PACKLET	PORT	PROTOCOL	LOOPBACK
0	0	5 REAR	NONE	0	SONET	AMDI05R0
1	1	5 REAR	NONE	1	SONET	AMDI05R1
3	0	14 REAR	NONE	0	SONET	AMDI14R0
4	1	14 REAR	NONE	1	SONET	AMDI14R1

c Compare the datafill in the table to the AMDI links that exist in the system.

If table XAMDILNK	Do
contains excess datafill	step 71
does not contain excess datafill	step 74

71 Delete each tuple that specifies a link that does not actually exist.

For each tuple that needs to be deleted, proceed as follows.

a Use the POS command to move to the tuple that you want to delete. Type

>POS <linkno>

where

<linkno> is the link number, the leftmost field in the display

For example if link 4 does not exist, type

>POS 4

and press the Enter key.

Example of system response:

```
4 1 14 REAR NONE 1 SONET AMDI14R1
```

b Delete the tuple. Type

>DEL

and press the Enter key.

Example of system response:

```
TUPLE TO BE DELETED:
4 1 14 REAR NONE 1 SONET AMDI14R1
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

c Confirm the deletion. type

>Y

and press the Enter key.

Example of system response:

```
TUPLE DELETED:
WRITTEN TO JOURNAL FILE AS JF NUMBER 543
```

72 Exit from the table editor. Type

>QUIT

and press the Enter key.

73 Go to step 43.

74 Check whether there are enough AMDI links to satisfy the system's minimum redundancy requirements. The links must be in groups of two. If a link is in a group all by itself, then redundancy requirements are not satisfied.

If	Do
redundant links are missing	step 75
redundant links are not missing	step 78

75 If redundant links are missing, then to clear the alarm you must configure the necessary links in table XAMDILNK and install the links. After doing these things, resume at step 43.

76 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 77
not clear	step 78
clear	step 79

77 Perform the correct alarm clearing procedure. Alarm clearing procedures are in this document, in the chapter titled "Understanding the alarm system". Return to this point when complete.

If the alarm is	Do
not clear	step 78
clear	step 79

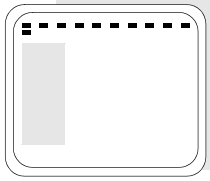
78 Call the next level of support.

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

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XAC Baseln - Major

Alarm display



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

Indication

A Baseln major alarm code appears under the XAC header of the alarm banner. The alarm code indicates baseline major alarm.

Meaning

The system raises the Baseln major alarm if the XA-Core shelf contains one or more field replaceable units (FRU) that are incompatible with the baseline specifications or incompatible with the exception-list information.

Baseline information and exception-list information for hardware is specified in table PECINV. Baseline information and exception-list information for firmware is specified in table FWINV.

Baseline information for an FRU defines the minimum hardware or firmware release and version that is necessary for reliable operation. Exception-list information defines hardware or firmware releases and versions that are at or above the specified baseline for an FRU, but that are not permitted.

For each FRU, it is permissible to use any hardware that is equal to or above the hardware baseline, unless the hardware has been specified as an exception in table PECINV. For each FRU that has downloadable firmware, it is permissible to use any firmware that is equal to or above the firmware baseline, unless the firmware has been specified as an exception in table FWINV.

> ***Note:*** For more information on exceptions, see the information on tables FWINV and PECINV in the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

The system raises the Baseln major alarm against an FRU for any of the following reasons.

- Hardware-related reasons:
  - — The FRU itself is incompatible with the baseline information or incompatible with the exception-list information specified in table PECINV. For information on table PECINV, see the chapter titled

XAC Baseln - Major (continued)

"XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

— The PEC is not listed in table PECINV.

- Firmware-related reasons:
  — The FRU is one that has downloadable firmware, and the firmware is incompatible with the baseline information or incompatible with the exception-list information specified in table FWINV. For information on table FWINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.
  — The FRU is one that has downloadable firmware, but the PEC is not listed in table FWINV.

In day-to-day operations, the Baseln major alarm will occur if you insert an FRU as a spare, and the system detects that the FRU is incompatible with the specified baseline information or incompatible with the specified exception-list information, or if you load an incorrect firmware version.

The XAC Baseln alarm does not survive a system restart. However, if the problem has not been corrected, the system re-raises the alarm within minutes after the restart.

Baseln major alarm raised following an ONP

If the system goes through a release-to-release software upgrade, and if new firmware loads were distributed on the PM release tape for the upgrade, the system may raise the Baseln major alarm after the completion of the one-night process (ONP). If this occurs, do not try to clear the Baseln major alarm immediately. Instead, you should first upgrade the firmware as explained in the procedure titled "Upgrading firmware on the occasion of a software upgrade", found in this document, in the chapter titled "Introduction to routine maintenance procedures". If the Baseln major alarm is still raised after you have finished upgrading the firmware, that is the time when you should perform the procedure to clear the alarm.

Impact

There is no immediate change in subscriber service.

XAC BaseIn - Major (continued)

Common procedures

This procedure refers to the following procedures:

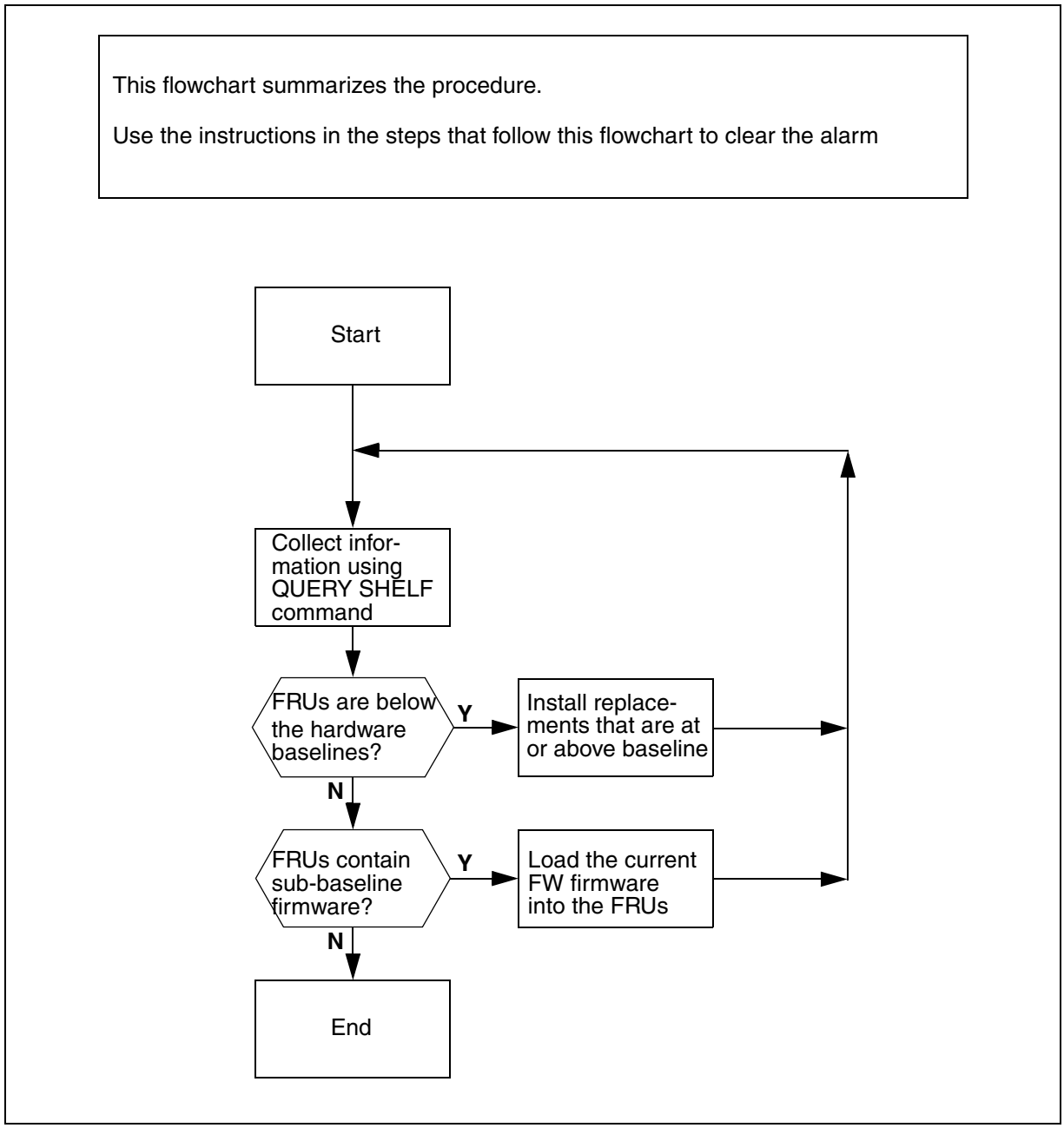
- the procedures for replacing circuit packs and packlets, found in this document, in the chapter titled “Introduction to card replacement”
- the procedure titled “Loading current firmware in a new XA-Core component”, found in this document, in the chapter titled “Introduction to routine maintenance procedures”

XAC BaseIn - Major (continued)

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.

Figure 1-13 Summary of clearing a BaseIn alarm



XAC BaseIn - Major (continued)

How to clear a BaseIn 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 BaseIn - Major (continued)

At the MAP terminal

1 Access the XAC MAP level. Type

>MAPCI NODISP;MTC;XAC

and press the Enter key.

2 Collect information using the QUERY SHELF command. Type

>QUERY SHELF

and press the Enter key.

Example of system response

Output of the QUERY SHELF command

```
LAST REX DATA
-------------
REXtst run at: 2004/01/02 01:56:52
REXtst type  : full
REXtst result: pass

SHELF DATA
----------
Notes:
  FW: ROM version. HIOP adds DLL version on following line.
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                  ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ----------- -- -- -------------  -------- -------- --
 2 F   IOP  NTLX03BB 03 03 Y    NNTM6441DT9S XAIO01AK XAIO01AK Y
 2 F L Disk NTLX06AB 03 01 Y    NNTM172337RH n/a               Y
 2 F U Tape NTLX07AA 01 01 Y    NNTM171P3XYN n/a               Y
 4 F   PE   NTLX02CA 12 01 Y    NNTM6441S0SC XAPE01AG XAPE01AG Y
 5 F   PE   NTLX02CA 09 01 Y    NNTM1715Y9RM XAPE01AG XAPE01AG Y
11 R   SM   NTLX14CA 02 01 Y    NNTM64429KMT n/a               Y
 7 F   SM   NTLX14CA 09 01 Y    NNTM17232BYJ n/a               Y
10 R   SM   NTLX14CA 02 01 Y    NNTM6441872W n/a               Y
 8 F   SM   NTLX14CA 02 01 Y    NNTM6441HSGN n/a               Y
 9 R   SM   NTLX14CA 02 01 Y    NNTM64419R85 N/A               Y
13 F   PE   NTLX02CA 01 01 Y    NNTM64416MHR XAPE01AG XAPE01AG Y
16 F   PE   NTLX02CA 09 01 Y    NNTM1715Y9PS XAPE01AG XAPE01AG Y
17 F   IOP  NTLX03BB 04 03 Y    NNTM6441W1ST XAIO01AK XAIO01AK Y
17 F L Disk NTLX06AB 03 01 Y    NNTM172337QG n/a               Y
17 F U Tape NTLX07AA 02 01 Y    NNTM64J001RX n/a               Y
 4 R   IOP  NTLX17AA 00 01 N*   NNTM64427L1T XREC01DE XREC01CH Y
 9 F   SM   NTLX14CA 02 01 Y    NNTM1723393C n/a               Y
 8 R   SM   NTLX14CA 02 01 Y    NNTM17232BW7 n/a               Y
10 F   SM   NTLX14CA 11 01 Y    NNTM6441SRVT n/a               Y
 7 R   SM   NTLX14CA 02 01 Y    NNTM172338VM n/a               Y
11 F   SM   NTLX14CA 02 01 Y    NNTM172339XQ n/a               Y
15 R   HIOP NTLX17AA 00 01 N*   NNTM64427L1N XREC01DE XREC01CH Y
```

XAC BaseIn - Major (continued)

The “OK” columns indicate whether the hardware and firmware are at or below baseline.

3 Select the next step as follows.

If	Do
there are FRUs that are below hardware baseline	step 4
there are no FRUs that are below hardware baseline	step 6

4 Perform the correct replacement procedures for the FRUs that are below baseline. Replace one FRU at a time. The replacement procedures are found in chapter 2 of this manual.

5 Go to step 1.

6 Select the next step as follows.

If	Do
there are FRUs that contain FW firmware that is below baseline	step 7
there are no FRUs that contain FW firmware that is below baseline	step 9

7 For each FRU that contains FW firmware that is below baseline, perform the procedure titled “Loading current firmware in a new XA-Core component”, found in chapter 4 of this document. Install the firmware in one FRU at a time. Do not try to install firmware in multiple FRUs in parallel.

8 Go to step 1.

9 Select the next step as follows.

If	Do
there are any HIOP CPs that contain DLL firmware that is below baseline	step 10
there are no HIOP CPs that contain DLL firmware that is below baseline	step 12

10 Go to the IO MAP level. Type

>IO

and press the Enter key.

XAC BaseIn - Major (end)

11 Perform the following steps for each HIOP circuit pack that contains DLL firmware that is below baseline.

Note: Perform the steps for one HIOP at a time. Do not try to perform the steps on multiple HIOPs in parallel.

a Manually busy the HIOP circuit pack. 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 - 1 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 4 r

Example of system response:

```
BSY 4 rear complete
```

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

b Return the HIOP circuit pack to service. 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 - 1 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:

>RTS 4 r

Example of system response:

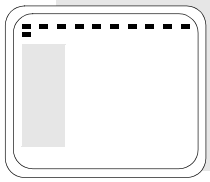
```
RTS 4 rear passed
```

Note: When the HIOP circuit pack returns to service, the system automatically loads the “current” DLL firmware load into the circuit pack.

12 You have completed this procedure.

XAC Config - Minor

Alarm display



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

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

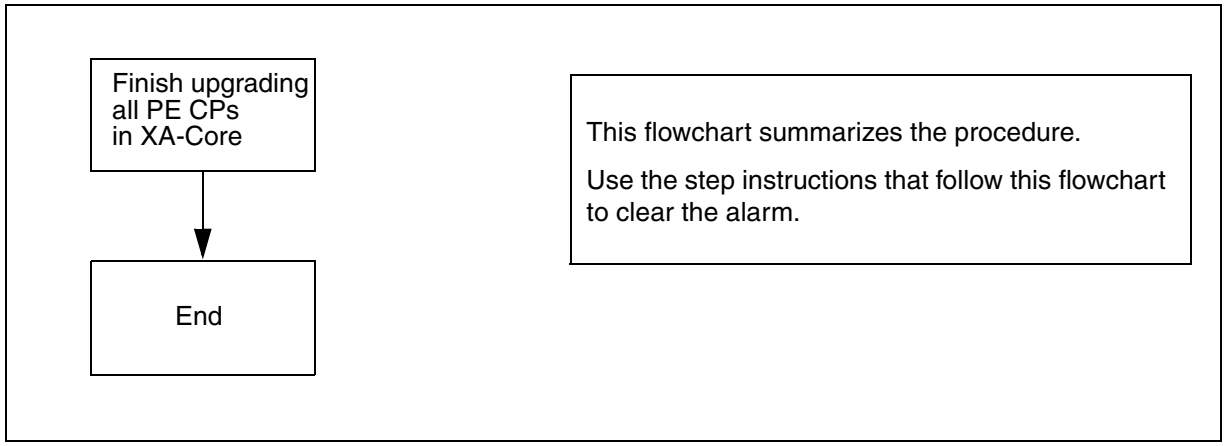
There are no common procedures.

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)

Figure 1-14 Summary of clearing a Config minor alarm



How to clear a Config minor alarm

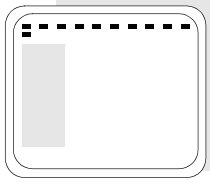
At the XA-Core shelf

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



	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
XAC									
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

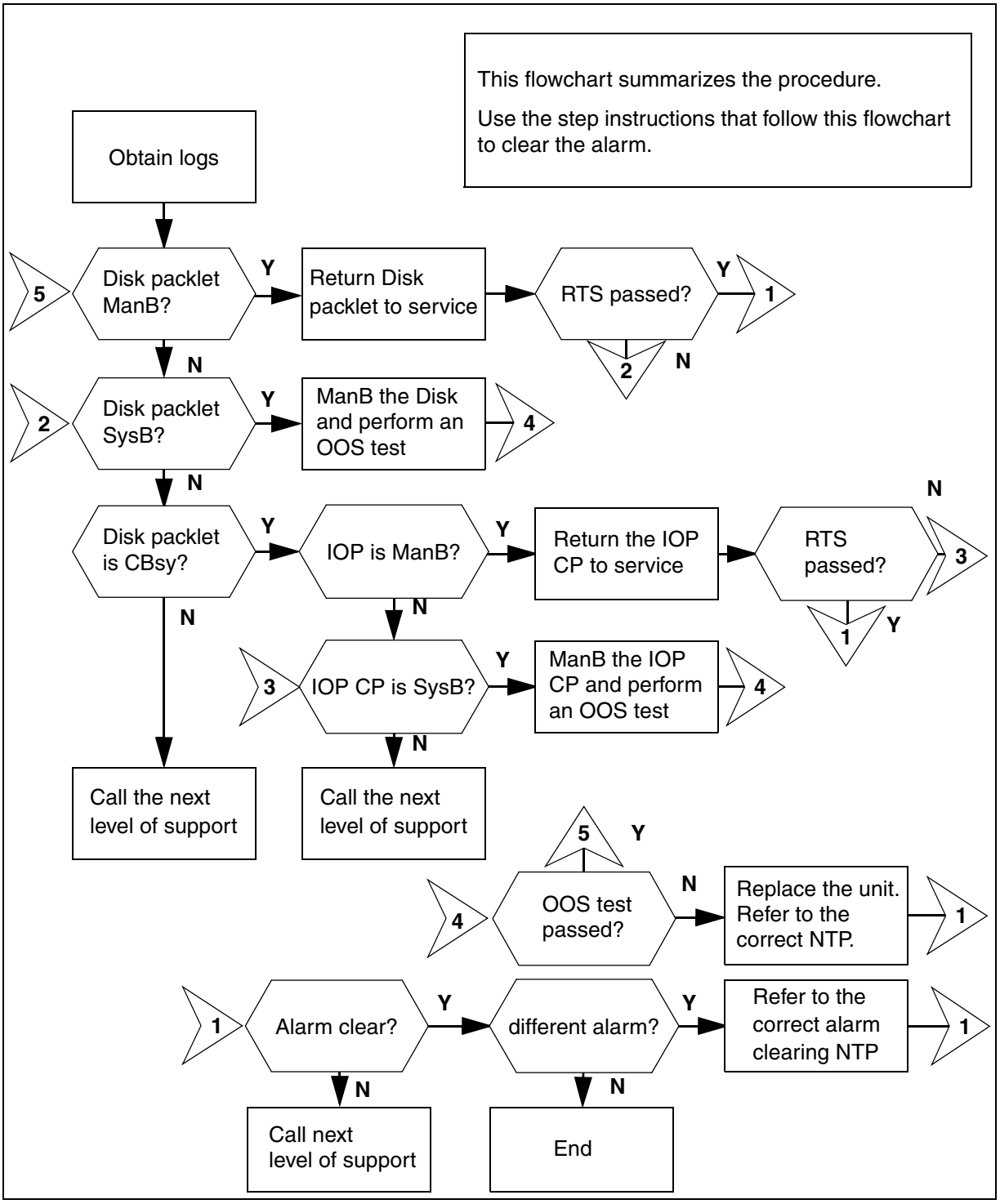
There are no common procedures.

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)

Figure 1-15 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                  -.-.--..-..-----..-  .--.--------.  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                   DISK:
10
11 Format
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 - 1 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 Disk - Minor (continued)

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 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 Disk packlet. 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 - 1 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:

>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 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 - 1 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 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.

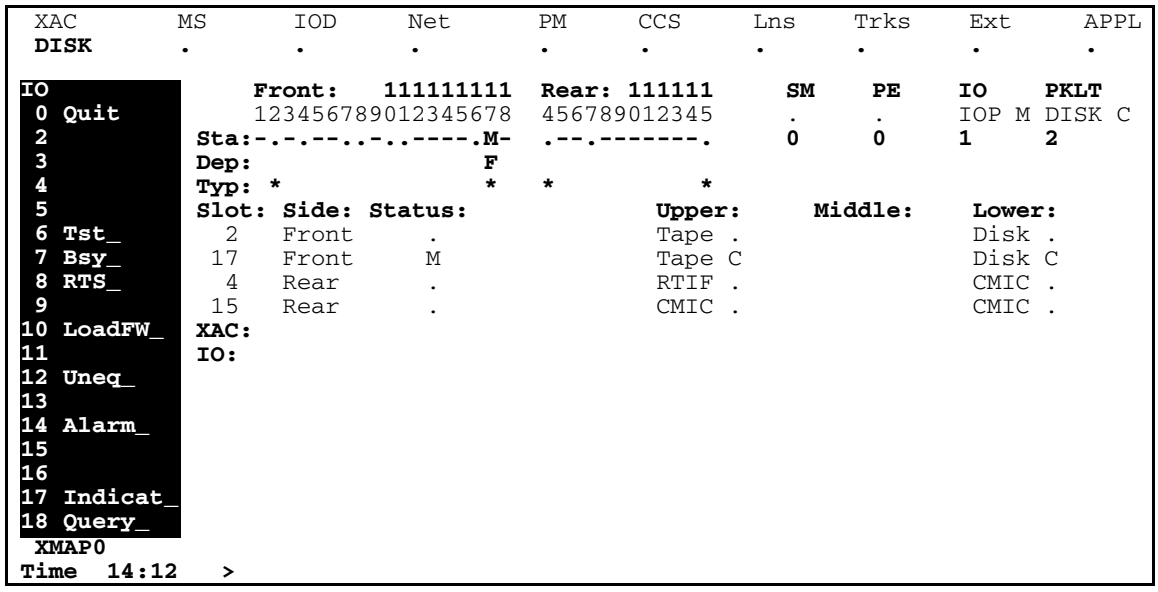
Note: The IO MAP level displays IOP CP and packlet working states as follows:

- 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



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 - 1 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
```

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 - 1 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 - 1 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:

XAC Disk - Minor (continued)

>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 - 1 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

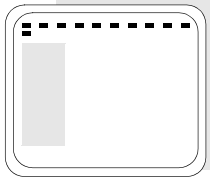
18 Call the next level of support.

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

This page is intentionally left blank.

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

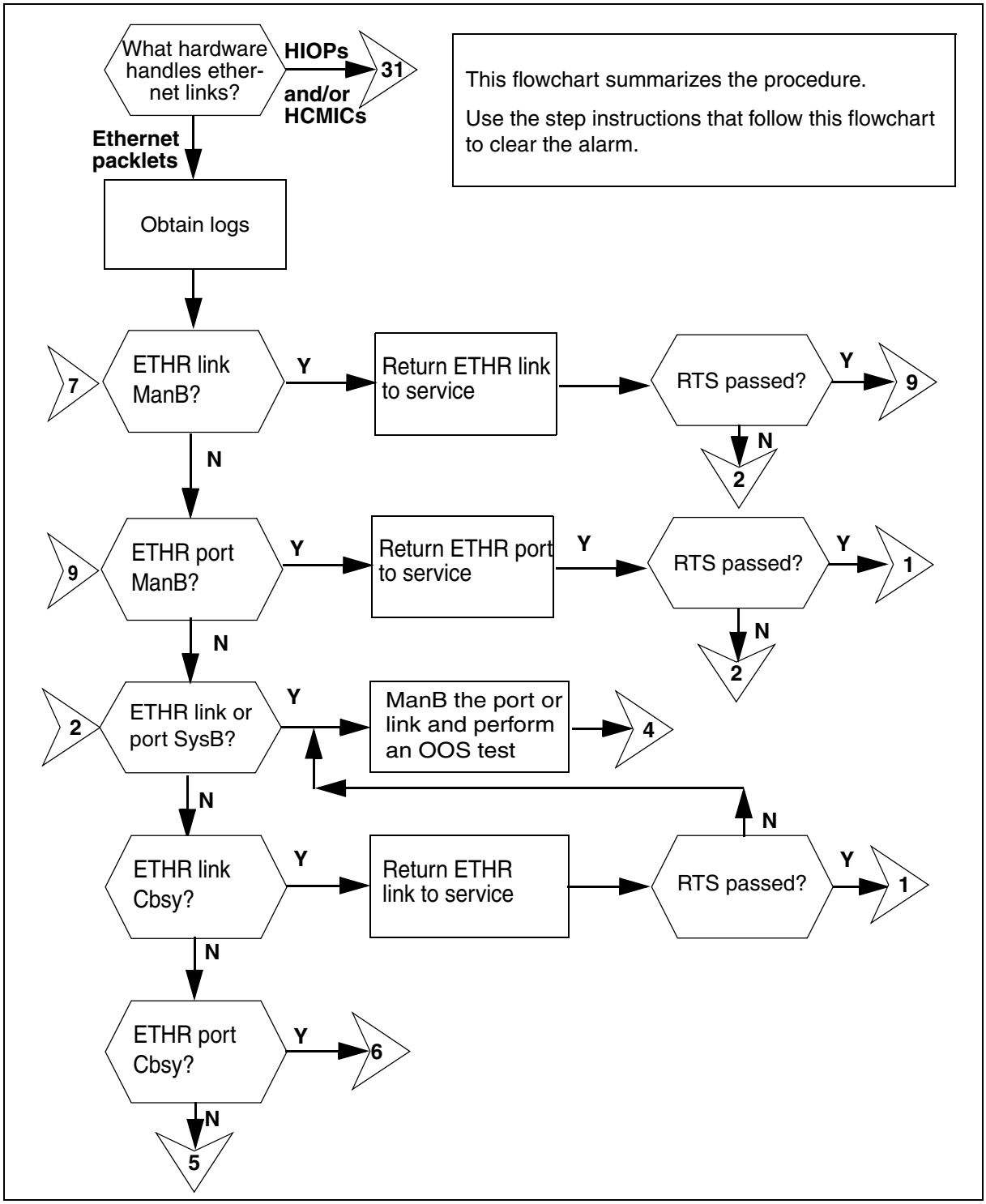
This procedure refers to the replacement procedures for the Ethernet packlet, for the IOP circuit pack, and for the HIOP and HCMIC circuit packs, and to the procedures for deleting and changing tuples in table CMIPADDR. All procedures are in this document.

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.

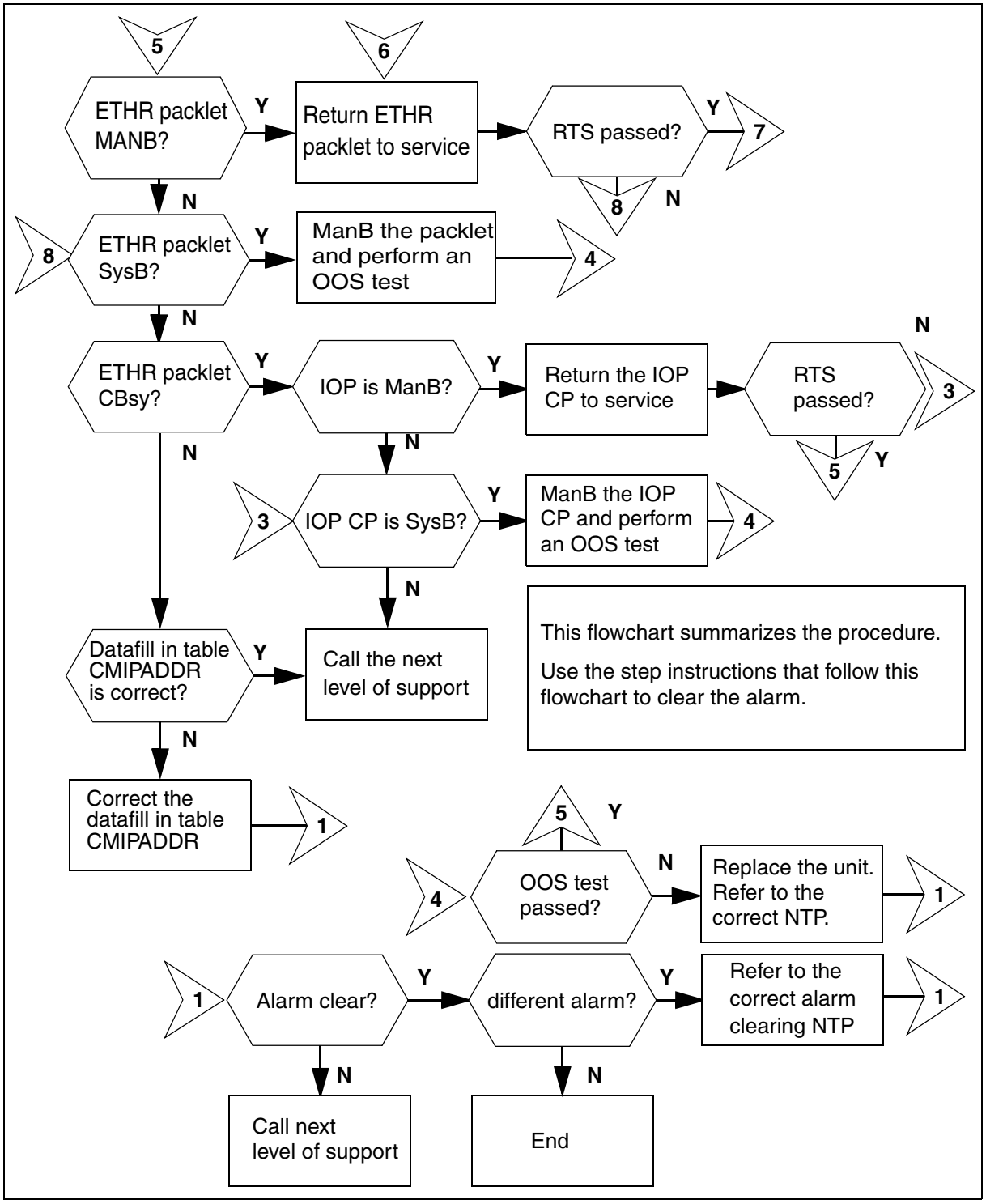
XAC ETHR - Critical (continued)

Figure 1-16 Summary of clearing an ETHR critical alarm - Part 1



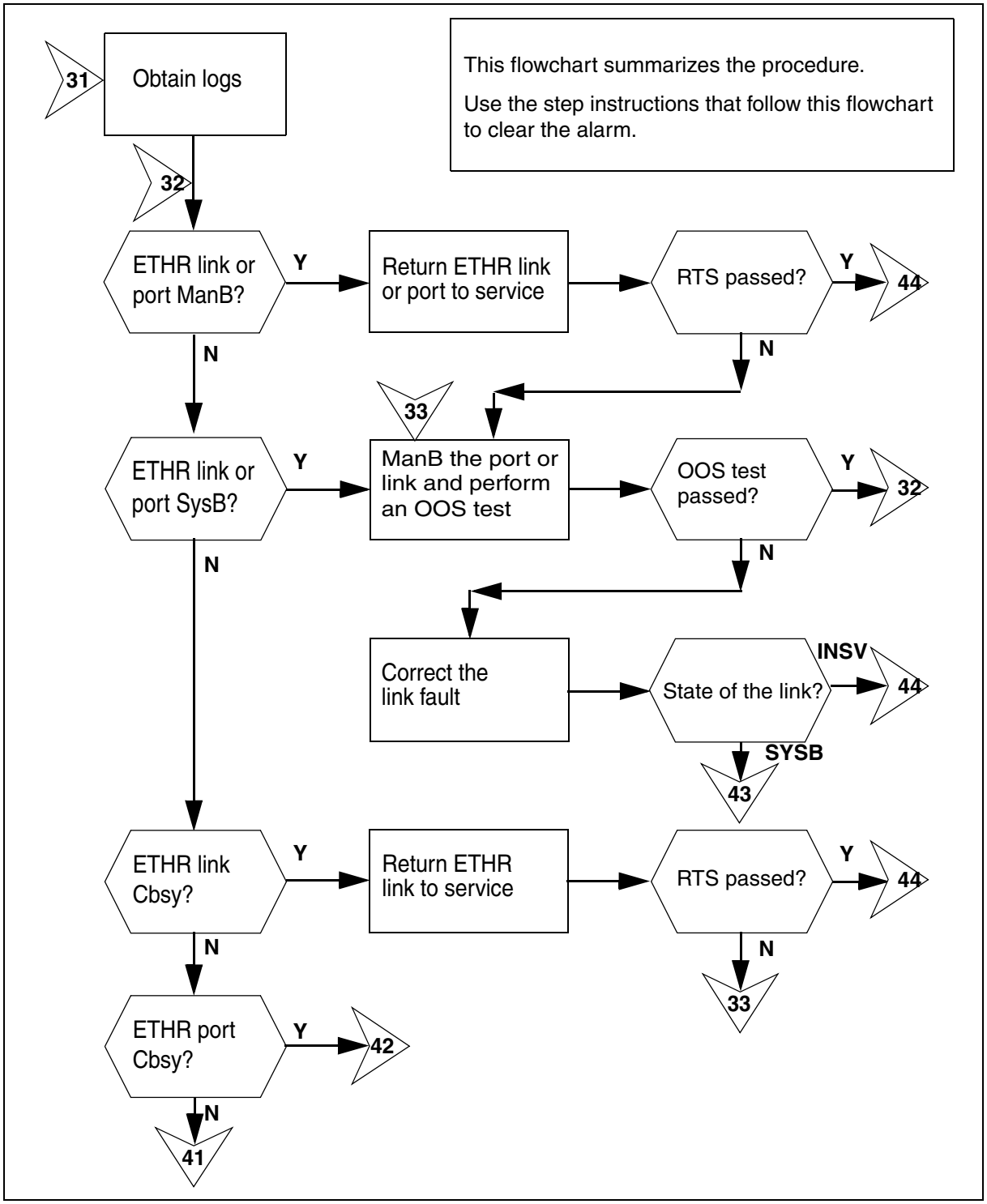
XAC ETHR - Critical (continued)

Summary of clearing an ETHR critical alarm - Part 2



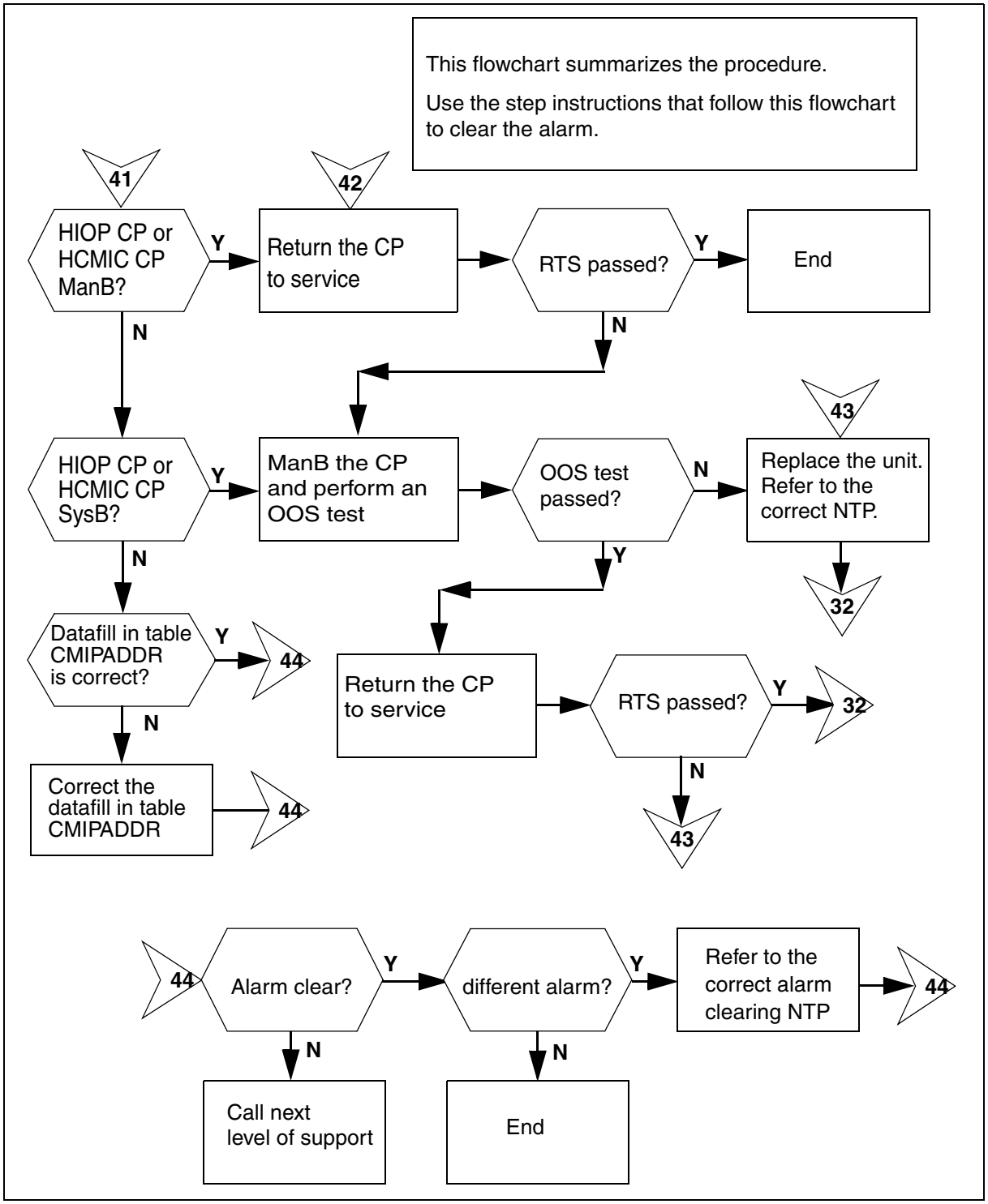
XAC ETHR - Critical (continued)

Figure 1-17 Summary of clearing an ETHR critical alarm - Part 3



XAC ETHR - Critical (continued)

Figure 1-18 Summary of clearing an ETHR critical alarm - Part 4



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.

At your current location

1 If you know the type of hardware that handles the Ethernet links in the XA-Core, go to step 4. (The links can be handled either by Ethernet packlets or by HIOP circuit packs and/or HCMIC circuit packs. For more information on the hardware that can be involved, see “Rules governing ethernet links” in the section titled “Adding, removing, or re-arranging ethernet links” in chapter 4 of this document.) If you do not know the type of hardware, proceed to step 2.

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. Determine whether the Ethernet links connect to Ethernet packlets or to HIOP circuit packs and/or HCMIC circuit packs.

XAC ETHR - Critical (continued)

If the “Packlet” fields in the ETHR MAP level are blank, then the Ethernet links connect to circuit packs rather than packlets. If those circuit packs are in slots 4R and 15R, they are HCMICs; otherwise, they are HIOPs.

The following are sample MAP displays.

ETHR MAP level showing Ethernet links connected to packlets

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
ETHR        .        .        .         .       .        .       .        .        .
*C*
ETHR              Front:   111111111  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 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

ETHR MAP level showing Ethernet links connected to HIOP circuit packs

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

ETHR              Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit           123456789012345678  456789012345      .      .      .      .
 2                Sta:-.-.--..-..-.--.-.  ....-..-....      0      0      0      0
 3                Dep:
 4                Typ:                      *        *
 5                Slot: Side: Packlet:  Port: Link:
 6 Tst_             5   Rear            .     .
 7 Bsy_            14   Rear            .     .
 8 RTS_           XAC:
 9                ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC ETHR - Critical (continued)

4 Select the next step as follows.

If the Ethernet links are connected to	Do
Ethernet packlets	step 5
HIOP CPs and/or HCMIC CPs	step 28

5 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	Do
the logs indicate an Ethernet packlet fault	step 6
the logs indicate an Ethernet port or link fault	step 6
the logs indicate an IOP CP hardware fault	step 17
the logs indicate that none of the faults listed above exists, but there is an ETHR critical alarm	step 25
the logs indicate that none of the faults listed above exists, and if the ETHR critical alarm condition is clear	step 53

6 Access the XA-Core ETHR MAP level by typing

MAPCI;MTC;XAC;ETHR

and pressing the Enter key.

7 Examine the ETHR MAP level. Record the location and status of the ETHR packlets.

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).

XAC ETHR - Critical (continued)

- a status indicator appears in the equipment status field 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
ETHR       .       .       .        .      .       .      .       .       .
*C*
ETHR            Front:   111111111  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 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12   >
```

If the ETHR MAP level indicates	Do
ETHR packlet is in a ManB state	step 8
ETHR packlet is in a SysB state	step 9
ETHR packlet is in a CBsy state	step 14
ETHR links or ports are in a ManB state	step 11
ETHR links or ports are in a SysB state	step 12
ETHR links are in a CBsy state	step 11
ETHR ports are in a CBsy state	step 8
no alarm and all CPs and all ports and links are InSv	step 53

XAC ETHR - Critical (continued)

8 Return the OOS packlet to service. Repeat this step for each ManB packlet. 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 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 9
in a CBsy state	step 14
in an InSv state	step 23

9 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
```

XAC ETHR - Critical (continued)

10 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.

<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 7
did not pass	step 21

11 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 12

XAC ETHR - Critical (continued)

If the ETHR links or ports are	Do
in an InSv state	step 23

12 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> <port>

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 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
```

XAC ETHR - Critical (continued)

13 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 7
did not pass	step 20

14 Access the IO MAP level. At the ETHR MAP level type

>IO

and press the Enter key.

15 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 - Critical (continued)

The following is a sample MAP display.

IO MAP level

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
ETHR        .        .        .         .       .        .       .        .        .
*C*
IO                      Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit                 123456789012345678  456789012345      .      .      IOP M  Linkfl
 2                Sta: . ..-..-..-.- ..    .M..-----...      0      0      1      1
 3                Dep:                      FF       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                                      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 Cntrs_       IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

If the IOP CP is	Do
in a ManB state	step 16
in a SysB state	step 22
in an InSv state	step 23

16 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 - 1 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
```

XAC ETHR - 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 packlet, ports or links are ManB	step 19
InSv and any related packlet, ports or links are SysB	step 7
SysB and any related packlet, ports or links are CBsy	step 17
InSv and any related packlets, ports and links are InSv	step 23

17 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 - 1 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
```

18 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 - 1 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 15
did not pass	step 22

19 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 21
Ethernet link is in a SysB state	step 20
Ethernet packlet, port, and link are in an InSv state	step 23

XAC ETHR - Critical (continued)

20 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 21
in an InSv state	step 23

21 Perform the correct packlet replacement procedure. Refer to the replacement procedure in this document. Return to this point when complete.

If the packlet is	Do
in a InSv state	step 23
in a SysB state	step 52

22 Perform the correct IOP CP replacement procedure. Refer to the replacement procedure in this document. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 23
in a SysB state	step 52

23 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 24
not clear	step 52
clear	step 53

24 Perform the correct alarm clearing procedure. Refer to the procedure in this document. Return to this point when complete.

If the alarm is	Do
not clear	step 52
clear	step 53

25 If an ETHR alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill or erroneous datafill in table CMIPADDR.

- Excess datafill. If an ethernet link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.
- Erroneous datafill. If there is erroneous datafill, for example, as a result of a typing error when datafilling the table, that could cause an alarm.

XAC ETHR - Critical (continued)

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Proceed as follows.

a Start the table editor and access table CMIPADDR. Type

>TABLE CMIPADDR

and press the ENTER key.

Example of system response:

```
TABLE: CMIPADDR
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key.

Example of system response:

MAP display example for table CMIPADDR

```
KEY       DATA
-------------------------------------------------------------------------
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
GATEWAY 0 GW (10 40 14 130) 0
```

c In the table, check the datafill in the tuples that begin with the word ETHRLNK. Each such tuple should correspond to an actual ethernet link.

- To check for excess datafill, compare the ETHRLNK tuples to the ethernet links that exist in the system.
- To check for erroneous datafill, compare the datafill in the ETHRLNK tuples to the IP addresses and netmask values found in the Network Specification Book for your office. To find the IP addresses and the netmask values, look in the section of the book titled "Communication Server Components".

d If you find excess datafill or erroneous datafill, make note of the problem.

e Exit from the table editor. Type

>QUIT

and press the Enter key.

f Select the next step as follows:

If you found	Do
excess datafill	step 26

XAC ETHR - Critical (continued)

If you found	Do
erroneous datafill	step 27
no problems with the datafill	step 52

26 Remove the tuple or tuples containing the excess datafill. For instructions, refer to the procedure titled “Deleting tuples from table CMIPADDR” in chapter 4 of this document. When complete, go to step 2 in this procedure and continue from there.

27 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 2 in this procedure and continue from there.

28 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	Do
the logs indicate an Ethernet port or link fault	step 29
the logs indicate an HIOP CP hardware fault or an HCMIC CP hardware fault	step 29
the logs indicate that none of the faults listed above exists, but there is an ETHR critical alarm	step 49
the logs indicate that none of the faults listed above exists, and if the ETHR critical alarm condition is clear	step 53

29 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

XAC ETHR - Critical (continued)

30 Examine the IO MAP level. Record the working state of the system. Record the working states of the HIOP CP and/or HCMIC CPs. Also record the locations of the HIOP and/or HCMIC CPs 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.

IO MAP level

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

IO                    Front:   111111111  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     .              Tape .                  Disk .
 7 Bsy_                17   Front     .              Tape .                  Disk .
 8 RTS_                 4   Rear      .              RTIF .                  CMIC .
 9                      5   Rear      .              RTIF -     ETHR .       ADMI .
10 LoadFW_             14   Rear      .              RTIF -     ETHR .       ADMI .
11                     15   Rear      .              RTIF .                  CMIC .
12 Uneq_             XAC:
13                   IO:
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 33.

31 Access the XA-Core ETHR MAP level by typing

MAPCI;MTC;XAC;ETHR

32 Examine the ETHR MAP level.

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.

XAC ETHR - Critical (continued)

The following is a sample MAP display.

ETHR MAP level

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

ETHR             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3               Dep:
 4               Typ:                    *        *
 5               Slot: Side: Packlet:  Port: Link:
 6 Tst_            5   Rear            .     .
 7 Bsy_           14   Rear            .     .
 8 RTS_          XAC:
 9               ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

Note: The information you gather in this step will be of use in step 33.

33 Select the next step as follows.

If the information from the IOP and ETHR MAP levels indicates	Do
an HIOP or HCMIC CP is in a ManB state	step 34
an HIOP or HCMIC CP is in a SysB state	step 36
ETHR links or ports are in a ManB state	step 41
ETHR links or ports are in a SysB state	step 42
ETHR links are in a CBsy state	step 41
ETHR ports are in a CBsy state	step 34
no alarm and all CPs and all ports and links are InSv	step 53

34 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

XAC ETHR - Critical (continued)

35 Return the HIOP or HCMIC 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the CP is	Do
not in an InSv state	step 37
in an InSv state	step 53

36 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

37 Manually busy the OOS 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 - 1 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
```

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 CP is	Do
in a ManB state	step 38

XAC ETHR - Critical (continued)

If the HIOP CP is	Do
not in a ManB state	step 52

38 Perform an OOS test on the ManB HIOP or HCMIC 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 - 1 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:

>TST 5 r

If the OOS test	Do
passed	step 39
did not pass	step 40

39 Return the HIOP or HCMIC 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 - 1 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 the HIOP CP is	Do
not in an InSv state	step 40
in an InSv state	step 30

40 Perform the procedure to replace the HIOP CP or the HCMIC CP. Refer to the replacement procedure in this document. Continue to step 30 when complete.

41 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

XAC ETHR - Critical (continued)

>RTS <nn> <s> <link>

or

>RTS <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command:

RTS 5 r link

Example of system response:

```
RTS 5 rear link passed
```

If the ETHR links or ports are	Do
in a SysB state	step 42
in an InSv state	step 47

42 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> <link>

or

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command use:

>BSY 5 r link

XAC ETHR - Critical (continued)

Example of system response:

```
BSY 5 rear link complete
```

43 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> <link>

or

>TST <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command use:

>TST 5 r link

If the OOS test	Do
passed	step 29
did not pass	step 45

44 Access the correct MAP level. Return the ManB links or ports to service.

>RTS <nn> <s> <link>

or

>RTS <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command:

RTS 5 r link

Example of system response:

```
RTS 5 rear link passed
```

If the MAP level indicates	Do
Ethernet port is in a SysB state	step 46
Ethernet link is in a SysB state	step 45
Ethernet port and link are in an InSv state	step 47

45 Correct the link fault. Proceed as follows.

a Check whether the following events have occurred. If someone has turned off auto-negotiation at the far-end router and has then forced the far end to 100BT full duplex, then a duplex-mode mismatch has occurred. The mismatch has occurred because the HIOP or HCMIC CP has gone to 100BT half duplex. Such a mismatch causes the Ethernet link to go SysB.

If these events have not occurred, proceed to step 45b.

To recover from the mismatch, enable auto-negotiation at the far end. Alternatively, if it is not possible to enable auto-negotiation, configure the far end to half duplex mode. Then proceed to step 45b.

b 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 46
in an InSv state	step 47

46 Perform the procedure to replace the HIOP CP or the HCMIC CP. Refer to the replacement procedure in this document. Return to this point when complete.

If the HIOP CP is	Do
in a InSv state	step 47
in a SysB state	step 52

47 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 48
not clear	step 52
clear	step 53

XAC ETHR - Critical (continued)

48 Perform the correct alarm clearing procedure. Refer to the procedure in this document. Return to this point when complete.

If the alarm is	Do
not clear	step 52
clear	step 53

49 If an ETHR alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill or erroneous datafill in table CMIPADDR.

- Excess datafill. If an ethernet link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.
- Erroneous datafill. If there is erroneous datafill, for example, as a result of a typing error when datafilling the table, that could cause an alarm.

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Proceed as follows.

a Start the table editor and access table CMIPADDR. Type

>TABLE CMIPADDR

and press the Enter key.

Example of system response:

```
TABLE: CMIPADDR
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key.

Example of system response:

MAP display example for table CMIPADDR

```
KEY       DATA
-------------------------------------------------------------------------
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
GATEWAY 0 GW (10 40 14 130) 0
```

c In the table, check the datafill in the tuples that begin with the word ETHRLNK. Each such tuple should correspond to an actual ethernet link.

- To check for excess datafill, compare the ETHRLNK tuples to the ethernet links that exist in the system.
- To check for erroneous datafill, compare the datafill in the ETHRLNK tuples to the IP addresses and netmask values found in the Network Specification Book for your office. To find the IP addresses and the netmask values, look in the section of the book titled “Communication Server Components”.

d If you find excess datafill or erroneous datafill, make note of the problem.

e Exit from the table editor. Type

>QUIT

and press the Enter key.

f Select the next step as follows:

If you found	Do
excess datafill	step 50
erroneous datafill	step 51
no problems with the datafill	step 52

50 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 29 in this procedure and continue from there.

51 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 29 in this procedure and continue from there.

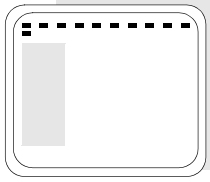
52 Call the next level of support.

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

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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

This procedure refers to the replacement procedures for the Ethernet packlet, for the IOP circuit pack, and for the HIOP and HCMIC circuit packs, and to the procedures for deleting and changing tuples in table CMIPADDR. All procedures are in this document.

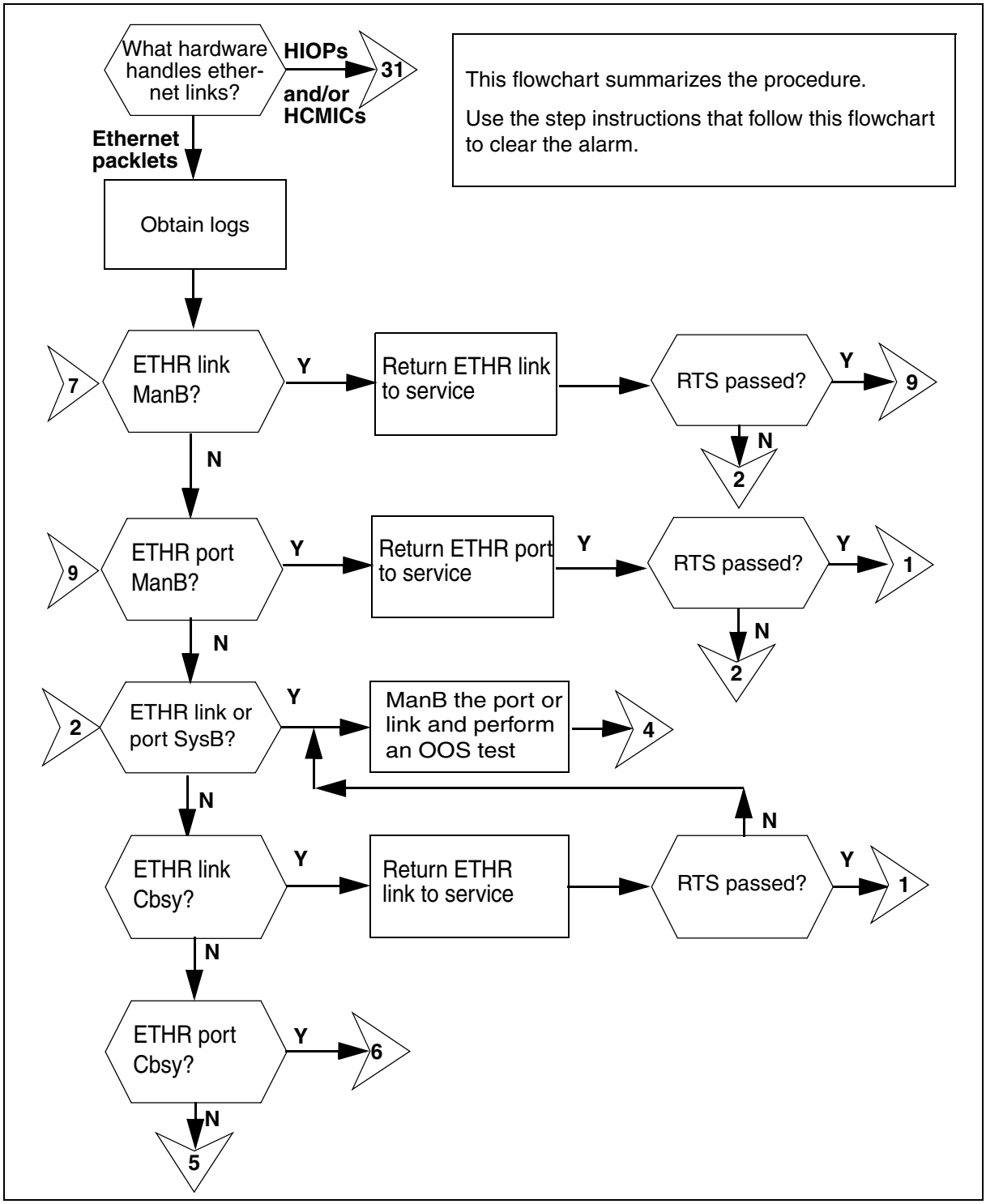
XAC ETHR - Major (continued)

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)

Figure 1-19 Summary of clearing an ETHR major alarm - Part 1



XAC ETHR - Major (continued)

Figure 1-20 Summary of clearing an ETHR major alarm - Part 2

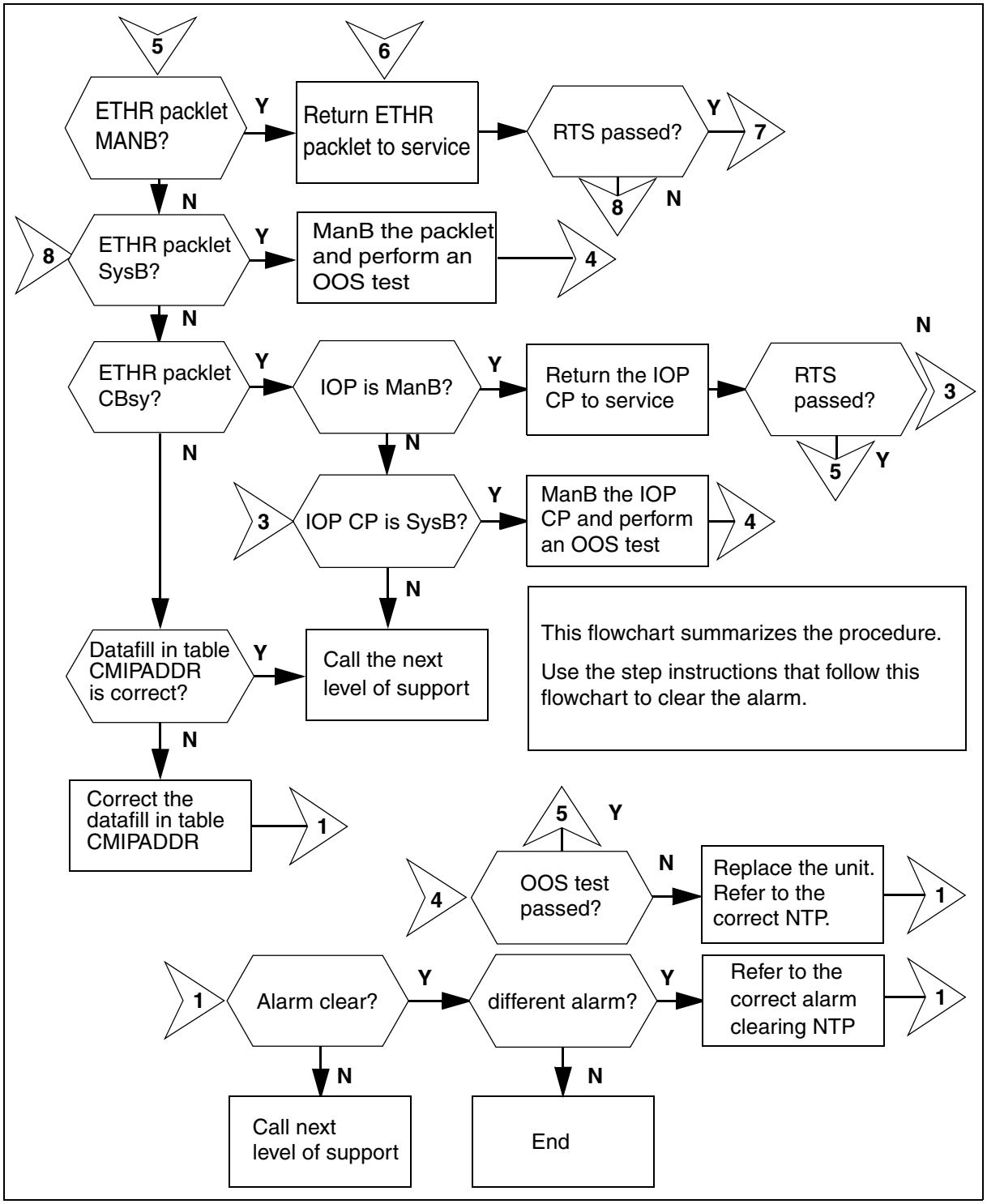
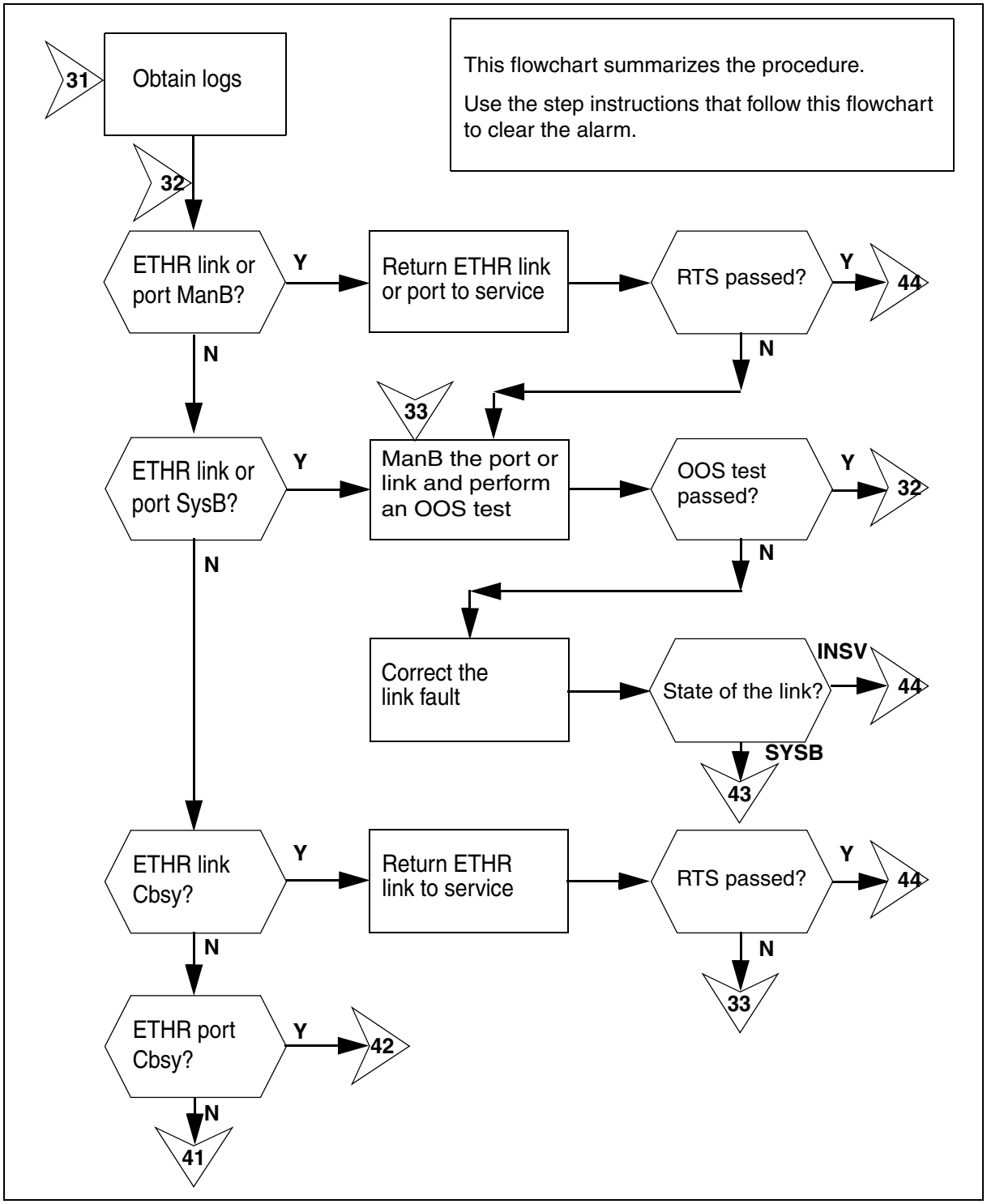
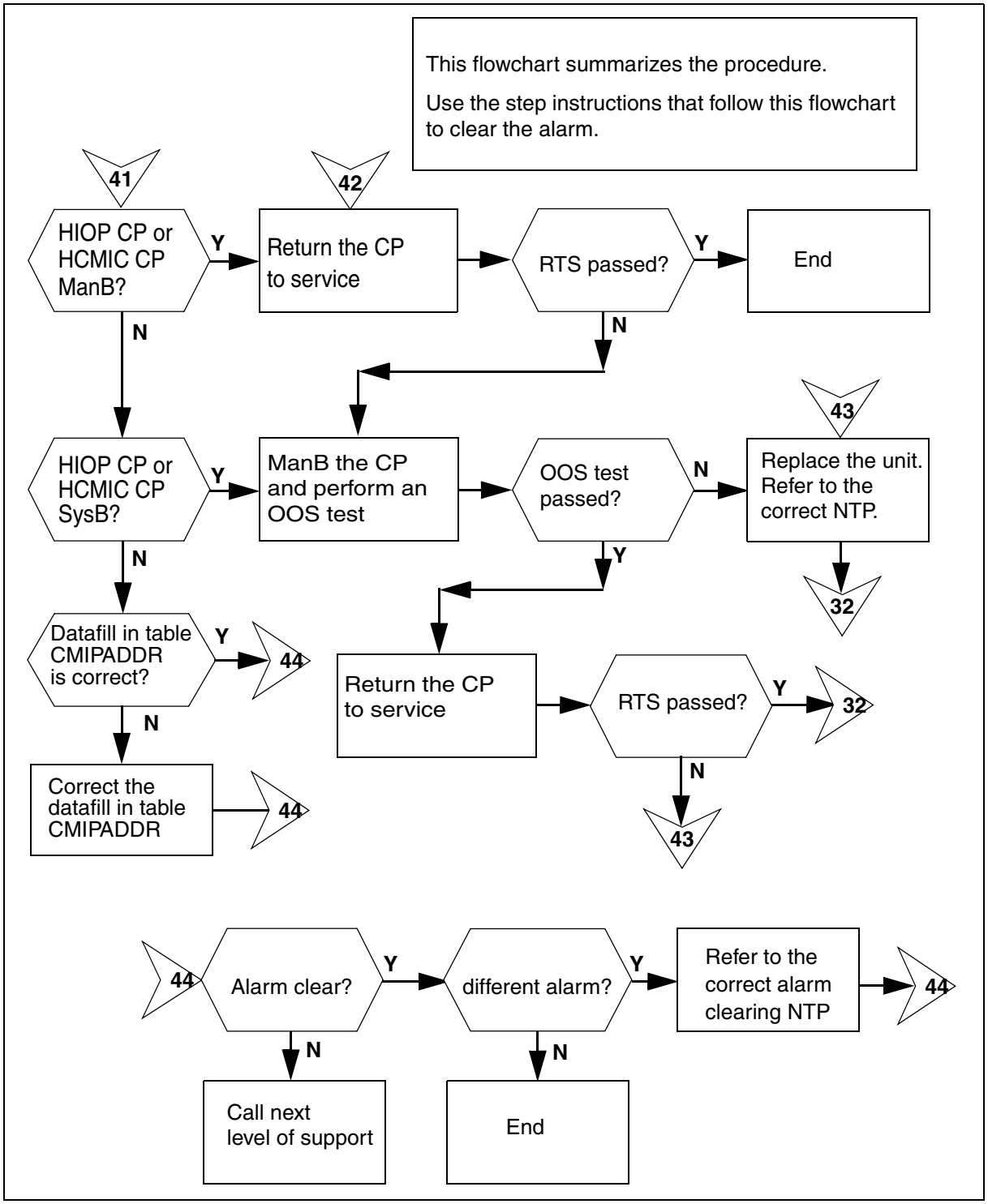


Figure 1-21 Summary of clearing an ETHR major alarm - Part 3



XAC ETHR - Major (continued)

Figure 1-22 Summary of clearing an ETHR major alarm - Part 4



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.

At your current location

1 If you know the type of hardware that handles the Ethernet links in the XA-Core, go to step 4. (The links can be handled either by Ethernet packlets or by HIOP circuit packs and/or HCMIC circuit packs. For more information on the hardware that can be involved, see “Rules governing ethernet links” in the section titled “Adding, removing, or re-arranging ethernet links” in chapter 4 of this document.) If you do not know the type of hardware, proceed to step 2.

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. Determine whether the Ethernet links connect to Ethernet packlets or to HIOP circuit packs and/or HCMIC circuit packs.

XAC ETHR - Major (continued)

If the “Packlet” fields in the ETHR MAP level are blank, then the Ethernet links connect to circuit packs rather than packlets. If those circuit packs are in slots 4R and 15R, they are HCMICs; otherwise, they are HIOPs.

The following are sample MAP displays.

ETHR MAP level showing Ethernet links connected to packlets

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
ETHR        .        .        .         .       .        .       .        .        .
*C*
ETHR              Front:   111111111  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 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

ETHR MAP level showing Ethernet links connected to HIOP circuit packs

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

ETHR              Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit           123456789012345678  456789012345      .      .      .      .
 2                Sta:-.-.--..-..-.--.-.  ....-..-....      0      0      0      0
 3                Dep:
 4                Typ:                      *        *
 5                Slot: Side: Packlet:  Port: Link:
 6 Tst_             5   Rear            .     .
 7 Bsy_            14   Rear            .     .
 8 RTS_           XAC:
 9                ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC ETHR - Major (continued)

4 Select the next step as follows.

If the Ethernet links are connected to	Do
Ethernet packlets	step 5
HIOP CPs and/or HCMIC CPs	step 28

5 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	Do
the logs indicate an Ethernet packlet fault	step 6
the logs indicate an Ethernet port or link fault	step 6
the logs indicate an IOP CP hardware fault	step 17
the logs indicate that none of the faults listed above exists, but there is an ETHR major alarm	step 25
the logs indicate that none of the faults listed above exists, and if the ETHR major alarm condition is clear	step 53

6 Access the XA-Core ETHR MAP level by typing

MAPCI;MTC;XAC;ETHR

and pressing the Enter key.

7 Examine the ETHR MAP level. Record the location and status of the ETHR packlets.

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).

XAC ETHR - Major (continued)

- a status indicator appears in the equipment status field 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
ETHR        .        .        .         .       .        .       .        .        .
*C*
ETHR                Front:   111111111  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 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12   >
```

If the ETHR MAP level indicates	Do
ETHR packlet is in a ManB state	step 8
ETHR packlet is in a SysB state	step 9
ETHR packlet is in a CBsy state	step 14
ETHR links or ports are in a ManB state	step 11
ETHR links or ports are in a SysB state	step 12
ETHR links are in a CBsy state	step 11
ETHR ports are in a CBsy state	step 8
no alarm and all CPs and all ports and links are InSv	step 53

XAC ETHR - Major (continued)

8 Return the OOS packlet to service. Repeat this step for each ManB packlet. 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 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 9
in a CBsy state	step 14
in an InSv state	step 23

9 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
```

XAC ETHR - Major (continued)

10 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.

<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 7
did not pass	step 21

11 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 12

XAC ETHR - Major (continued)

If the ETHR links or ports are	Do
in an InSv state	step 23

12 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> <port>

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 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
```

XAC ETHR - Major (continued)

13 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 7
did not pass	step 20

14 Access the IO MAP level. At the ETHR MAP level type

>IO

and press the Enter key.

15 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        .        .        .         .       .        .       .        .        .
*C*
IO                      Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit                 123456789012345678  456789012345      .      .      IOP M  Linkfl
 2                 Sta: . ..-..-..-.- ..    .M..-----...      0      0      1      1
 3                 Dep:                      FF       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                                      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 Cntrs_         IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

If the IOP CP is	Do
in a ManB state	step 16
in a SysB state	step 22
in an InSv state	step 23

16 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 - 1 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
```

XAC ETHR - 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, ports or links are ManB	step 19
InSv and any related packlet, ports or links are SysB	step 7
SysB and any related packlet, ports or links are CBsy	step 17
InSv and any related packlets, ports and links are InSv	step 23

17 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 - 1 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
```

18 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 - 1 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 15
did not pass	step 22

19 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 21
Ethernet link is in a SysB state	step 20
Ethernet packlet, port, and link are in an InSv state	step 23

XAC ETHR - Major (continued)

20 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 21
in an InSv state	step 23

21 Perform the correct packlet replacement procedure. Refer to the replacement procedure in this document. Return to this point when complete.

If the packlet is	Do
in a InSv state	step 23
in a SysB state	step 52

22 Perform the correct IOP CP replacement procedure. Refer to the replacement procedure in this document. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 23
in a SysB state	step 52

23 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 24
not clear	step 52
clear	step 53

24 Perform the correct alarm clearing procedure. Refer to the procedure in this document. Return to this point when complete.

If the alarm is	Do
not clear	step 52
clear	step 53

25 If an ETHR alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill or erroneous datafill in table CMIPADDR.

- Excess datafill. If an ethernet link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.
- Erroneous datafill. If there is erroneous datafill, for example, as a result of a typing error when datafilling the table, that could cause an alarm.

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Proceed as follows.

a Start the table editor and access table CMIPADDR. Type

>TABLE CMIPADDR

and press the ENTER key.

Example of system response:

```
TABLE: CMIPADDR
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key.

Example of system response:

MAP display example for table CMIPADDR

```
KEY       DATA
-------------------------------------------------------------------------
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
GATEWAY 0 GW (10 40 14 130) 0
```

c In the table, check the datafill in the tuples that begin with the word ETHRLNK. Each such tuple should correspond to an actual ethernet link.

- To check for excess datafill, compare the ETHRLNK tuples to the ethernet links that exist in the system.
- To check for erroneous datafill, compare the datafill in the ETHRLNK tuples to the IP addresses and netmask values found in the Network Specification Book for your office. To find the IP addresses and the netmask values, look in the section of the book titled "Communication Server Components".

d If you find excess datafill or erroneous datafill, make note of the problem.

e Exit from the table editor. Type

>QUIT

and press the Enter key.

f Select the next step as follows

If you found	Do
excess datafill	step 26

XAC ETHR - Major (continued)

If you found	Do
erroneous datafill	step 27
no problems with the datafill	step 52

26 Remove the tuple or tuples containing the excess datafill. For instructions, refer to the procedure titled “Deleting tuples from table CMIPADDR” in chapter 4 of this document. When complete, go to step 2 in this procedure and continue from there.

27 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 2 in this procedure and continue from there.

28 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	Do
the logs indicate an Ethernet port or link fault	step 29
the logs indicate an HIOP CP hardware fault or an HCMIC CP hardware fault	step 29
the logs indicate that none of the faults listed above exists, but there is an ETHR major alarm	step 49
the logs indicate that none of the faults listed above exists, and if the ETHR major alarm condition is clear	step 53

29 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

XAC ETHR - Major (continued)

30 Examine the IO MAP level. Record the working state of the system. Record the working states of the HIOP CP and/or HCMIC CPs. Also record the locations of the HIOP and/or HCMIC CPs 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.

IO MAP level

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

IO                    Front:   111111111  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      .              Tape .                 Disk .
 7 Bsy_                17   Front      .              Tape .                 Disk .
 8 RTS_                 4   Rear       .              RTIF .                 CMIC .
 9                      5   Rear       .              RTIF -     ETHR .      ADMI .
10 LoadFW_             14   Rear       .              RTIF -     ETHR .      ADMI .
11                     15   Rear       .              RTIF .                 CMIC .
12 Uneq_             XAC:
13                   IO:
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 33.

31 Access the XA-Core ETHR MAP level by typing

MAPCI;MTC;XAC;ETHR

32 Examine the ETHR MAP level.

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.

XAC ETHR - Major (continued)

The following is a sample MAP display.

ETHR MAP level

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

ETHR            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit         123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3              Dep:
 4              Typ:                    *        *
 5              Slot: Side: Packlet:  Port: Link:
 6 Tst_           5   Rear            .     .
 7 Bsy_          14   Rear            .     .
 8 RTS_         XAC:
 9              ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 33.

33 Select the next step as follows.

If the information from the IOP and ETHR MAP levels indicates	Do
an HIOP or HCMIC CP is in a ManB state	step 34
an HIOP or HCMIC CP is in a SysB state	step 36
ETHR links or ports are in a ManB state	step 41
ETHR links or ports are in a SysB state	step 42
ETHR links are in a CBsy state	step 41
ETHR ports are in a CBsy state	step 34
no alarm and all CPs and all ports and links are InSv	step 53

34 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

XAC ETHR - Major (continued)

35 Return the HIOP or HCMIC 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the CP is	Do
not in an InSv state	step 37
in an InSv state	step 53

36 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

37 Manually busy the OOS 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 - 1 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
```

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 CP is	Do
in a ManB state	step 38

XAC ETHR - Major (continued)

If the HIOP CP is	Do
not in a ManB state	step 52

38 Perform an OOS test on the ManB HIOP or HCMIC 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 - 1 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:

>TST 5 r

If the OOS test	Do
passed	step 39
did not pass	step 40

39 Return the HIOP or HCMIC 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 - 1 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 the CP is	Do
not in an InSv state	step 40
in an InSv state	step 30

40 Perform the procedure to replace the HIOP CP or the HCMIC CP. Refer to the replacement procedure in this document. Continue to step 30 when complete.

41 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> <link>

or

>RTS <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command:

RTS 5 r link

Example of system response:

```
RTS 5 rear link passed
```

If the ETHR links or ports are	Do
in a SysB state	step 42
in an InSv state	step 47

42 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> <link>

or

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command use:

>BSY 5 r link

XAC ETHR - Major (continued)

Example of system response:

```
BSY 5 rear link complete
```

43 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> <link>

or

>TST <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command use:

>TST 5 r link

If the OOS test	Do
passed	step 29
did not pass	step 45

44 Access the correct MAP level. Return the ManB links or ports to service.

>RTS <nn> <s> <link>

or

>RTS <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command:

RTS 5 r link

Example of system response:

```
RTS 5 rear link passed
```

If the MAP level indicates	Do
Ethernet port is in a SysB state	step 46
Ethernet link is in a SysB state	step 45
Ethernet port and link are in an InSv state	step 47

45 Correct the link fault. Proceed as follows.

a Check whether the following events have occurred. If someone has turned off auto-negotiation at the far-end router and has then forced the far end to 100BT full duplex, then a duplex-mode mismatch has occurred. The mismatch has occurred because the HIOP or HCMIC has gone to 100BT half duplex. Such a mismatch causes the Ethernet link to go SysB.

If these events have not occurred, proceed to step 45b.

To recover from the mismatch, enable auto-negotiation at the far end. Alternatively, if it is not possible to enable auto-negotiation, configure the far end to half duplex mode. Then proceed to step 45b.

b 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 46
in an InSv state	step 47

46 Perform the procedure to replace the HIOP CP or the HCMIC CP. Refer to the replacement procedure in this document. Return to this point when complete.

If the HIOP CP is	Do
in a InSv state	step 47
in a SysB state	step 52

XAC ETHR - Major (continued)

47 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 48
not clear	step 52
clear	step 53

48 Perform the correct alarm clearing procedure. Refer to the procedure in this document. Return to this point when complete.

If the alarm is	Do
not clear	step 52
clear	step 53

49 If an ETHR alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill or erroneous datafill in table CMIPADDR.

- Excess datafill. If an ethernet link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.
- Erroneous datafill. If there is erroneous datafill, for example, as a result of a typing error when datafilling the table, that could cause an alarm.

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Proceed as follows.

a Start the table editor and access table CMIPADDR. Type

>TABLE CMIPADDR

and press the Enter key.

Example of system response:

```
TABLE: CMIPADDR
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key.

Example of system response:

MAP display example for table CMIPADDR

```
KEY       DATA
-------------------------------------------------------------------------
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
GATEWAY 0 GW (10 40 14 130) 0
```

c In the table, check the datafill in the tuples that begin with the word ETHRLNK. Each such tuple should correspond to an actual ethernet link.

- To check for excess datafill, compare the ETHRLNK tuples to the ethernet links that exist in the system.
- To check for erroneous datafill, compare the datafill in the ETHRLNK tuples to the IP addresses and netmask values found in the Network Specification Book for your office. To find the IP addresses and the netmask values, look in the section of the book titled “Communication Server Components”.

d If you find excess datafill or erroneous datafill, make note of the problem.

e Exit from the table editor. Type

>QUIT

and press the Enter key.

f Select the next step as follows:

If you found	Do
excess datafill	step 50
erroneous datafill	step 51
no problems with the datafill	step 52

50 Remove the tuple or tuples containing the excess datafill. For instructions, refer to the procedure titled “Deleting tuples from table CMIPADDR” in chapter 4 of this document. When complete, go to step 29 in this procedure and continue from there.

51 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 29 in this procedure and continue from there.

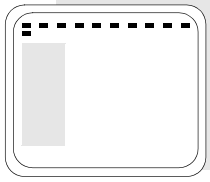
52 Call the next level of support.

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

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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

This procedure refers to the replacement procedures for the Ethernet packlet, for the IOP circuit pack, and for the HIOP and HCMIC circuit packs, and to the procedures for deleting and changing tuples in table CMIPADDR. All procedures are in this document.

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)

Figure 1-23 Summary of clearing an ETHR minor alarm - Part 1

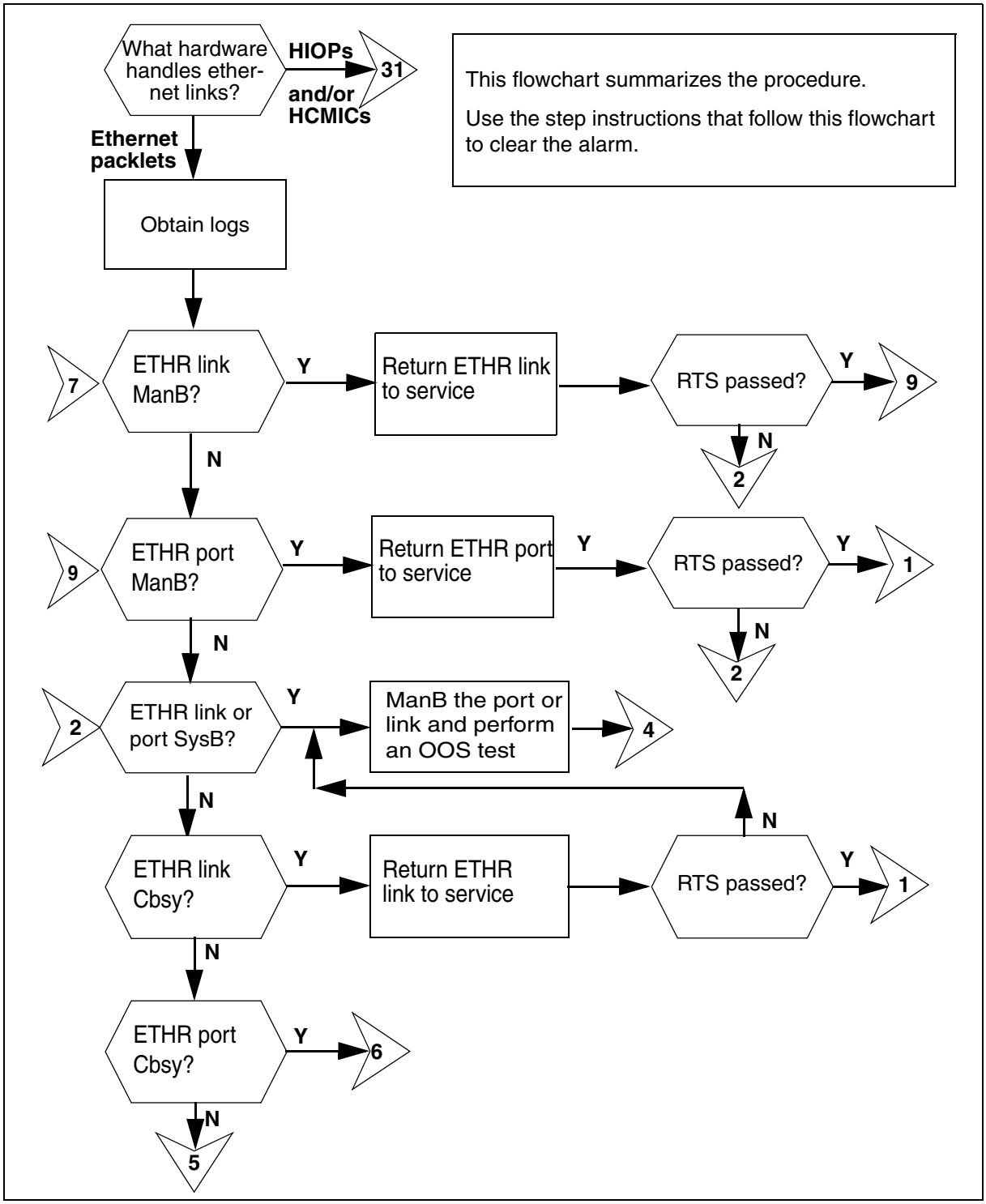
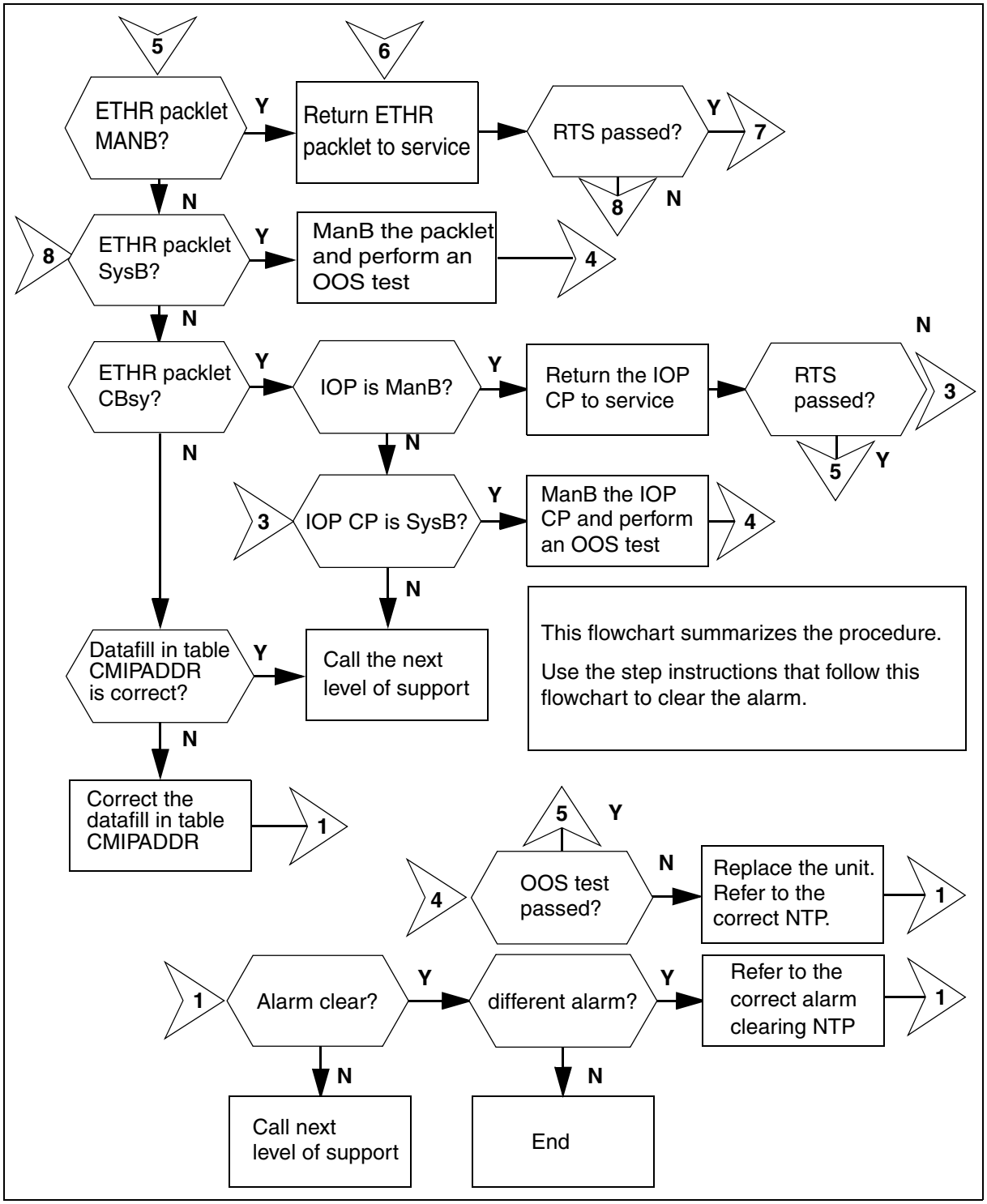


Figure 1-24 Summary of clearing an ETHR minor alarm - Part 2



XAC ETHR - Minor (continued)

Figure 1-25 Summary of clearing an ETHR minor alarm - Part 3

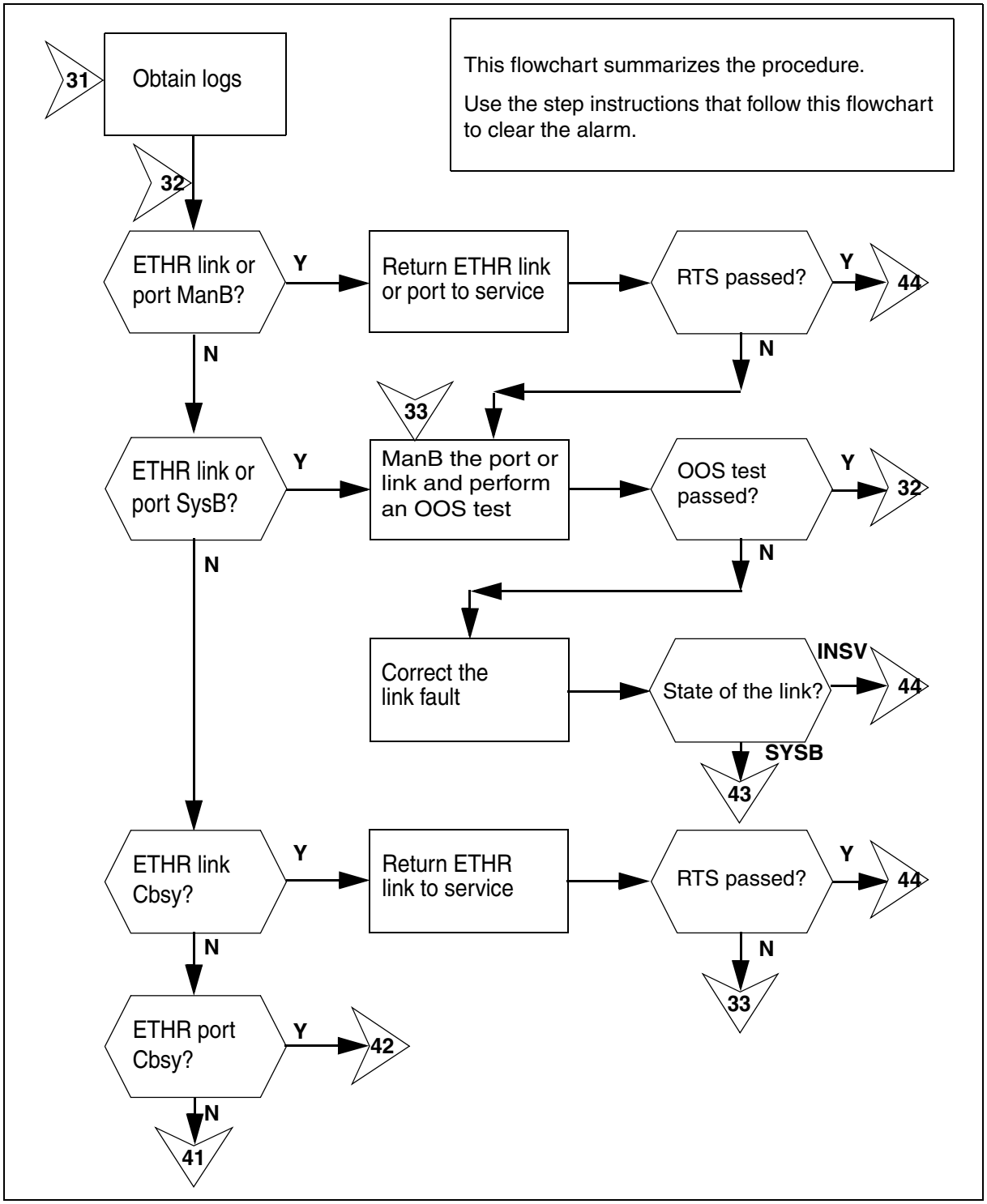
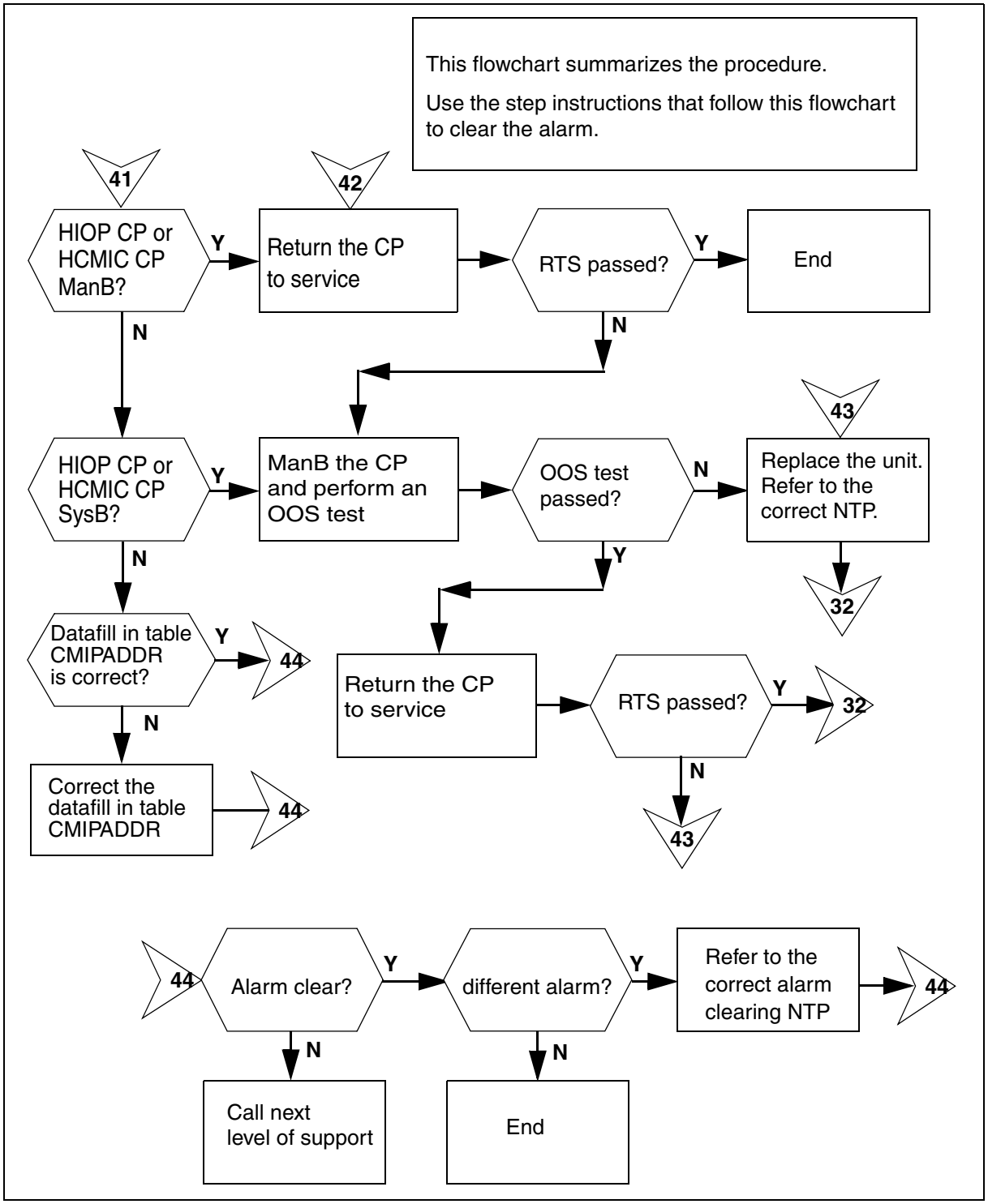


Figure 1-26 Summary of clearing an ETHR minor alarm - Part 4



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.

At your current location

1 If you know the type of hardware that handles the Ethernet links in the XA-Core, go to step 4. (The links can be handled either by Ethernet packlets or by HIOP circuit packs and/or HCMIC circuit packs. For more information on the hardware that can be involved, see “Rules governing ethernet links” in the section titled “Adding, removing, or re-arranging ethernet links” in chapter 4 of this document.) If you do not know the type of hardware, proceed to step 2.

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. Determine whether the Ethernet links connect to Ethernet packlets or to HIOP circuit packs and/or HCMIC circuit packs.

XAC ETHR - Minor (continued)

If the “Packlet” fields in the ETHR MAP level are blank, then the Ethernet links connect to circuit packs rather than packlets. If those ircuit packs are in slots 4R and 15R, they are HCMICs; otherwise, they are HIOPs.

The following are sample MAP displays.

ETHR MAP level showing Ethernet links connected to packlets

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
ETHR        .        .        .         .       .        .       .        .        .
*C*
ETHR                 Front:   111111111  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 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

ETHR MAP level showing Ethernet links connected to HIOP circuit packs

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

ETHR                 Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit              123456789012345678  456789012345      .      .      .      .
 2                  Sta:-.-.--..-..-.--.-.  ....-..-....   0      0      0      0
 3                  Dep:
 4                  Typ:                     *        *
 5                  Slot: Side: Packlet:  Port: Link:
 6 Tst_               5   Rear            .     .
 7 Bsy_              14   Rear            .     .
 8 RTS_             XAC:
 9                  ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC ETHR - Minor (continued)

4 Select the next step as follows.

If the Ethernet links are connected to	Do
Ethernet packlets	step 5
HIOP CPs and/or HCMIC CPs	step 28

5 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	Do
the logs indicate an Ethernet packlet fault	step 6
the logs indicate an Ethernet port or link fault	step 6
the logs indicate an IOP CP hardware fault	step 17
the logs indicate that none of the faults listed above exists, but there is an ETHR minor alarm	step 25
the logs indicate that none of the faults listed above exists, and if the ETHR minor alarm condition is clear	step 53

6 Access the XA-Core ETHR MAP level by typing

MAPCI;MTC;XAC;ETHR

and pressing the Enter key.

7 Examine the ETHR MAP level. Record the location and status of the ETHR packlets.

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).

XAC ETHR - Minor (continued)

- a status indicator appears in the equipment status field 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
ETHR        .        .        .         .       .        .       .        .        .
*C*
ETHR                    Front:   111111111  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 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

If the ETHR MAP level indicates	Do
ETHR packlet is in a ManB state	step 8
ETHR packlet is in a SysB state	step 9
ETHR packlet is in a CBsy state	step 14
ETHR links or ports are in a ManB state	step 11
ETHR links or ports are in a SysB state	step 12
ETHR links are in a CBsy state	step 11
ETHR ports are in a CBsy state	step 8
no alarm and all CPs and all ports and links are InSv	step 53

XAC ETHR - Minor (continued)

8 Return the OOS packlet to service. Repeat this step for each ManB packlet. 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 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 9
in a CBsy state	step 14
in an InSv state	step 23

9 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
```

10 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.

<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 7
did not pass	step 21

11 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 12

XAC ETHR - Minor (continued)

If the ETHR links or ports are	Do
in an InSv state	step 23

12 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> <port>

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 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
```

XAC ETHR - Minor (continued)

13 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 7
did not pass	step 20

14 Access the IO MAP level. At the ETHR MAP level type

>IO

and press the Enter key.

15 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 - Minor (continued)

The following is a sample MAP display.

IO MAP level

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
ETHR        .        .        .         .       .        .       .        .        .
*C*
IO                      Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit                 123456789012345678  456789012345      .      .      IOP M  Linkfl
 2                 Sta: . ..-..-..-.- ..    .M..-----...      0      0      1      1
 3                 Dep:                      FF       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                                      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 Cntrs_         IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

If the IOP CP is	Do
in a ManB state	step 16
in a SysB state	step 22
in an InSv state	step 23

16 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 - 1 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 19
InSv and any related packlet, ports or links are SysB	step 7
SysB and any related packlet, ports or links are CBsy	step 17
InSv and any related packlets, ports and links are InSv	step 23

17 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 - 1 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
```

18 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 - 1 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 ETHR - Minor (continued)

Example of command use:

>TST 14 r

If the OOS test	Do
passed	step 15
did not pass	step 22

19 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 21
Ethernet link is in a SysB state	step 20
Ethernet packlet, port, and link are in an InSv state	step 23

20 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 21
in an InSv state	step 23

21 Perform the correct packlet replacement procedure. Refer to the replacement procedure in this document. Return to this point when complete.

If the packlet is	Do
in a InSv state	step 23
in a SysB state	step 52

22 Perform the correct IOP CP replacement procedure. Refer to the replacement procedure in this document. Return to this point when complete.

If the IOP CP is	Do
in an InSv state	step 23
in a SysB state	step 52

23 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 24
not clear	step 52
clear	step 53

24 Perform the correct alarm clearing procedure. Refer to the procedure in this document. Return to this point when complete.

If the alarm is	Do
not clear	step 52
clear	step 53

25 If an ETHR alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill or erroneous datafill in table CMIPADDR.

- Excess datafill. If an ethernet link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.
- Erroneous datafill. If there is erroneous datafill, for example, as a result of a typing error when datafilling the table, that could cause an alarm.

XAC ETHR - Minor (continued)

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Proceed as follows.

a Start the table editor and access table CMIPADDR. Type

>TABLE CMIPADDR

and press the ENTER key.

Example of system response:

```
TABLE: CMIPADDR
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key.

Example of system response:

MAP display example for table CMIPADDR

```
KEY       DATA
-------------------------------------------------------------------------
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
GATEWAY 0 GW (10 40 14 130) 0
```

c In the table, check the datafill in the tuples that begin with the word ETHRLNK. Each such tuple should correspond to an actual ethernet link.

- To check for excess datafill, compare the ETHRLNK tuples to the ethernet links that exist in the system.
- To check for erroneous datafill, compare the datafill in the ETHRLNK tuples to the IP addresses and netmask values found in the Network Specification Book for your office. To find the IP addresses and the netmask values, look in the section of the book titled "Communication Server Components".

d If you find excess datafill or erroneous datafill, make note of the problem.

e Exit from the table editor. Type

>QUIT

and press the Enter key.

f Select the next step as follows

If you found	Do
excess datafill	step 26

XAC ETHR - Minor (continued)

If you found	Do
erroneous datafill	step 27
no problems with the datafill	step 52

26 Remove the tuple or tuples containing the excess datafill. For instructions, refer to the procedure titled “Deleting tuples from table CMIPADDR” in chapter 4 of this document. When complete, go to step 2 in this procedure and continue from there.

27 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 2 in this procedure and continue from there.

28 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	Do
the logs indicate an Ethernet port or link fault	step 29
the logs indicate an HIOP CP hardware fault or an HCMIC CP hardware fault	step 29
the logs indicate that none of the faults listed above exists, but there is an ETHR major alarm	step 49
the logs indicate that none of the faults listed above exists, and if the ETHR minor alarm condition is clear	step 53

29 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

XAC ETHR - Minor (continued)

30 Examine the IO MAP level. Record the working state of the system. Record the working states of the HIOP CP and/or HCMIC CPs. Also record the locations of the HIOP and/or HCMIC CPs 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.

IO MAP level

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

IO                      Front:   111111111  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     .              Tape .                 Disk .
 7 Bsy_                  17   Front     .              Tape .                 Disk .
 8 RTS_                   4   Rear      .              RTIF .                 CMIC .
 9                        5   Rear      .              RTIF -     ETHR .      ADMI .
10 LoadFW_               14   Rear      .              RTIF -     ETHR .      ADMI .
11                       15   Rear      .              RTIF .                 CMIC .
12 Uneq_                XAC:
13                      IO:
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12   >
```

Note: The information you gather in this step will be of use in step 33.

31 Access the XA-Core ETHR MAP level by typing

MAPCI;MTC;XAC;ETHR

32 Examine the ETHR MAP level.

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.

XAC ETHR - Minor (continued)

The following is a sample MAP display.

ETHR MAP level

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

ETHR             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3               Dep:
 4               Typ:                    *        *
 5               Slot:  Side:  Packlet:  Port: Link:
 6 Tst_            5    Rear             .     .
 7 Bsy_           14    Rear             .     .
 8 RTS_          XAC:
 9               ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

Note: The information you gather in this step will be of use in step 33.

33 Select the next step as follows.

If the information from the IOP and ETHR MAP levels indicates	Do
an HIOP or HCMIC CP is in a ManB state	step 34
an HIOP or HCMIC CP is in a SysB state	step 36
ETHR links or ports are in a ManB state	step 41
ETHR links or ports are in a SysB state	step 42
ETHR links are in a CBsy state	step 41
ETHR ports are in a CBsy state	step 34
no alarm and all CPs and all ports and links are InSv	step 53

34 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key

XAC ETHR - Minor (continued)

35 Return the HIOP or HCMIC 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 - 1 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:

>RTS 5 r

Example of system response:

```
RTS 5 rear passed
```

If the CP is	Do
not in an InSv state	step 37
in an InSv state	step 53

36 Access the IO MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

37 Manually busy the OOS 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 - 1 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
```

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 CP is	Do
in a ManB state	step 38

If the CP is	Do
not in a ManB state	step 52

38 Perform an OOS test on the ManB HIOP or HCMIC 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 - 1 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:

>TST 5 r

If the OOS test	Do
passed	step 39
did not pass	step 40

39 Return the HIOP or HCMIC 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 - 1 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 the HIOP CP is	Do
not in an InSv state	step 40
in an InSv state	step 30

40 Perform the procedure to replace the HIOP CP or the HCMIC CP. Refer to the replacement procedure in this document. Continue to step 30 when complete.

41 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

XAC ETHR - Minor (continued)

>RTS <nn> <s> <link>

or

>RTS <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command:

RTS 5 r link

Example of system response:

```
RTS 5 rear link passed
```

If the ETHR links or ports are	Do
in a SysB state	step 42
in an InSv state	step 47

42 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> <link>

or

>BSY <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command use:

>BSY 5 r link

Example of system response:

```
BSY 5 rear link complete
```

43 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> <link>

or

>TST <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command use:

>TST 5 r link

If the OOS test	Do
passed	step 29
did not pass	step 45

44 Access the correct MAP level. Return the ManB links or ports to service.

>RTS <nn> <s> <link>

or

>RTS <nn> <s> <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 location in the physical shelf - front (f) or rear (r)

<link> is the parameter that defines the Ethernet link on an HIOP or HCMIC CP.

<port> is the parameter that defines the Ethernet port on an HIOP or HCMIC CP.

Example of command:

RTS 5 r link

XAC ETHR - Minor (continued)

Example of system response:

```
RTS 5 rear link passed
```

If the MAP level indicates	Do
Ethernet port is in a SysB state	step 46
Ethernet link is in a SysB state	step 45
Ethernet port and link are in an InSv state	step 47

45 Correct the link fault. Proceed as follows.

a Check whether the following events have occurred. If someone has turned off auto-negotiation at the far-end router and has then forced the far end to 100BT full duplex, then a duplex-mode mismatch has occurred. The mismatch has occurred because the HIOP or HCMIC CP has gone to 100BT half duplex. Such a mismatch causes the Ethernet link to go SysB.

If these events have not occurred, proceed to step 45b.

To recover from the mismatch, enable auto-negotiation at the far end. Alternatively, if it is not possible to enable auto-negotiation, configure the far end to half duplex mode. Then proceed to step 45b.

b 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 46
in an InSv state	step 47

46 Perform the procedure to replace the HIOP CP or the HCMIC CP. Refer to the replacement procedure in this document. Return to this point when complete.

If the HIOP CP is	Do
in a InSv state	step 47
in a SysB state	step 52

47 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 48
not clear	step 52
clear	step 53

48 Perform the correct alarm clearing procedure. Refer to the procedure in this document. Return to this point when complete.

If the alarm is	Do
not clear	step 52
clear	step 53

49 If an ETHR alarm has been raised, but there is no evidence that any hardware or link is busy or defective, check whether there is excess datafill or erroneous datafill in table CMIPADDR.

- Excess datafill. If an ethernet link has been provisioned in the table but does not actually exist, the system looks for the link, cannot find it, and raises an alarm.
- Erroneous datafill. If there is erroneous datafill, for example, as a result of a typing error when datafilling the table, that could cause an alarm.

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Proceed as follows.

a Start the table editor and access table CMIPADDR. Type

>TABLE CMIPADDR

and press the Enter key.

Example of system response:

```
TABLE: CMIPADDR
```

b Display the contents of the table. Type

>LIST ALL

and press the Enter key.

XAC ETHR - Minor (end)

Example of system response:

MAP display example for table CMIPADDR

```
KEY       DATA
-------------------------------------------------------------------------
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
GATEWAY 0 GW (10 40 14 130) 0
```

c In the table, check the datafill in the tuples that begin with the word ETHRLNK. Each such tuple should correspond to an actual ethernet link.

- To check for excess datafill, compare the ETHRLNK tuples to the ethernet links that exist in the system.
- To check for erroneous datafill, compare the datafill in the ETHRLNK tuples to the IP addresses and netmask values found in the Network Specification Book for your office. To find the IP addresses and the netmask values, look in the section of the book titled “Communication Server Components”.

d If you find excess datafill or erroneous datafill, make note of the problem.

e Exit from the table editor. Type

>QUIT

and press the Enter key.

f Select the next step as follows:

If you found	Do
excess datafill	step 50
erroneous datafill	step 51
no problems with the datafill	step 52

50 Remove the tuple or tuples containing the excess datafill. For instructions, refer to the procedure titled “Deleting tuples from table CMIPADDR” in chapter 4 of this document. When complete, go to step 29 in this procedure and continue from there.

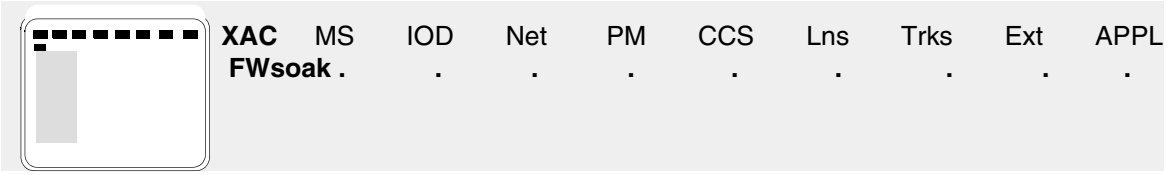
51 Correct the erroneous datafill. For instructions, refer to the procedure titled “Changing tuples in table CMIPADDR” in chapter 4 of this document. When complete, go to step 29 in this procedure and continue from there.

52 Call the next level of support.

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

XAC FWsoak - Minor

Alarm display



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.

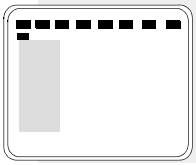
Action

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

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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.

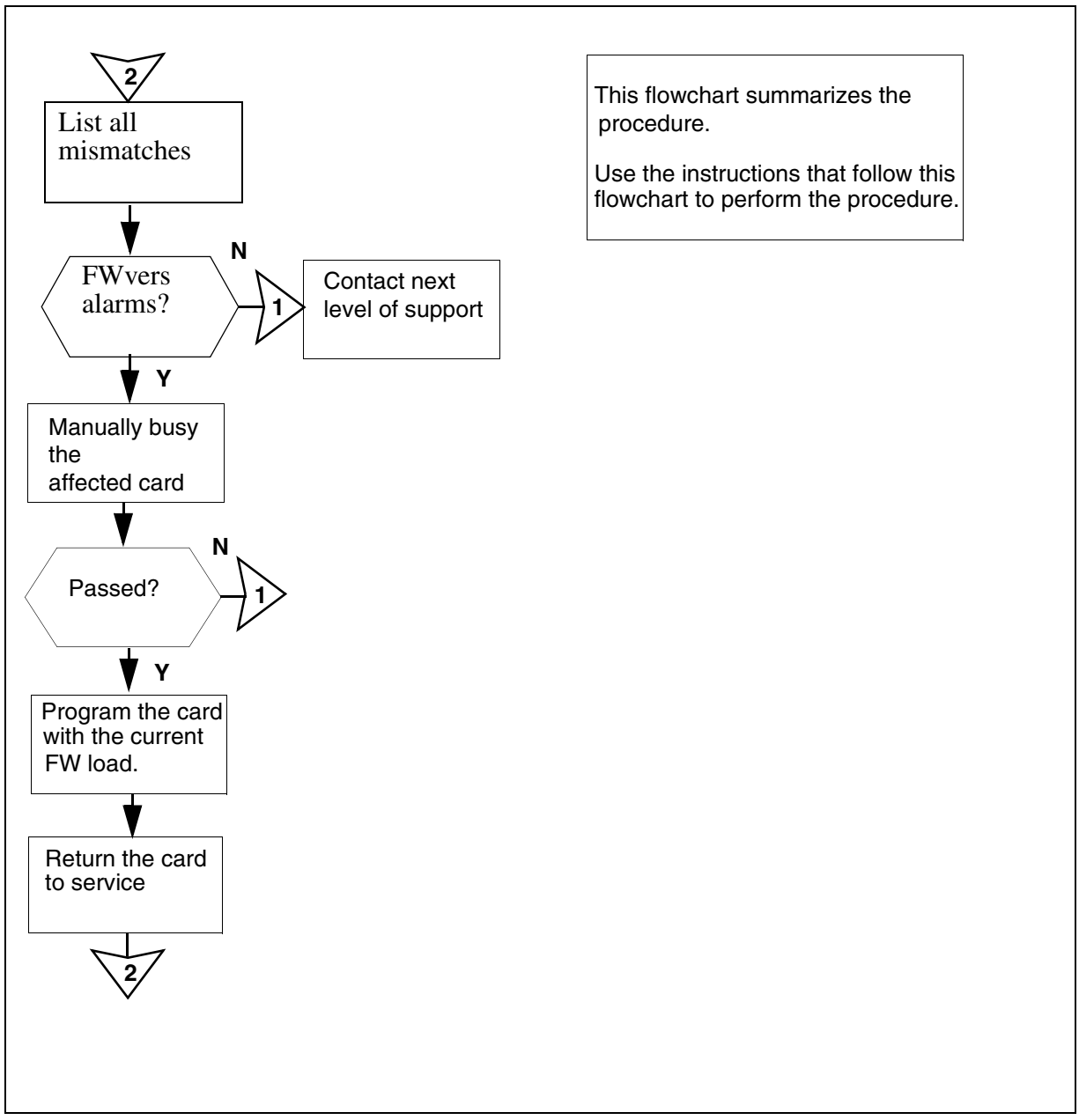
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*, 297-8001-840 (North American market) or 297-9051-840 (International market).

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.

Figure 1-27 Summary of clearing alarm XAC FWvers - Major alarm



XAC FWvers - Major (continued)

Clearing alarm XAC FWvers - Major 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 XAIO01AA F02LFWLOADS ISEFW41 old     0
5 IOP  NTLX03AA XAIO01AC 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.

where

XAC FWvers - Major (continued)

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

For example, type

>QUERY CARD 4 f

Example of MAP response

```
Command Submitted.
Query 4 Front completed
Notes:
  FW: ROM version. HIOP adds DLL version on following line.
  OK: Yes, No, IDPROM read fail, Unsupported. "*"=Investigate!
       --HW vs. PECINV--       --FW vs. FWINV--
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline OK
--- ---- ---- -- --- -- -- ------------- -------- -------- --
4F  PE   NTLX02DA 04 01 Y  NNTM64422LVG  XAPE02AE XAPE02AB Y
HW/SW Vintage: 01
Full ROM Version: XAPE02AE-01.4
```

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"):
```

XAC FWvers - Major (continued)

7 To confirm the action, type

>Y

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

XAC FWvers - Major (end)

10 To query all 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  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

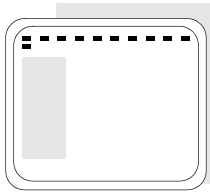
11 Contact your next level of support.

12 The procedure is complete.

XAC Image - Critical (continued)

XAC Image - Critical

Alarm display



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

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 imahe, 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

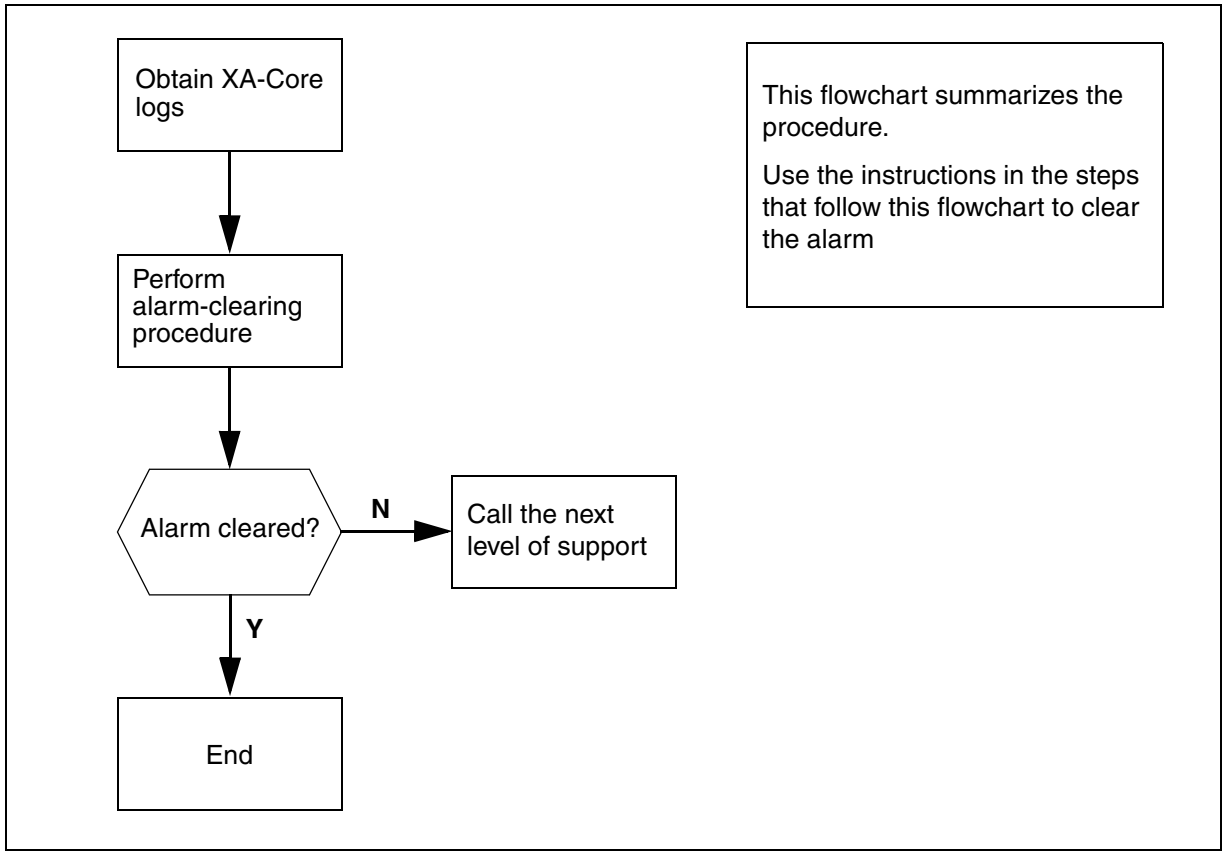
There are no common procedures.

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.

Figure 1-28 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

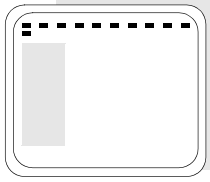
3 Call the next level of support.

4 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

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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

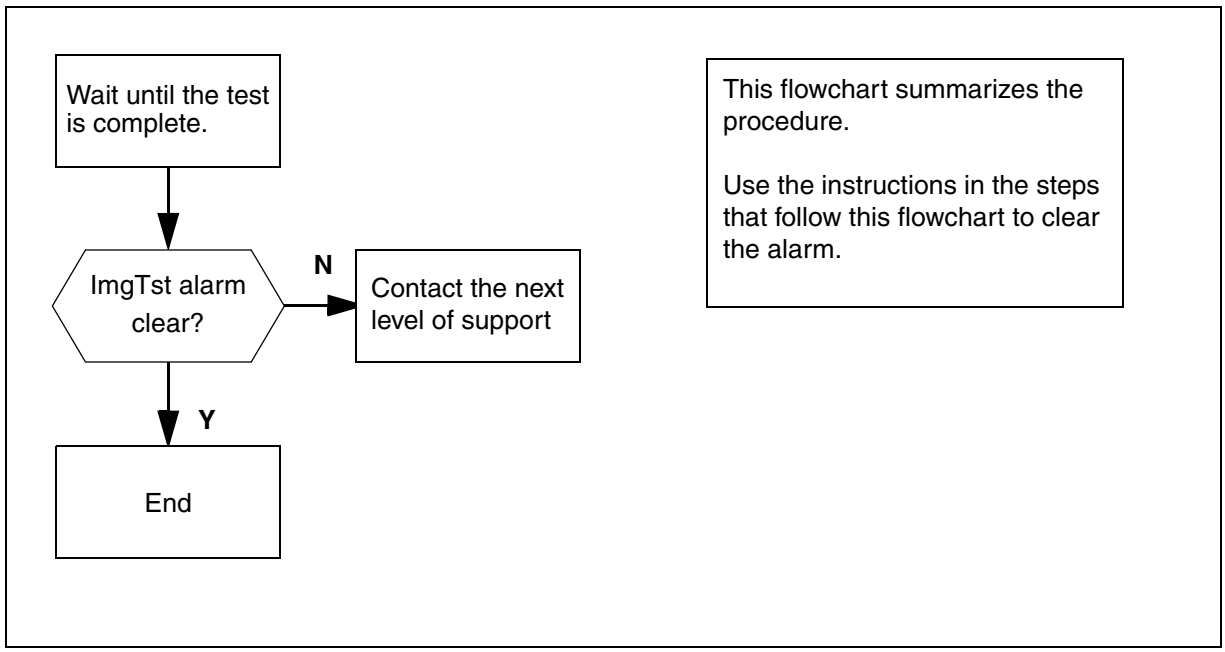
There are no common procedures.

XAC ImgTst - Minor (end)

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.

Figure 1-29 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          Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit         123456789012345678  456789012345   .      .       .       .
 2              Sta: -.-.--..-..----..-  .--.-------.   0      0       0       0
 3              Dep:
 4
 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 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.

If the ImgTst alarm is	Do
not clear	step 5
clear	step 4

3 Perform the correct alarm clearing procedure.

If the alarm is	Do
not clear	step 5
clear	step 6

4 Record the result of the image test and note any errors.

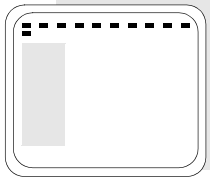
If the ImgTst shows there are	Do
errors	step 5
no errors	step 6

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 IOP - Minor

Alarm display



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

Indication

An IOP alarm code appears under the XAC header of the alarm banner. The alarm code indicates the input/ouput 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

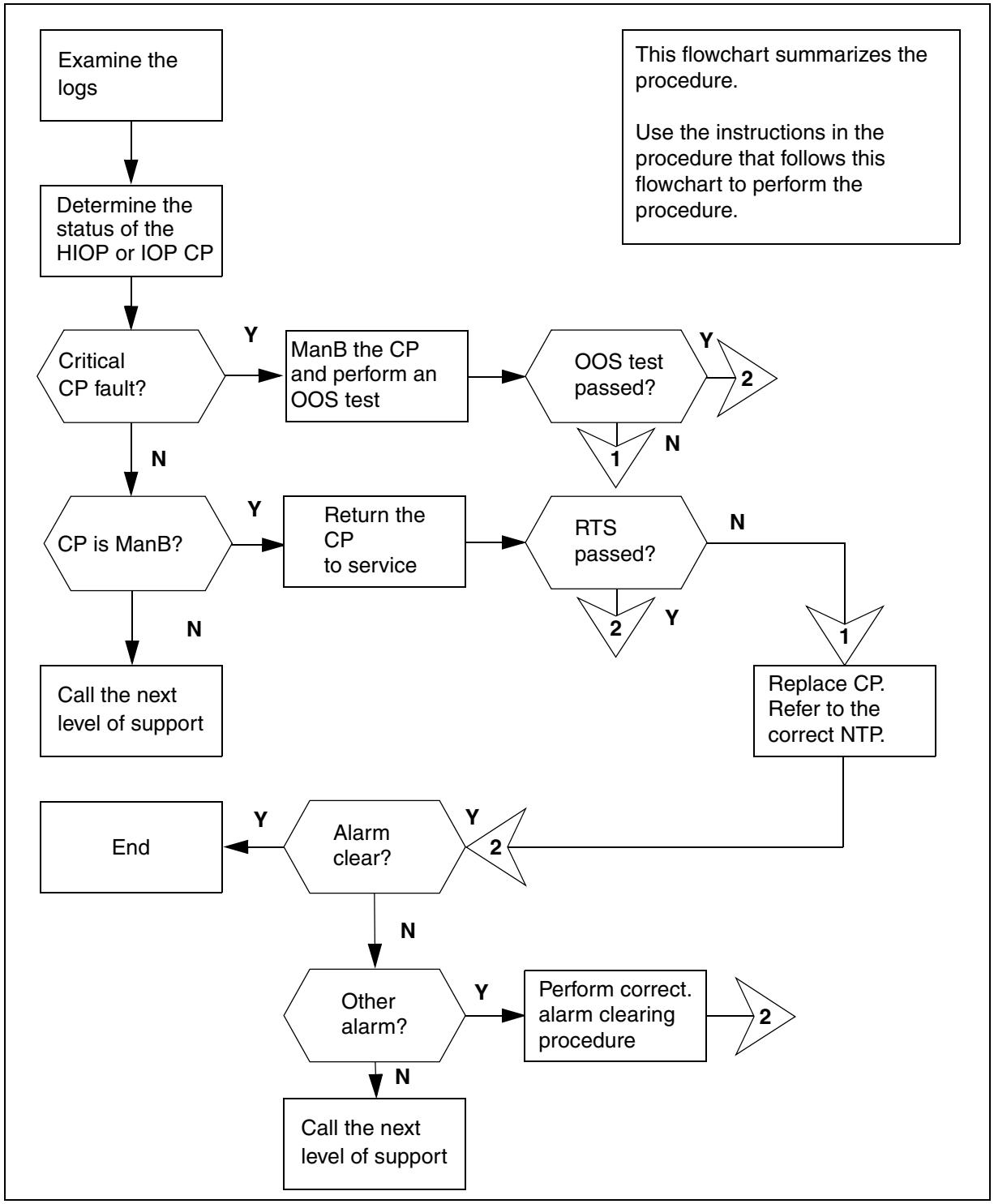
There are no common procedures.

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)

Figure 1-30 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.

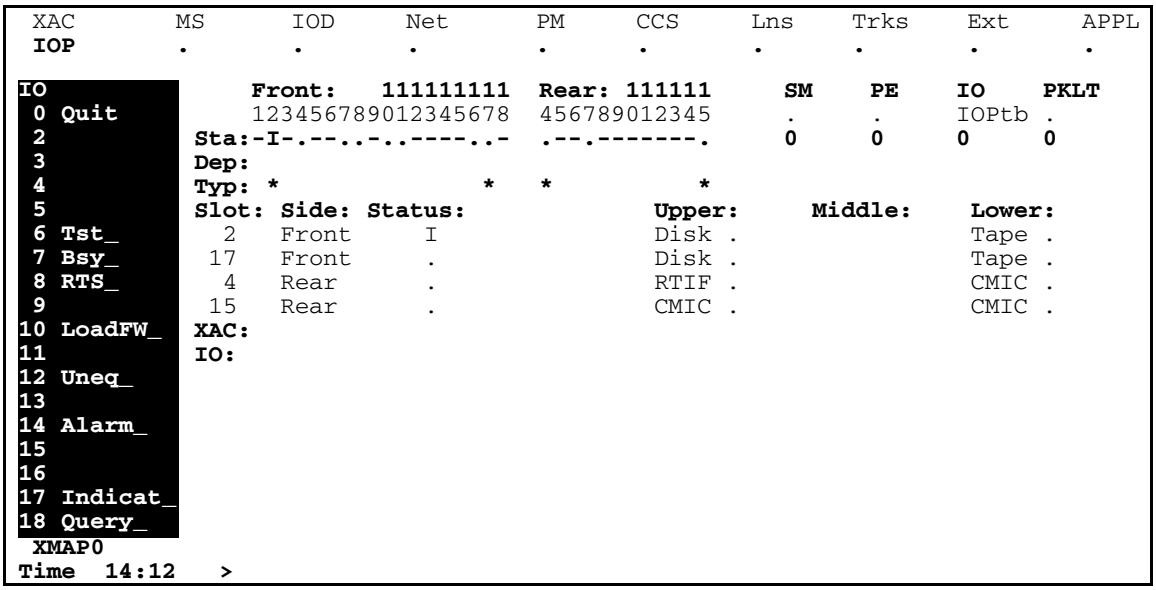
Note: The IO MAP can display alarms and status as follows:

- 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



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 - 1 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 - 1 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

>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 - 1 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 - 1 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 step 9 when complete.

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

XAC IOP - Minor (end)

If the IOP minor alarm is	Do
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

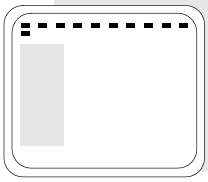
If the alarm is	Do
not clear	step 11
clear	step 12

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 location of the IOP or HIOP or HCMIC in the physical shelf slot.

The XA-Core MAP displays an IOtrbl alarm if there is a non-critical fault in an HIOP circuit pack (CP) or in an HCMIC circuit pack or in an 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 (HCMIC circuit pack trouble or 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)

Meaning

The state of the IOP circuit pack, the HIOP circuit pack, or the HCMIC circuit pack has changed from in-service (InSv) to in-service trouble (IsTb). There is

XAC IOtrbl - Minor (continued)

a loss of a redundant power feed to the circuit pack or a non-critical fault in one or more of the following:

- IOP, HIOP, or HCMIC 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 IOP, HIOP, or HCMIC CP when call traffic is low.

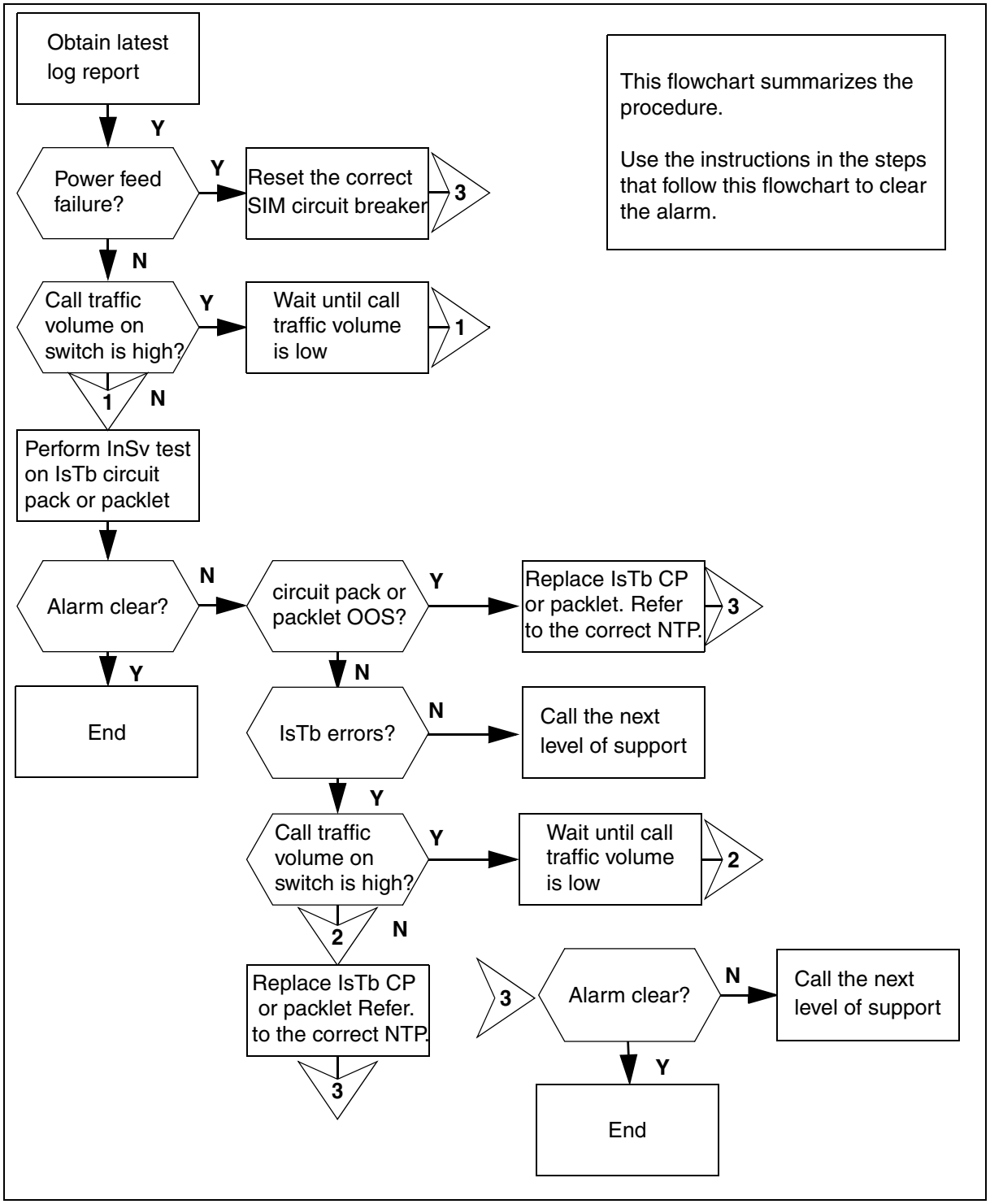
Common procedures

This procedure refers to the replacement procedures for certain packlets and circuit packs. The procedures are in this document.

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.

Figure 1-31 Summary of clearing an IOtrbl 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

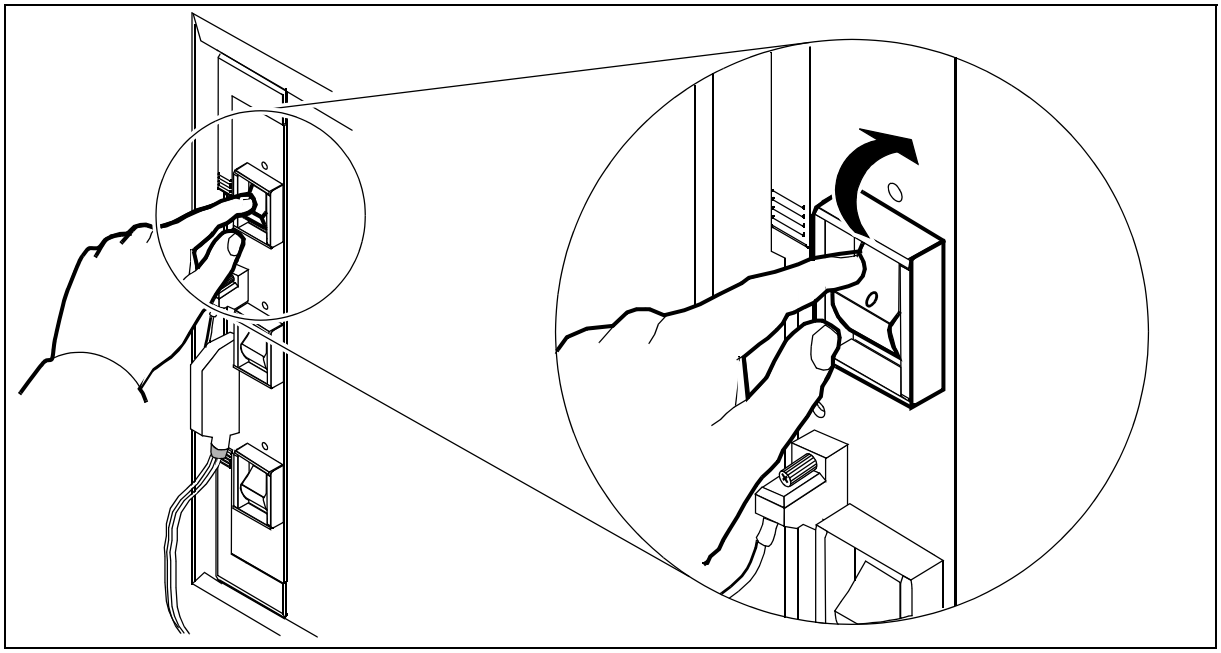
2 Examine the shelf interface modules (SIMs). Make sure that all circuit breakers are in the ON position. Make sure that the green LEDs are lit.

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 Is IsTb IOP CP, HIOP CP, or HCMIC 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.

XAC IOtrbl - Minor (continued)

The following is a sample MAP display.

IO MAP level, showing IOP CPs with packlets in slots 4 and 15

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

IO                 Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit            123456789012345678  456789012345      .      .      IOPtb  .
 2                 Sta:-I-.--..-..----..-  .--.-------.     0      0      1      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      .                RTIF .                CMIC .
10 LoadFW_         XAC:
11                 IO:
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

IO MAP level, showing HCMIC CPs in slots 4 and 15 rear, and HIOP CPs in slots 5 and 14 rear

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

IO                 Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit            123456789012345678  456789012345      .      .      IOPtb  .
 2                 Sta:-I-.--..-..----..-  .--.-------.     0      0      1      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 .     ETHR .     CMIC .
 9                  15   Rear      .                RTIF .     ETHR .     CMIC .
10 LoadFW_           5   Rear      .                           ETHR .     AMDI .
11                  14   Rear      .                           ETHR .     AMDI .
12 Uneq_           XAC:
13                 IO:
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

XAC IOtrbl - Minor (continued)

If the IO SSSF field indicates	Do
an IOP, HIOP, or HCMIC CP is in an IsTb state (IOPtb)	step 6
a OC-3 two-port interface packlet is in an IsTb state (CMICtb)	step 7
an RTIF packlet is in an IsTb state (RTIFtb)	step 8
a Disk packlet is in an IsTb state (DISKtb)	step 9
a Tape packlet is in an IsTb state (TAPE)	step 10
an AMDI packlet is in an ISTb state (AMDItb)	step 11
an Ethernet packlet 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 IOP CP or the HIOP CP or the HCMIC CP.

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 - 1 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
IOP or HIOP or HCMIC CP changes to an OOS state	step 14

XAC IOtrbl - Minor (continued)

If the	Do
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 under the XAC header in the alarm banner
- an equipment alarm under the PKLT header of the subsystem status summary field (SSSF), indicating an OC-3 two port interface packlet
- a status code appears under the Status, Link, Port, or TOD headers in the command interpreter output area

The following is a sample MAP display.

XAC IOtrbl - Minor (continued)

CMIC MAP level, showing data for CMIC packlets in slots 4 rear and 15 rear

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


CMIC                 Front:   111111111  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: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_            4    Rear  Lower    I                    .      .       .
 7 Bsy_           15    Rear  Lower    .                    .      .       .
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

CMIC MAP level, showing data for the CMIC sections of HIOP CPs in slots 4 rear and 15 rear

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


CMIC                 Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit              123456789012345678  456789012345   .      .       .       .
 2                Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       0
 3                Dep:
 4                Typ:                        *          *
 5                Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_            4    Rear                 .     .     .      .       .     .
 7 Bsy_           15    Rear                 .     .     .      .       .     .
 8 RTS_
 9
10
11
12 Uneq_
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 packlet. 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 - 1 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

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 packlet changes to an OOS state	step 13
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 packlet.

Note: For an RTIF packlet, 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)
- a status code appears under the Status, Link, or Port headers in the command interpreter output area

The following is a sample MAP display.

XAC IOtrbl - Minor (continued)

RTIF MAP level, showing data for RTIF packlets in slots 4 rear and 15 rear

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

RTIF             Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit          123456789012345678  456789012345      .      .      .     RTIFtb
 2               Sta:-.-.--..-..-.-..-   .--.-------.     0      0      0     0
 3               Dep:
 4               Typ:                    *          *
 5               Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear  Upper    I         .       .
 7 Bsy_           15   Rear  Upper    .     .   .       .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

RTIF MAP level, showing data for the RTIF sections of HCMIC CPs in slots 4 rear and 15 rear

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

RTIF             Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit          123456789012345678  456789012345      .      .      .     .
 2               Sta:-.-.--..-..-.-..-   .--.-------.     0      0      0     0
 3               Dep:
 4               Typ:                    *          *
 5               Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear                    .       .      .      .
 7 Bsy_           15   Rear                    .       .      .      .
 8 RTS_
 9
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 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 - 1 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.

XAC IOtrbl - Minor (continued)

The following is a sample MAP display.

Disk MAP level

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


Disk            Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit         123456789012345678  456789012345   .      .       .       DISKtb
 2        Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       0
 3        Dep:
 4        Typ: *                *
 5        Slot:   Side:      Packlet:     Status:
 6 Tst_      2    Front      Lower        I
 7 Bsy_     17    Front      Lower        .
 8 RTS_
 9
10          DISK:
11 Format
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 - 1 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 packlet changes to an OOS state	step 13

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 packlet.

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                Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit             123456789012345678  456789012345   .      .       .       TAPEtb
 2                 Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       0
 3                 Dep:
 4                 Typ:  *              *
 5                 Slot:   Side:    Packlet:    Status:    User Name:      Drive:
 6 Tst_               2    Front    Upper       I                          Unmounted
 7 Bsy_              17    Front    Upper       .                          Unmounted
 8 RTS_             TAPE:
 9
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 packlet. Wait until call traffic volume is low. At the Tape MAP level, type

>TST <nn> <s> <p>

and press the Enter key

XAC IOtrbl - Minor (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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 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 packlet 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 packlet.

Note: For an AMDI packlet, 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.

XAC IOtrbl - Minor (continued)

The following is a sample MAP display.

AMDI MAP level, showing data for AMDI packlets in slots 5 rear, 6 rear, 13 rear, and 14, rear

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

AMDI             Front:   111111111  Rear: 111111      SM     PE    IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .     AMDItb  .
 2               Sta:..-..-..- ..    ....------...     0      0     0       0
 3               Dep:
 4               Typ:                  **       **
 5               Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_            5   Rear  Lower     I                        .      -
 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    >
```

AMDI MAP level, showing data for the AMDI sections of HIOP CPs in slots 5 rear and 14 rear

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

AMDI             Front:   111111111  Rear: 111111      SM     PE    IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .     AMDItb  .
 2               Sta:-.-.--..-..-.--.-.  ..-.-..-.-..     0      0     0       0
 3               Dep:
 4               Typ:                  *        *
 5               Slot: Side: Packlet:  Status:  Port0: Port1:  Link0: Link1:
 6 Tst_            5   Rear                     .       .       .      -
 7 Bsy_           14   Rear                     .       .       .      -
 8 RTS_          XAC:
 9               AMDI:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC IOtrbl - Minor (continued)

a Perform an in-service test on the AMDI packlet. 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
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 packlet.

Note: For an Ethernet packlet, 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.

XAC IOtrbl - Minor (continued)

ETHR MAP level, showing data for Ethernet packlets in slots 5 rear, 6 rear, 13 rear, and 14 rear

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

ETHR             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      ETHRtb  .
 2               Sta:  . ..-..-..-.- ..  ....-----...  0      0      0       0
 3               Dep:
 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    >
```

ETHR MAP level, showing data for the ETHR sections of HIOP CPs in slots 5 rear and 14 rears

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

ETHR             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      ETHRtb  .
 2               Sta:-.-.--..-..-.--.-.  ....-..-....  0      0      0       0
 3               Dep:
 4               Typ:                    *       *
 5               Slot: Side: Packlet:  Port: Link:
 6 Tst_            5   Rear            .     -
 7 Bsy_           14   Rear            .     -
 8 RTS_          XAC:
 9               ETHR:
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC IOtrbl - Minor (continued)

a Perform an in-service test on the ethernet packlet. Wait until call traffic volume is low. At the ETHR 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
ethernet packlet changes to an OOS state	step 13
IsTb alarm is not clear	step 15
IsTb alarm is clear	step 17

13 Replace the OOS packlet immediately. Refer to the correct replacement procedure located in this document. Continue to step 17 when complete.

14 Replace the OOS CP immediately. Refer to the correct replacement procedure located in this document. Continue to step 17 when complete.

15 Wait until call traffic volume is low. Replace the IsTb packlet. Refer to the correct replacement procedure. Continue to step 17 when complete.

16 Wait until call traffic volume is low. Replace the IsTb CP. Refer to the correct replacement procedure. Continue to step 17 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

XAC IOtrbl - Minor (end)

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
clear	step 20

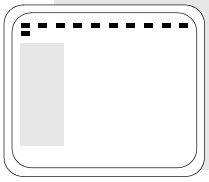
19 Call the next level of support.

20 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

This page is intentionally left blank.

XAC LowPE - Critical

Alarm display



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

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.

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

XAC LowPE - Critical (continued)

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 greed 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

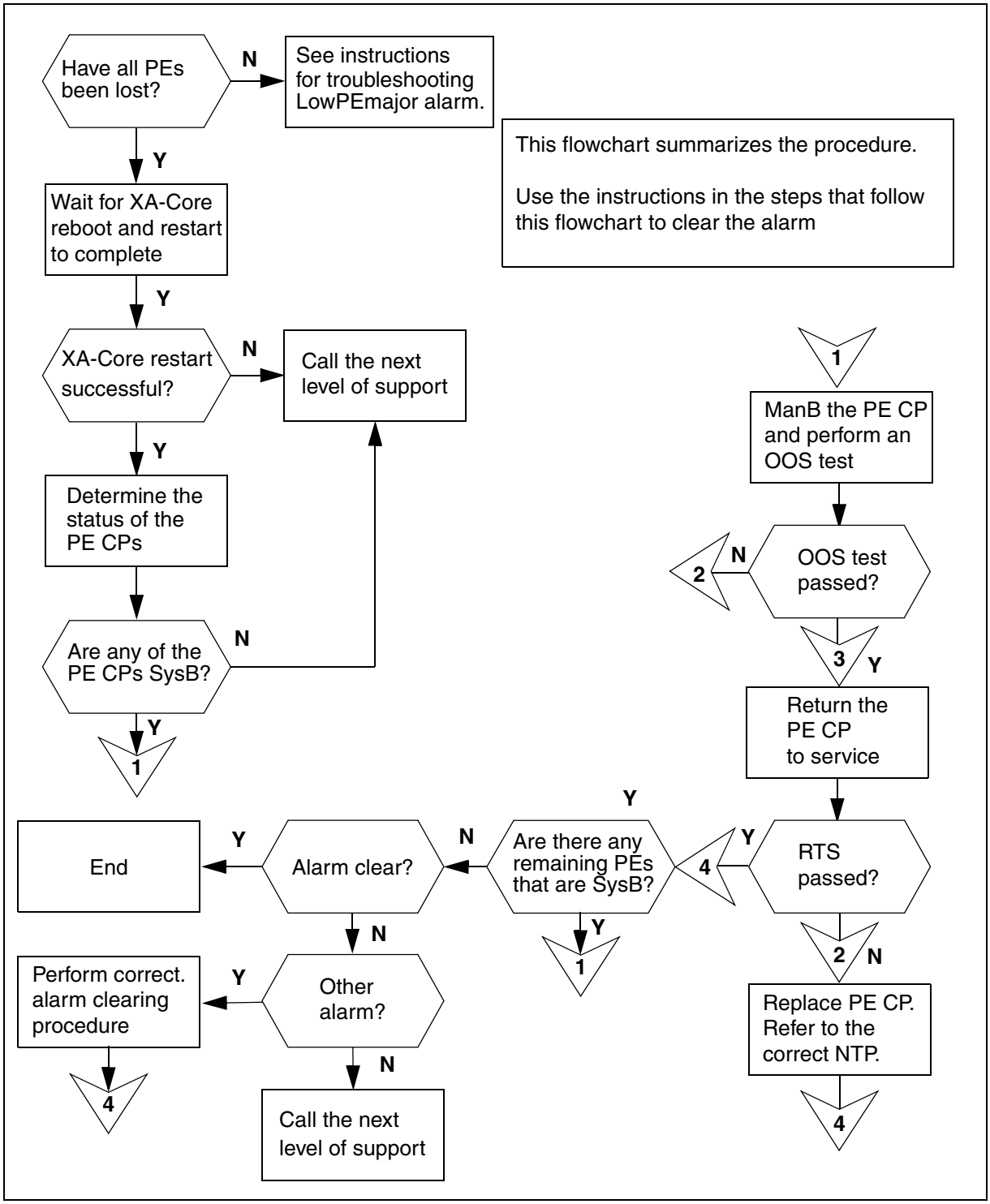
There are no common procedures.

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)

Figure 1-32 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.

XAC LowPE - Critical (continued)

Look at the CI MAP level. Wait for the ACTIVE message to appear on the MAP terminal. When the ACTIVE message appears, the system is ready for command entry.

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

3 Access the PE MAP level. At the MAP terminal, type

>MAPCI;MTC;XAC;PE

and press the Enter key.

4 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.

PE MAP level

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

PE                    Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit               123456789012345678  456789012345   .      PEfl    .       .
 2                Sta: -.-S.-..-..-..-..-  .--.-------.   0      1       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   >
```

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 - 1 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:

```
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 - 1 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

XAC LowPE - Critical (continued)

7 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 - 1 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

XAC LowPE - Critical (end)

11 Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

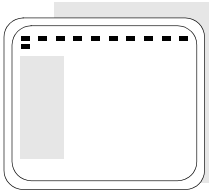
If the alarm is	Do
not clear	step 12
clear	step 13

12 Call the next level of support.

13 You have completed this procedure.

XAC LowPE - Major

Alarm display



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

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

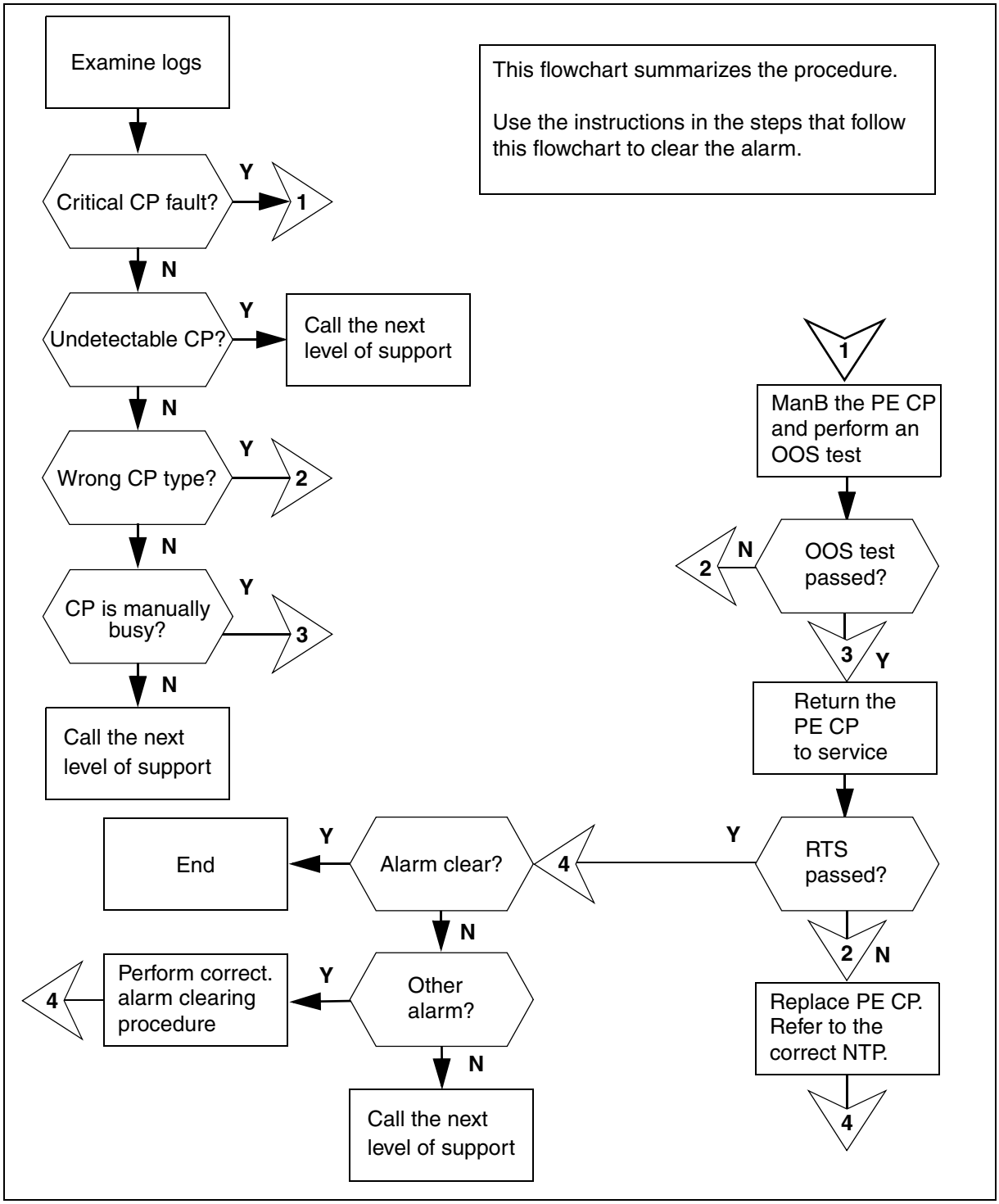
There are no common procedures.

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)

Figure 1-33 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
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 10
that the LowPE major alarm condition is clear	step 12

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:   111111111  Rear: 111111   SM     PE      IO     PKLT
 0 Quit               123456789012345678  456789012345   .      PEfl    .      .
 2                Sta: -.-S.-..-..-..-..-  .--.-------.  0      1       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    >
```

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 6
a different alarm condition	step 10
no alarm and all CPs are in service	step 12

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 - 1 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

XAC LowPE - Major
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.

5 Select the next step as follows:

If the PE CP is	Do
in a ManB state	step 6
not in a ManB state	step 11

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 - 1 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

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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 8
in an InSv state	step 9

At the XA-Core physical shelf

8 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

9 Confirm that the alarm is clear. Examine the PE MAP level.

If the LowPE 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

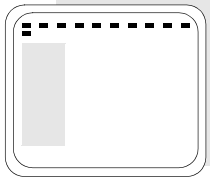
11 Call the next level of support.

12 You have completed this procedure.

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XAC LowSM - Major

Alarm display



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

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

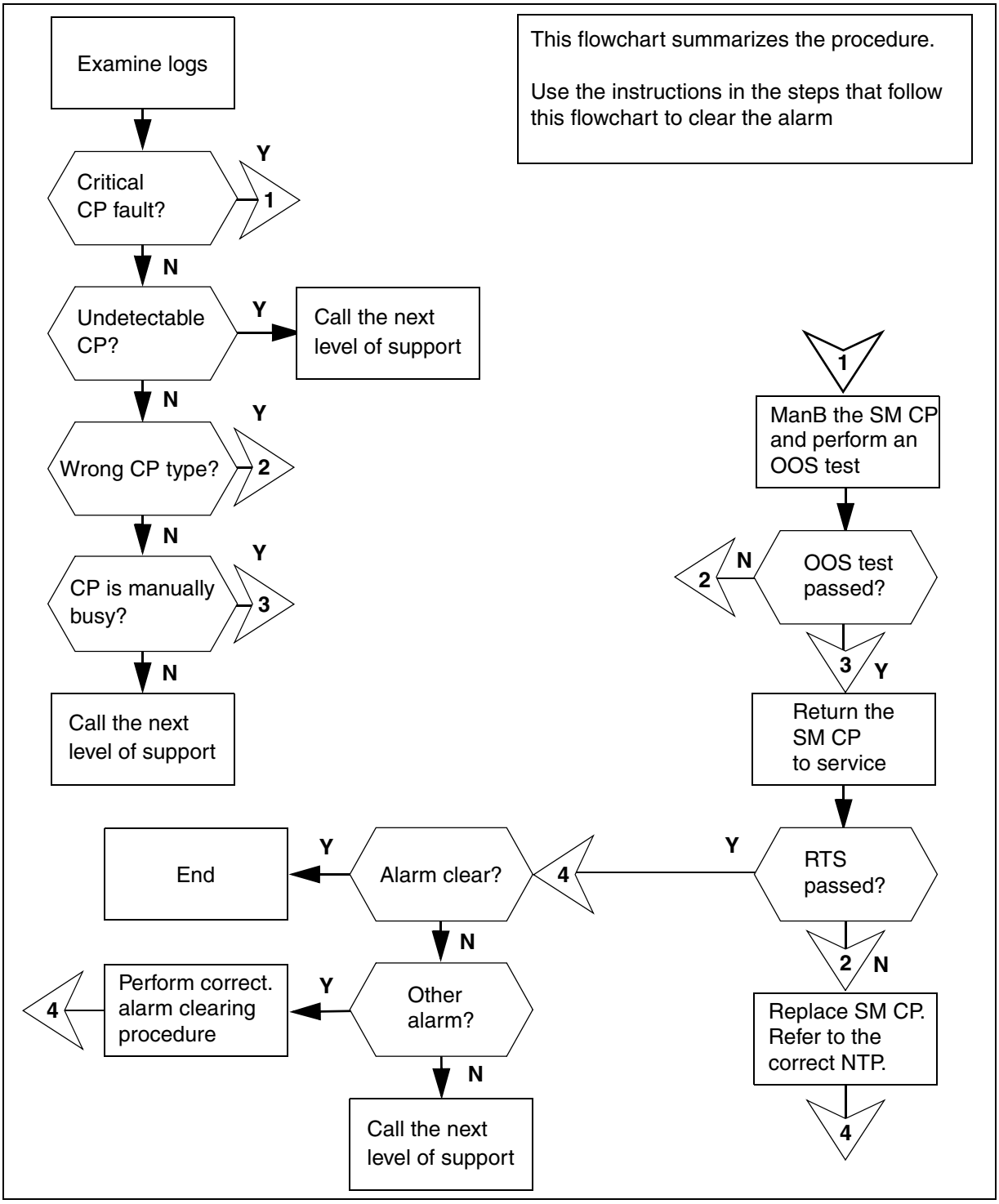
There are no common procedures.

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)

Figure 1-34 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

>BSY <nn> <s>

XAC LowSM - Major (continued)

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

<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
```

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 - 1 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 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 - 1 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
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

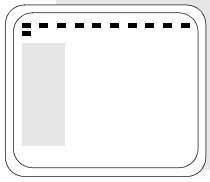
10 Call the next level of support.

11 You have completed this procedure.

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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

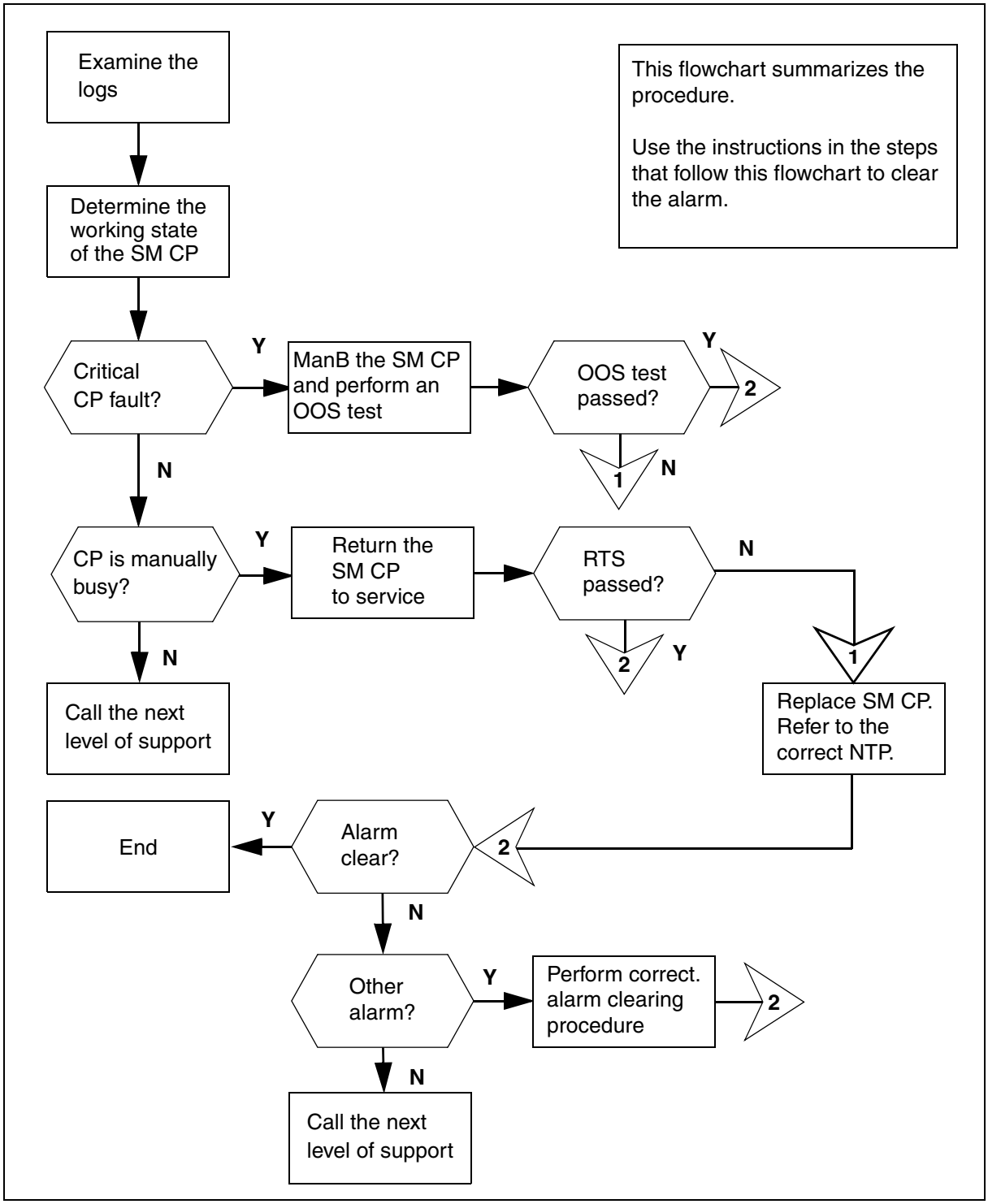
There are no common procedures.

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)

Figure 1-35 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

3 Examine the SM MAP level. Record the location and status of the SM CPs. Identify the location of the trouble SM.

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)

The following is a sample MAP display.

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
                 123456789012345678  456789012345   SM M   .       .       .
              Sta: -.----..-.---.-..-  .--M-------.   1      0       0       0
              Dep:
              Typ:        ** **            *
 2                Physical: 1536        Useable: 1536      Available: 960
 3                SYNC State: duplex
 4               SM:
 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    >
```

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

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

XAC LowSM - Minor (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 - 1 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 - 1 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>

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

<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 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 - 1 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 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

9 Perform the SM CP replacement procedure. Refer to the correct replacement procedure. Return to this point when complete.

XAC LowSM - Minor (end)

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.

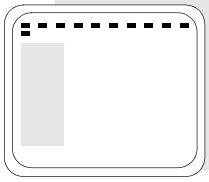
If the alarm is	Do
not clear	step 12
clear	step 13

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



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

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 available 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.

Note: For a detailed description of the algorithm by which the system determines the MemLim alarm level, see the section titled "Determining the MemLim alarm level" in the chapter titled "How to problem solve a MemLim alarm" in this document.

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      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
MemLim     .       .        .       .        .        .        .        .         .
  M

SM
 0 Quit          Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 2               123456789012345678  456789012345   .      .       .       .
 3          Sta   . ..-.....-.- ..  .--.....---.
 4          Dep:
 5          Type:      *****           *****
 6 Tst_     Physical: 3840           Usable: 3840          Available: 0
 7 Bsy_     SYNC State: duplex
 8 RTS_
 9
10
11
12
13
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

 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.

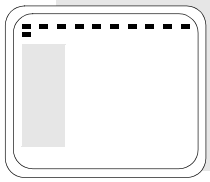
Available memory	Alarm status
Critical data-store is less than 512 kilobytes.	DS major
Data-store is less than 32768 kilobytes.	DS minor
Critical program store is less than 64 kilobytes.	PS major
Program store is less than 8192 kilobytes.	PS minor

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 available for allocation by the XA-Core operating system has dropped below one or both of the minor memory limit alarm thresholds. The MemLim alarm does not indicate a fault in any hardware.

Note: For a detailed description of the algorithm by which the system determines the MemLim alarm level, see the section titled "Determining the MemLim alarm level" in the chapter titled "How to problem solve a MemLim alarm" in this document.

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

```
 XAC      MS      IOD      Net      PM      CCS      Lns     Trks     Ext     APPL
MemLim     .       .        .       .        .       .       .       .        .

SM
 0 Quit          Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 2               123456789012345678  456789012345   .      .       .       .
 3          Sta: -.-.--..-..----..-  .--.-------.   0      0       0       0
 4          Dep:
 5          Typ:       ** **            *
 6 Tst_       Physical: 1920         Useable: 1920        Available: 191
 7 Bsy_       SYNC State: duplex
 8 RTS_
 9
10
11
12
13
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  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 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

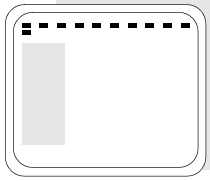
5 Call the next level of support.

6 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

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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.

- If the XA-Core is equipped with OC-3 two port interface packlets, the status of the packlets is a combination of system busy (SysB), out of service (OOS) CBsy or ManB.
- If the XA-Core is equipped with HCMIC circuit packs, the status of the circuit packs 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.
- There is damage to ports on the XA-Core CMIC hardware (HCMIC circuit packs or OC-3 two-port interface packlets) or to ports on the OC-3 two-port interface paddleboards in the message switch.

XAC MScomm - Critical (continued)

- There is damage to fiber optic cables.
- Fiber optic cables are disconnected.

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 greed 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 that 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

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

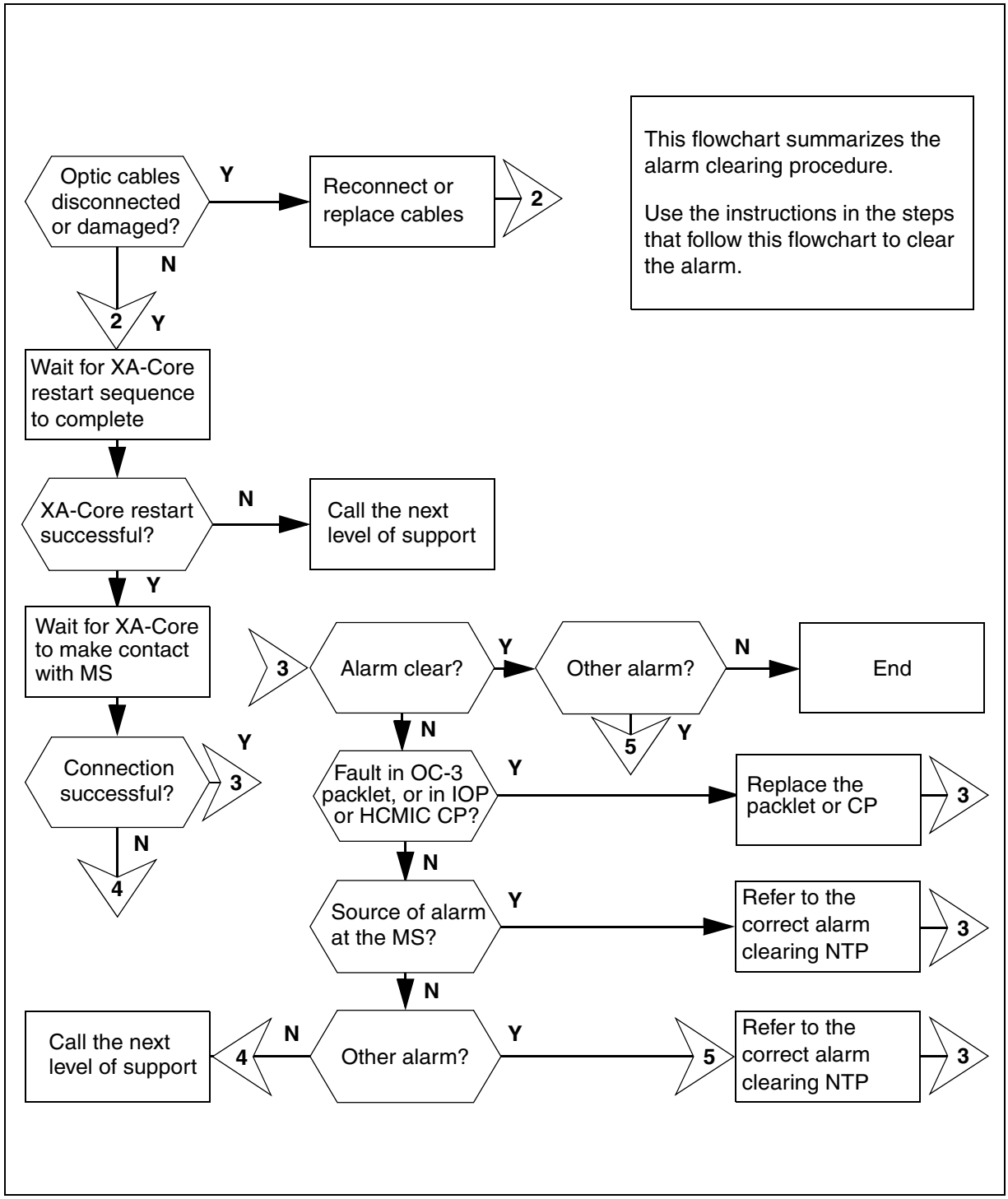
This procedure refers to the replacement procedure for the HCMIC circuit pack and the replacement procedure for the OC-3 two port interface packlet. The procedures are in this document.

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)

Figure 1-36 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

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.

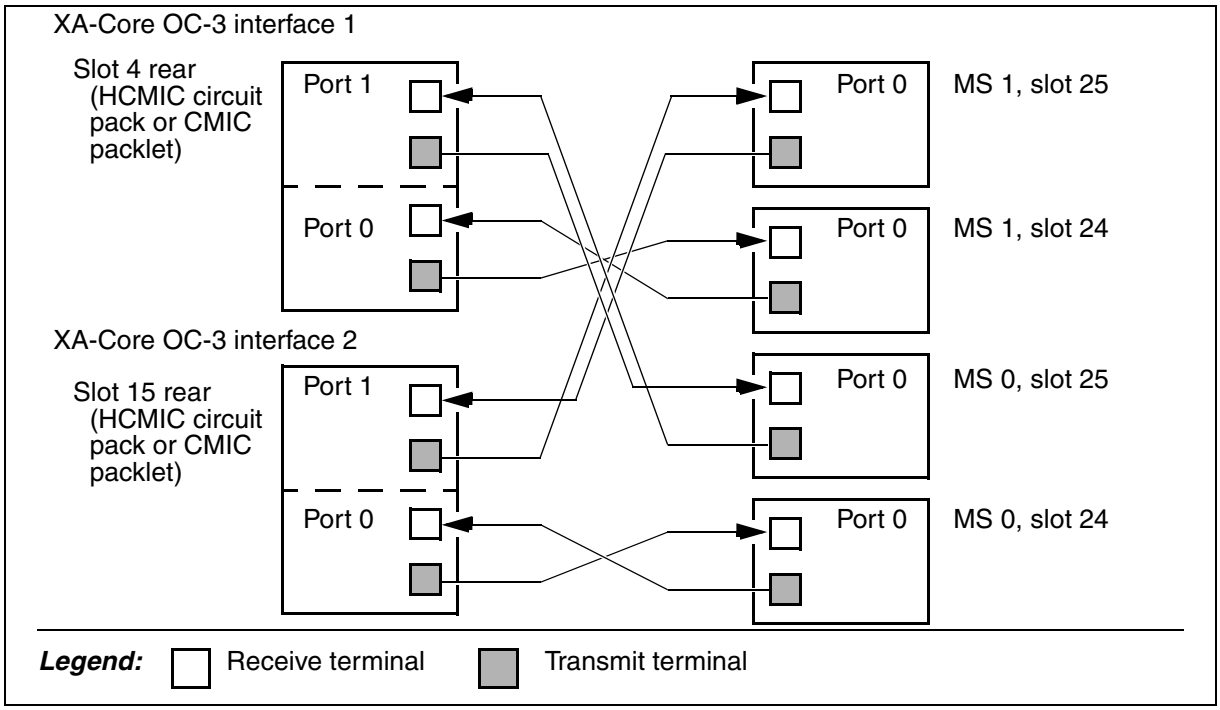
At the XA-Core physical shell

1 Select the next step as follows:

If the CMIC hardware is	Do
HCMIC circuit packs	step 2
OC-3 two port interface packlets	step 16

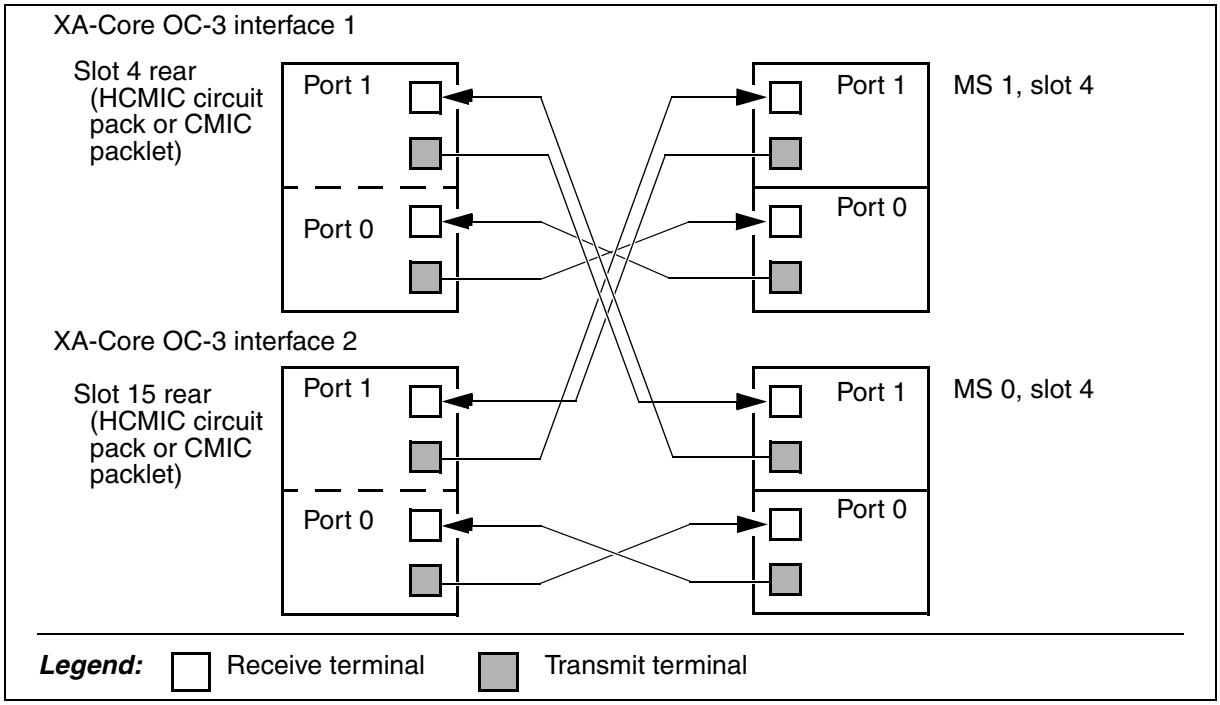
2 Examine the fiber optic cable connections. Make sure that the fiber optic connectors fit correctly into the OC-3 ports in the HCMIC circuit packs in the XA-Core and into the OC-3 ports in the OC-3 two port interface paddleboards in the message switch. Use the following diagrams to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)



XAC MScomm - Critical (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)

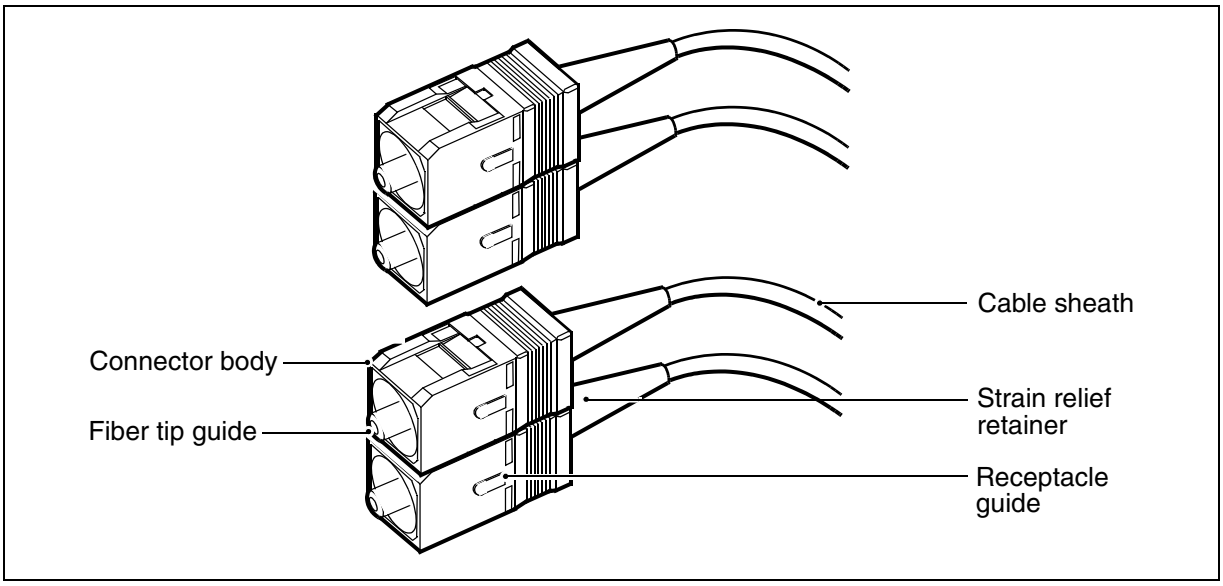


If the fiber optic cables are	Do
correctly inserted	step 3
not correctly inserted	step 4

XAC MScomm - Critical (continued)

3 Examine the fiber optic cables. Make sure that there is no damage to the fiber optic cables.

Paired fiber optic cable connectors



If the OC-3 fiber optic cables are	Do
visibly damaged	step 4
not visibly damaged but you suspect a fault in an HCMIC circuit pack or in an OC-3 two port interface paddleboard	step 5
not visibly damaged and you do not suspect a fault in an HCMIC circuit pack or in an OC-3 two port interface paddleboard	step 8

4 Disconnect the fiber optic cables from the HCMIC circuit pack and from the OC-3 two port interface paddleboard.

a Hold the connector by the receptacle body only.

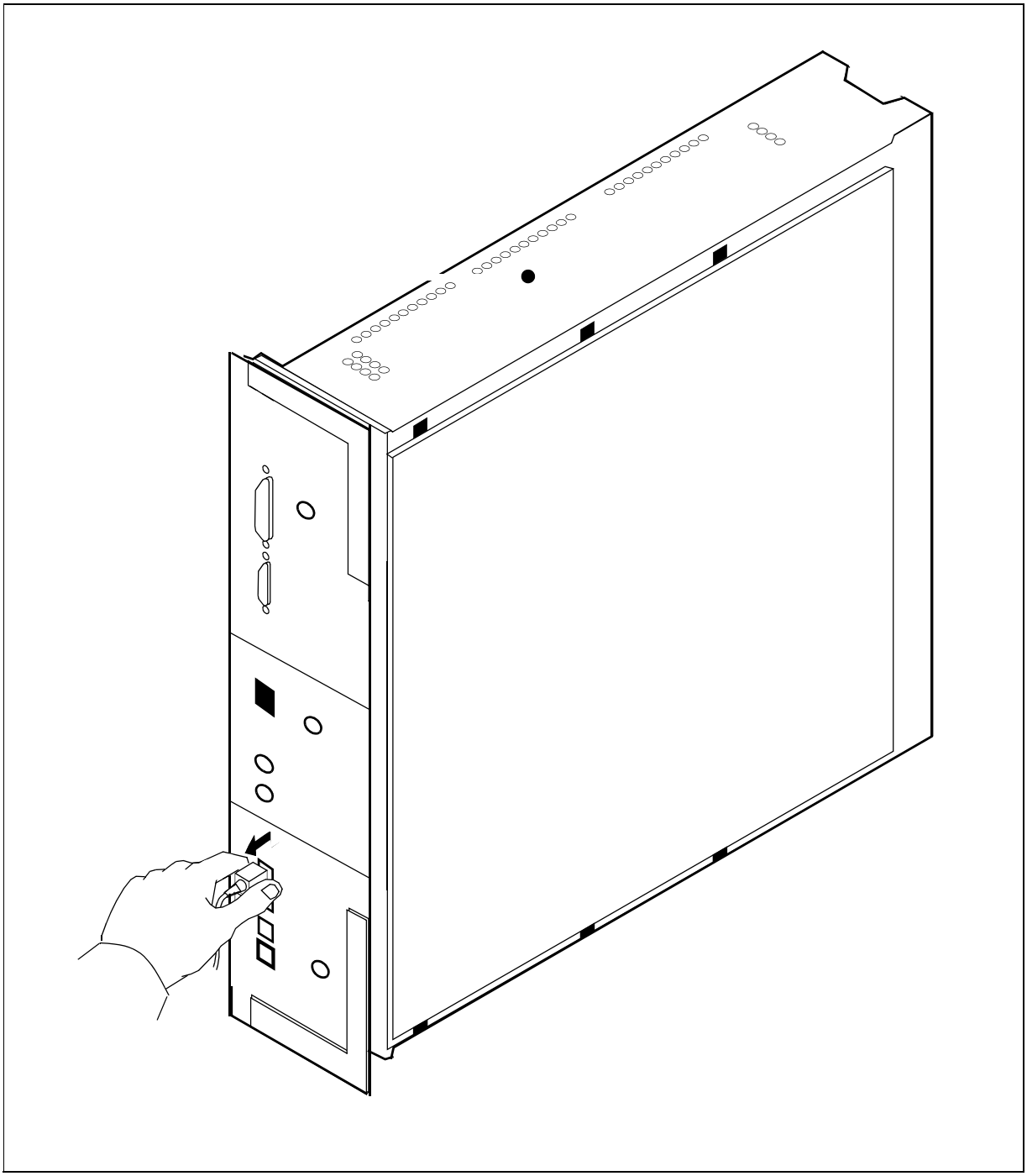
b Carefully pull the fiber optic connectors away from the port receptacles.

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.

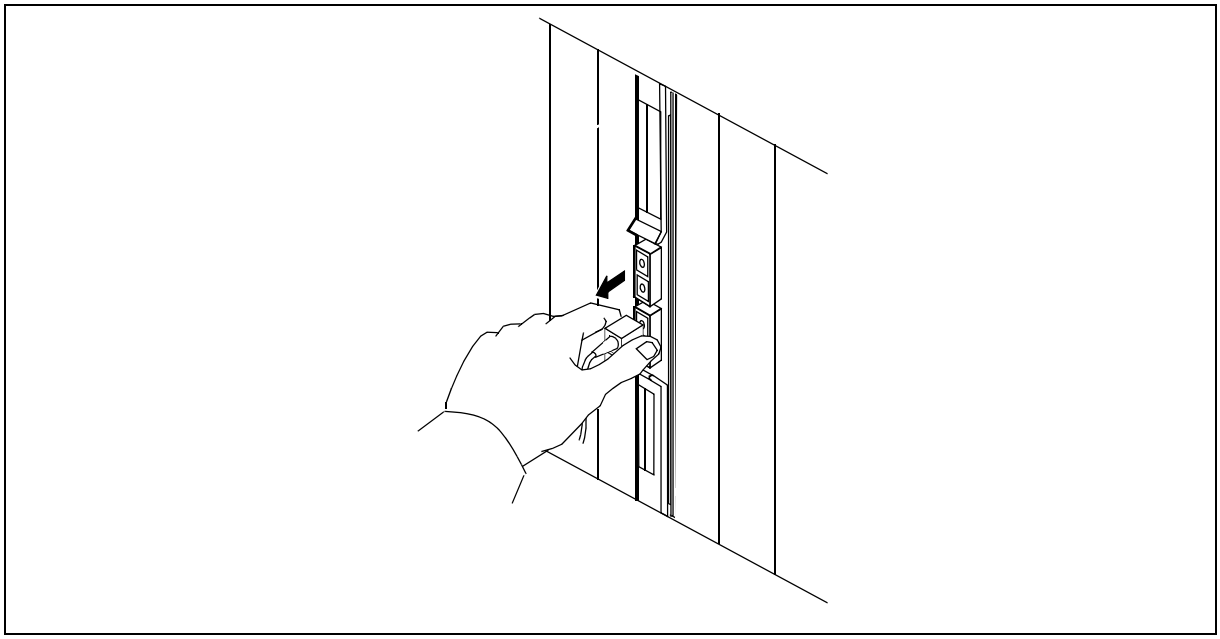
XAC MScomm - Critical (continued)

Disconnect the fiber optic cables from the OC-3 ports on the HCMIC circuit pack



XAC MScomm - Critical (continued)

Disconnect the OC-3 fiber optic cables from the ports on the OC-3 two port interface paddleboard



If you are	Do
replacing the HCMIC circuit pack or the OC-3 two port interface paddleboard	step 5
replacing the fiber optic cables	step 6
reconnecting the fiber optic cables to the correct port receptacles	step 7

5 Perform the correct procedure for replacing the HCMIC circuit pack or the OC-3 two port interface paddleboard. Continue to step 8 when complete.

6 Obtain the correct new fiber optic cables.

7 Connect the correct fiber optic cables to the correct ports on the HCMIC circuit pack and to the correct ports on the OC-3 two port interface paddleboard.

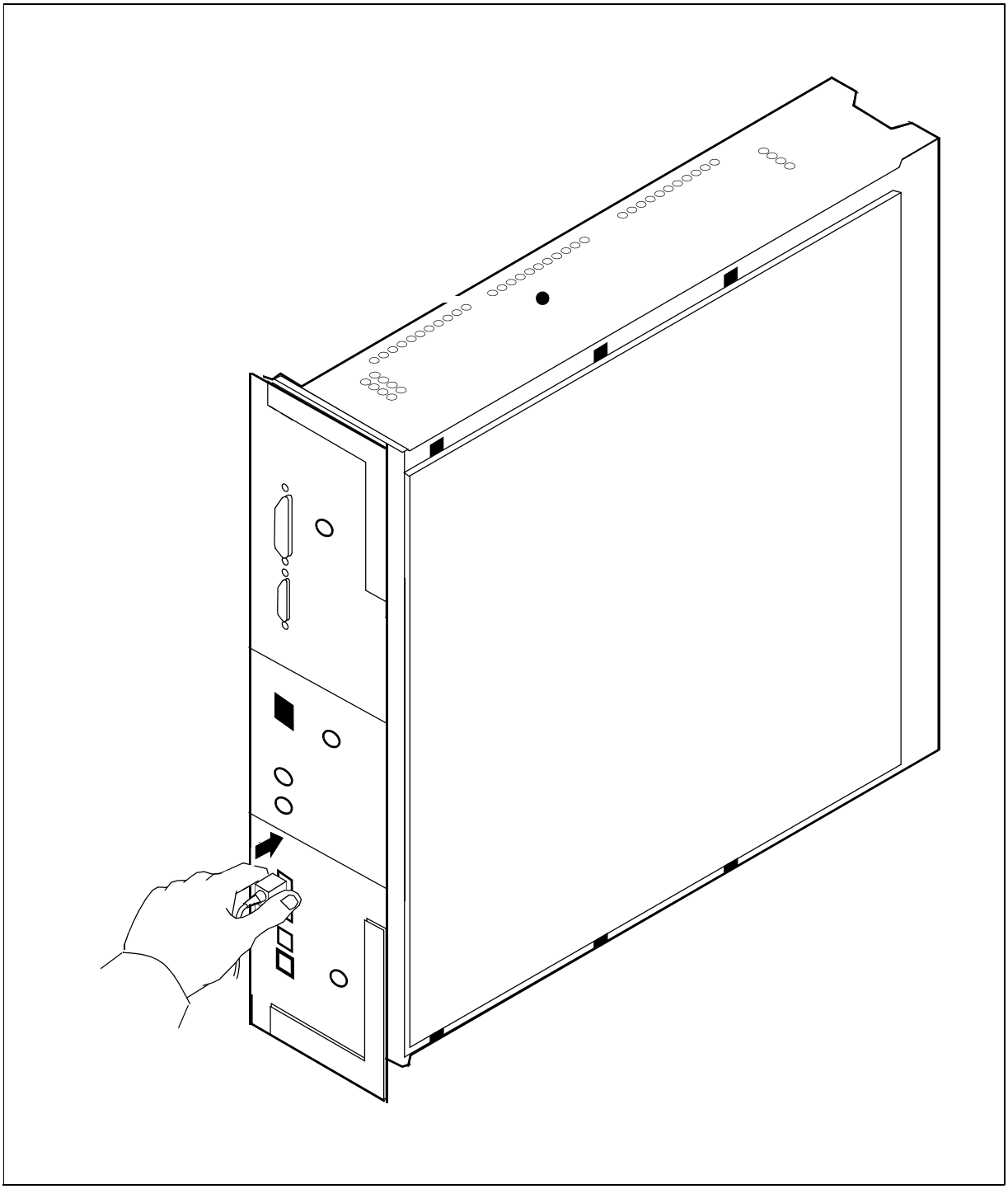
a Hold the fiber optic cable connectors by the body only.

b Remove the dust caps from the fiber optic cables. Clean the tips of the fiber optic cables. Use the recommended cleaning methods.

c Carefully insert the connectors into the correct port receptacles.

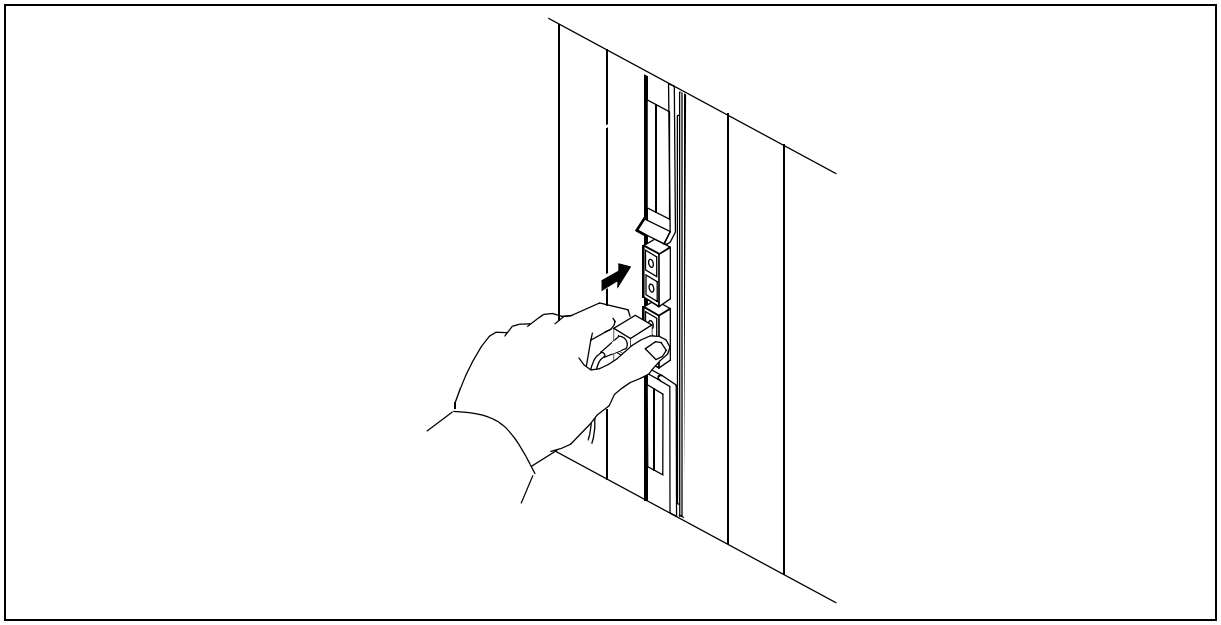
XAC MScomm - Critical (continued)

Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack



XAC MScomm - Critical (continued)

Connect the fiber optic cables to the ports on the OC-3 two port interface paddleboard



8 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 9
unsuccessful and continues to execute the restart repeatedly	step 32

9 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 logs indicate	Do
that all alarm events are clear	step 10
a different alarm event	step 31

10 Access the XA-Core XAC MAP level. At the CI prompt, type

>MAPCI;MTC;XAC

and press the Enter key.

11 Examine the XAC MAP level. Record the location and status of any trouble CPs.

Note: The XAC MAP level can display alarms as follows:

- an alarm under the XAC header in the alarm banner
- equipment alarms under the headers in the subsystem status summary field (SSSF)

The following is a sample MAP display.

XAC MAP level

```
 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
 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    >
```

XAC MScomm - Critical (continued)

.

If the MAP level indicates	Do
a CP or packlet is ManB	step 12
a CP or packlet is SysB	step 13
an alarm related to one or more CP or packlet	step 31
no alarm and all CPs and packlets are in service	step 33

12 Return the out-of-service (OOS) equipment to service. Access the appropriate MAP level.

Return the OOC 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 slot in the physical shelf - 1 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 position in an input/output processor (IOP) circuit pack - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

If the equipment is	Do
not returned to service	step 13
returned to service	step 33

13 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

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 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 - Critical (continued)

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

Example of command use:

>BSY 4 f

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 14
not in a ManB state	step 32

14 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 slot in the physical shelf - 1 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 position in an input/output processor (IOP) circuit pack - upper (u) or lower (l)

Example of command use:

>TST 4 r l

If the OOS test	Do
passed	step 15
did not pass	step 30

15 Return the ManB CP or packlet to service. At the appropriate 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 slot in the physical shelf - 1 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 - Critical (continued)

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

Example of command use:

>RTS 4 r l

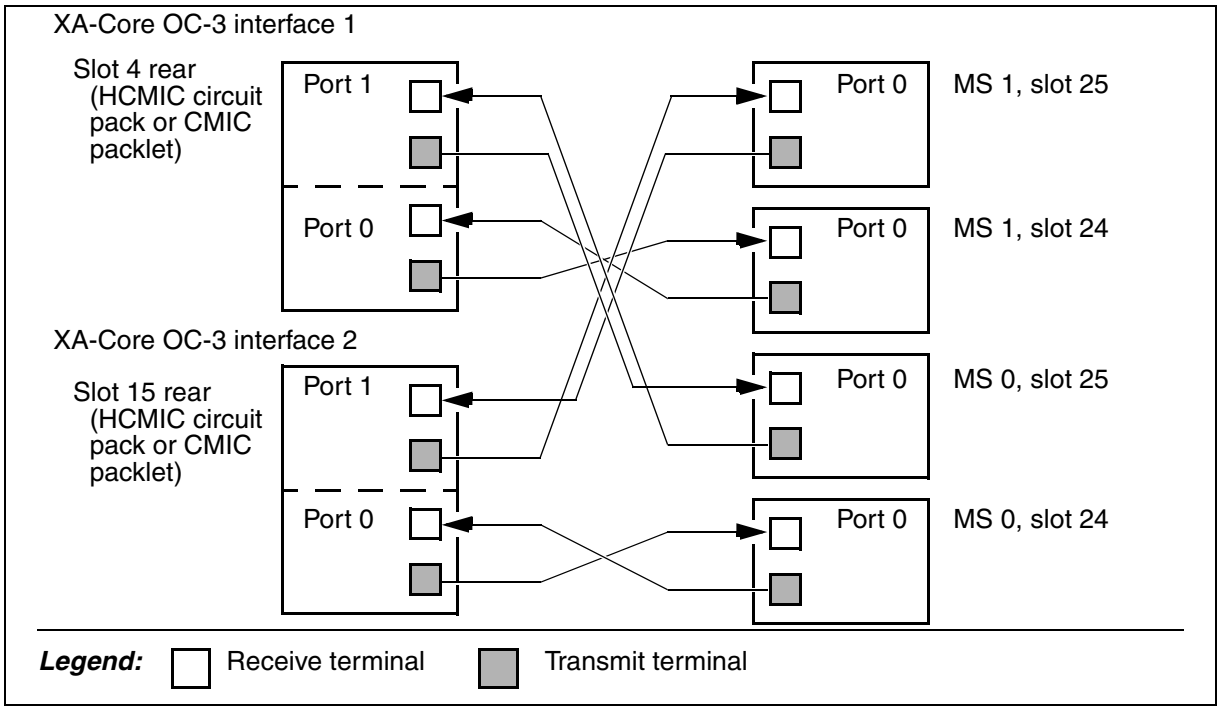
Example of system response:

```
RTS 4 rear lower passed
```

If the CP or packlet is	Do
not InSv	step 32
InSv	step 33

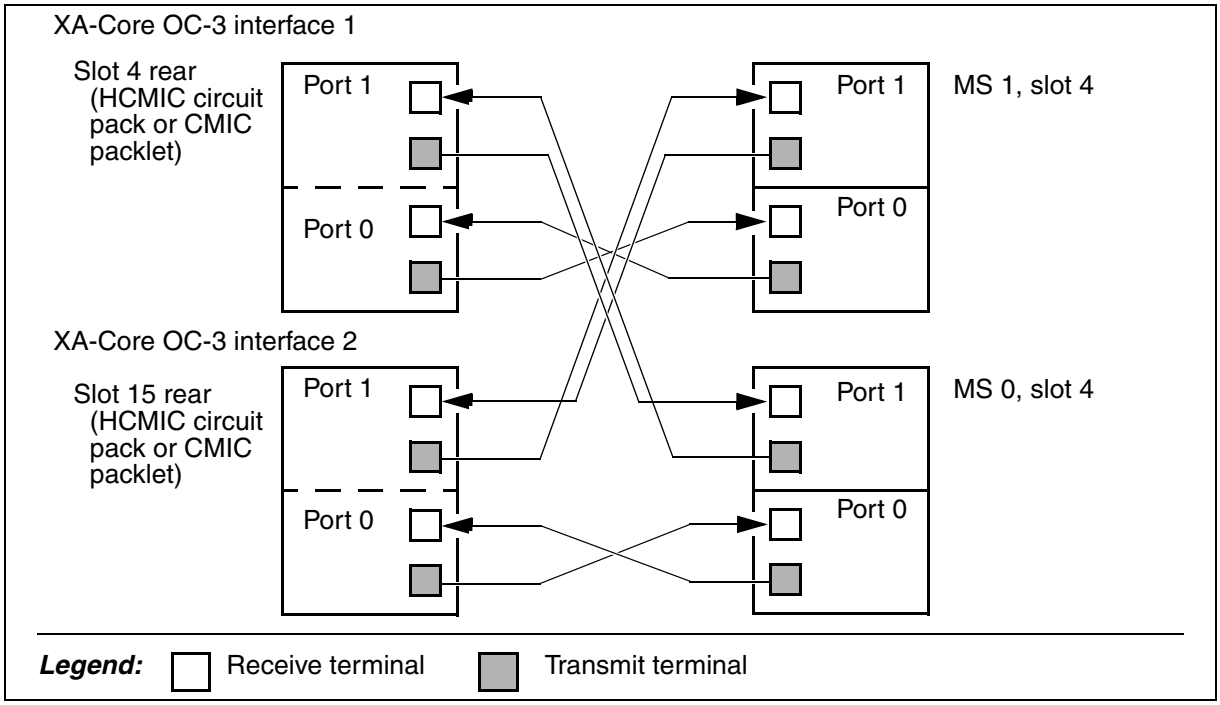
16 Examine the fiber optic cable connections. Make sure that the fiber optic connectors fit correctly into the OC-3 ports in the OC-3 two port interface packlets in the XA-Core and into the OC-3 ports in the OC-3 two port interface paddleboards in the message switch. Use the following diagrams to check 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)

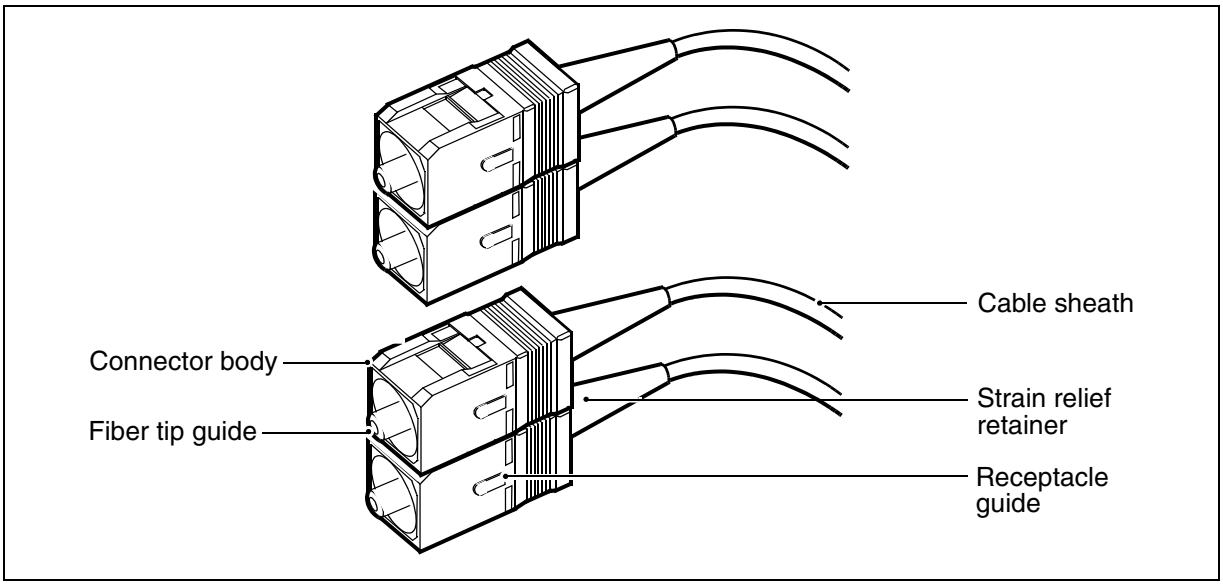


If the fiber optic cables are	Do
correctly inserted	step 17
not correctly inserted	step 18

XAC MScomm - Critical (continued)

17 Examine the fiber optic cables. Make sure that there is no damage to the fiber optic cables.

Paired fiber optic cable connectors



.

If the OC-3 fiber optic cables are	Do
visibly damaged	step 18
not visibly damaged but you suspect a fault in an OC-3 two port interface packlet or in an OC-3 two port interface paddleboard	step 19
not visibly damaged and you do not suspect a fault in an OC-3 two-port interface packlet or in an OC-3 two port interface paddleboard	step 22

18 Disconnect the fiber optic cables from the OC-3 two port interface packlet and from the OC-3 two port interface paddleboard.

a Hold the connector by the receptacle body only.

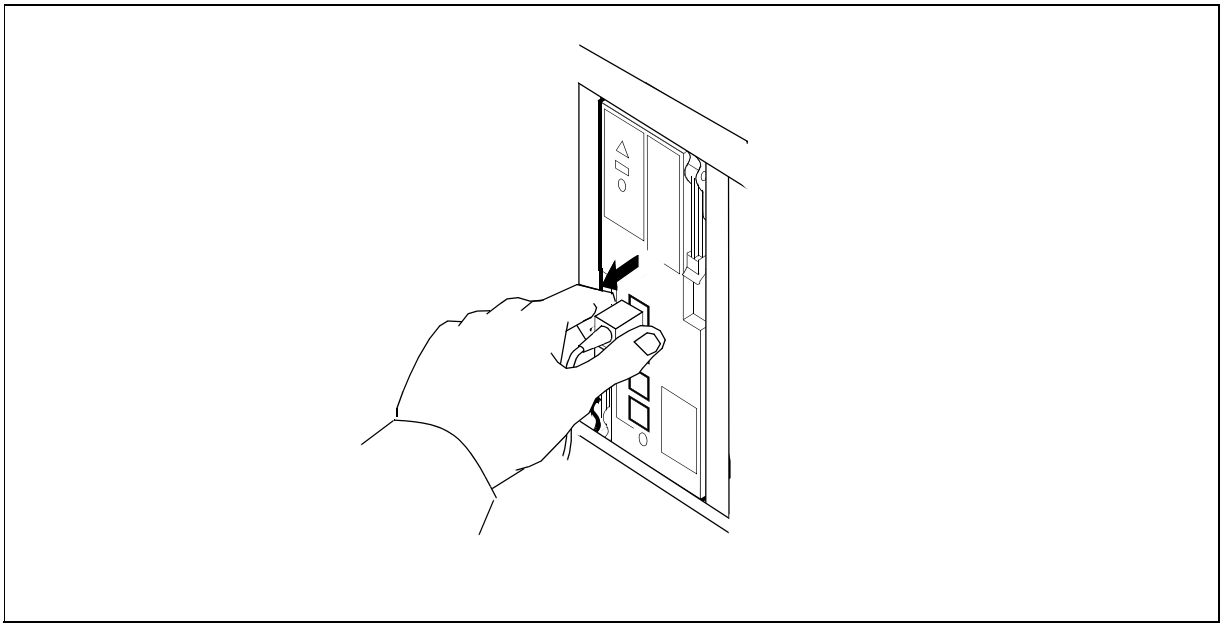
b Carefully pull the fiber optic connectors away from the port receptacles.

c Cover the ends of the fiber optic cable with dust caps.

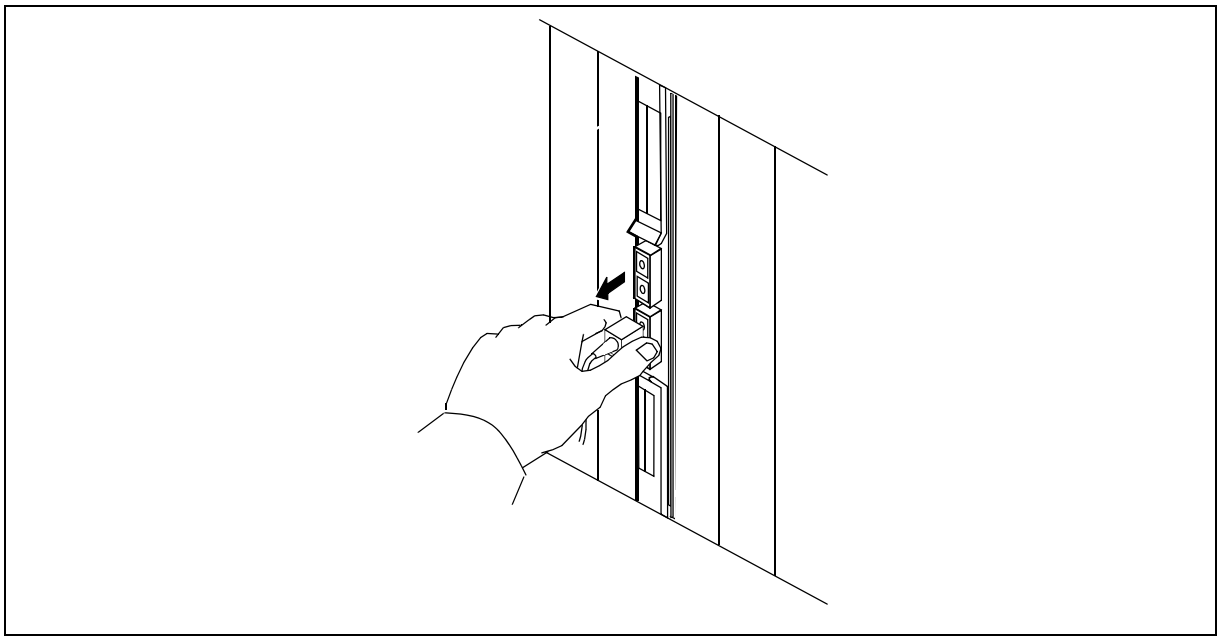
d Place the fiber optic cables in a safe location away from the physical shelf.

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 packlet or the OC-3 two port interface paddleboard	step 19
replacing the fiber optic cables	step 20
reconnecting the fiber optic cables to the correct port receptacles	step 21

19 Perform the correct procedure for replacing the OC-3 two port interface packlet or the OC-3 two port interface paddleboard. Continue to step 22 when complete

20 Obtain the correct new fiber optic cables.

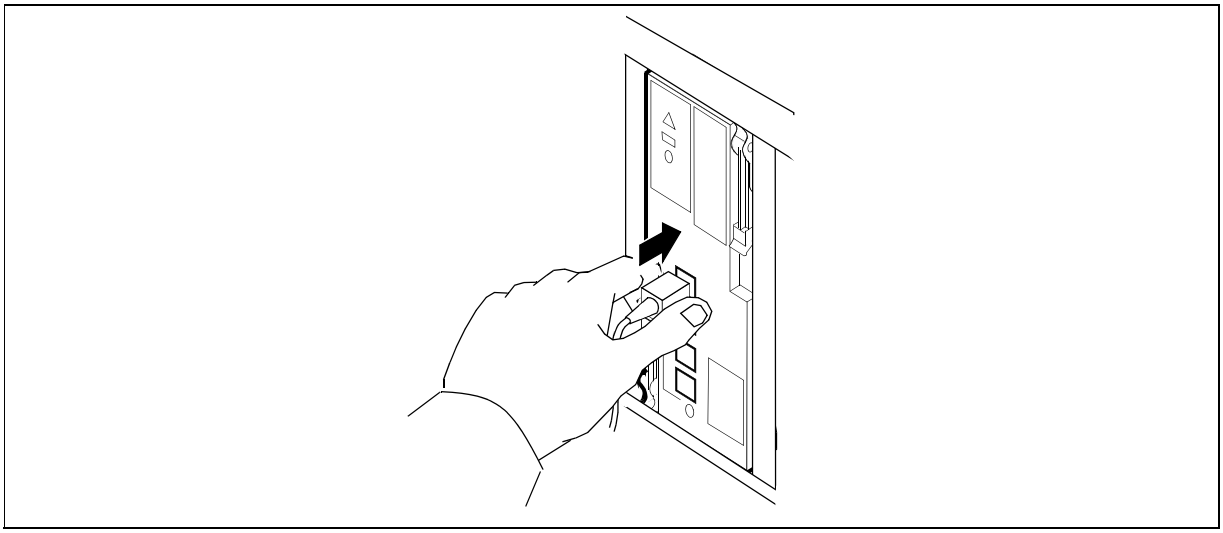
21 Connect the correct fiber optic cables to the correct ports on the OC-3 two port interface packlet and to the correct ports on the OC-3 two port interface paddleboard.

a Hold the fiber optic cable connectors by the body only.

b Remove the dust caps from the fiber optic cables. Clean the tips of the fiber optic cables. Use the recommended cleaning methods.

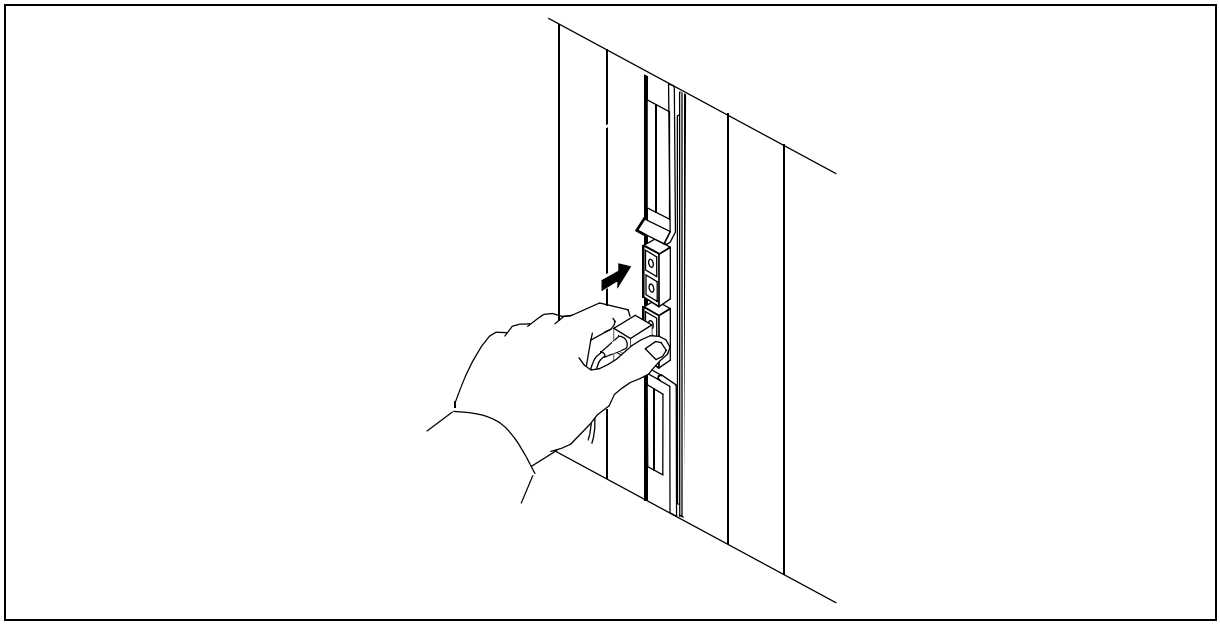
c Carefully insert the connectors into the correct port receptacles.

Connect the fiber optic cables to the OC-3 two port interface packlet ports



XAC MScomm - Critical (continued)

Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



At the XA-Core MAP

22 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 23
unsuccessful and continues to execute the restart repeatedly	step 32

23 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.

XAC MScomm - Critical (continued)

d Return to the CI MAP prompt. At the logutil prompt type

>QUIT

and press the Enter key.

If the logs indicate	Do
that all alarm events are clear	step 24
a different alarm event	step 31

24 Access the XA-Core XAC MAP level. At the CI prompt, type

>MAPCI;MTC;XAC

and press the Enter key.

25 Examine the XAC MAP level. Record the location and status of any trouble CPs.

Note: The XAC MAP level can display alarms as follows:

- an alarm under the XAC header in the alarm banner
- equipment alarms under the headers in the subsystem status summary field (SSSF)

The following is a sample MAP display.

XAC MAP level

```
 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
 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 level indicates	Do
a CP or packlet is ManB	step 28
a CP or packlet is SysB	step 27
an alarm related to one or more CP or packlet	step 31
no alarm and all CPs and packlets are in service	step 33

26 Return the out-of-service (OOS) equipment to service. Access the appropriate MAP level.

Return the OOC 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 slot in the physical shelf - 1 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 position in an input/output processor (IOP) circuit pack - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

If the equipment is	Do
not returned to service	step 27
returned to service	step 33

27 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

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 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 - Critical (continued)

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

Example of command use:

>BSY 4 f

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 28
not in a ManB state	step 32

28 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 slot in the physical shelf - 1 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 position in an input/output processor (IOP) circuit pack - upper (u) or lower (l)

Example of command use:

>TST 4 r l

If the OOS test	Do
passed	step 29
did not pass	step 30

29 Return the ManB CP or packlet to service. At the appropriate 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 slot in the physical shelf - 1 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 position in an input/output processor (IOP) circuit pack - upper (u) or lower (l)

Example of command use:

>RTS 4 r l

Example of system response:

```
RTS 4 rear lower passed
```

If the CP or packlet is	Do
not InSv	step 32
InSv	step 33

At your current location

30 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 32
returned to service	step 33

31 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 32
clear	step 33

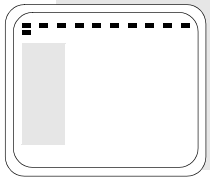
32 Call the next level of support.

33 You have completed this procedure.

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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

The system raises the MScomm major alarm if either of the following things is wrong with the CMIC links between the XA-Core and the message switch (MS):

- lack of redundancy of CMIC links
- misconfigured CMIC links

Lack of redundancy of CMIC links

There is no communication link redundancy between the XA-Core and the message switch (MS). There is a communication service outage for a single XA-Core and MS link. The reason for the outage is one of the following:

- There is an article of CMIC hardware in the XA-Core shelf (that is, an HCMIC circuit pack or an OC-3 two port interface packlet) whose working state is either system busy (SysB), out of service (OOS) CBsy, or ManB.
- There is an OC-3 two port interface paddleboard in the message switch (MS) whose working state is either SysB or ManB.
- An MS port circuit pack (CP) is SysB or ManB.
- One of the fiber optic cables is damaged.
- One of the fiber optic cables is disconnected.

Misconfigured CMIC links

The CMIC links between the XA-Core and the message switch (MS) are misconfigured if they do not conform to the configurations shown in the following figures. The system raises the MScomm major alarm if the links are misconfigured, regardless of whether they are in service.

XAC MScomm - Major (continued)

Figure 1-37 XA-Core and MS fiber optic cable connections (SuperNode)

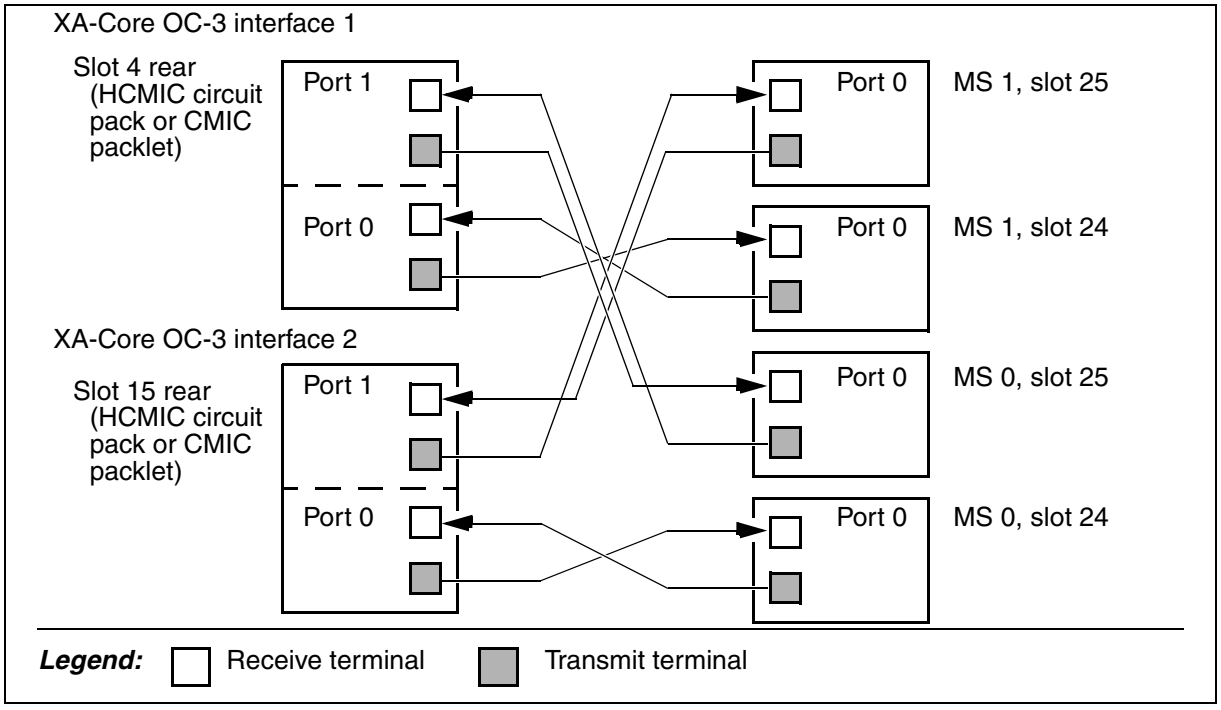
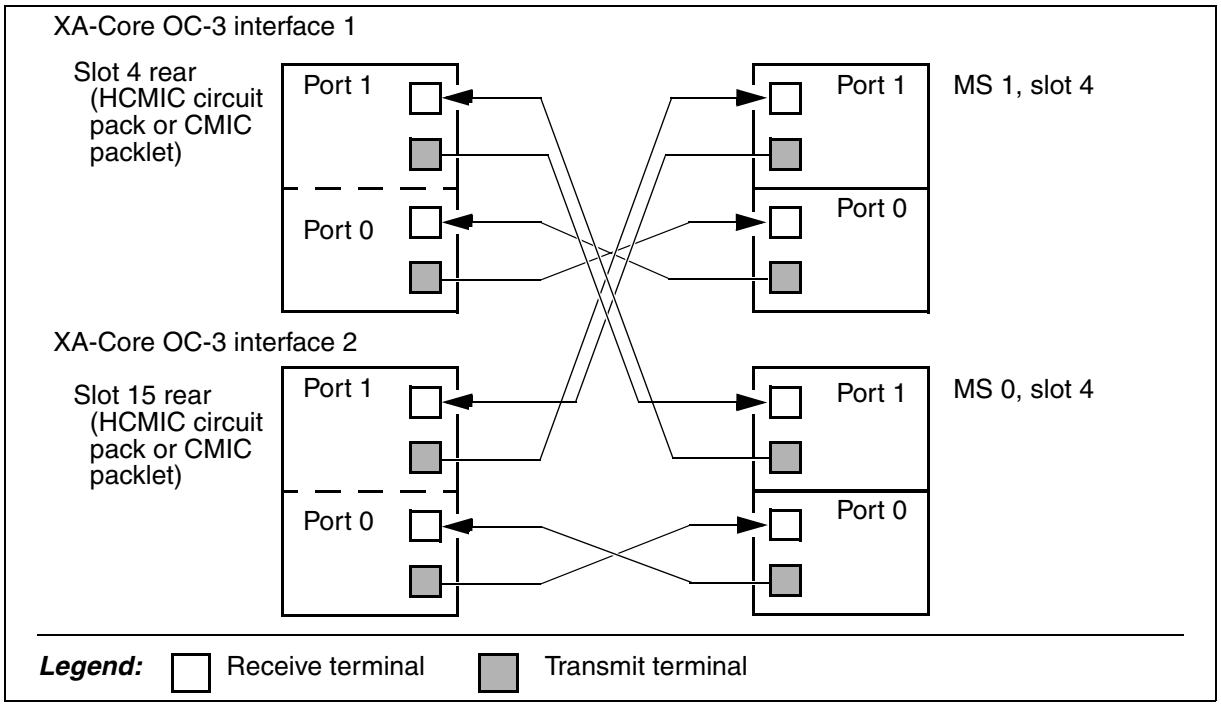


Figure 1-38 XA-Core and MS fiber optic cable connections (SuperNode SE)



XAC MScomm - Major (continued)

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:

- HCMIC circuit pack
- OC-3 two port interface packlet
- OC-3 fiber optic cables
- MS port CP
- OC-3 two port interface paddleboard

Common procedures

This procedure refers to the replacement procedure for the HCMIC circuit pack, the replacement procedure for the IOP circuit pack, and the replacement procedure for the OC-3 two port interface packlet. The procedures are in this document.

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 - Major (continued)

Figure 1-39 Summary of clearing an MScomm major alarm - Part 1

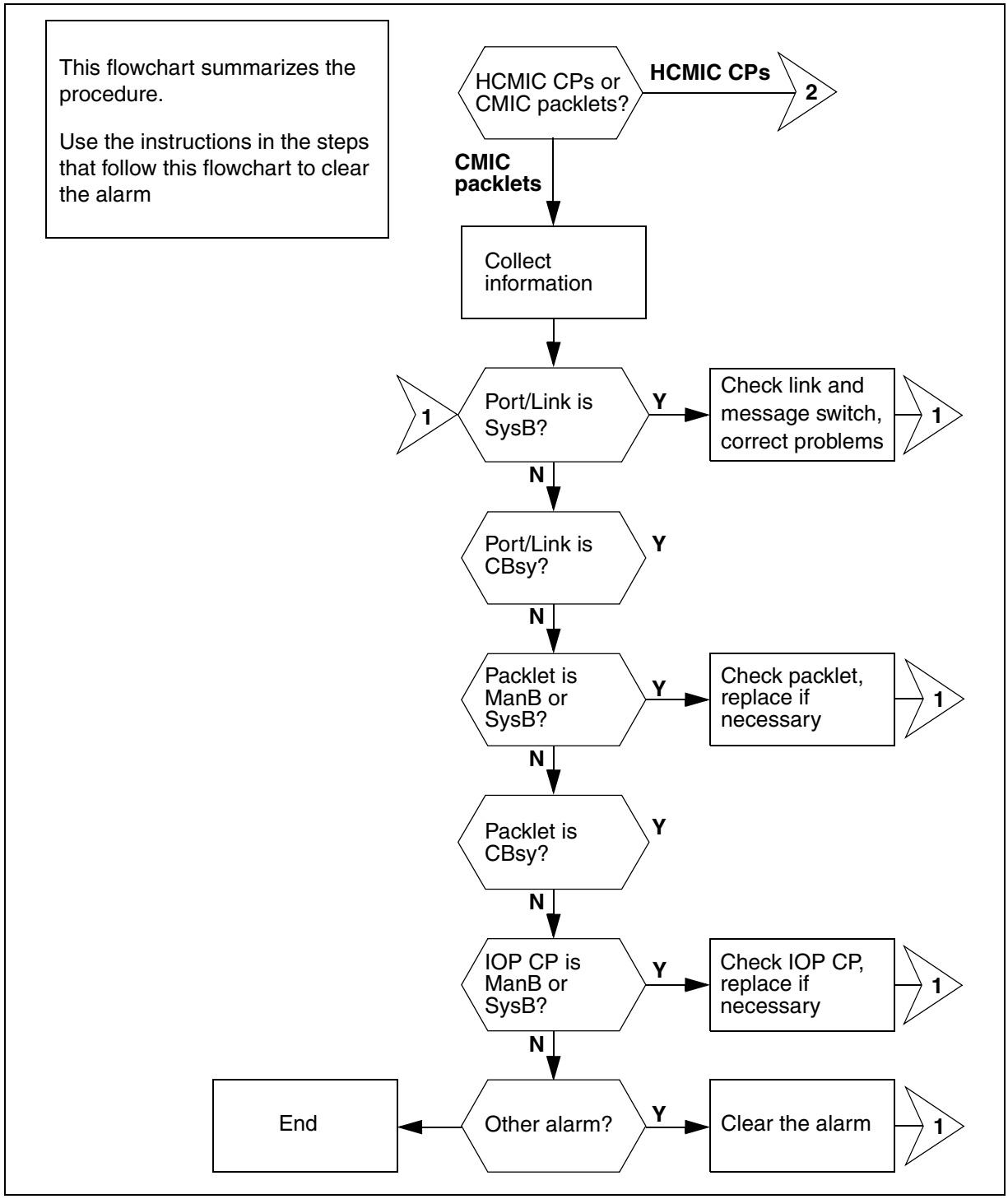
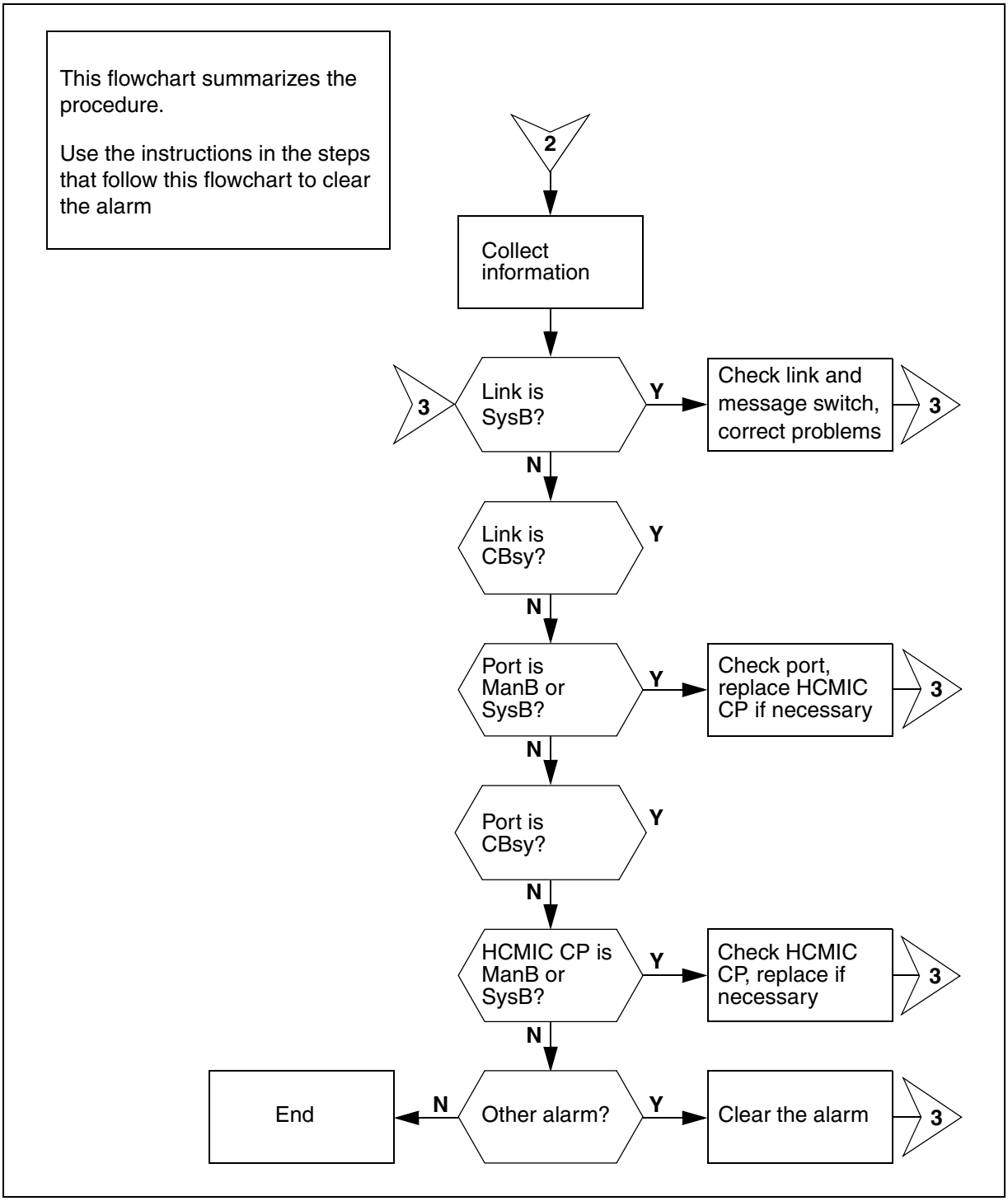


Figure 1-40 Summary of clearing an MScomm major alarm - Part 2



XAC MScomm - Major (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.



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 - Major (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 MAP terminal

1 Select the next step as follows:

If the CMIC hardware is	Do
HCMIC circuit packs	step 2
OC-3 two port interface packlets	step 33

At the MAP terminal

2 Collect information from XA-Core 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.

3 Select the next step as follows:

If the log indicates	Do
an MScomm major alarm condition	step 4
a different alarm	step 62
that the alarm condition is clear	step 64

4 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

5 Examine the IO MAP level. Record the location and status of the HCMIC circuit packs.

XAC MScomm - Major (continued)

The following is a sample MAP display.

IO MAP level

```
 XAC       MS      IOD     Net      PM      CCS     Lns     Trks    Ext     APPL
 MScomm    .       .       .        .       .       .       .       .       .
   M
IO                  Front:   111111111  Rear: 111111      SM    PE    IO      PKLT
 0 Quit             123456789012345678  456789012345      .     .     HCMIC M .
 2                  Sta:-.-.--..-..----..-  M--.-------.     0     0     1       0
 3                  Dep:
 4                  Typ: *              *   *          *
 5                  Slot: Side: Status:             Upper:     Middle:    Lower:
 6 Tst_               2   Front     .              Disk .                  Tape .
 7 Bsy_              17   Front     .              Disk .                  Tape .
 8 RTS_               4   Rear      M              RTIF C     ETHR C       CMIC C
 9                   15   Rear      .              RTIF .     ETHR .       CMIC .
10 LoadFW_
11                  XAC:
12 Uneq_            IO:
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

6 Access the XA-Core CMIC MAP level. Type

>CMIC

and press the Enter key.

7 Examine the CMIC MAP level. Record the location and particulars of any CMIC problems.

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), indicating an OC-3 two port interface packlet
- a status code under the Status, Link, Port, or TOD header in the command interpreter output area

XAC MScomm - Major (continued)

The following is a sample MAP display.

CMIC MAP level

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

CMIC
 0 Quit
 2
 3
 4
 5
 6 Tst_
 7 Bsy_
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_
      Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
      123456789012345678  456789012345   .      .       .       .
Sta: -.----..-.---.-..-  .--.--------.   0      0       0       0
Dep:
Typ:                        *           *
Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 4    Rear                   .     .     C      C      C    C
15    Rear                   .     .     .      .      .    .

 XMAP0
Time  14:12   >
```

8 Access the XA-Core IO MAP level. Type

>IO

and press the Enter key.

9 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If multiple statements in the left-hand column are true, choose the first true one that you encounter.

If the information from the logs, and from the IO and CMIC MAP levels indicates	Do
OC-3 link is in a SysB state	step 26
OC-3 link is in a CBsy state	step 10
OC-3 port is in a ManB state	step 11
OC-3 port is in a SysB state	step 13
OC-3 port is in a CBsy state	step 18
HCMIC circuit pack is in a ManB state	step 20

XAC MScomm - Major (continued)

If the information from the logs, and from the IO and CMIC MAP levels indicates	Do
HCMIC circuit pack is in a SysB state	step 22
a different alarm	step 62
no alarm and all CPs are in service	step 64

10 You were directed to this step because you found that an OC-3 link was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an OC-3 port.

Proceed as follows.

a Access the CMIC MAP level. Type

>CMIC

and press the Enter key.

b Select the next step as follows:

If the OC-3 port is	Do
in a ManB state	step 11
in a SysB state	step 13
in a CBsy state	step 18

11 If you are not at the CMIC MAP level, access that level. Type

>CMIC

and press the Enter key.

12 Return the OC-3 port to service. Type

RTS <nn> <s> <port>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

<port> is port0 or port1

Example of command use:

>RTS 4 r port0

Example of system response:

```
RTS 4 rear port0 passed
```

If the OC-3 port is	Do
in a SysB state	step 14
in an InSv state	step 3
in a CBsy state	step 18

13 If you are not at the CMIC MAP level, access that level. Type

>CMIC

and press the Enter key.

14 Manually busy the OC-3 port. Type

>BSY <nn> <s> <port>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

<port> is port0 or port1

Example of command use:

>BSY 4 r port0

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

If the OC-3 port is	Do
in a ManB state	step 15
not in a ManB state	step 63

15 Perform an OOS test on the OC-3 port. Type

>TST <nn> <s> <port>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

<port> is port0 or port1

XAC MScomm - Major (continued)

Example of command use:

>TST 4 r port0

If the OOS test	Do
passes	step 16
did not pass	step 17

16 Return the OC-3 port to service. Type

RTS <nn> <s> <port>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

<port> is port0 or port1

Example of command use:

>RTS 4 r port0

Example of system response:

```
RTS 4 rear port0 passed
```

If the OC-3 port is	Do
not in an InSv state	step 3
in an InSv state	step 17

17 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

If the HCMIC circuit pack is	Do
in an InSv state	step 3
not in an InSv state	step 63

18 You were directed to this step because you found that an OC-3 port was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an HCMIC circuit pack.

Proceed as follows.

a If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

b Select the next step as follows:

If the HCMIC circuit pack is	Do
in a ManB state	step 20
in a SysB state	step 22

19 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

20 Return the HCMIC circuit pack to service. Type

RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

Example of command use:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

If the HCMIC circuit pack is	Do
in a SysB state	step 22
in an InSv state	step 3

21 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

22 Manually busy the HCMIC circuit pack. Type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

XAC MScomm - Major (continued)

Example of command use:

>BSY 4 r

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

If the HCMIC circuit pack is	Do
in a ManB state	step 23
not in a ManB state	step 63

23 Perform an OOS test on the HCMIC circuit pack. Type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 24
did not pass	step 25

24 Return the HCMIC circuit pack to service. Type

RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

Example of command use:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

If the HCMIC circuit pack is	Do
in an InSv state	step 3

If the HCMIC circuit pack is	Do
not in an InSv state	step 25

25 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

If the HCMIC circuit pack is	Do
in an InSv state	step 3
not in an InSv state	step 63

At the XA-Core shelf

26 Examine the fiber optic cables and connectors.

Note: You were directed to this step because you found that an OC-3 link was in the SysB state. This indicates that there may be a problem with the link. In the following steps you will check for possible link problems: misconfiguration, damaged or disconnected links, and problems in the MS.

Proceed as follows.

a Check that the CMIC links are configured properly, that is, that the link connections fit into the correct OC-3 interface ports. the proper configurations for SuperNode and SuperNode SE are shown in the diagrams found under the heading “Meaning” at the beginning of this section.

b Look for visible signs that the cables are damaged or disconnected.

27 Select the next step as follows:

If you find	Do
a misconfigured link	step 28
a damaged link	step 28
a disconnected link	step 30
no signs of misconfiguration, damage, or disconnection	step 31

XAC MScomm - Major (continued)

28 Proceed as follows.

a If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

b ManB the HCMIC circuit pack that the cable connects to. Type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

Example of command use:

>BSY 4 r

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

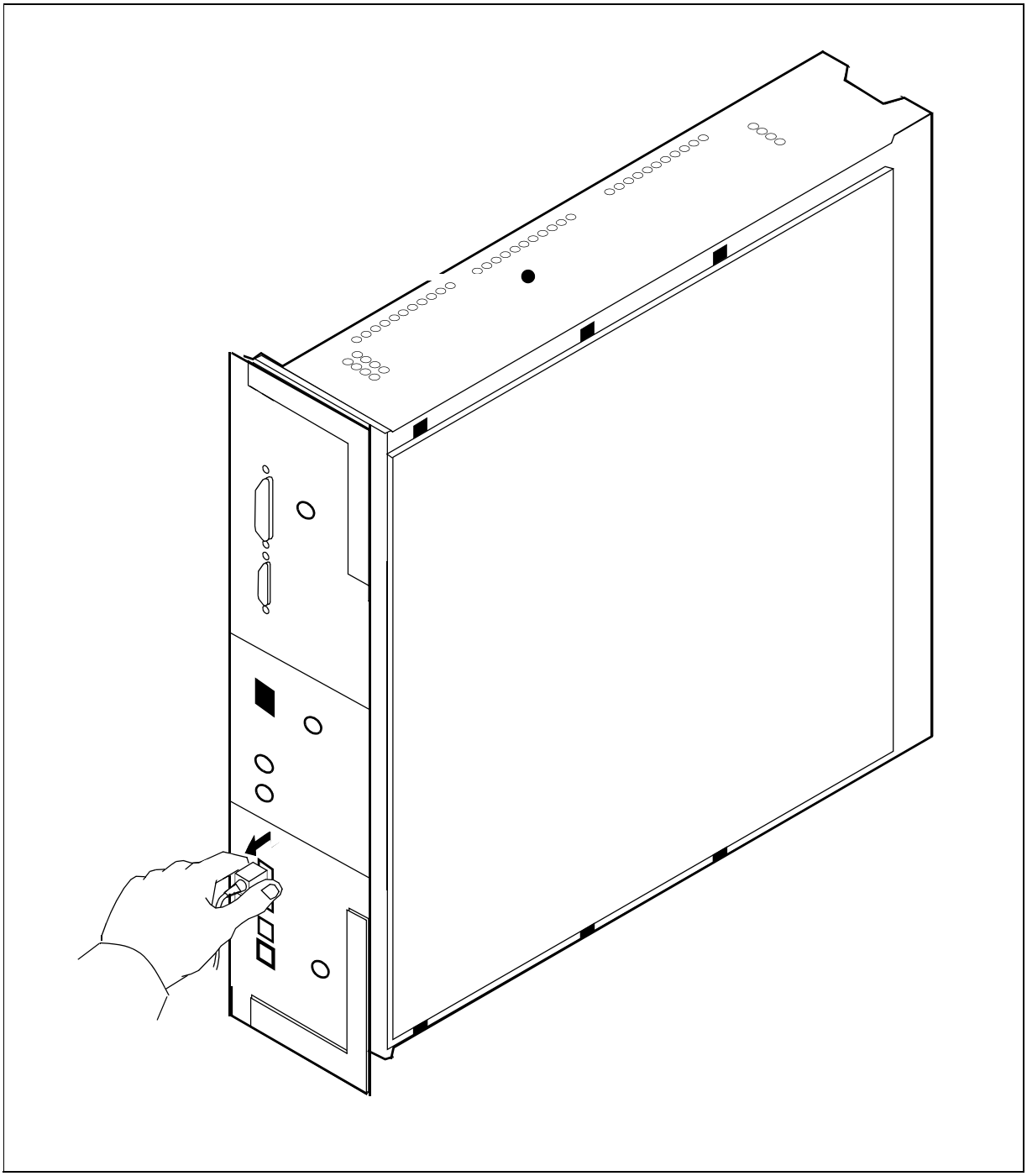
c Disconnect the fiber optic cable from the HCMIC circuit pack and from the OC-3 two port interface paddleboard. Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.

d Cover the ends of the fiber optic cable with dust caps.

e Place the fiber optic cable in a safe location away from the physical shelf.

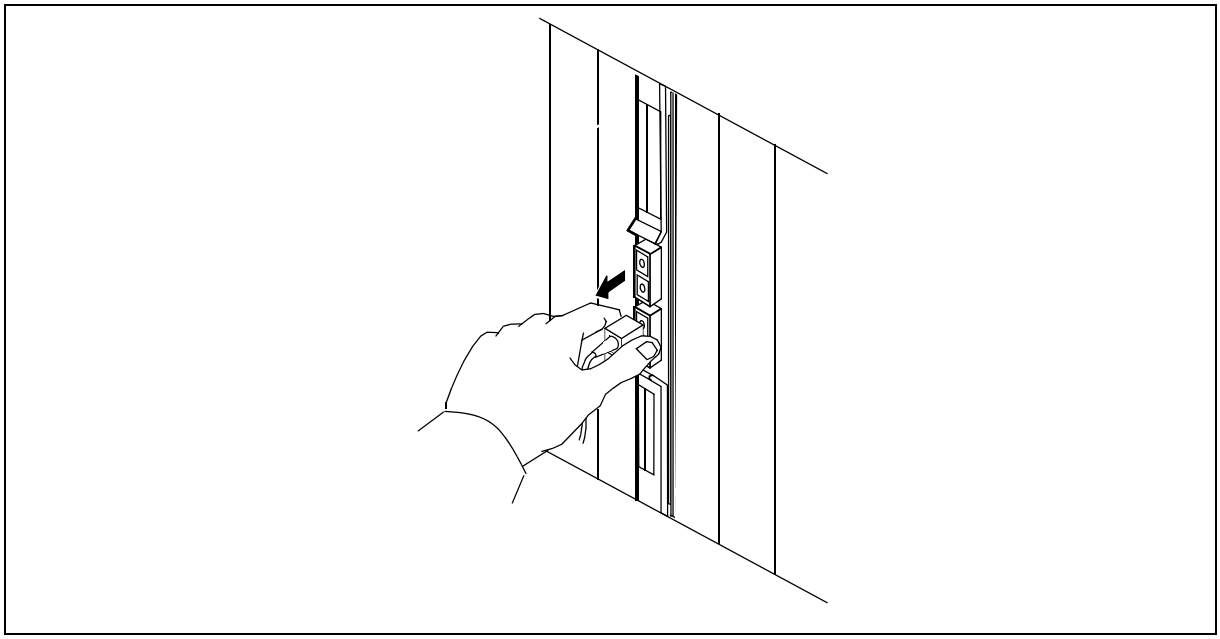
XAC MScomm - Major (continued)

Disconnect the fiber optic cables from the OC-3 ports on the HCMIC circuit pack



XAC MScomm - Major (continued)

Disconnect the OC-3 fiber optic cables from the ports on the OC-3 two port interface paddleboard



If you are	Do
replacing a fiber optic cable	step 29
re-connecting an existing fiber optic cable	step 30

29 Obtain a replacement cable.

XAC MScomm - Major (continued)

30 Connect the fiber optic cable to the proper ports on the HCMIC circuit pack in the XA-Core shelf, and to the proper ports on the OC-3 two port interface paddleboard. Follow the connection diagrams found under the heading “Meaning” at the beginning of this section.

Proceed as follows.

a Hod 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 cable. Use the correct fiber optic cleaning procedure.

d carefully insert the connector into the correct receptacle.

e Return the HCMIC circuit pack 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 slot in the physical shelf - 1 to 18

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

Example of command use:

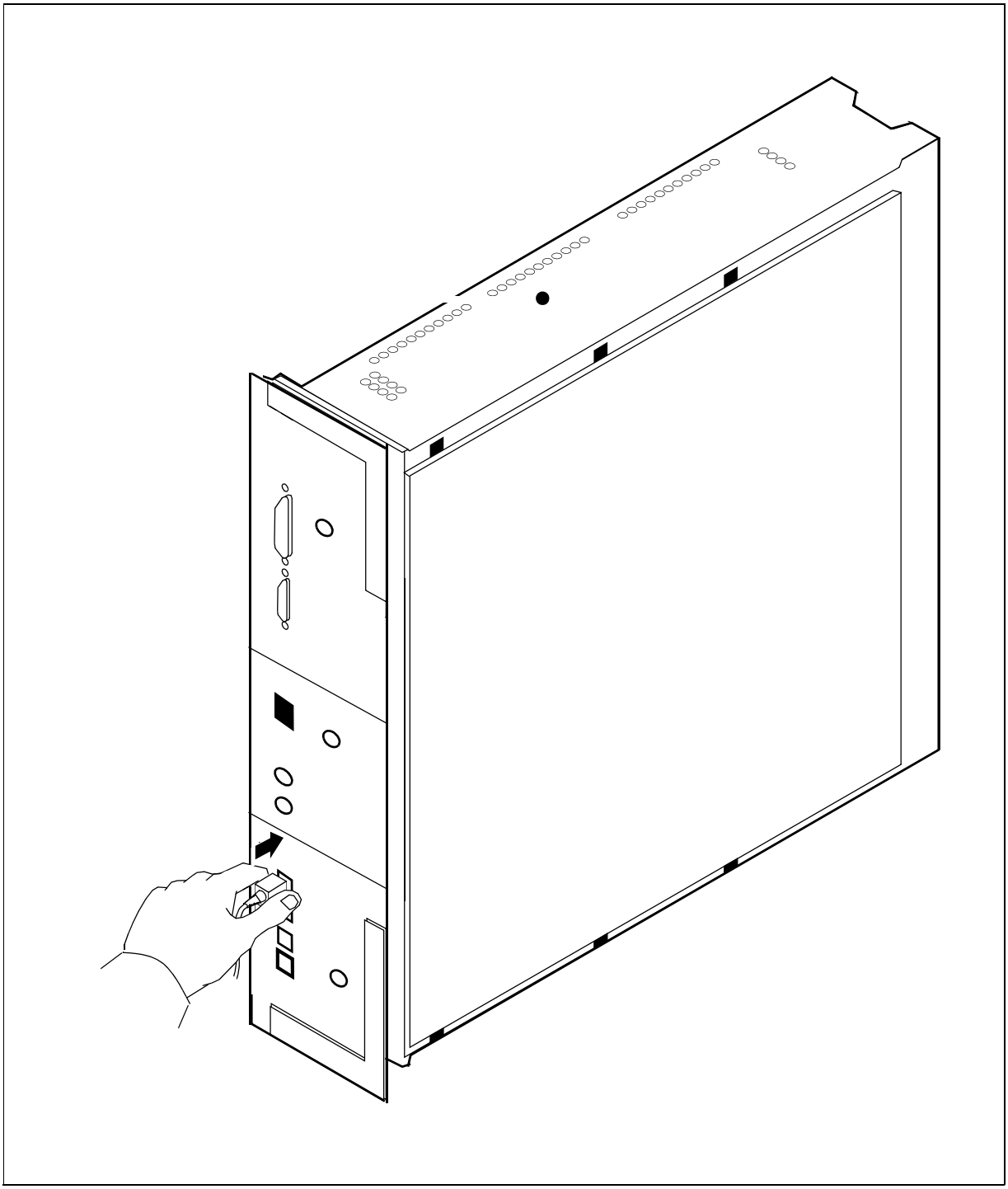
>RTS 4 r

Example of system response:

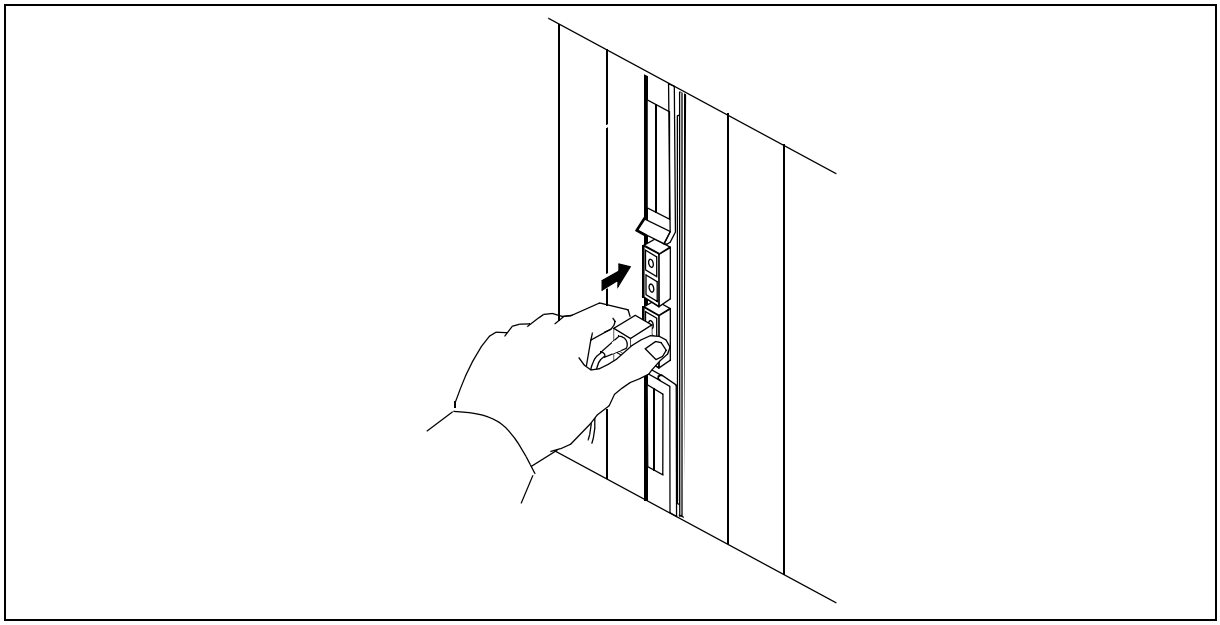
```
RTS 4 rear passed
```

XAC MScomm - Major (continued)

Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack



Connect the fiber optic cables to the ports on the OC-3 two port interface paddleboard



At the MS MAP terminal

31 Examine the MS MAP. Proceed as follows.

a Access the MS 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 all the OC-3 two port interface paddleboards as shown on the MAP screen.

The following is a sample MAP display.

XAC MScomm - Major (continued)

MS Card MAP level

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


MS                    Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 0 Quit          MS 0        .            M Free             .                   - -
 2               MS 1        .            Slave              F                   - -
 3
 4               Shelf  0                  1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2
 5               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
 6 Tst_          Chain
 7 Bsy_          MS 0   . . . - . - - - - - - - - - - - - - - - - - . . . . .
 8 RTS_          MS 1   . . . - . - - - - - - - - - - - - - - - - - . . . . .
 9
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    >
```

e Select the next step as follows:

If the MS Card MAP level indicates	Do
OC-3 two port interface paddleboard ports are OOS	step 32
a different alarm	step 62
no faults or alarms	step 3

32 Perform the replacement procedure for the MS CP. Refer to the correct NTP. Return to this point when complete.

If the alarm is	Do
changed to a different alarm	step 62
not clear	step 63
clear	step 3

XAC MScomm - Major (continued)

At the MAP terminal

33 Collect information from XA-Core 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.

34 Select the next step as follows:

If the log indicates	Do
an MScomm major alarm condition	step 35
a different alarm	step 62
that the alarm condition is clear	step 64

35 If you are not at the CMIC MAP level, access that level. Type

>CMIC

and press the Enter key.

36 Examine the CMIC MAP level. Record the location and status of the OC-3 two port interface packlets.

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), indicating an OC-3 two port interface packlet
- a status code under the Status, Link, Port, or TOD header in the command interpreter output area

XAC MScomm - Major (continued)

The following is a sample MAP display.

CMIC MAP level

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

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

      Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
      123456789012345678  456789012345   .      .       .       .
Sta:  -.----..-.---.-..-  F--.--------.   0      0       0       0
Dep:
Typ:                      *           *
Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 4    Rear                  .     .     C      C      C    C
15    Rear                  .     .     .      .      .    .

 XMAP0
Time  14:12   >
```

37 Access the IO MAP level. Type

>IO

and press the Enter key.

38 Examine the IO MAP level. Record the location and status of the OC-3 two port interface packlets, and record the status of the ports and links.

Note: The interface does not display separate information for ports and links on an OC-3 two port interface packlet. The status of the local port and link are displayed under the “Link0” heading; the status of the remote port and link are displayed under the “Link1” heading.

XAC MScomm - Major (continued)

The following is a sample MAP display.

IO MAP level

```
 XAC       MS      IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
 MScomm    .       .       .        .      .       .      .       .       .
   M
IO                  Front:   111111111  Rear: 111111     SM    PE    IO    PKLT
 0 Quit             123456789012345678  456789012345     .     .     .     CMICfl
 2                  Sta:-.-.--..-..----..-  M--.-------.    0     0     0     1
 3                  Dep:
 4                  Typ: *              *   *          *
 5                  Slot: Side: Status:             Upper:     Middle:    Lower:
 6 Tst_               2   Front     .              Disk .                  Tape .
 7 Bsy_              17   Front     .              Disk .                  Tape .
 8 RTS_               4   Rear      .              RTIF .     ETHR .       CMIC S
 9                   15   Rear      .              RTIF .     ETHR .       CMIC .
10 LoadFW_
11                  XAC:
12 Uneq_            IO:
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

39 Access the CMIC MAP level. Type

>CMIC

and press the Enter key.

40 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If multiple statements in the left-hand column are true, choose the first true one that you encounter.

If the information from the logs, and from the IO and CMIC MAP levels indicates	Do
OC-3 port/link is in a SysB state (See the note in step 38.)	step 55
OC-3 port/link is in a CBsy state (See the note in step 38.)	step 41
OC-3 two port interface packlet is in a ManB state	step 42
OC-3 two port interface packlet is in a SysB state	step 43
OC-3 two port interface packlet is in a CBsy state	step 47
IOP circuit pack is in a ManB state	step 48

XAC MScomm - Major (continued)

If the information from the logs, and from the IO and CMIC MAP levels indicates	Do
IOP circuit pack is in a SysB state	step 51
a different alarm	step 62
no alarm and all CPs are in service	step 64

41 You were directed to this step because you found that an OC-3 port-and-link combination was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an OC-3 two port interface packlet.

You are at the CMIC MAP level, where the working state of the OC-3 two port interface packlet is displayed.

Select the next step as follows:

If the OC-3 two port interface packlet is	Do
in a ManB state	step 42
in a SysB state	step 43
in a CBsy state	step 47

42 Return the OC-3 two port interface 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 slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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 a SysB state	step 43

XAC MScomm - Major (continued)

If the OC-3 two port interface packlet is	Do
in a CBsy state	step 47
in an InSv state	step 34

43 Manually busy the OOS OC-3 two port interface 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 slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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

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

If the OC-3 two port interface packlet is	Do
in a ManB state	step 44
not in a ManB state	step 63

44 Perform an OOS test on the OC-3 two port interface packlet. Type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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 45

XAC MScomm - Major (continued)

If the OOS test	Do
did not pass	step 46

45 Return the OC-3 two port interface 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 slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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 an InSv state	step 34
not in an InSv state	step 46

46 Perform the procedure for replacing the OC-3 two port interface packlet. The procedure is found in this document. Return to this point when complete.

If the OC-3 two port interface packlet is	Do
in an InSv state	step 34
in a SysB state	step 63

47 You were directed to this step because you found that an OC-3 two port interface packlet was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an IOP CP.

Proceed as follows.

a Access the IO MAP level. Type

>IO

and press the Enter key.

b Find out the working state of the IOP CP, and select the next step as follows:

If the IOP CP is	Do
in a ManB state	step 49
in a SysB state	step 51

48 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

49 Return the IOP circuit pack 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 slot in the physical shelf - 1 to 18

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

Example of command use:

>RTS 4 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 status.

If the IOP circuit pack is	Do
in an InSv state	step 34
not in an InSv state	step 52

50 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

51 Manually busy the OOS IOP circuit pack. Type

>BSY <nn> <s>

and press the Enter key

XAC MScomm - Major (continued)

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 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 4 r

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

If the IOP circuit pack is	Do
in a ManB state	step 52
not in a ManB state	step 63

52 Perform an OOS test on the ManB IOP circuit pack. Type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 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:

>TST 4 r

If the OOS test	Do
passed	step 53
did not pass	step 54

53 Return the IOP circuit pack 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 slot in the physical shelf - 1 to 18

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

Example of command use:

>RTS 4 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 status.

If the IOP circuit pack is	Do
in an InSv state	step 34
not in an InSv state	step 54

54 Perform the procedure for replacing the IOP circuit pack. The procedure is found in this document. Return to this point when complete.

If the OC-3 two port interface packlet is	Do
in an InSv state	step 34
in a SysB state	step 63

At the XA-Core shelf

55 Examine the fiber optic cables and connectors.

Note: You were directed to this step because you found that an OC-3 link was in the SysB state. This indicates that there may be a problem with the link. In the following steps you will check for possible link problems: misconfiguration, damaged or disconnected links, and problems in the MS.

Proceed as follows.

a Check that the CMIC links are configured properly, that is, that the link connections fit into the correct OC-3 interface ports. the proper configurations for SuperNode and SuperNode SE are shown in the diagrams found under the heading “Meaning” at the beginning of this section.

b Look for visible signs that the cables are damaged or disconnected.

56 Select the next step as follows:

If you find	Do
a misconfigured link	step 57
a damaged link	step 57
a disconnected link	step 59
no signs of misconfiguration, damage, or disconnection	step 60

XAC MScomm - Major (continued)

57 Proceed as follows.

a If you are not at the CMIC MAP level, access that level. Type

>CMIC

and press the Enter key.

b ManB the OC-3 two port interface packlet that the cable connects to. Type

>BSY <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

Example of command use:

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

>BSY 4 r l

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

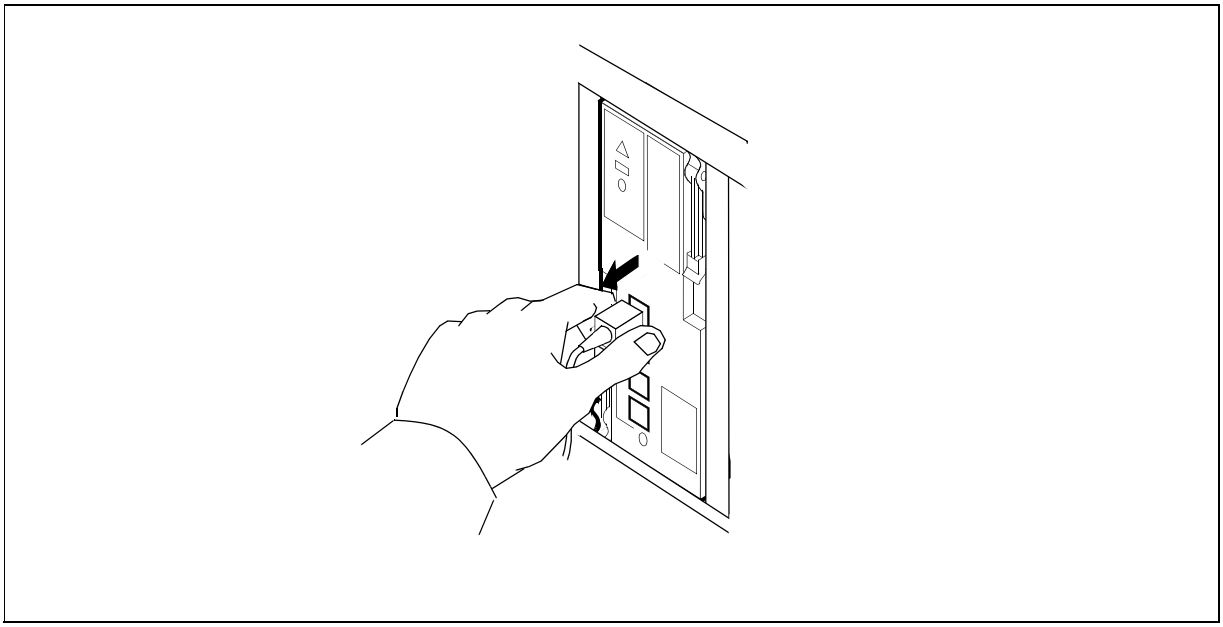
c Disconnect the fiber optic cable from the OC-3 two port interface packlet and from the OC-3 two port interface paddleboard. Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.

d Cover the ends of the fiber optic cable with dust caps.

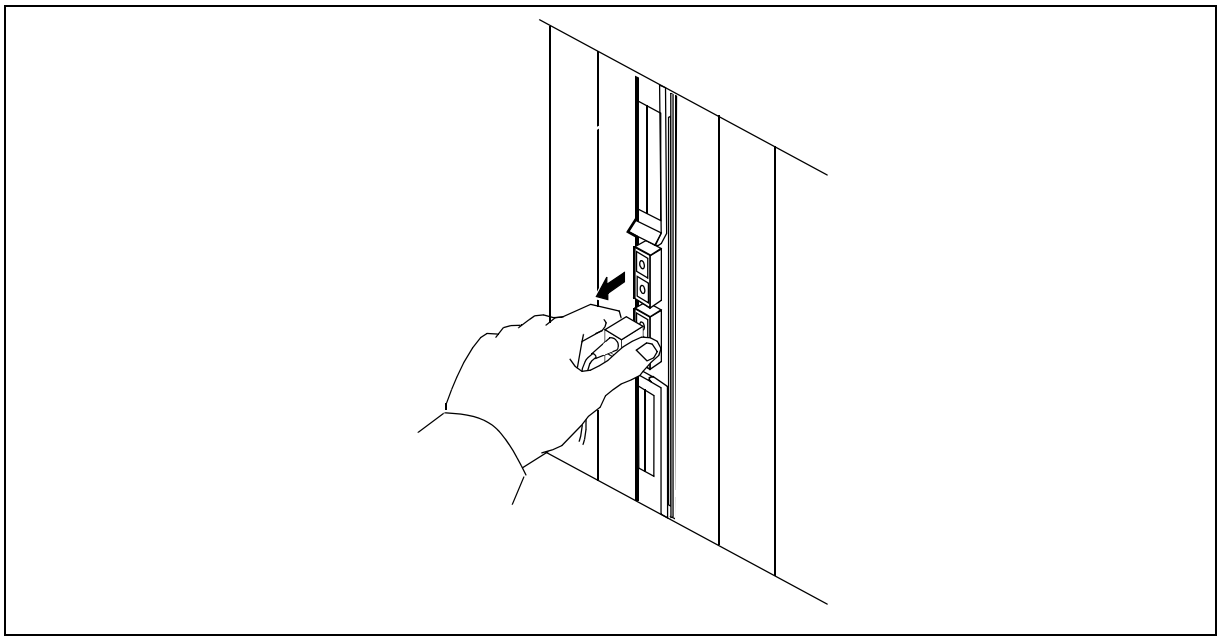
e Place the fiber optic cable in a safe location away from the physical shelf.

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



If you are	Do
replacing a fiber optic cable	step 58

XAC MScomm - Major (continued)

If you are	Do
re-connecting an existing fiber optic cable	step 59

58 Obtain a replacement cable.

59 Connect the fiber optic cable to the proper ports on the OC-3 two port interface packlet in the XA-Core shelf, and to the proper ports on the OC-3 two port interface paddleboard. Follow the connection diagrams found under the heading “Meaning” at the beginning of this section.

Proceed as follows.

a Hod 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 cable. Use the correct fiber optic cleaning procedure.

d carefully insert the connector into the correct receptacle.

e 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 slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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)

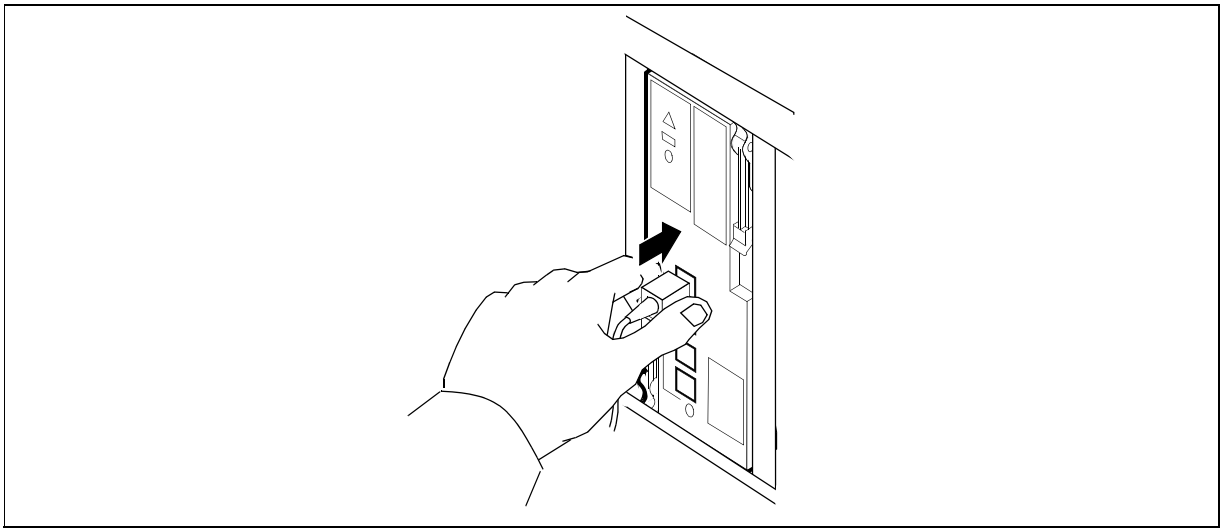
Example of command use:

>RTS 4 r

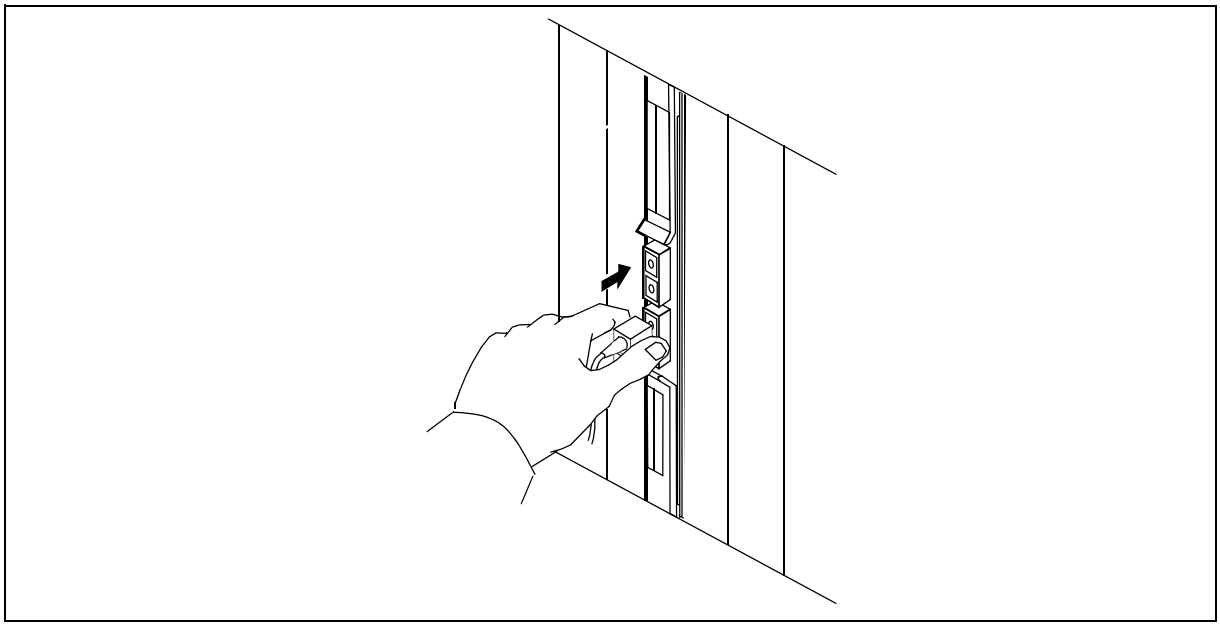
Example of system response:

```
RTS 4 rear passed
```

Connect the fiber optic cables to the OC-3 two port interface packlet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



At the MS MAP terminal

60 Examine the MS MAP. Proceed as follows.

a Access the MS 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

XAC MScomm - Major (continued)

>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 all the OC-3 two port interface paddleboards as shown on the MAP screen.

The following is a sample MAP display.

MS Card MAP level

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


MS
 0 Quit          Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 2          MS 0        .            M Free              .                    - -
 3          MS 1        .            Slave               F                    - -
 4
 5          Shelf  0                  1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2
 6 Tst_     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 Bsy_     Chain
 8 RTS_     MS 0   . . . - . - - - - - - - - - - - - - - - - . . . . .
 9          MS 1   . . . - . - - - - - - - - - - - - - - - - . . . . .
10 LoadMS_
11          Card 24 CMIC Interface Card        Port: 0
12 SwMast   MS 0         .                          .
13 Shelf    MS 1         .                          S
14 QueryMS
15
16
17 InterMS_
18 Clock

 XMAP0
Time  14:12    >
```

e Select the next step as follows:

If the MS Card MAP level indicates	Do
OC-3 two port interface paddleboard ports are OOS	step 61
a different alarm	step 62
no faults or alarms	step 34

61 Perform the replacement procedure for the MS CP. Refer to the correct NTP. Return to this point when complete.

If the alarm is	Do
changed to a different alarm	step 62
not clear	step 63
clear	step 34

At the MAP terminal

62 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 63
clear	step 34

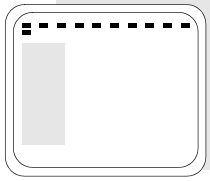
63 Call the next level of support.

64 You have completed this procedure.

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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 will cause the MScomm minor alarm:

- A single port on an HCMIC circuit pack or 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).
- A fiber optic cable is damaged or disconnected.

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

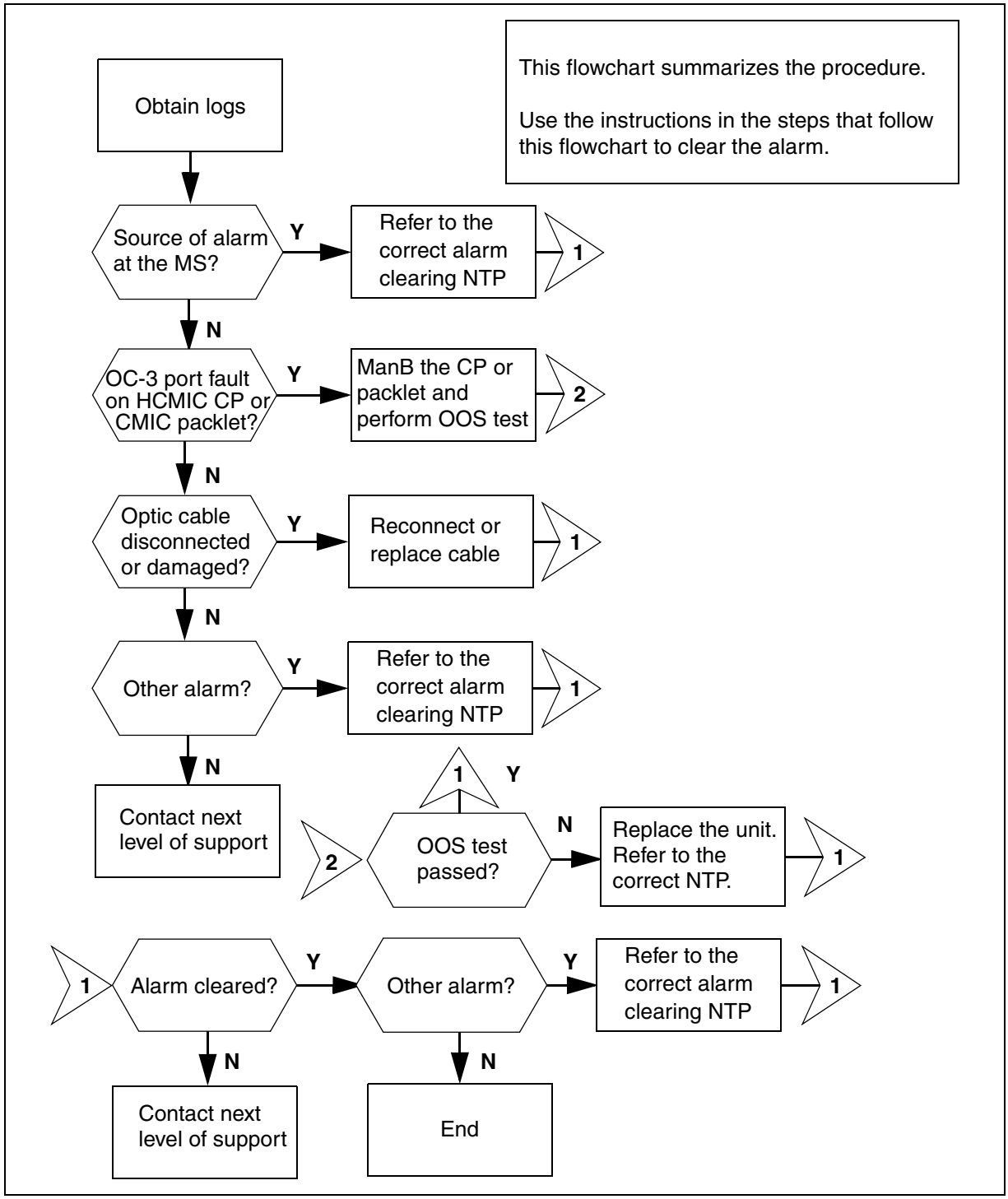
This procedure refers to the replacement procedure for the HCMIC circuit pack and the replacement procedure for the OC-3 two port interface packlet. The procedures are in this document.

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 - Minor (continued)

Figure 1-41 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 the XA-Core MAP

1 Select the next step as follows:

If the CMIC hardware is	Do
HCMIC circuit packs	step 2
OC-3 two port interface packlets	step 25

2 Collect information from XA-Core 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 logs indicate an	Do
XA-Core MScomm minor condition	step 3
MS or different alarm condition	step 43
MScomm minor condition is clear	step 45

3 Access the XA-Core IO MAP level. At the CI prompt, type

>MAPCI;MTC;IO

and press the Enter key.

4 Examine the IO MAP level. Record the location and status of the HCMIC circuit packs.

XAC MScomm - Minor (continued)

5 Access the XA-Core CMIC MAP level. Type

>MAPCI;MTC;CMIC

and press the Enter key.

6 Examine the CMIC MAP level. Record the location and status of the problem. This indicates the location of the HCMIC circuit pack.

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), indicating an OC-3 two port interface packlet
- a status code under the Status, Link, Port, or TOD header in the command interpreter output area

The following is a sample MAP display.

CMIC MAP level

```
 XAC      MS      IOD     Net      PM      CCS     Lns     Trks     Ext     APPL
MScomm     .       .       .       .       .       .       .       .       .


CMIC
 0 Quit
 2
 3
 4
 5
 6 Tst_
 7 Bsy_
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_
      Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
      123456789012345678  456789012345   .      .       .       .
Sta:  -.----..-.---.-..-  .--.--------.   0      0       0       0
Dep:                      F
Typ:                      *           *
Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 4    Rear                  .     .     .      S       .    .
15    Rear                  .     .     .      .       .    .

 XMAP0
Time  14:12   >
```

XAC MScomm - Minor (continued)

If the MAP indicates	Do
a single link is OOS SysB and the status of the HCMIC circuit pack is IsTb	step 7
a single link is OOS CBsy and the status of the HCMIC circuit pack is InSv	step 14
a different alarm condition	step 43
no alarm and all links, CPs, and packlets are in service	step 45

7 Access the IO MAP level. Type

>IO

and press the Enter key.

8 Manually busy the OOS HCMIC circuit pack. Type

>BSY <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 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 4 r

Example of system response:

```
BSY 4 rear complete
```

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

If the HCMIC circuit pack is	Do
in a ManB state	step 9
not in a ManB state	step 44

XAC MScomm - Minor (continued)

9 Perform an OOS test on the HCMIC circuit pack. Type

>TST <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 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:

>TST 4 r

Record the result of the OOS test.

10 Access the XA-Core CMIC MAP level. Type

>MAPCI;MTC;CMIC

and press the Enter key.

11 Examine the CMIC MAP level. Record the status of the links.

12 Select the next step as follows, based on the result of the OOS test performed in step 9, the status of the OC-3 links as observed in step 11, and the status of the HCMIC CP::

If	Do
the OOS test passed and all the OC-3 links are InSv	step 13
there is a link failure and the status of the HCMIC is IsTb	step 23
OOS test did not pass	step 23

13 Return the HCMIC circuit pack to service. Type

RTS <nn> <s>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

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

Example of command use:

>RTS 4 r

XAC MScomm - Minor (continued)

Example of system response:

```
RTS 4 rear passed
```

If the HCMIC circuit pack is	Do
not in an InSv state	step 23
in an InSv state	step 42

At the MS MAP

14 Access the MS MAP level. Type

>MS

and press the Enter key.

15 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.

16 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

17 Record the status of all the OC-3 two port interface paddleboards as shown on the MAP screen.

XAC MScomm - Minor (continued)

The following is a sample MAP display.

MS Card MAP level

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

MS                    Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 0 Quit          MS 0        .            M Free             .                    - -
 2               MS 1        .            Slave              F                    - -
 3
 4               Shelf  0                  1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2
 5               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
 6 Tst_          Chain
 7 Bsy_          MS 0   . . . - . - - - - - - - - - - - - - - - - . . . . .
 8 RTS_          MS 1   . . . - . - - - - - - - - - - - - - - - - . . . . .
 9
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    >
```

18 Examine the MS Card MAP level.

If the MS MAP level indicates	Do
an OC-3 two port interface paddleboard is OOS (ManB)	step 19
an OC-3 two port interface paddleboard is OOS (SysB)	step 20
a different alarm	step 43
all OC-3 two-port interface paddleboard ports are InSv	step 45

19 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. Type

RTS <ms_#>

and press the Enter key

where

<ms_#> is the number of the message switch

XAC MScomm - Minor (continued)

Example of command:

>RTS 0

If the MS MAP level indicates	Do
the OC-3 two port interface paddleboard is InSv and a port is SysB	step 20
the OC-3 two port interface paddleboard is not InSv	step 24

20 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 use:

>TST 1 0

If the MS port test	Do
fails and the link is OOS	step 21
passes and all links are InSv	step 42

At the MS shelf

21 Replace the fiber optic cable with one that matches the OOS link. Disconnect the fiber optic cable from the OC-3 two port interface packlet, and disconnect it from the OC-3 two port interface paddleboard. Wait until call processing volume is low.

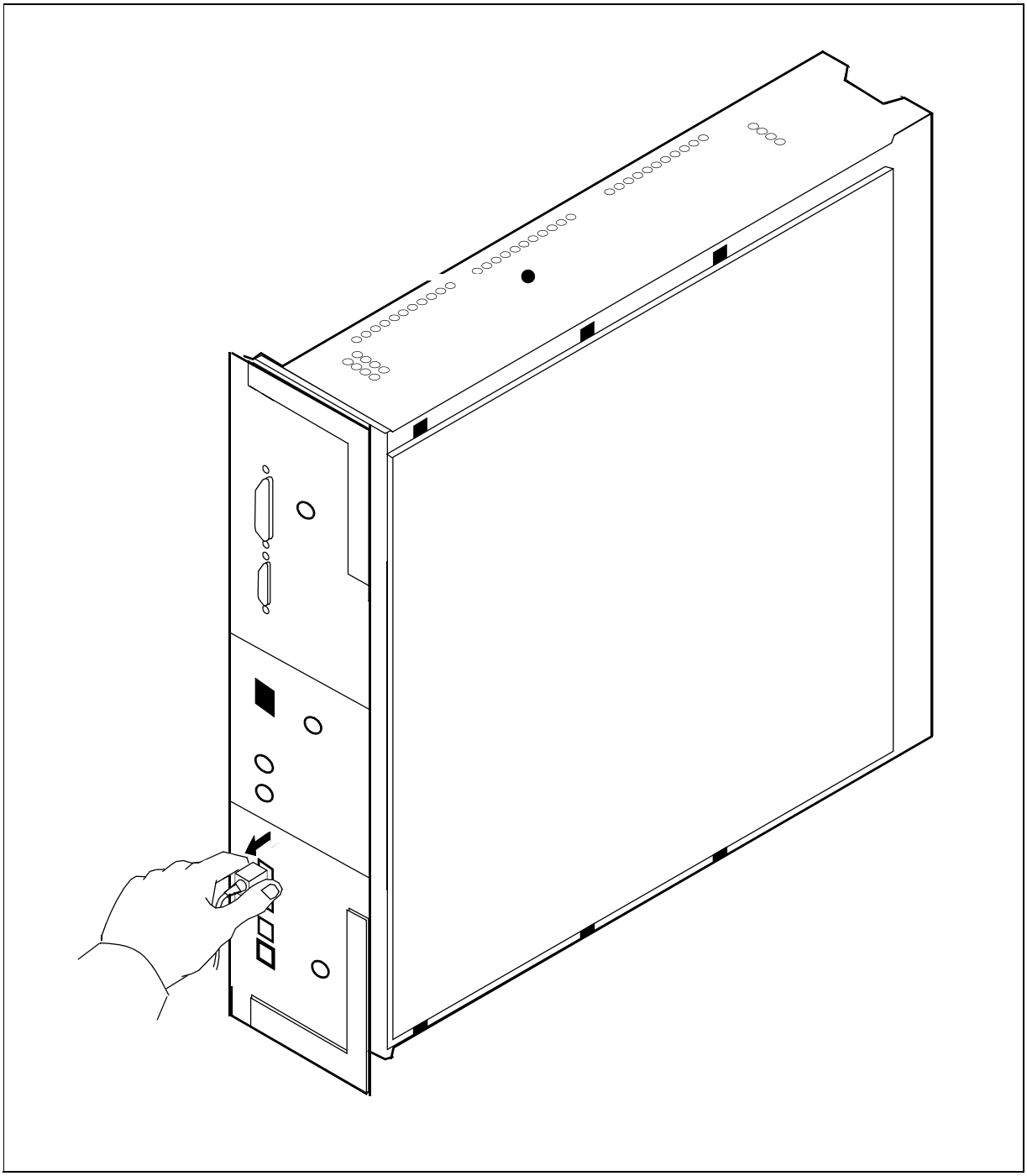
a Carefully pull the fiber optic connector away from the port receptacles. Hold the connector by the body only.

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.

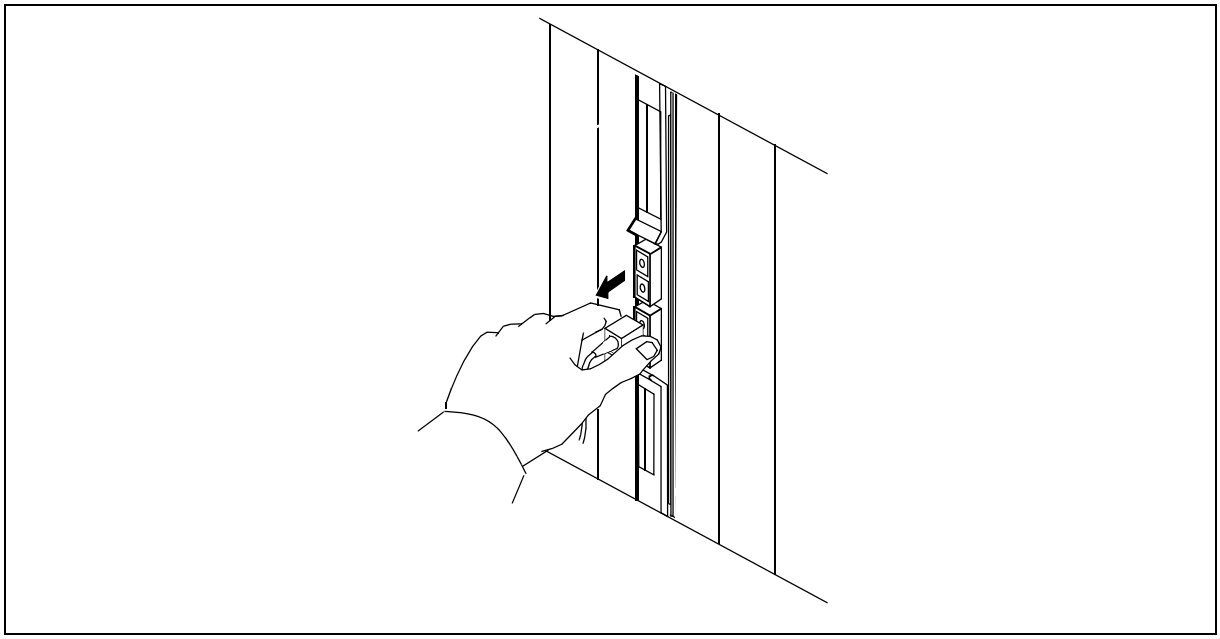
XAC MScomm - Minor (continued)

Disconnect the fiber optic cables from the OC-3 ports on the HCMIC circuit pack



XAC MScomm - Minor (continued)

Disconnect the OC-3 fiber optic cables from the ports on the OC-3 two port interface paddleboard



22 Connect the replacement fiber optic cable to the correct port. (See the link configuration diagrams in this step.)

a Hold the fiber optic cable connector by the body only.

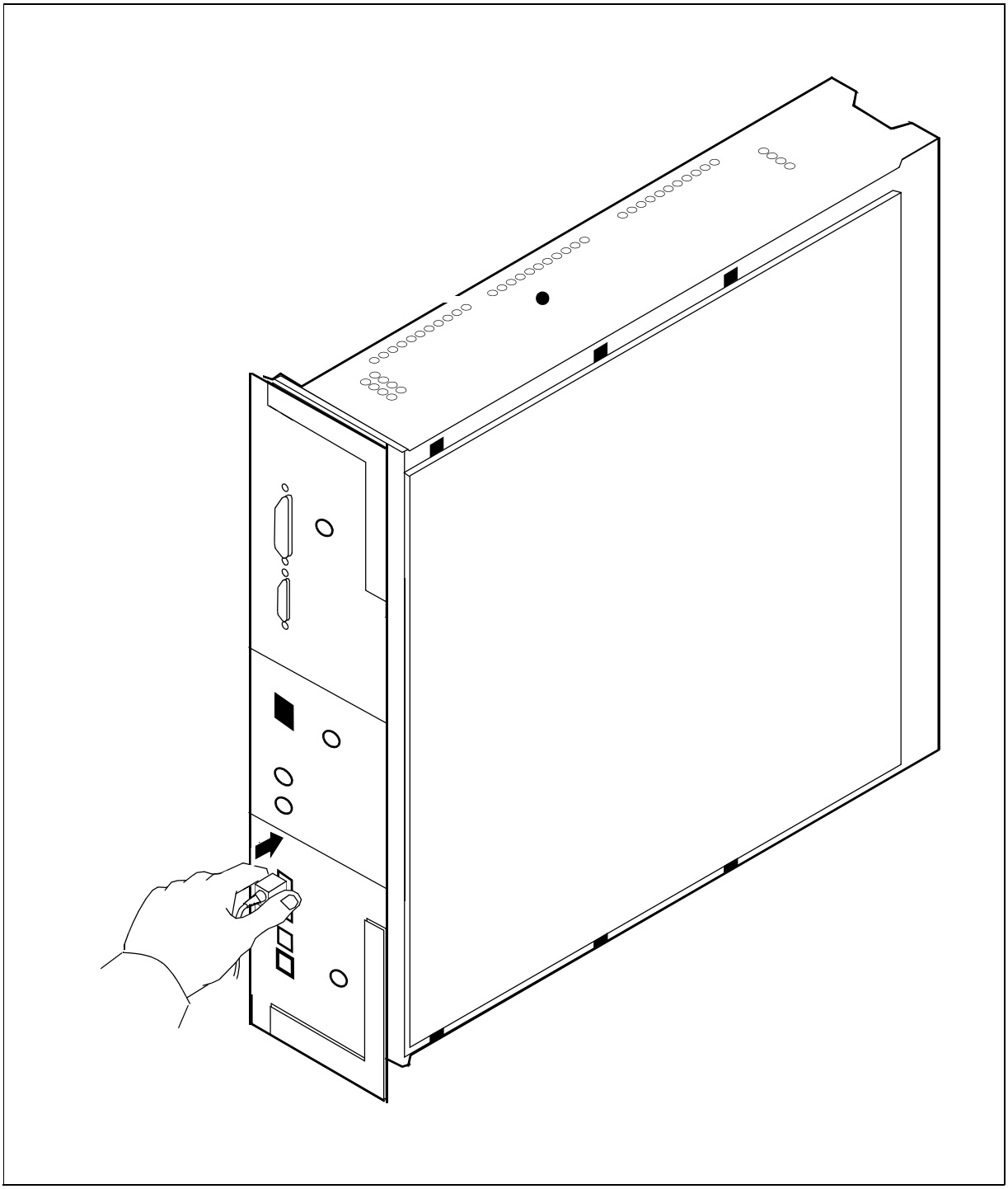
b Remove the dust caps from the ends of the fiber optic cable.

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.

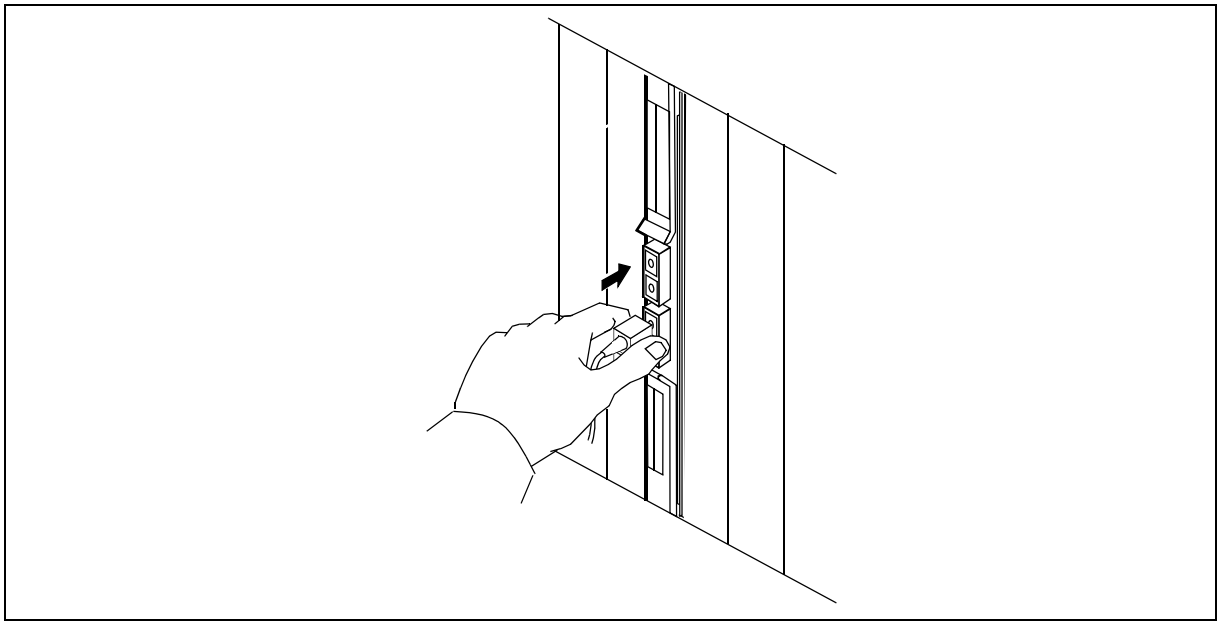
XAC MScomm - Minor (continued)

Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack

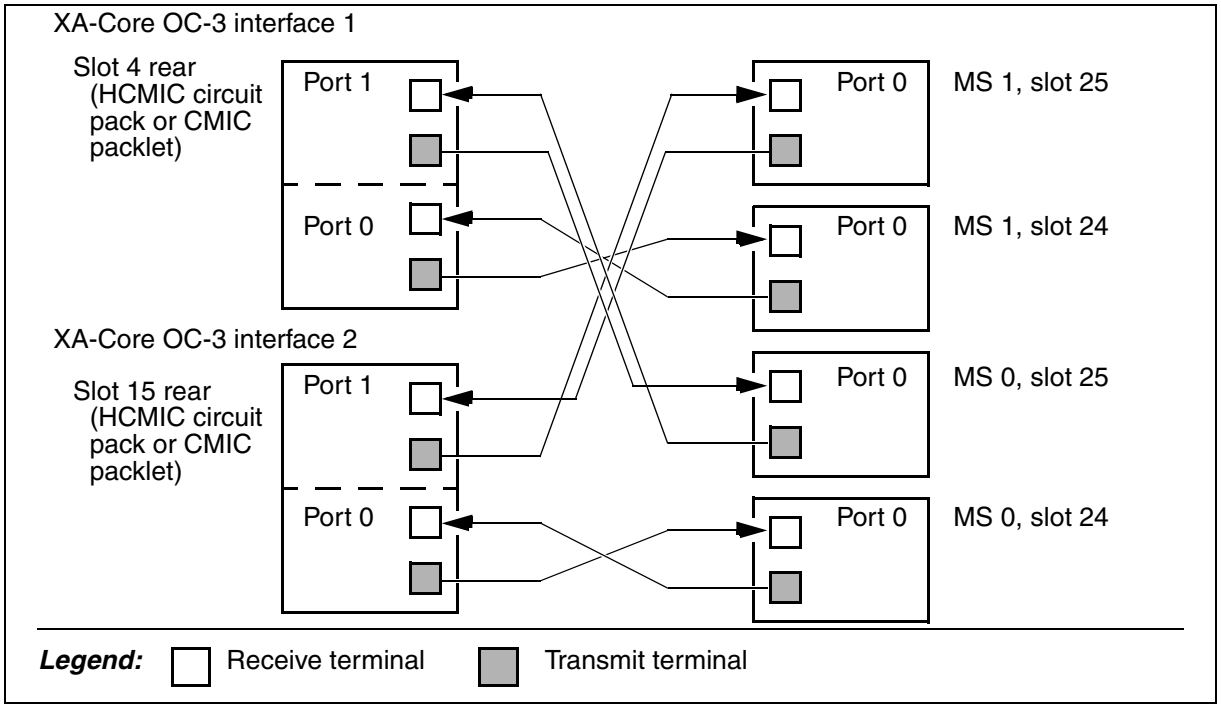


XAC MScomm - Minor (continued)

Connect the fiber optic cables to the ports on the OC-3 two port interface paddleboard

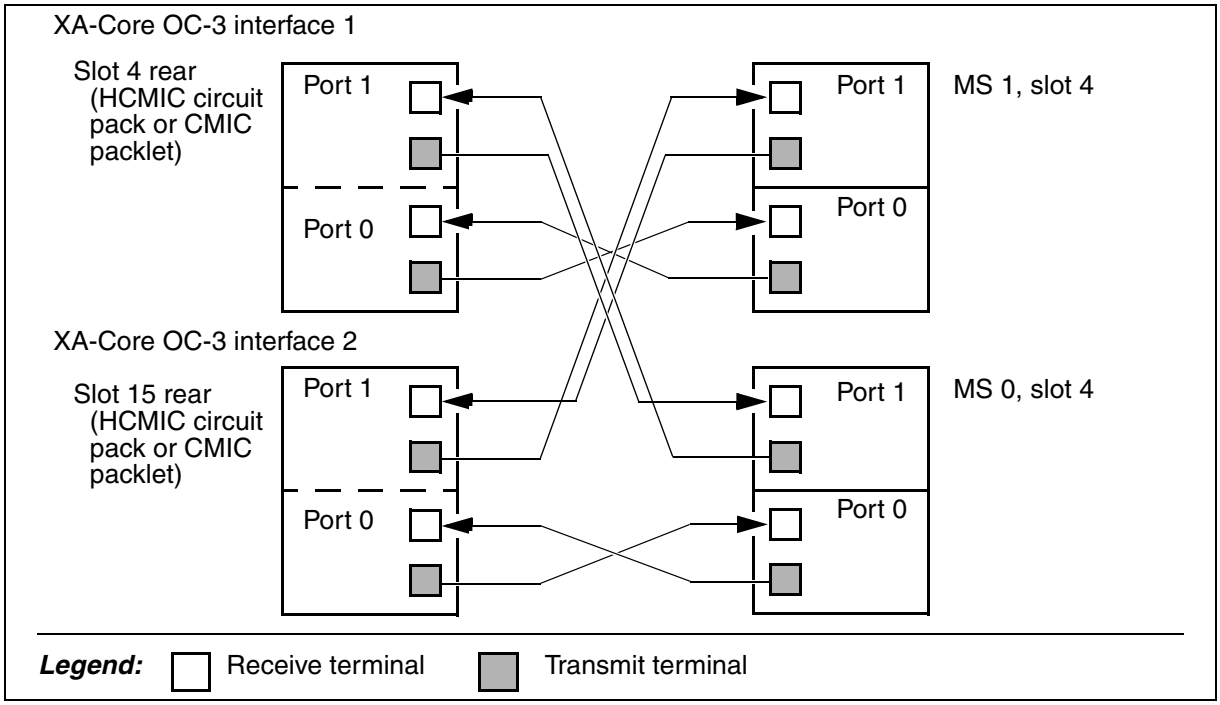


XA-Core and MS fiber optic cable connections (SuperNode)



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 42
not InSv	step 24

At the XA-Core and MS shelves

23 Perform the replacement procedure for the HCMIC circuit pack. Wait until call processing volume is low. Refer to the replacement procedure in this NTP. Return to this point when complete.

If the replacement is	Do
successful	step 42
not successful	step 44

24 Perform the replacement procedure for the OC-3 two port interface paddleboard. Wait until call processing volume is low. Refer to the correct NTP. Return to this point when complete.

If the replacement is	Do
successful	step 42

XAC MScomm - Minor (continued)

If the replacement is	Do
not successful	step 44

At the XA-Core MAP

25 Collect information from XA-Core 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 logs indicate an	Do
XA-Core MScomm minor condition	step 26
MS or different alarm condition	step 43
MScomm minor condition is clear	step 45

26 Access the XA-Core CMIC MAP level. At the CI prompt, type

>MAPCI;MTC;CMIC

and press the Enter key.

27 Examine the CMIC MAP level. Record the location and status of the OC-3 two port interface packlet.

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), indicating an OC-3 two port interface packlet
- a status code under the Status, Link, Port, or TOD header in the command interpreter output area

XAC MScomm - Minor (continued)

The following is a sample MAP display.

CMIC MAP level

```
 XAC      MS      IOD      Net      PM      CCS      Lns     Trks     Ext     APPL
MScomm     .       .        .       .        .       .       .       .       .


CMIC
 0 Quit          Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 2               123456789012345678  456789012345   .      .       .       LINKfl
 3          Sta: -.----..-.---.-..-  .--.--------.  0      0       0       1
 4          Dep:                    F
 5          Typ:                    *           *
 6 Tst_     Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 7 Bsy_      4    Rear  Lower    I       .     .     .      S       .
 8 RTS_     15    Rear  Lower    .       .     .     .      .       .
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

 XMAP0
Time  14:12   >
```

If the MAP indicates	Do
a single link is OOS SysB and the status of the OC-3 two port interface packlet is IsTb	step 28
a single link is OOS CBsy and the status of the OC-3 two port interface packlet is InSv	step 31
a different alarm condition	step 43
no alarm and all links, CPs, and packlets are in service	step 45

28 Manually busy the OOS OC-3 two port interface 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 slot in the physical shelf - 1 to 18

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

XAC MScomm - Minor (continued)

<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:

```
BSY 4 rear lower complete
```

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

If the OC-3 two port interface packlet is	Do
in a ManB state	step 29
not in a ManB state	step 44

29 Perform an OOS test on the OC-3 two port interface packlet. Type

>TST <nn> <s> <p>

and press the Enter key

where

<nn> is the slot number parameter value to indicate the number of the slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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 CMIC MAP level indicates	Do
the OOS test passed and all the links are InSv	step 30
a link failure and the OC-3 status is IsTb	step 40
the OOS test did not pass and the OC-3 status is OOS	step 40

30 Return the OC-3 two port interface 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 slot in the physical shelf - 1 to 18

<s> is the side parameter value to indicate the 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 40
in an InSv state	step 42

At the MS MAP

31 Access the MS MAP level. Type

>MS

and press the Enter key.

32 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.

33 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

34 Record the status of all the OC-3 two port interface paddleboards as shown on the MAP screen.

XAC MScomm - Minor (continued)

The following is a sample MAP display.

MS Card MAP level

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


MS                    Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 0 Quit          MS 0        .            M Free             .                    - -
 2               MS 1        .            Slave              F                    - -
 3
 4               Shelf  0                  1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2
 5               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
 6 Tst_          Chain
 7 Bsy_          MS 0   . . . - . - - - - - - - - - - - - - - - - . . . . .
 8 RTS_          MS 1   . . . - . - - - - - - - - - - - - - - - - . . . . .
 9
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    >
```

35 Examine the MS Card MAP level.

If the MS MAP level indicates	Do
an OC-3 two port interface paddleboard is OOS (ManB)	step 36
an OC-3 two port interface paddleboard is OOS (SysB)	step 37
a different alarm	step 43
all OC-3 two-port interface paddleboard ports are InSv	step 45

36 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. Type

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 37
the OC-3 two port interface paddleboard is not InSv	step 41

37 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 use:

>TST 1 0

If the MS port test	Do
fails and the link is OOS	step 38
passes and all links are InSv	step 42

At the XA-Core shelf

38 Replace the fiber optic cable with one that matches the OOS link. Disconnect the fiber optic cable from the OC-3 two port interface packlet, and disconnect it from the OC-3 two port interface paddleboard. Wait until call processing volume is low.

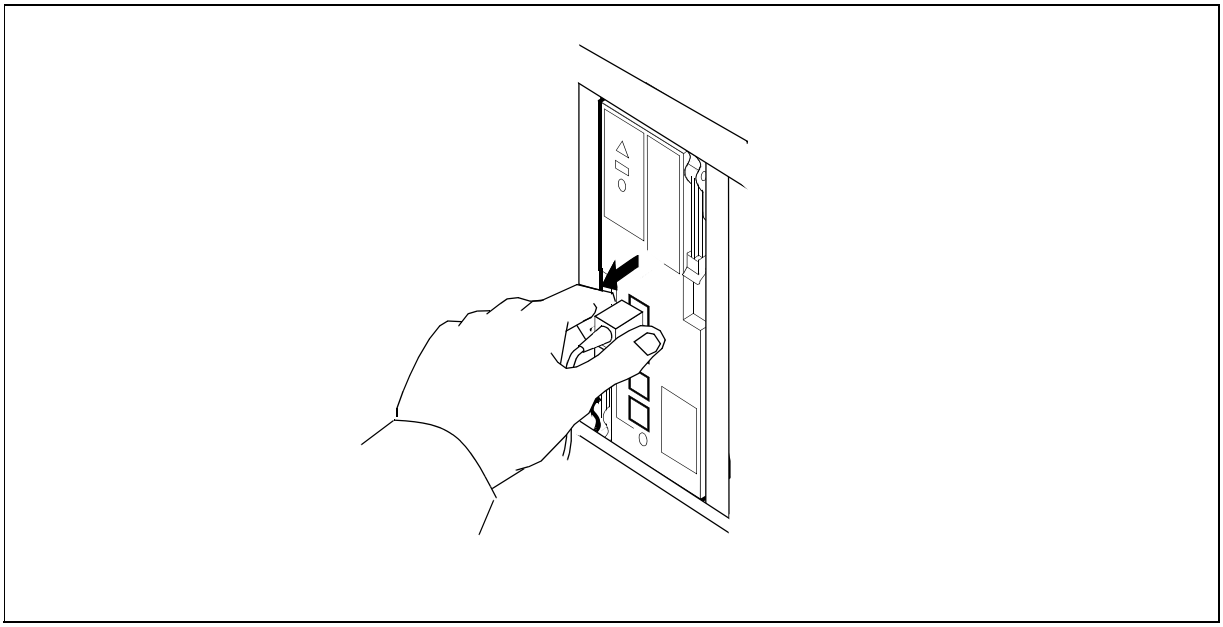
a Carefully pull the fiber optic connector away from the port receptacles. Hold the connector by the body only.

b Cover the ends of the fiber optic cable with dust caps.

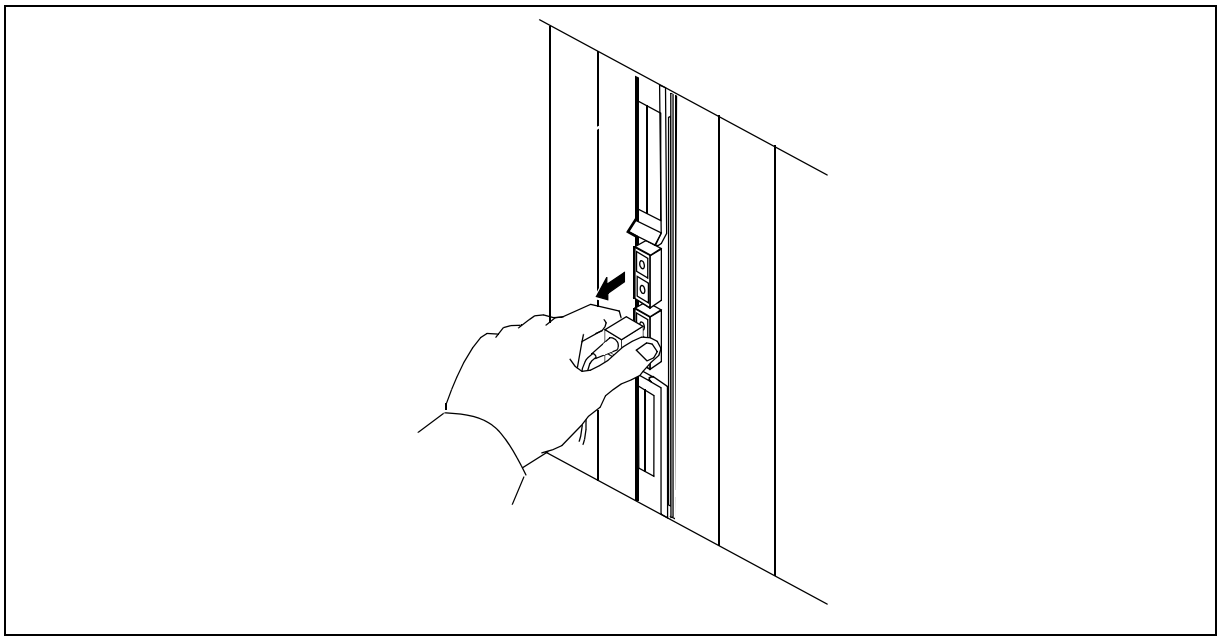
c Place the fiber optic cable in a safe location away from the physical shelf.

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



39 Connect the replacement fiber optic cable to the correct port. (See the link configuration diagrams in this step.)

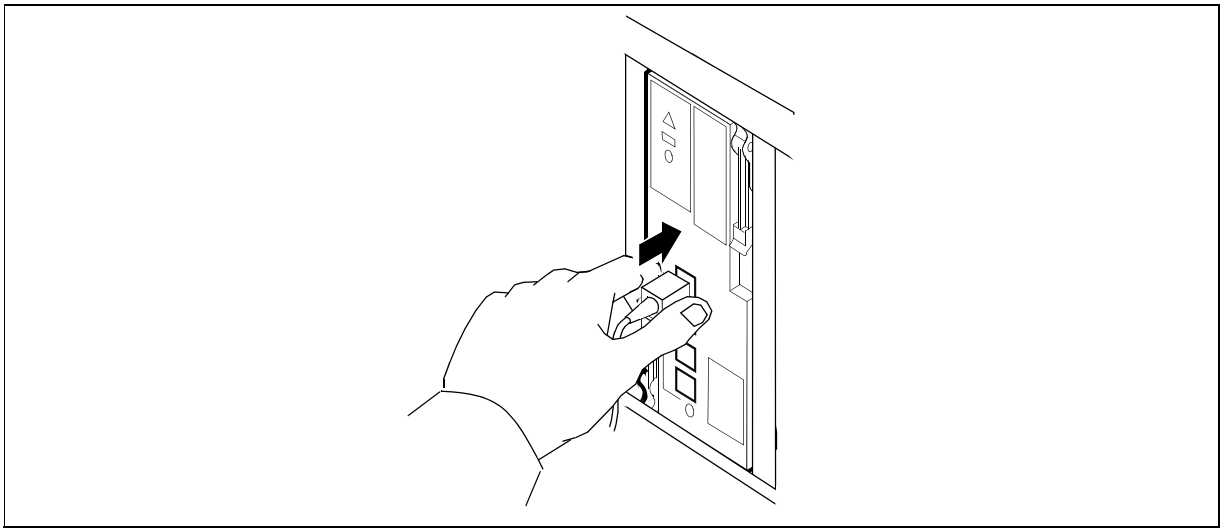
a Hold the fiber optic cable connector by the body only.

b Remove the dust caps from the ends of the fiber optic cable.

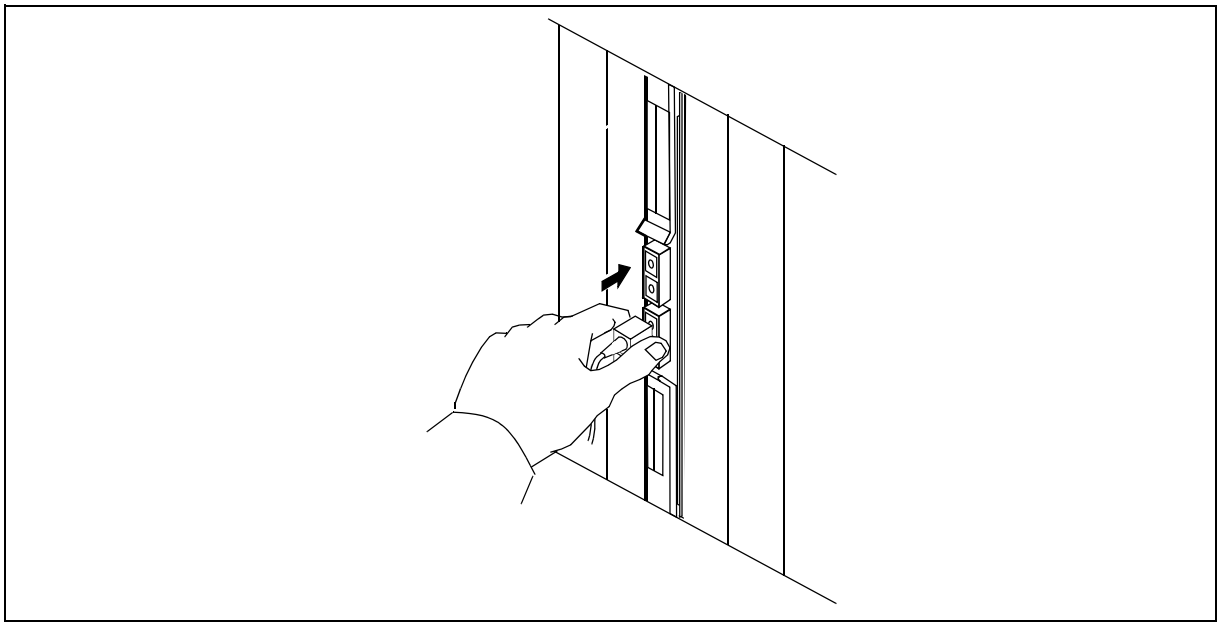
c Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure.

d Carefully insert the connectors into the correct receptacles.

Connect the fiber optic cables to the OC-3 two port interface packlet ports

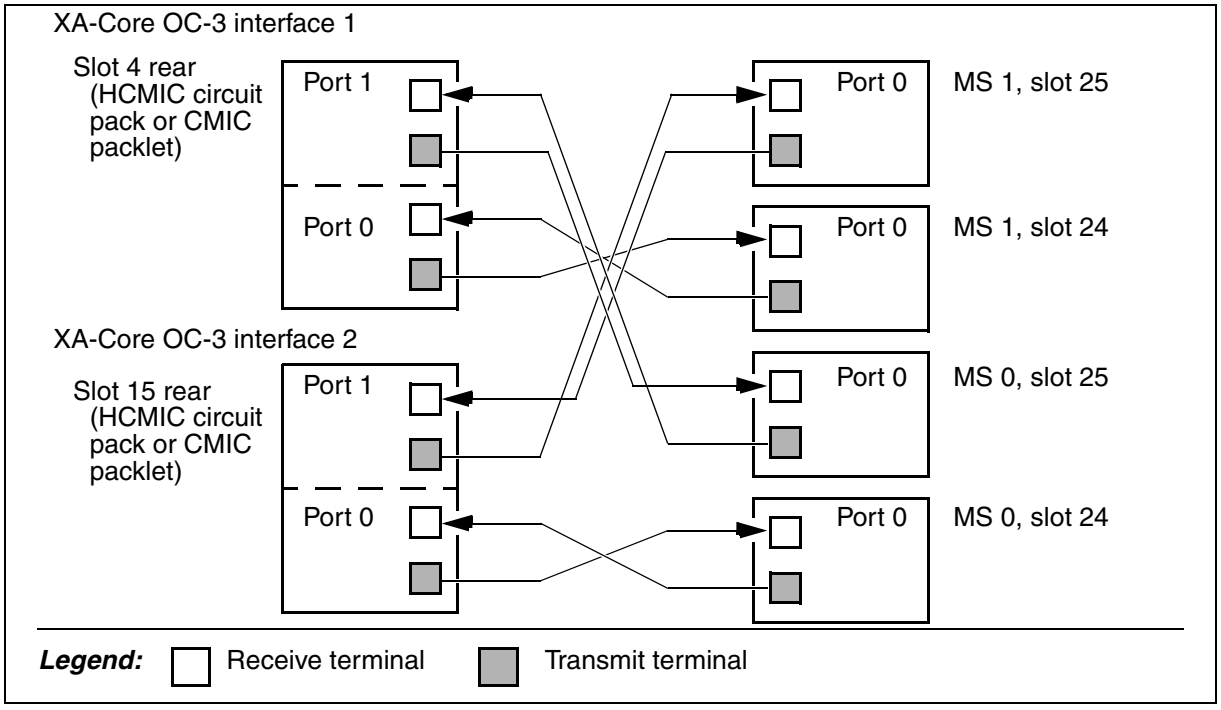


Connect the fiber optic cables to the OC-3 two port interface paddleboard ports

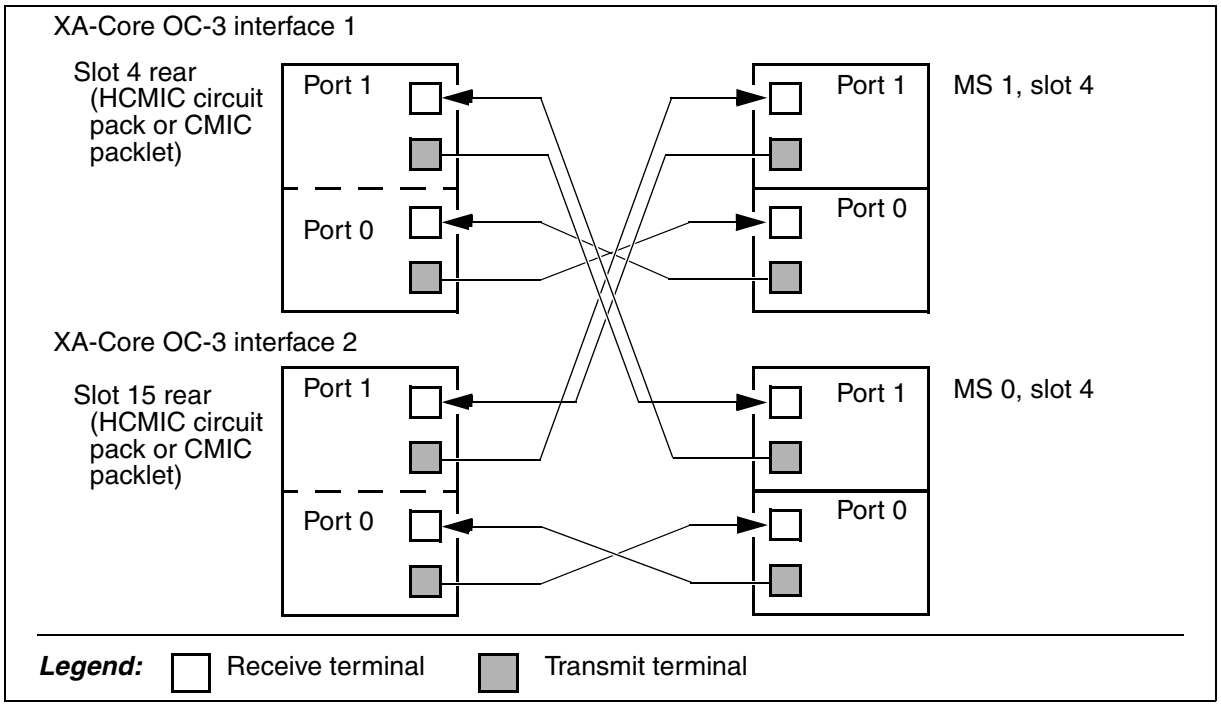


XAC MScomm - Minor (continued)

XA-Core and MS fiber optic cable connections (SuperNode)



XA-Core and MS fiber optic cable connections (SuperNode SE)



If the MS Card MAP level shows that the link is	Do
InSv	step 42
not InSv	step 41

At the XA-Core and MS shelves

40 Perform the replacement procedure for the OC-3 two port interface packlet. Wait until call processing volume is low. Refer to the replacement procedure in this NTP. Return to this point when complete.

If the replacement is	Do
successful	step 42
not successful	step 44

41 Perform the replacement procedure for the OC-3 two port interface paddleboard. Wait until call processing volume is low. Refer to the correct NTP. Return to this point when complete.

If the replacement is	Do
successful	step 42
not successful	step 44

XAC MScomm - Minor (end)

At the XA-Core MAP

42 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 43
the alarm is not clear	step 44
the alarm is clear	step 45

43 Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

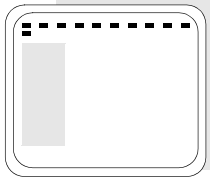
If the alarm is	Do
not clear	step 44
clear	step 45

44 Call the next level of support.

45 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.

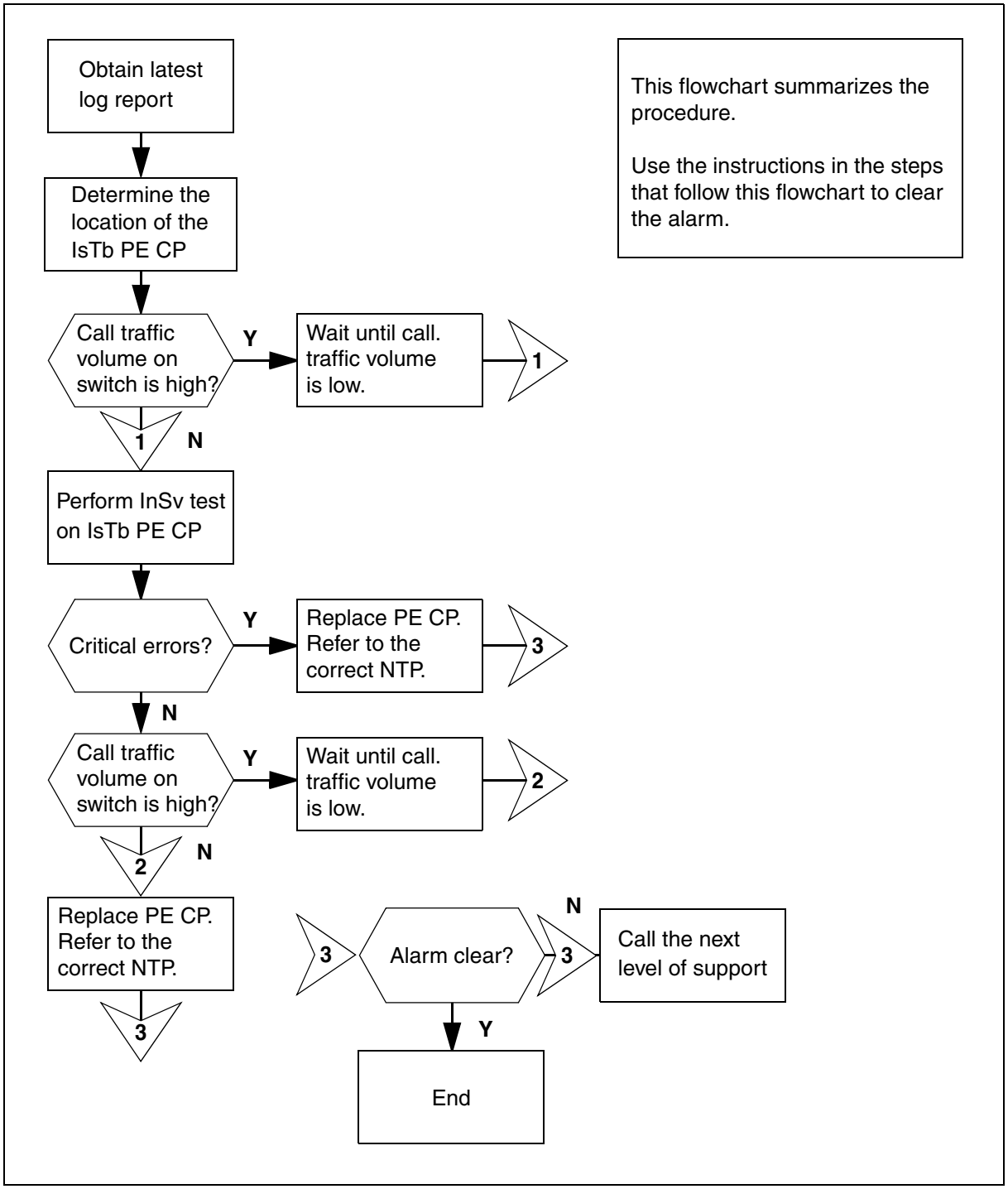
Action

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

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)

Figure 1-42 Summary of clearing a PEtrbl minor alarm



XAC PEtrbl - Minor (continued)

How to clear a PEtrbl minor alarm



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 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	step 4

XAC PEtrbl - Minor (continued)

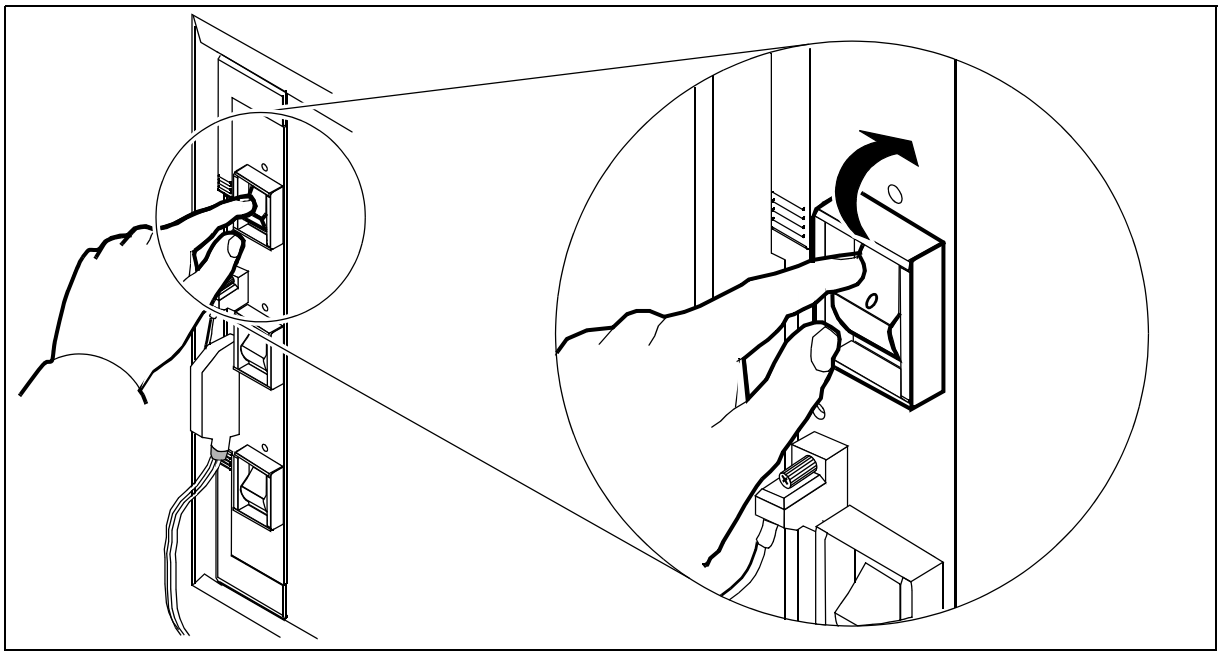
If the log indicates	Do
another alarm condition	step 12
that the alarm condition is clear	step 14

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.

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 13

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.

PE MAP level

```
 XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
PEtrbl.    .       .        .       .        .        .        .        .

PE                    Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit               123456789012345678  456789012345   .      PEfl    .       .
 2                Sta: -.-I.-..-..-..-..-  .--.-------.   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    >
```

If the MAP indicates	Do
a PE CP is in an IsTb state	step 6
a different alarm	step 12
no alarm and all CPs are in service	step 14

6 When traffic call volume is low, perform an in-service test on the IsTb PE CP. At the PE MAP level type

>TST <nn> <s>

XAC PEtrbl - Minor (continued)

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

<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

Example of system response:

```
Tst 4 front failed.
```

If the InSv test	Do
passed	step 7
did not pass	step 10

7 Manually busy 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 - 1 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:

```
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 8
not in a ManB state	step 13

8 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 - 1 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	step 9
in an InSv state and the IsTb alarm is active	step 10
in an InSv state and the IsTb alarm is clear	step 11

At the XA-Core physical shelf

9 Perform the PE CP replacement procedure immediately. Refer to the correct replacement procedure located in this document. Continue to step 11 when complete.

10 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.

11 Confirm that the alarm is clear. Examine the PE MAP screen.

If the PEtrbl minor alarm is	Do
changed to different alarm	step 12
not clear	step 13
clear	step 14

12 Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

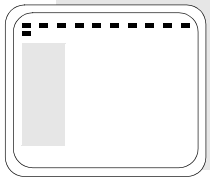
If the alarm is	Do
not clear	step 13
clear	step 14

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 RExFlt - Minor

Alarm display



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

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

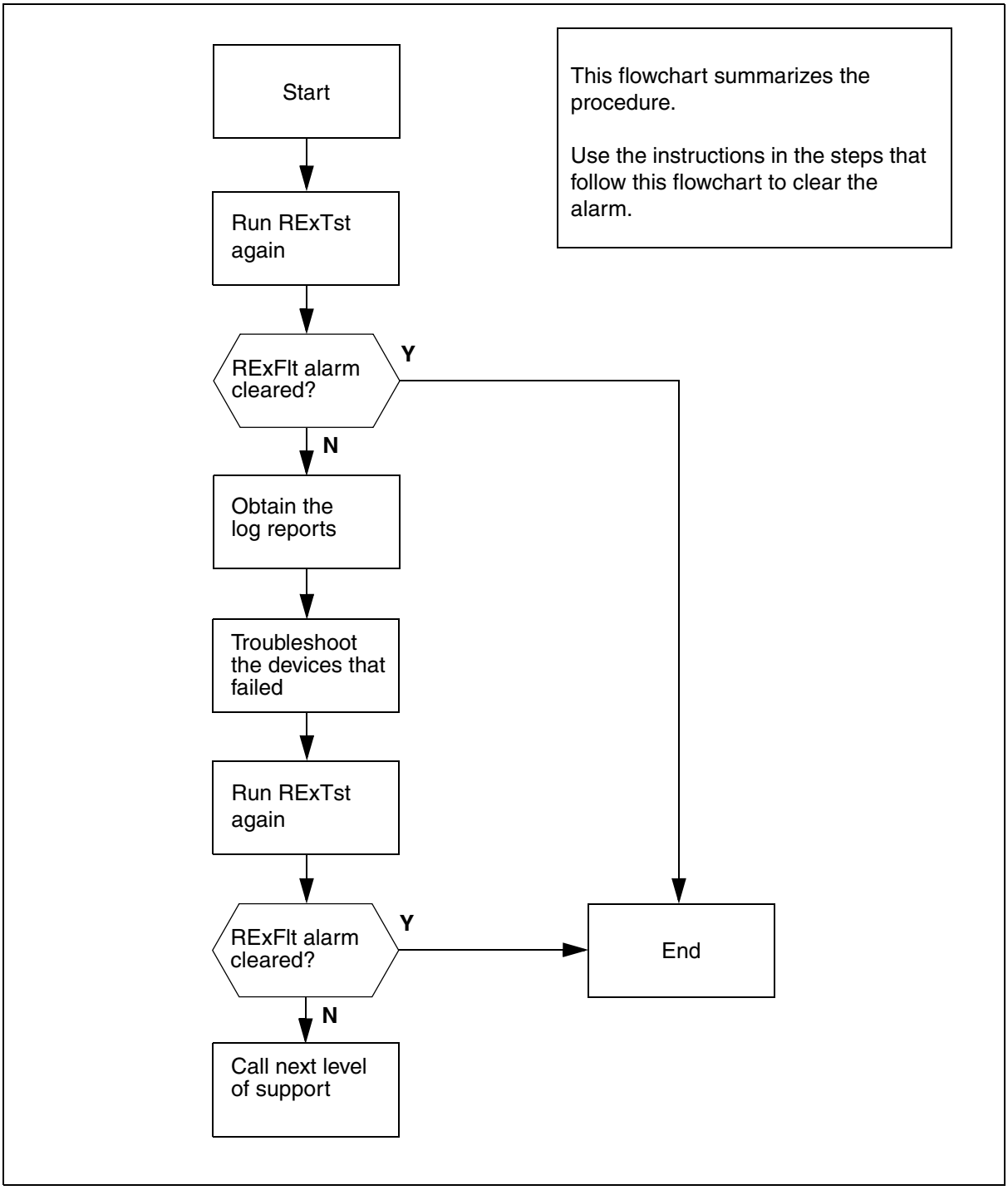
There are no common procedures.

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)

Figure 1-43 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

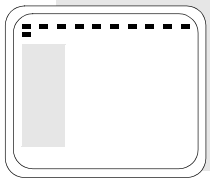
5 Call the next level of support.

6 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

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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 that the system is not performing daily system REx (SREx) tests.

Each day, maintenance system software starts the REx test at the start time specified in the NODEREXCONTROL office parameter. The default start time is 1:30 AM (system time), but you can update NODEREXCONTROL to specify a start time of your choosing. If call volume or call-processing capacity utilization is high at the start time of the system 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 call-processing capacity utilization is low, the system can complete the critical REx tests.

The system maintains two counters that can trigger the raising of the RExSch minor alarm.

- One counter counts consecutive days during which conditions prevent the system from trying to run the daily system REx (SREx) test. When this counter reaches seven, it triggers the RExSch minor alarm.
- Another counter counts consecutive days during which the system cancels the daily system REx (SREx) test for a specified reason. When this counter reaches two, it triggers the RExSch minor alarm.

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. On such an occasion it resets the counters to zero. Note that a manual REx test will not clear the RExSch minor alarm, and will not reset the counters.

XAC RExSch - Minor (continued)

Any one of the following conditions will prevent the system from trying to run the daily system REx test. On each such occasion the system increments the counter that triggers the alarm when it reaches seven.

- Field ENABLED in the XACORE_REX_TEST tuple in table REXSCHED has been set to N.
- Field REXON in tuple NODEREXCONTROL in table OFCVAR is set to N.
- Call-processing capacity utilization is equal to or greater than 40%.

Any one of the following reasons will cause the system to cancel the daily system REx test. On each such occasion the system increments the counter that triggers the alarm when it reaches two.

- XACORE_REX_TEST tuple values are not correct (in table RExSched).
- The system fails the REx pre-test check.
- Insufficient time has elapsed between the last restart and the system REx test.
- A circuit pack (CP) is out of service (OOS).
- A memory-mismatch condition or a processor-trap condition exists.
- Inability to contact system software.
- The object ID used to trigger the system REx test is wrong.
- A dump is in progress.
- An error counter has exceeded its threshold.
- A SysBTh alarm is raised, due to the PE group of the SM group.
- A system REx test that is in progress is aborted. (Examples of events that can abort the test are: you enter the REXTST TERMINATE command; a circuit pack goes out of service during the test.)
- The System REx test takes longer to run than the time allotted for it.

Impact

There is no change in subscriber service.

Common procedures

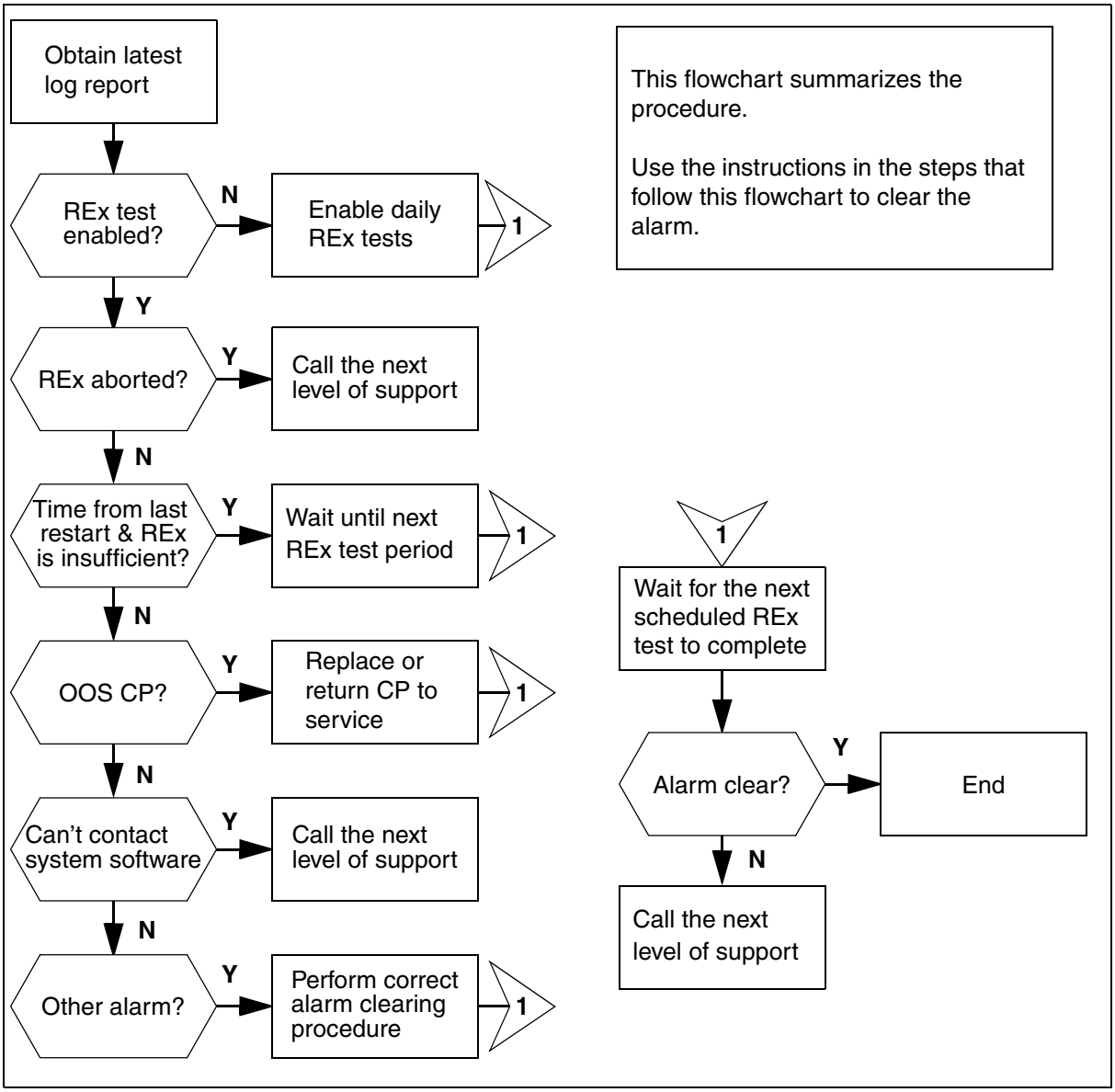
There are no common procedures.

XAC RExSch - 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.

Figure 1-44 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 packlet 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 Indicat_
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.

a Display the CI MAP level prompt. At the XACMtc MAP level, type

>QUIT ALL

and press the Enter key.

b Access the REXSCHED table. At the CI MAP level prompt type

>TABLE REXSCHED

XAC RExSch - Minor (continued)

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

>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

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
```

XAC RExSch - Minor (continued)

```
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 Go to the CAPACITY MAP level and check on the call-processing capacity-utilization value. At the CI MAP prompt, type

>MAPCI;MTC;CAPACITY

and press the Enter key.

The following is a sample MAP display.

Capacity MAP level

```
 XACM      MS     IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
  .        .       .       .       .       .       .      .       .       .

CAPACITY
 0 Quit     CATMP/HR UTIL ENGCATMP MAXCATMP ENGLEVEL CCOVRLD
 2 Parms      120000   75   160000   200000    BELOW     OFF
 3 SchedMap
 4 Detail   CMICOVRLD PESC
 5                OFF   NO
 6
 7
 8
 9
10
11
12
13
14
15
16
17 StrtLog
18 StopLog
 XMAP0
Time  14:12   >
```

Observe the value of the call-processing capacity--utilization, whose heading is UTIL. In the sample, the value is 75, indicating 75%.

If the MAP indicates	Do
the call-processing capacity-utilization value is less than 50%	step 8
the call-processing capacity-utilization value is greater than or equal to 50%	step 14
no alarm	step 15

XAC RExSch - Minor (continued)

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 - 1 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 packlet 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 packlet replacement procedure. Refer to the correct NTP. Return to this point when complete.

If the CP or packlet 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.

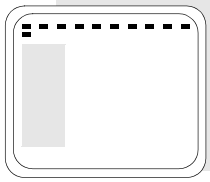
If the alarm is	Do
clear	step 11
not clear	step 14

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

Common procedures

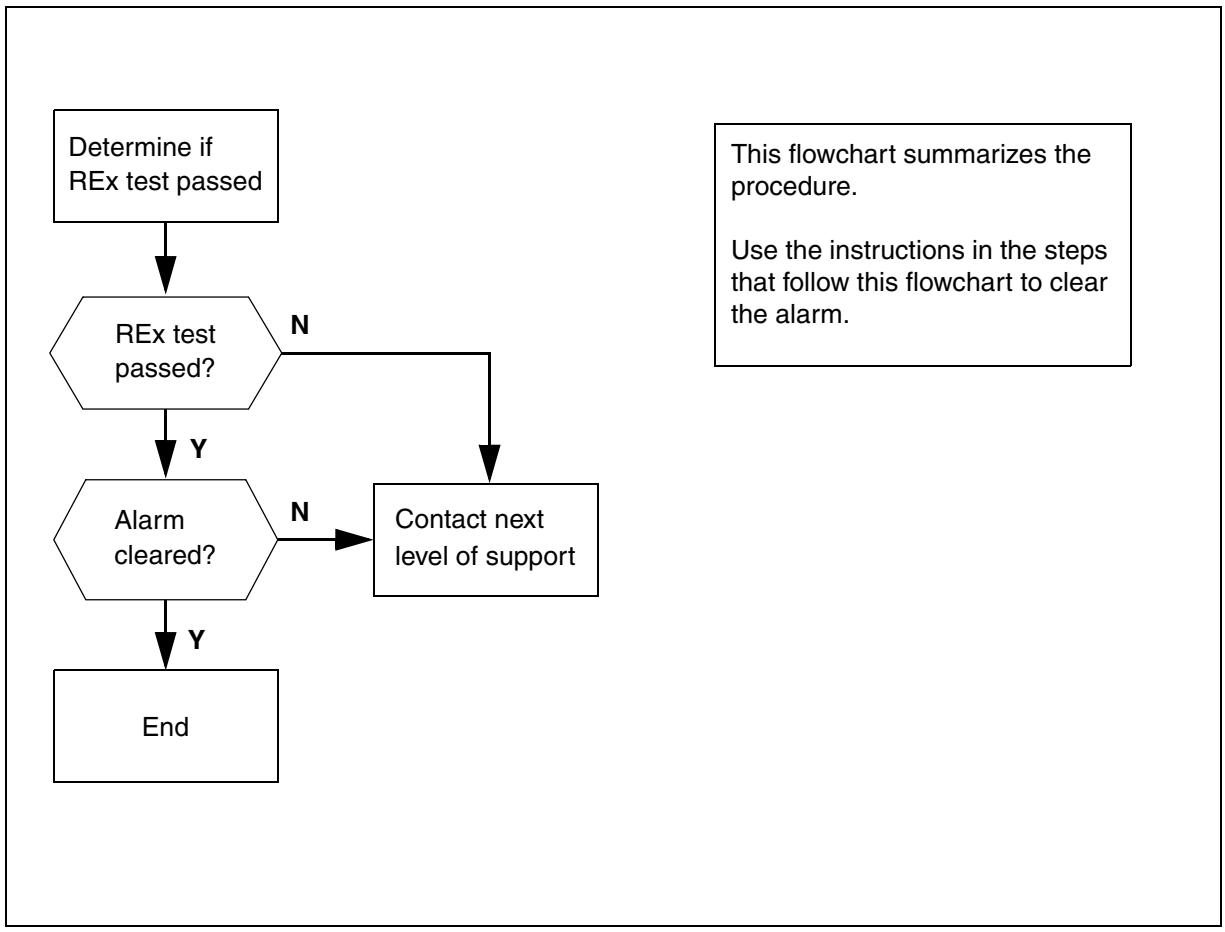
There are no common procedures.

XAC RExTst - 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.

Figure 1-45 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.

XAC RExTst - Minor (continued)

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
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      MS      IOD      Net      PM      CCS      Lns     Trks     Ext     APPL
RExTst     .       .        .        .       .        .       .        .       .


XACMtc
 0 Quit          Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
                 123456789012345678  456789012345   .      .       .       .
 2          Sta: -.-.--..-..-----..-  .--.-------.  0      0       0       0
 3          Dep:
 4
 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

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 packlets 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

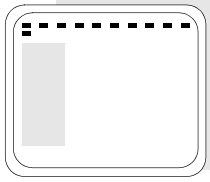
7 Call the next level of support.

8 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

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XAC RIBkey - Major

Alarm display



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

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 RIBkey devices attached.

A RIBkey is a device that is connected to a local RTIF port on the XA-Core. (The RTIF local port is on an HCMIC circuit pack or on an RTIF packlet.) RIBkeys are installation tools 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

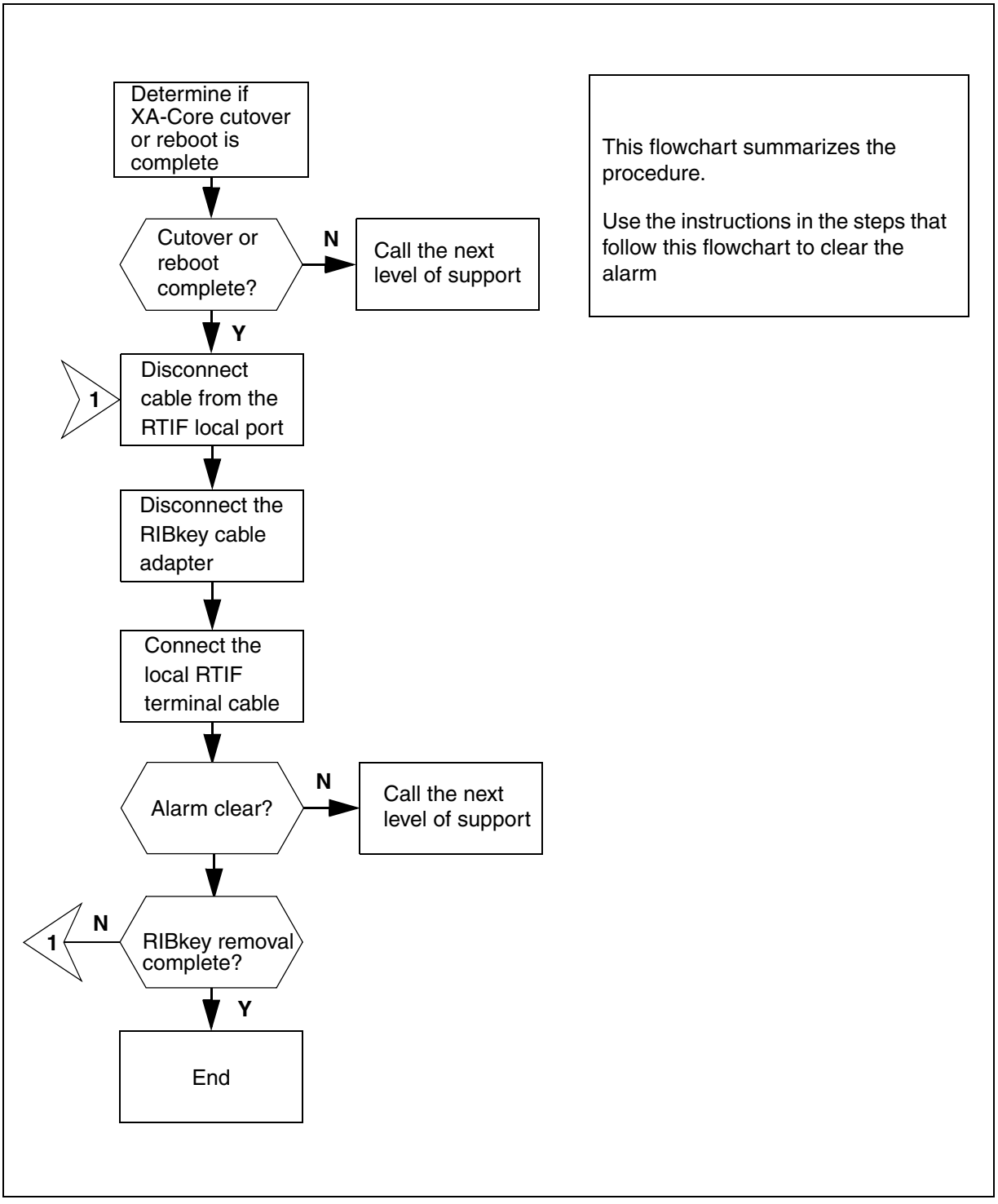
There are no common procedures.

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)

Figure 1-46 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 XA-Core 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.

XAC RIBkey - Major (continued)

4 Examine the RTIF MAP level. Record the working state of the system. If the RTIF links are supported by RTIF packlets, the “Packlet” fields will contain values, for example, “Upper”. If the RTIF links are supported by the RTIF sections of HCMIC circuit packs, the “Packlet” fields will be blank. Record the displayed information about RTIF ports, and record the slot location of the RTIF hardware, and, if the RTIF hardware is RTIF packlets, record the packlet positions.

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

The following are sample MAP displays.

RTIF MAP level, showing data for RTIF packlets in positions 4 rear, upper, and 15 rear, upper

```
 XAC       MS      IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
 RIBkey    .       .       .        .      .       .      .       .       .
  M
RTIF            Front:   111111111  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: Status   Port0:  Port1  Link0  Link1:
 6 Tst_           4   Rear  Upper    .        RIBkey  .
 7 Bsy_          15   Rear  Upper    .        RIBkey  .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC RIBkey - Major (continued)

RTIF MAP level, showing data for the RTIF sections of HCMIC CPs in slots 4 rear and 15 rear

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RIBkey     .        .        .         .       .        .       .        .        .
  M
RTIF              Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit           123456789012345678  456789012345      .      .      .
 2               Sta:-.-.--..-..-.-..-   .--.-------.     0      0      0     0
 3               Dep:
 4               Typ:                    *          *
 5               Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear                    RIBkey  .      C      .
 7 Bsy_           15   Rear                    RIBkey  .      C      .
 8 RTS_
 9
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 items of RTIF hardware (HCMIC circuit packs or RTIF packlets).

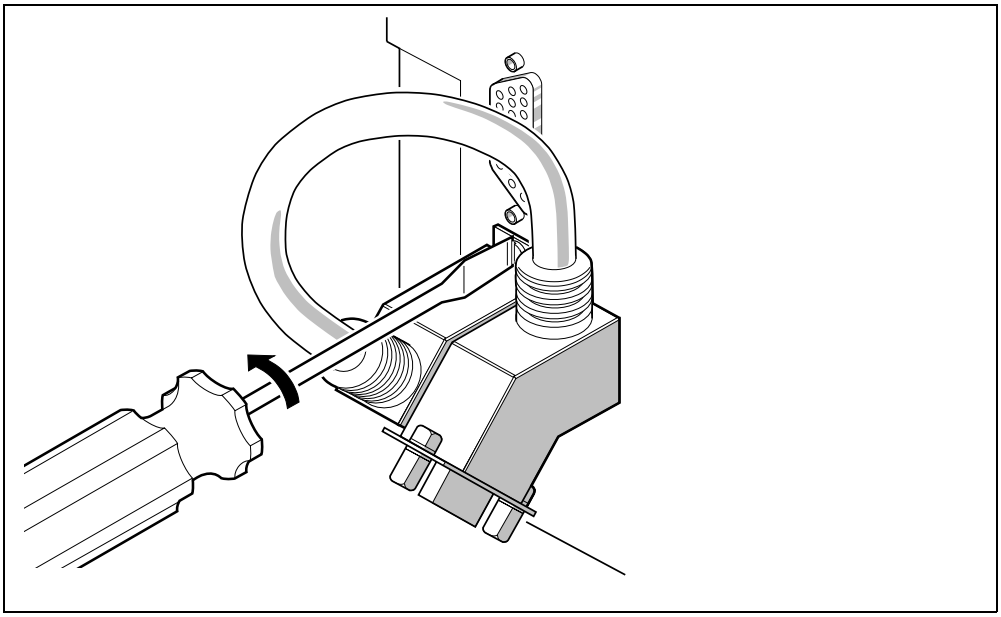
- **a** Unscrew the cable connector from the RIBkey receptacle
- **b** Hold the cable connector by the body only
- **c** Carefully pull the cable connector away from the RIBkey device
- **d** Place the remote terminal cable in a safe location away from the physical shelf

6 Disconnect the RIBkey device from the RTIF ports (see the diagrams in this step). Perform this step for all items of RTIF hardware (HCMIC circuit packs or RTIF packlets).

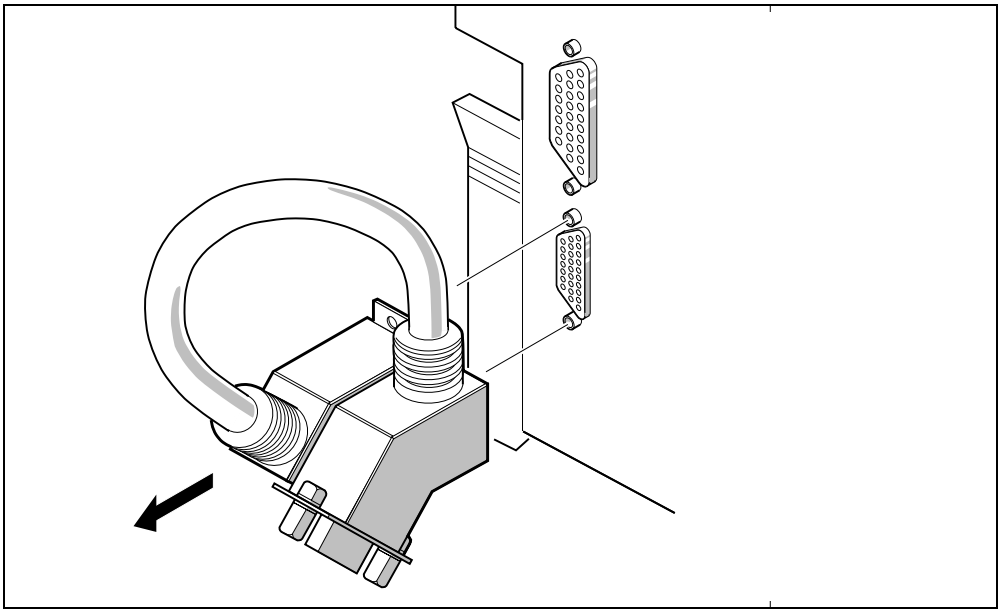
- **a** Unscrew the RIBkey from the RTIF port receptacle
- **b** Hold the RIBkey device by the body only
- **c** Carefully pull the RIBkey device away from the RTIF port receptacle

XAC RIBkey - Major (continued)

Unscrew the RIBkey connector



Remove the RIBkey device from the RTIF port receptacle



XAC RIBkey - Major (continued)

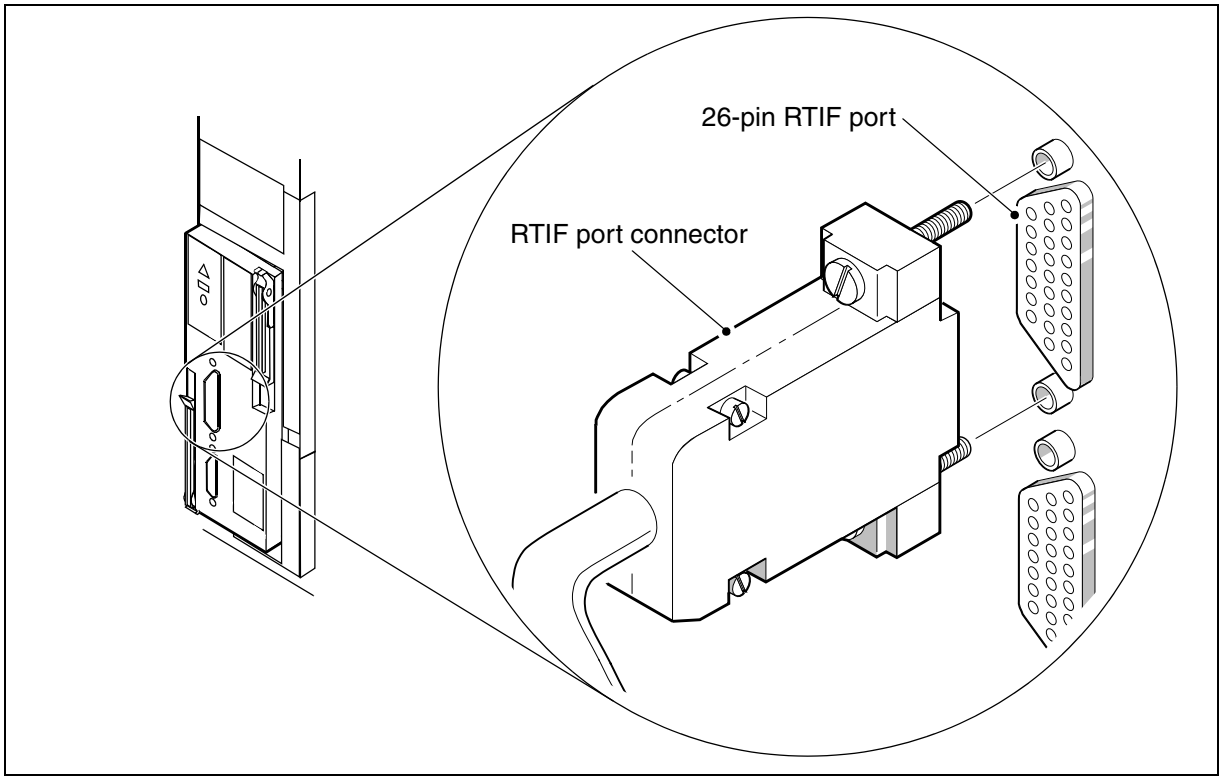
7 Connect the terminal cables to the RTIF port receptacles. Perform this step for all items of RTIF hardware (HCMIC circuit packs or RTIF packlets).

a Hold the terminal connector by the body only.

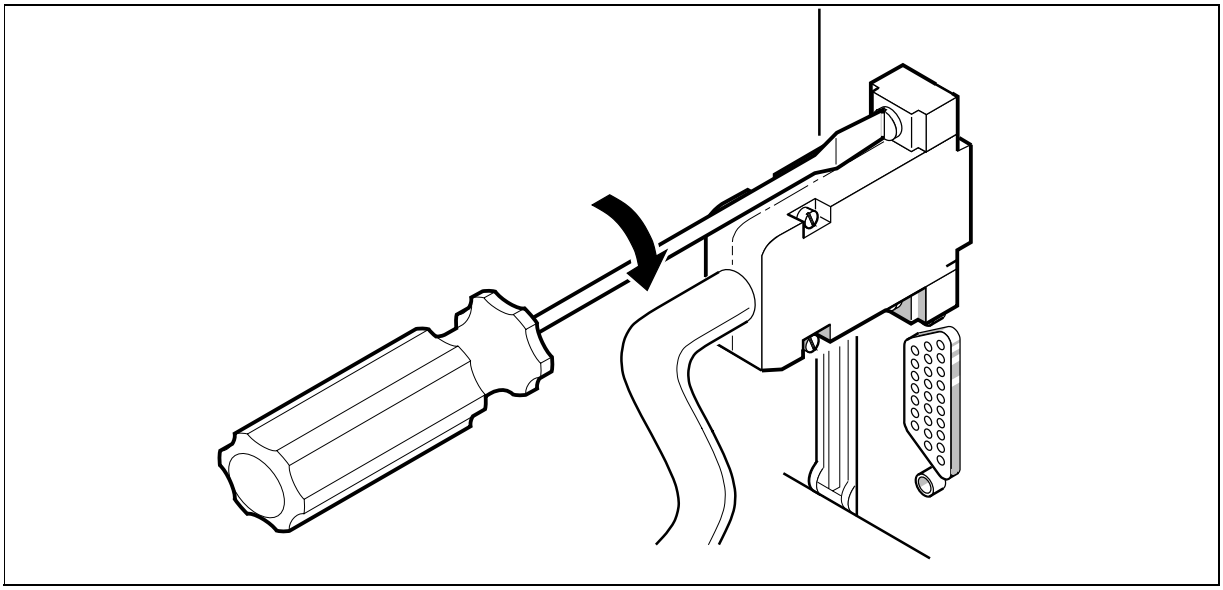
b Carefully push the connector into the RTIF port receptacle.

c Screw the terminal connector into the RTIF port connector.

RTIF port receptacles



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

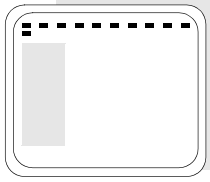
10 Call the next level of support.

11 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

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XAC RIBkey - Minnor

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 that is connected to a local RTIF port on the XA-Core. (The RTIF local port is on an HCMIC circuit pack or on an RTIF packlet.) RIBkeys are installation tools 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

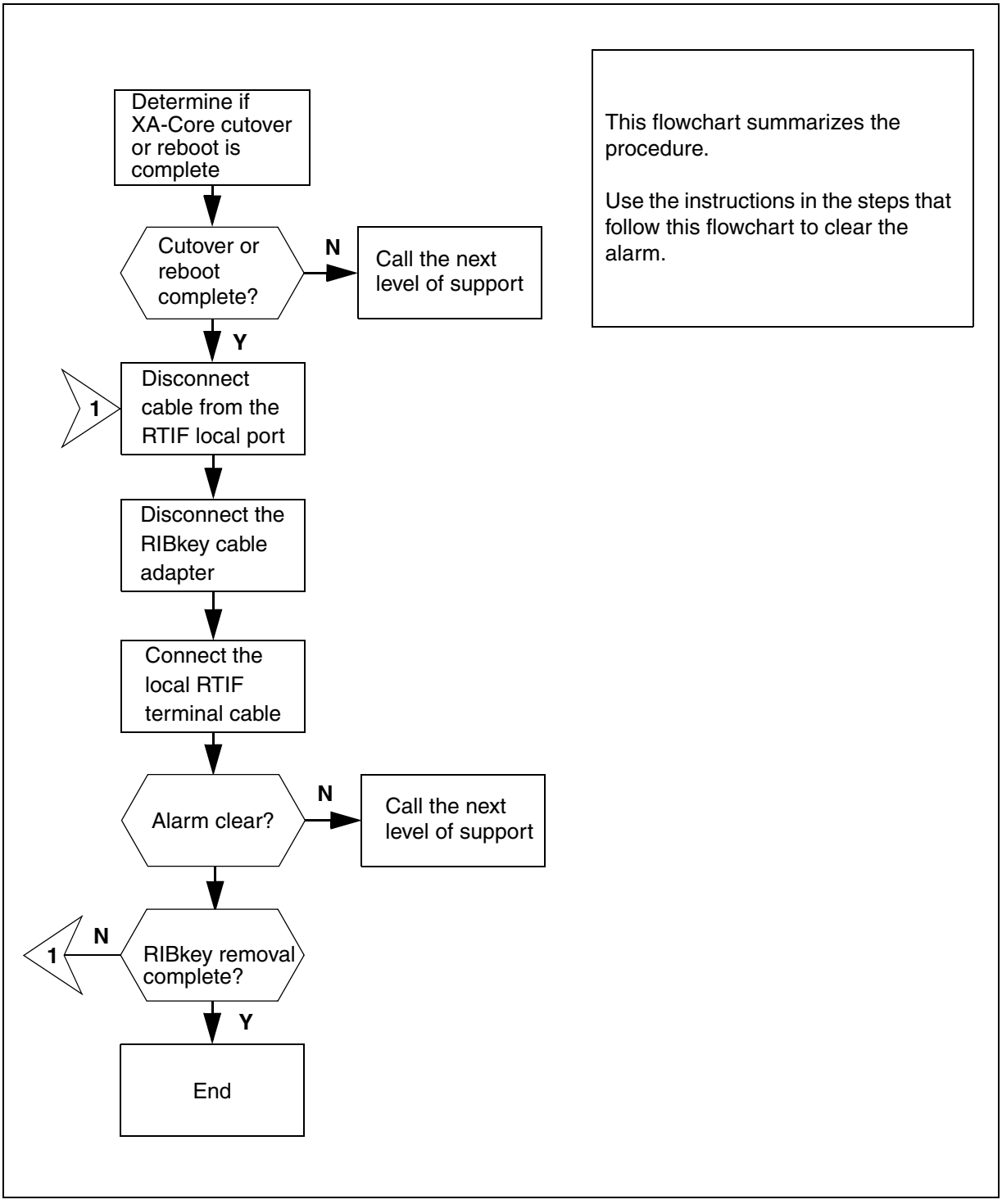
There are no common procedures.

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 - Minnor (continued)

Figure 1-47 Summary of clearing a RIBkey minor alarm



XAC RIBkey - Minnor (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 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 - Minnor (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 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.

XAC RIBkey - Minnor (continued)

4 Examine the RTIF MAP level. Record the working state of the system. If the RTIF links are supported by RTIF packlets, the “Packlet” fields will contain values, for example, “Upper”. If the RTIF links are supported by the RTIF sections of HCMIC circuit packs, the “Packlet” fields will be blank. Record the displayed information about RTIF ports, and record the slot location of the RTIF hardware, and, if the RTIF hardware is RTIF packlets, record the packlet positions.

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

The following are sample MAP displays.

RTIF MAP level, showing data for RTIF packlets in positions 4 rear, upper, and 15 rear, upper

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RIBkey     .        .        .         .       .        .       .        .        .

RTIF              Front:   111111111  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: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear  Upper    .        RIBkey  .
 7 Bsy_           15   Rear  Upper    .        .       .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC RIBkey - Minnor (continued)

RTIF MAP level, showing data for the RTIF sections of HCMIC CPs in slots 4 rear and 15 rear

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RIBkey     .        .        .         .       .        .       .        .        .

RTIF             Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit          123456789012345678  456789012345      .      .      .
 2               Sta:-.-.--..-..-.-..-   .--.-------.      0      0      0     0
 3               Dep:
 4               Typ:                    *          *
 5               Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear                    RIBkey  .       C      .
 7 Bsy_           15   Rear                    .       .       .      .
 8 RTS_
 9
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.

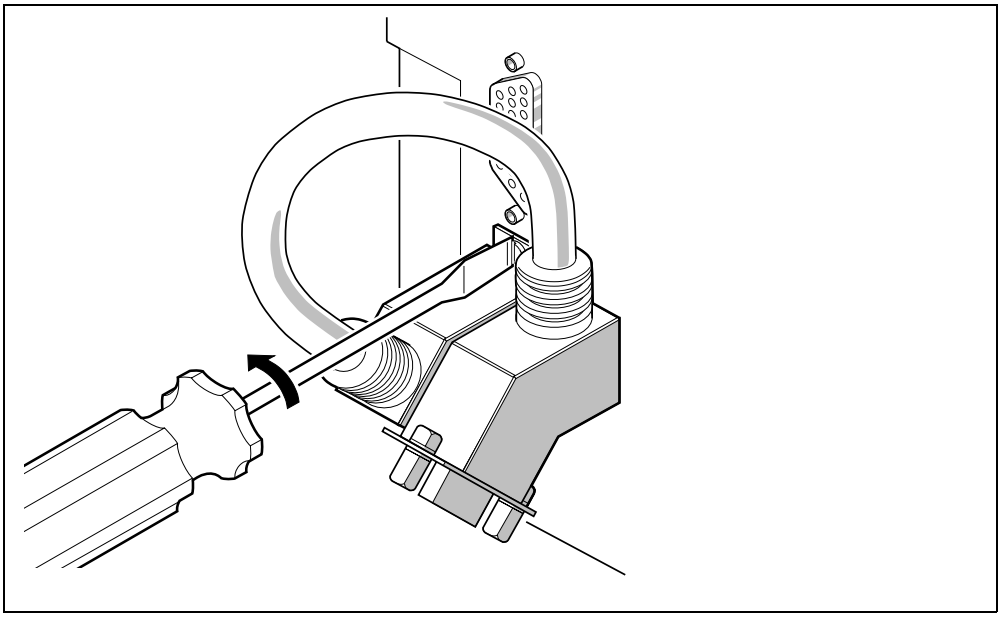
- **a** Unscrew the cable connector from the RIBkey receptacle.
- **b** Hold the cable connector by the body only.
- **c** Carefully pull the cable connector away from the RIBkey device.
- **d** Place the remote terminal cable in a safe location away from the physical shelf.

6 Disconnect the RIBkey device from the RTIF local port (see the diagrams in this step).

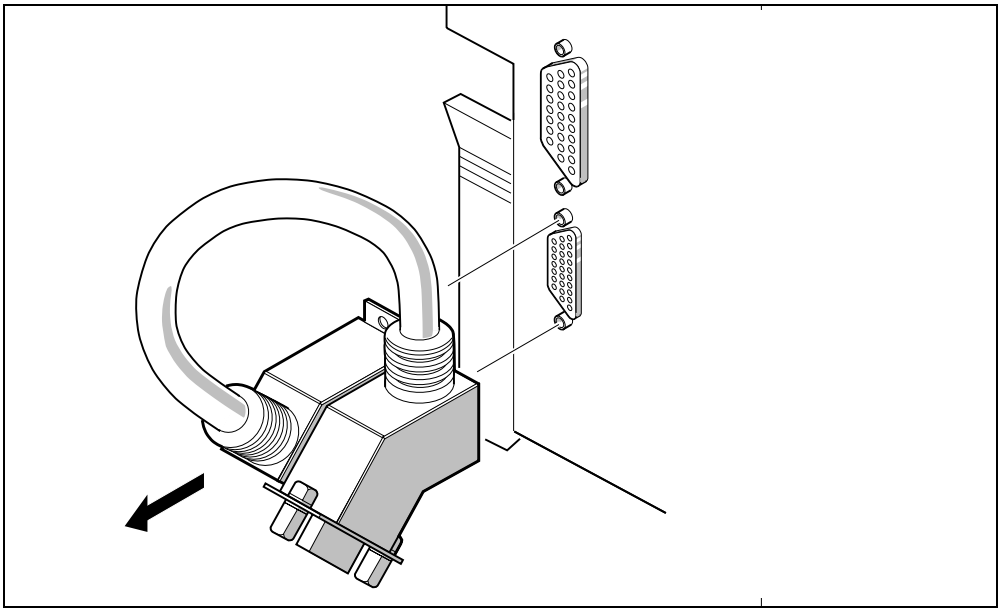
- **a** Unscrew the RIBkey from the RTIF local port receptacle.
- **b** Hold the RIBkey device by the body only.
- **c** Carefully pull the RIBkey device away from the RTIF local port receptacle.

XAC RIBkey - Minnor (continued)

Unscrew the RIBkey connector



Remove the RIBkey device from the RTIF port receptacle

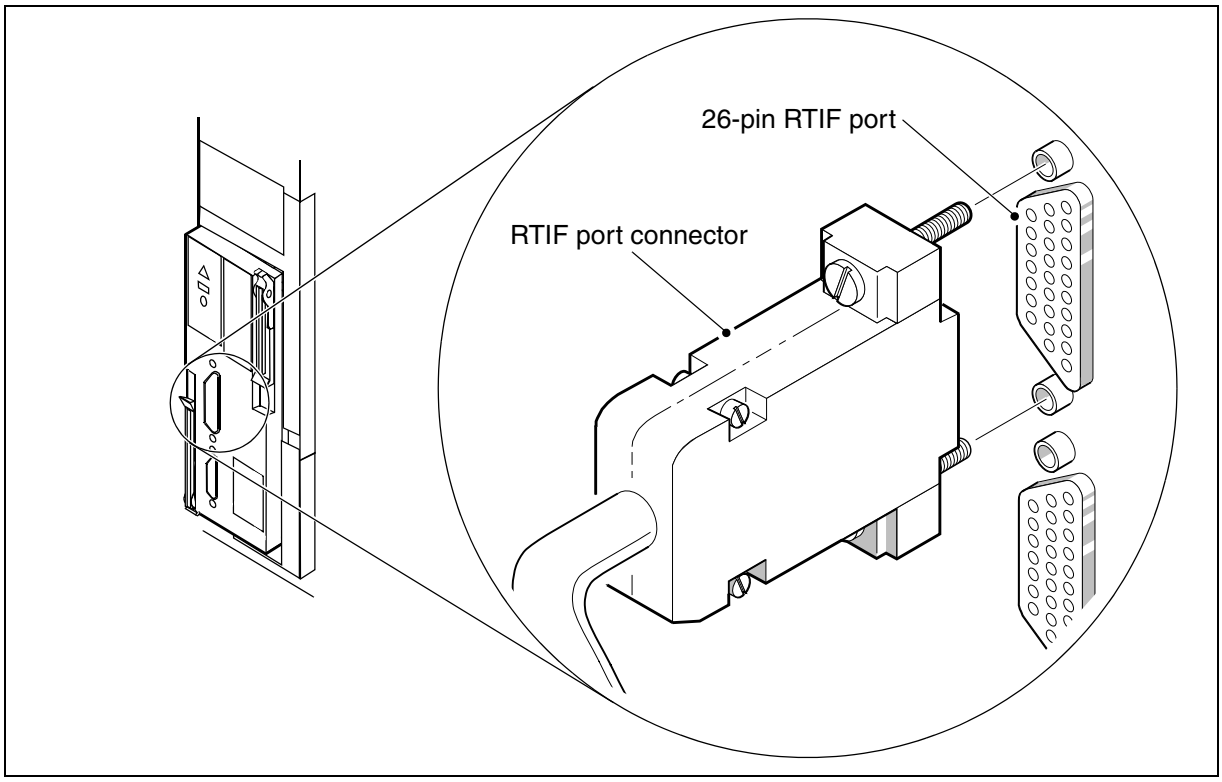


XAC RIBkey - Minnor (continued)

7 Connect the terminal cable to the RTIF local port.

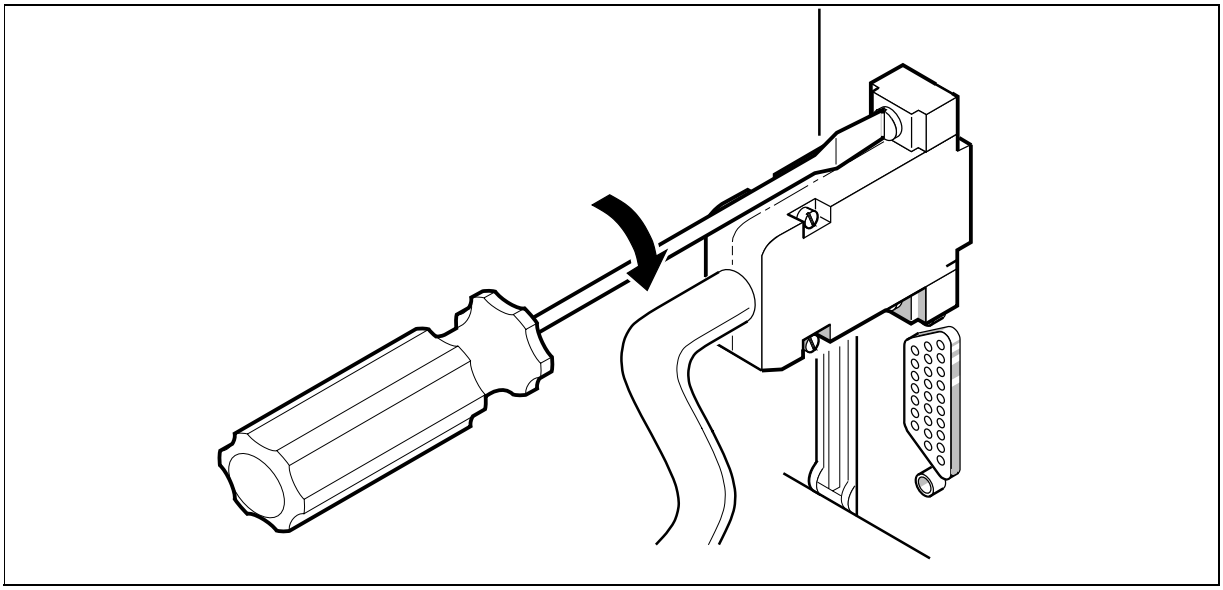
- **a** Hold the terminal connector by the body only.
- **b** Carefully push the terminal connector into of the receptacle.
- **c** Screw the terminal connector into the RTIF port connector.

RTIF port receptacles



XAC RIBkey - Minnor (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

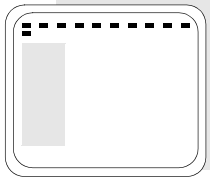
10 Call the next level of support.

11 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

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XAC RTIF - Critical

Alarm display



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

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 are out-of-service (OOS). The following conditions cause an RTIF critical alarm:

- If the XA-Core is equipped with RTIF packlets, each RTIF packlet is busy. The packlets can be in different busy states. For example, it is possible for one to be ManB and the other to be SysB.
- If the XA-Core is equipped with HCMIC circuit packs, each HCMIC circuit pack is busy. The HCMIC circuit packs can be in different busy states. For example, it is possible for one to be ManB and the other to be SysB.
- Each RTIF local port is busy. The ports can be in different busy states. For example, it is possible for one to be SysB and the other to be CBsy.

Impact

There is no change in subscriber service.

Common procedures

This procedure refers to the replacement procedure for the HCMIC circuit pack, the replacement procedure for the IOP circuit pack, and the replacement procedure for the RTIF packlet. The procedures are in this document.

Action

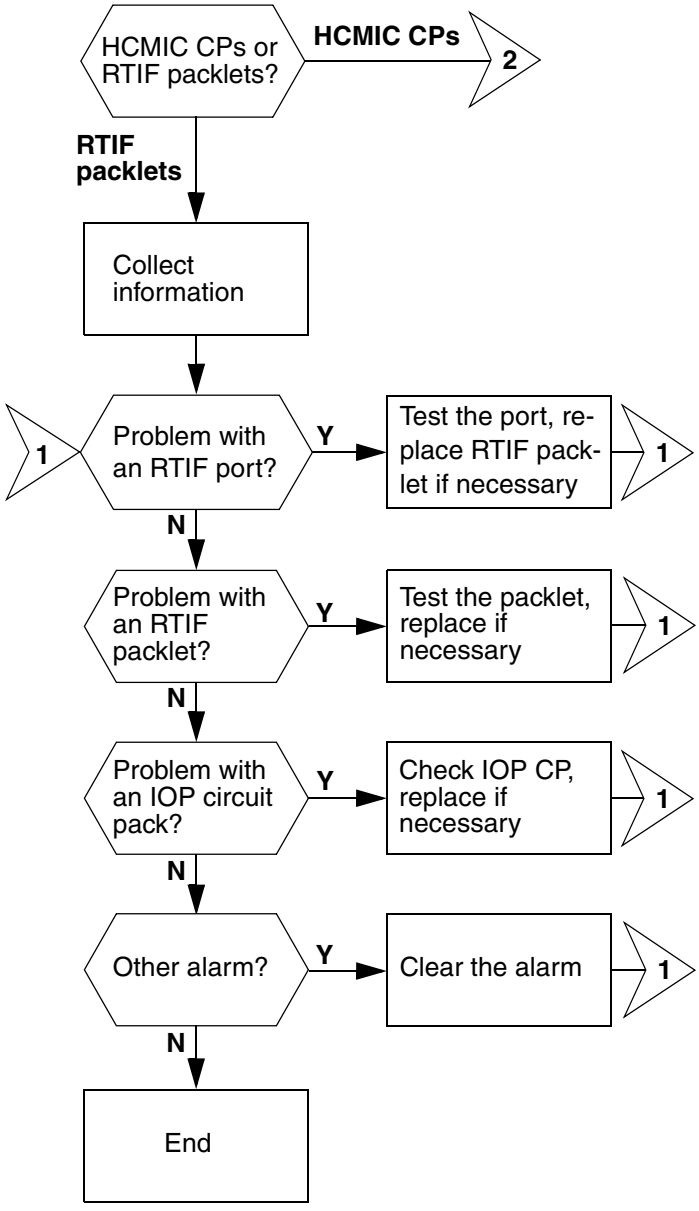
The following flowchart is a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

XAC RTIF - Critical (continued)

Figure 1-48 Summary of clearing an RTIF critical alarm

This flowchart summarizes the procedure.

Use the instructions in the steps that follow this flowchart to clear the alarm

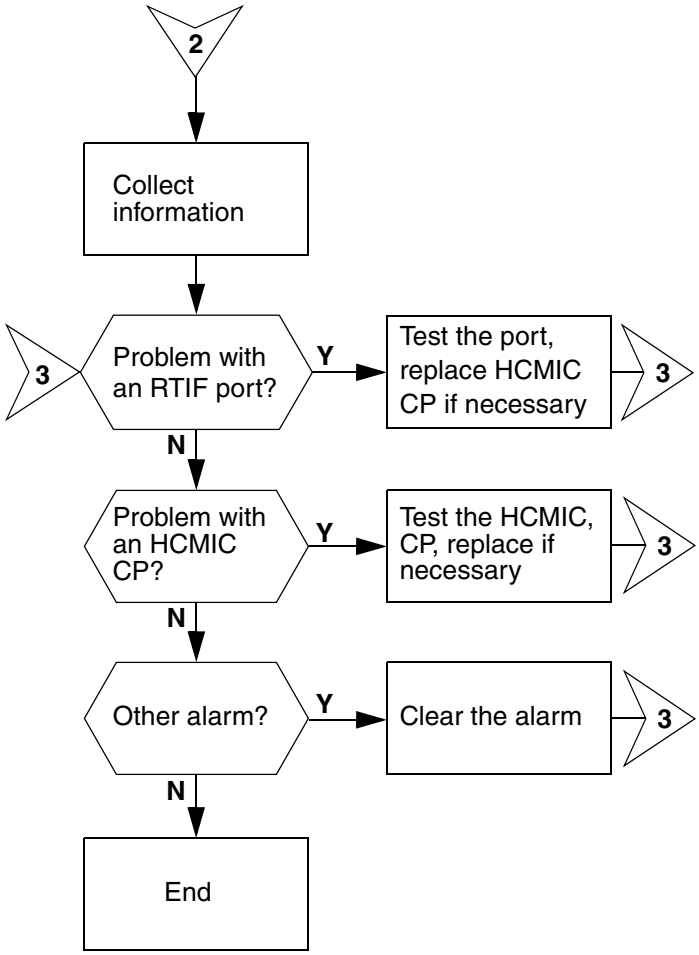


XAC RTIF - Critical (continued)

Summary of clearing an RTIF critical alarm (continued)

This flowchart summarizes the procedure.

Use the instructions in the steps that follow this flowchart to clear the 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.

At your current location

1 Select the next step as follows.

If the RTIF hardware is	Do
HCMIC circuit packs	step 3
RTIF packlets	step 24

XAC RTIF - Critical (continued)

2 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 3
a different alarm condition	step 42
that the RTIF major alarm condition is clear	step 44

3 If you are not already at the IO MAP level, access that level. Type

MAPCI;MTC;XAC;IO

and press the Enter key.

XAC RTIF - Critical (continued)

4 Examine the IO MAP level. Record the location and status of the HCMIC circuit packs.

The following is a sample MAP display.

IO MAP level

```
 XAC       MS      IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
 RTIF      .       .       .        .      .       .      .       .       .
  M
IO                    Front:   111111111  Rear: 111111      SM    PE    IO      PKLT
 0 Quit               123456789012345678  456789012345      .     .     HCMIC M .
 2                    Sta:-I-.--..-..-----..-  M--.--------.     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      M               RTIF C     ETHR .      CMIC C
 9                     15   Rear      .               RTIF .     ETHR .      CMIC .
10 LoadFW_
11
12 Uneq_              XAC:
13                    IO:
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

5 If you are not already at the RTIF MAP level, access that level. Type

MAPCI;MTC;XAC;RTIF

and press the Enter key.

6 Examine the RTIF MAP level. Record the status of the RTIF ports and links.

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 - Critical (continued)

RTIF MAP level, showing data for the RTIF sections of HCMIC CPs in slots 4 rear and 15 rear

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RTIF       .        .        .         .       .        .       .        .        .
  M
RTIF              Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit           123456789012345678  456789012345      .      .      .     .
 2               Sta:-.-.--..-..-.-..-   .--.-------.     0      0      0     0
 3               Dep:
 4               Typ:                        *          *
 5               Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear                    C       C      .      .
 7 Bsy_           15   Rear                    .       .      .      .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

7 Access the XA-Core IO MAP level. Type

>IO

and press the Enter key.

8 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter:

If the information from the logs, and from IO and RTIF MAP levels indicate	Do
RTIF port is in a ManB state	step 9
RTIF port is in a SysB state	step 11
RTIF port is in a CBsy state	step 16
HCMIC circuit pack is in a ManB state	step 17
HCMIC circuit pack is in a SysB state	step 19
a different alarm	step 42
no alarm and all CPs are in service	step 44

9 If you are not at the RTIF MAP level, access that level. Type

XAC RTIF - Critical (continued)

>RTIF

and press the Enter key.

10 Return the RTIF port to service. Type

>RTS <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>RTS 4 r port0

Example of system response:

```
RTS 4 rear port0 passed
```

If the RTIF port is	Do
in a SysB state	step 11
in an InSv state	step 3
in a CBsy state	step 16

11 If you are not at the RTIF MAP level, access that level. Type

>RTIF

and press the Enter key.

12 Manually busy the RTIF port. Type

>BSY <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>BSY 4 r port0

Example of system response:

```
BSY 4 rear port0 complete
```

XAC RTIF - Critical (continued)

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

If the RTIF port is	Do
in a ManB state	step 13
not in a ManB state	step 43

13 Perform an OOS test on the RTIF port. Type

>TST <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>TST 4 r port0

If the OOS test	Do
passed	step 14
did not pass	step 15

14 Return the RTIF port to service. Type

>RTS <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>RTS 4 r port0

XAC RTIF - Critical (continued)

Example of system response:

```
RTS 4 rear port0 passed
```

If the RTIF port is	Do
in an InSv state	step 3
not in an InSv state	step 15

15 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

If the HCMIC circuit pack is	Do
in an InSv state	step 3
not in an InSv state	step 43

16 You were directed to this step because you found that an RTIF port was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an HCMIC circuit pack.

Proceed as follows

a If you are not at the IO MAP level, go to that level Type

>IO

and press the Enter key.

b Select the next step as follows:

If the HCMIC circuit pack is	Do
in a ManB state	step 18
in a SysB state	step 20

17 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

18 Return the HCMIC circuit pack to service. 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 - 1 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:

>RTS 4 r

XAC RTIF - Critical (continued)

Example of system response:

```
RTS 4 rear passed
```

If the IO MAP level indicates	Do
the HCMIC circuit pack is SysB	step 20
the HCMIC circuit pack is InSv	step 3

19 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

20 Manually busy the HCMIC circuit pack. 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 - 1 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 4 r

Example of system response:

```
BSY 4 rear complete
```

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

If the circuit pack is	Do
in a ManB state	step 21
not in a ManB state	step 43

21 Perform an OOS test on the HCMIC circuit pack. 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 - 1 to 18

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

XAC RTIF - Critical (continued)

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 22
did not pass	step 23

22 Return the HCMIC circuit pack to service. 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 - 1 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:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

If the HCMIC circuit pack is	Do
in an InSv state	step 3
in any state other than InSv	step 23

23 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

If the HCMIC circuit pack is	Do
in an InSv state	step 3
not in an InSv state	step 43

24 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 25
a different alarm condition	step 42
that the RTIF major alarm condition is clear	step 44

25 If you are not already at the RTIF MAP level, access that level. Type

MAPCI;MTC;XAC;RTIF

and press the Enter key.

26 Examine the RTIF MAP level. Record the location and status of the RTIF packlets 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.

RTIF MAP level, showing data for RTIF packlets in slots 4 rear and 15 rear

```
 XAC       MS      IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
 RTIF      .       .       .        .      .       .      .       .       .
  M
RTIF            Front:   111111111  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: Status   Port0:  Port1  Link0  Link1:
 6 Tst_           4   Rear  Upper    S        C       C
 7 Bsy_          15   Rear  Upper    .        .       .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC RTIF - Critical (continued)

Note: For an RTIF packlet, information about the local RTIF port and link appears in the “Port0” field, and information about the remote port and link appears in the “Port1” field.

27 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter

If the RTIF MAP level indicates	Do
RTIF port/link is in a CBsy state (See the note below this table.)	step 28
RTIF packlet is in a ManB state	step 29
RTIF packlet is in a SysB state	step 30
RTIF packlet is in a CBsy state	step 34
IOP CP is in a ManB state	step 35
IOP CP is in a SysB state	step 37
a different alarm	step 42
no alarm and all CPs and packlets are InSv	step 44

Note: On an RTIF packlet, the interface does not separate the local port and the link, nor does it separate the remote port and link.

28 You were directed to this step because you found that an RTIF port-and-link combination was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an RTIF packlet.

You are at the RTIF MAP level, where the working state of the RTIF packlet is displayed.

Select the next step as follows:

If the RTIF packlet is	Do
in a ManB state	step 29
in a SysB state	step 30
in a a CBsy state	step 34

29 Return the RTIF 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 - 1 to 18

<s> is the side parameter value to indicate the 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 RTIF MAP level indicates	Do
the RTIF packlet is SysB	step 30
the RTIF packlet is CBsy	step 34
the RTIF packlet is InSv	step 25

30 Manually busy the RTIF 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 - 1 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.

If the packlet is	Do
in a ManB state	step 31
not in a ManB state	step 43

31 Perform an OOS test on the RTIF packlet. Type

>TST <nn> <s> <p>

and press the Enter key

XAC RTIF - Critical (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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 32
did not pass	step 33

32 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 - 1 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 RTIF packlet is	Do
in a InSv state	step 25
in any state other than InSv	step 33

33 Perform the procedure for replacing the RTIF packlet. The procedure is found in this document. Return to this point when complete.

If the RTIF packlet is	Do
in an InSv state	step 25
in a SysB state	step 43

34 You were directed to this step because you found that an RTIF packlet was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an IOP CP.

Proceed as follows.

a Access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

b Find out the working state of the IOP CP.

If the IOP CP is	Do
in a ManB state	step 36
in a SysB state	step 38

35 If you are not already at the IO MAP level, access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

36 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 - 1 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 4 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 status.

If the IOP CP is	Do
InSv	step 25
not InSv	step 38

XAC RTIF - Critical (continued)

37 If you are not already at the IO MAP level, access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

38 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 - 1 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 39
not in a ManB state	step 43

39 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 - 1 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:

>TST 4 r

If the OOS test	Do
passed	step 40
did not pass	step 41

40 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 - 1 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:

>RTS 4 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
not in an InSv state	step 41
in an InSv state	step 25

41 Perform the procedure for replacing the IOP circuit pack. The procedure is found in this document. Return to this point when complete.

If the IOP circuit pack is	Do
in an InSv state	step 25
in a SysB state	step 43

42 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 43
clear	step 44

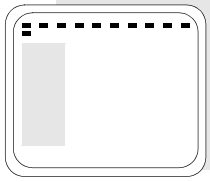
43 Call the next level of support.

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

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XAC RTIF - Major

Alarm display



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

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 HCMIC circuit pack is in a ManB or SysB state
- one RTIF packlet is in a ManB, SysB, or CBsy state

Impact

There is no change in subscriber service.

Common procedures

This procedure refers to the replacement procedure for the HCMIC circuit pack, the replacement procedure for the IOP circuit pack, and the replacement procedure for the RTIF packlet. The procedures are in this document.

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)

Figure 1-49 Summary of clearing an RTIF major alarm - Part 1

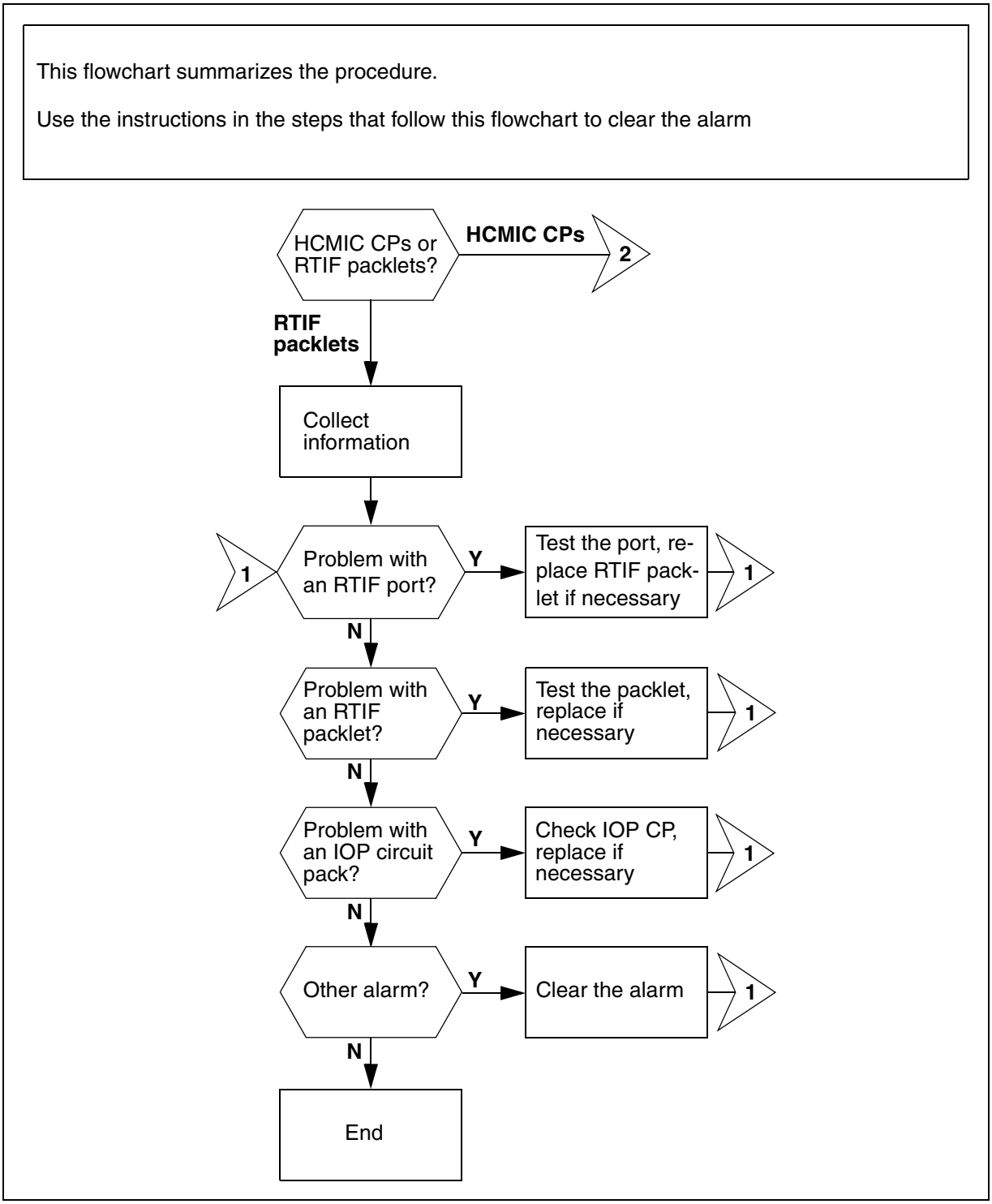
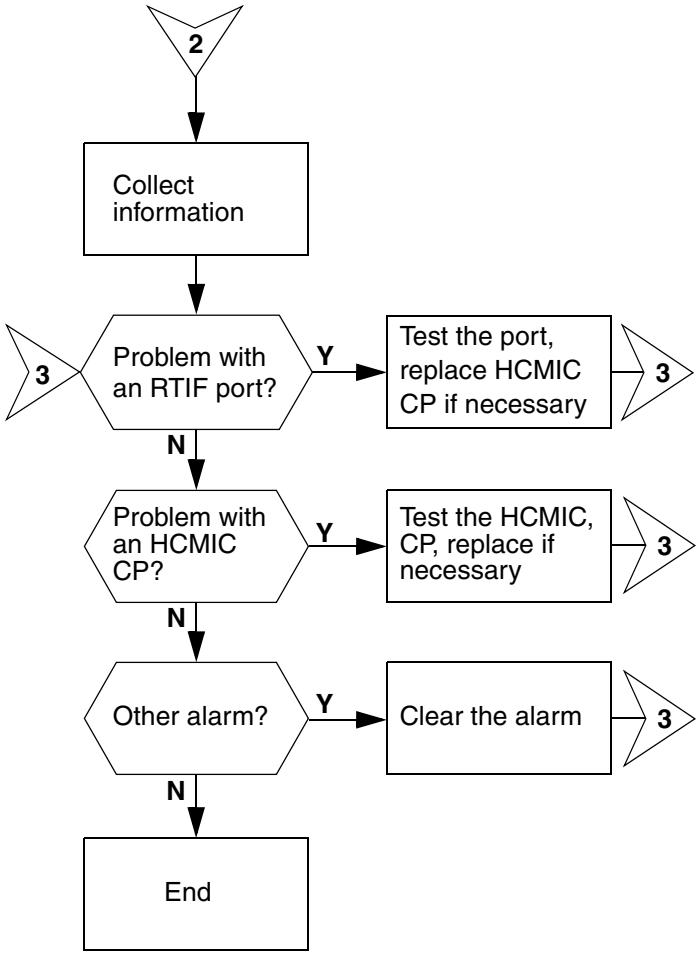


Figure 1-50 Summary of clearing an RTIF major alarm - Part 2

This flowchart summarizes the procedure.

Use the instructions in the steps that follow this flowchart to clear the 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.

At your current location

1 Select the next step as follows.

If the RTIF hardware is	Do
HCMIC circuit packs	step 3
RTIF packlets	step 24

XAC RTIF - Major (continued)

2 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 3
a different alarm condition	step 42
that the RTIF major alarm condition is clear	step 44

3 If you are not already at the IO MAP level, access that level. Type

MAPCI;MTC;XAC;IO

and press the Enter key.

XAC RTIF - Major (continued)

4 Examine the IO MAP level. Record the location and status of the HCMIC circuit packs.

The following is a sample MAP display.

IO MAP level

```
 XAC       MS      IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
 RTIF      .       .       .        .      .       .      .       .       .
  M
IO                  Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit             123456789012345678  456789012345      .      .      HCMIC M .
 2                  Sta:-I-.--..-..----..-  M--.--------.     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      M              RTIF C     ETHR .      CMIC C
 9                   15   Rear      .              RTIF .     ETHR .      CMIC .
10 LoadFW_
11
12 Uneq_            XAC:
13                  IO:
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

5 If you are not already at the RTIF MAP level, access that level. Type

MAPCI;MTC;XAC;RTIF

and press the Enter key.

6 Examine the RTIF MAP level. Record the status of the RTIF ports and links.

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, showing data for the RTIF sections of HCMIC CPs in slots 4 rear and 15 rear

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RTIF       .        .        .         .       .        .       .        .        .
  M
RTIF                    Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit                 123456789012345678  456789012345      .      .      .     .
 2                     Sta:-.-.--..-..-.-..-   .--.-------.     0      0      0     0
 3                     Dep:
 4                     Typ:                    *          *
 5                     Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_                  4   Rear                    C       C      .      .
 7 Bsy_                 15   Rear                    .       .      .      .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

7 Access the XA-Core IO MAP level. Type

>IO

and press the Enter key.

8 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter:

If the information from the logs, and from IO and RTIF MAP levels indicate	Do
RTIF port is in a ManB state	step 9
RTIF port is in a SysB state	step 11
RTIF port is in a CBsy state	step 16
HCMIC circuit pack is in a ManB state	step 17
HCMIC circuit pack is in a SysB state	step 19
a different alarm	step 42
no alarm and all CPs are in service	step 44

9 If you are not at the RTIF MAP level, access that level. Type

XAC RTIF - Major (continued)

>RTIF

and press the Enter key.

10 Return the RTIF port to service. Type

>RTS <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>RTS 4 r port0

Example of system response:

```
RTS 4 rear port0 passed
```

If the RTIF port is	Do
in a SysB state	step 11
in an InSv state	step 3
in a CBsy state	step 16

11 If you are not at the RTIF MAP level, access that level. Type

>RTIF

and press the Enter key.

12 Manually busy the RTIF port. Type

>BSY <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>BSY 4 r port0

Example of system response:

```
BSY 4 rear port0 complete
```

XAC RTIF - Major (continued)

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

If the RTIF port is	Do
in a ManB state	step 13
not in a ManB state	step 43

13 Perform an OOS test on the RTIF port. Type

>TST <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>TST 4 r port0

If the OOS test	Do
passed	step 14
did not pass	step 15

14 Return the RTIF port to service. Type

>RTS <nn> <s> <port>

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

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

<port> is port0 or port1

Example of command use:

>RTS 4 r port0

XAC RTIF - Major (continued)

Example of system response:

```
RTS 4 rear port0 passed
```

If the RTIF port is	Do
in an InSv state	step 3
not in an InSv state	step 15

15 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

If the HCMIC circuit pack is	Do
in an InSv state	step 3
not in an InSv state	step 43

16 You were directed to this step because you found that an RTIF port was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an HCMIC circuit pack.

Proceed as follows

a If you are not at the IO MAP level, go to that level Type

>IO

and press the Enter key.

b Select the next step as follows:

If the HCMIC circuit pack is	Do
in a ManB state	step 18
in a SysB state	step 20

17 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

18 Return the HCMIC circuit pack to service. 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 - 1 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:

>RTS 4 r

XAC RTIF - Major (continued)

Example of system response:

```
RTS 4 rear passed
```

If the IO MAP level indicates	Do
the HCMIC circuit pack is SysB	step 20
the HCMIC circuit pack is InSv	step 3

19 If you are not at the IO MAP level, access that level. Type

>IO

and press the Enter key.

20 Manually busy the HCMIC circuit pack. 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 - 1 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 4 r

Example of system response:

```
BSY 4 rear complete
```

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

If the circuit pack is	Do
in a ManB state	step 21
not in a ManB state	step 43

21 Perform an OOS test on the HCMIC circuit pack. 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 - 1 to 18

<s> is the side parameter value to indicate the CP 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 22
did not pass	step 23

22 Return the HCMIC circuit pack to service. 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 - 1 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:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

If the HCMIC circuit pack is	Do
in an InSv state	step 3
in any state other than InSv	step 23

23 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

If the HCMIC circuit pack is	Do
in an InSv state	step 3
not in an InSv state	step 43

24 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 25
a different alarm condition	step 42
that the RTIF major alarm condition is clear	step 44

25 If you are not already at the RTIF MAP level, access that level. Type

MAPCI;MTC;XAC;RTIF

and press the Enter key.

26 Examine the RTIF MAP level. Record the location and status of the RTIF packlets 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.

RTIF MAP level, showing data for RTIF packlets in slots 4 rear and 15 rear

```
 XAC       MS      IOD     Net      PM     CCS     Lns    Trks    Ext     APPL
 RTIF      .       .       .        .      .       .      .       .       .
  M
RTIF            Front:   111111111  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: Status   Port0:  Port1  Link0  Link1:
 6 Tst_           4   Rear  Upper    S        C       C
 7 Bsy_          15   Rear  Upper    .        .       .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC RTIF - Major (continued)

Note: For an RTIF packlet, information about the local RTIF port and link appears in the “Port0” field, and information about the remote port and link appears in the “Port1” field.

27 Select the next step as follows. Read down the left-hand column until you find the first statement that is true, and go to the step shown in the right-hand column. If more than one of the statements listed in the left-hand column is true, choose the first true one that you encounter

If the RTIF MAP level indicates	Do
RTIF port/link is in a CBsy state (See the note below this table.)	step 28
RTIF packlet is in a ManB state	step 29
RTIF packlet is in a SysB state	step 30
RTIF packlet is in a CBsy state	step 34
IOP CP is in a ManB state	step 35
IOP CP is in a SysB state	step 37
a different alarm	step 42
no alarm and all CPs and packlets are InSv	step 44

Note: On an RTIF packlet, the interface does not separate the local port and the link, nor does it separate the remote port and link.

28 You were directed to this step because you found that an RTIF port-and-link combination was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an RTIF packlet.

You are at the RTIF MAP level, where the working state of the RTIF packlet is displayed.

Select the next step as follows:

If the RTIF packlet is	Do
in a ManB state	step 29
in a SysB state	step 30
in a a CBsy state	step 34

29 Return the RTIF 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 - 1 to 18

<s> is the side parameter value to indicate the 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 RTIF MAP level indicates	Do
the RTIF packlet is SysB	step 30
the RTIF packlet is CBsy	step 34
the RTIF packlet is InSv	step 25

30 Manually busy the RTIF 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 - 1 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.

If the packlet is	Do
in a ManB state	step 31
not in a ManB state	step 43

31 Perform an OOS test on the RTIF packlet. Type

>TST <nn> <s> <p>

and press the Enter key

XAC RTIF - Major (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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 32
did not pass	step 33

32 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 - 1 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 RTIF packlet is	Do
in a InSv state	step 25
in any state other than InSv	step 33

33 Perform the procedure for replacing the RTIF packlet. The procedure is found in this document. Return to this point when complete.

If the RTIF packlet is	Do
in an InSv state	step 25
in a SysB state	step 43

34 You were directed to this step because you found that an RTIF packlet was in the CBsy state. This indicates that there may be a problem with the next highest entity in the hierarchy, which is an IOP CP.

Proceed as follows.

a Access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

b Find out the working state of the IOP CP.

If the IOP CP is	Do
in a ManB state	step 36
in a SysB state	step 38

35 If you are not already at the IO MAP level, access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

36 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 - 1 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 4 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 status.

If the IOP CP is	Do
InSv	step 25
not InSv	step 38

XAC RTIF - Major (continued)

37 If you are not already at the IO MAP level, access the IO MAP level. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

38 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 - 1 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 39
not in a ManB state	step 43

39 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 - 1 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:

>TST 4 r

If the OOS test	Do
passed	step 40
did not pass	step 41

40 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 - 1 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:

>RTS 4 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
not in an InSv state	step 41
in an InSv state	step 25

41 Perform the procedure for replacing the IOP circuit pack. The procedure is found in this document. Return to this point when complete.

If the IOP circuit pack is	Do
in an InSv state	step 25
in a SysB state	step 43

42 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 43
clear	step 44

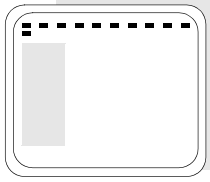
43 Call the next level of support.

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

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XAC RTIF - Minor

Alarm display



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

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

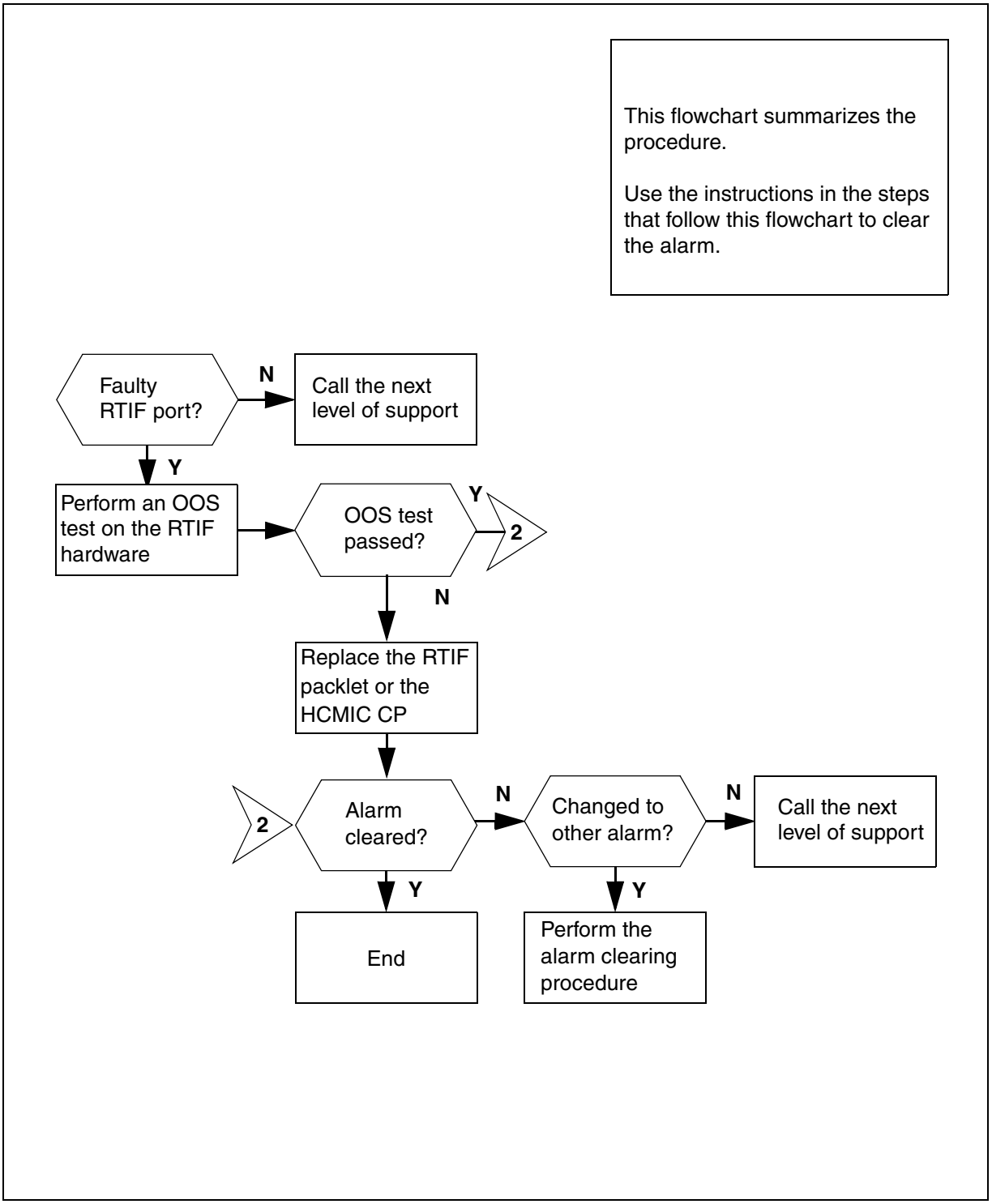
This procedure refers to the replacement procedure for the HCMIC circuit pack and the replacement procedure for the RTIF packlet. The procedures are in this document.

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)

Figure 1-51 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 16
that the RTIF minor alarm condition is clear	step 18

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 packlet 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).

XAC RTIF - Minor (continued)

The following is a sample MAP display.

RTIF MAP level, showing data for RTIF packlets in slots 4 rear and 15 rear

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RTIF       .        .        .         .       .        .       .        .        .

RTIF              Front:   111111111  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: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear  Upper    .        .       S
 7 Bsy_           15   Rear  Upper    .        .       .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

RTIF MAP level, showing data for the RTIF sections of HCMIC CPs in slots 4 rear and 15 rear

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RTIF       .        .        .         .       .        .       .        .        .

RTIF              Front:   111111111  Rear: 111111      SM     PE     IO    PKLT
 0 Quit           123456789012345678  456789012345      .      .      .     .
 2               Sta:-.-.--..-..-.-..-   .--.-------.     0      0      0     0
 3               Dep:
 4               Typ:                    *          *
 5               Slot: Side: Packlet: Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4   Rear                    .       S       .      .
 7 Bsy_           15   Rear                    .       .       .      .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

XAC RTIF - Minor (continued)

If the RTIF MAP level indicates	Do
an RTIF minor alarm	step 11
a different alarm	step 16
no alarm and all CPs are in service	step 18

4 Select the next step as follows.

If the RTIF hardware is	Do
HCMIC circuit packs	step 5
RTIF packlets	step 11

5 Aaccess the IO MAP level. Type

>IO

and press the Enter key.

6 Manually busy the HCMIC circuit pack. 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 - 1 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 4 r

Example of system response:

```
BSY 4 rear complete
```

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

If the circuit pack is	Do
in a ManB state	step 7
not in a ManB state	step 17

7 Perform an OOS test on the HCMIC circuit pack. 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 - 1 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:

>TST 4 r

If the OOS test	Do
passed	step 8
did not pass	step 9

8 Return the HCMIC circuit pack to service. 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 - 1 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:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

If the HCMIC circuit pack is	Do
in an InSv state	step 15
in any state other than InSv	step 9

9 Perform the procedure for replacing the HCMIC circuit pack. The procedure is found in this document. Return to this point when complete.

10 Go to step 15.

11 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 - 1 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).

XAC RTIF - Minor (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 CP in a ManB state. Refer to the XA-Core MAP commands documentation.*

If the RTIF packlet is	Do
in a ManB state	step 12
not in a ManB state	step 17

12 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 - 1 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 13
did not pass	step 14

13 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 - 1 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

Example of system response:

```
RTS 4 rear upper passed
```

If the RTIF packlet is	Do
in a SysB state	step 14
in an InSv state	step 15

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

15 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 16
not clear	step 17
clear	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

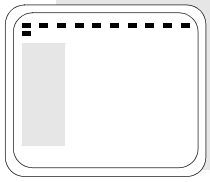
17 Call the next level of support.

18 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as directed.

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XAC SMtrbl - Minor

Alarm display



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

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

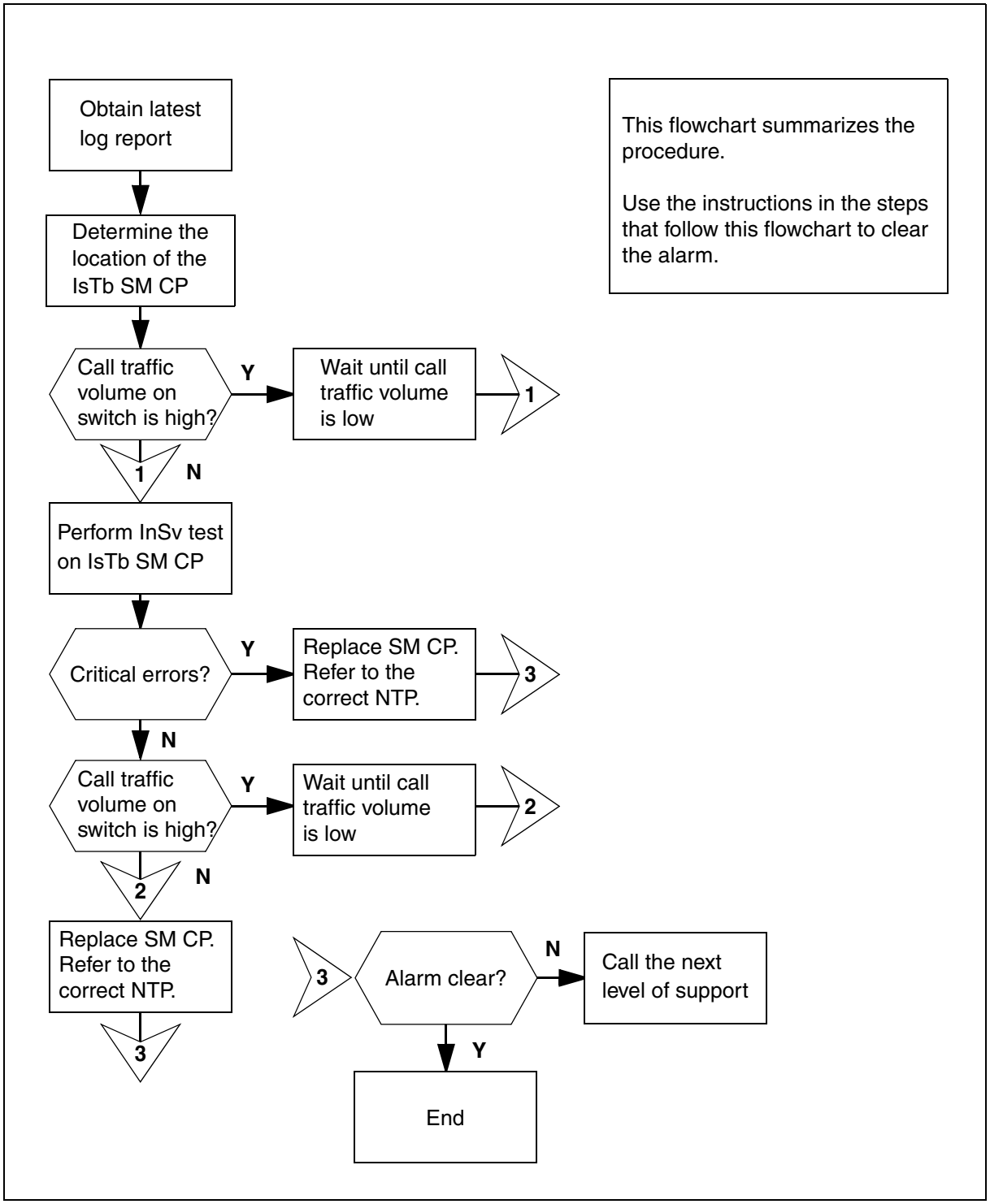
There are no common procedures.

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)

Figure 1-52 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

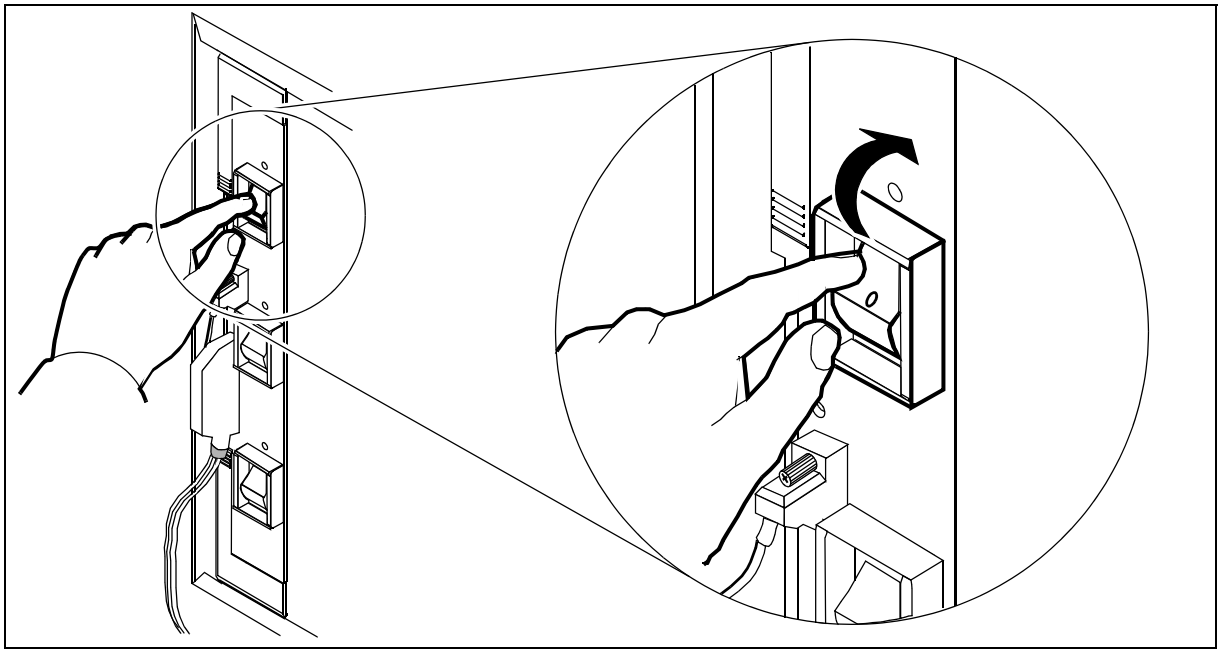
2 Examine the shelf interface modules (SIMs). Make sure that all circuit breakers are in the ON position. Make sure that the green LEDs are lit.

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.

The following is a sample MAP display.

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 - 1 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 7 r

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

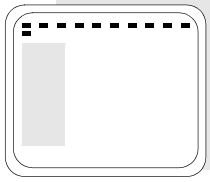
11 Call the next level of support.

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

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XAC Split - Minor

Alarm display



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

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

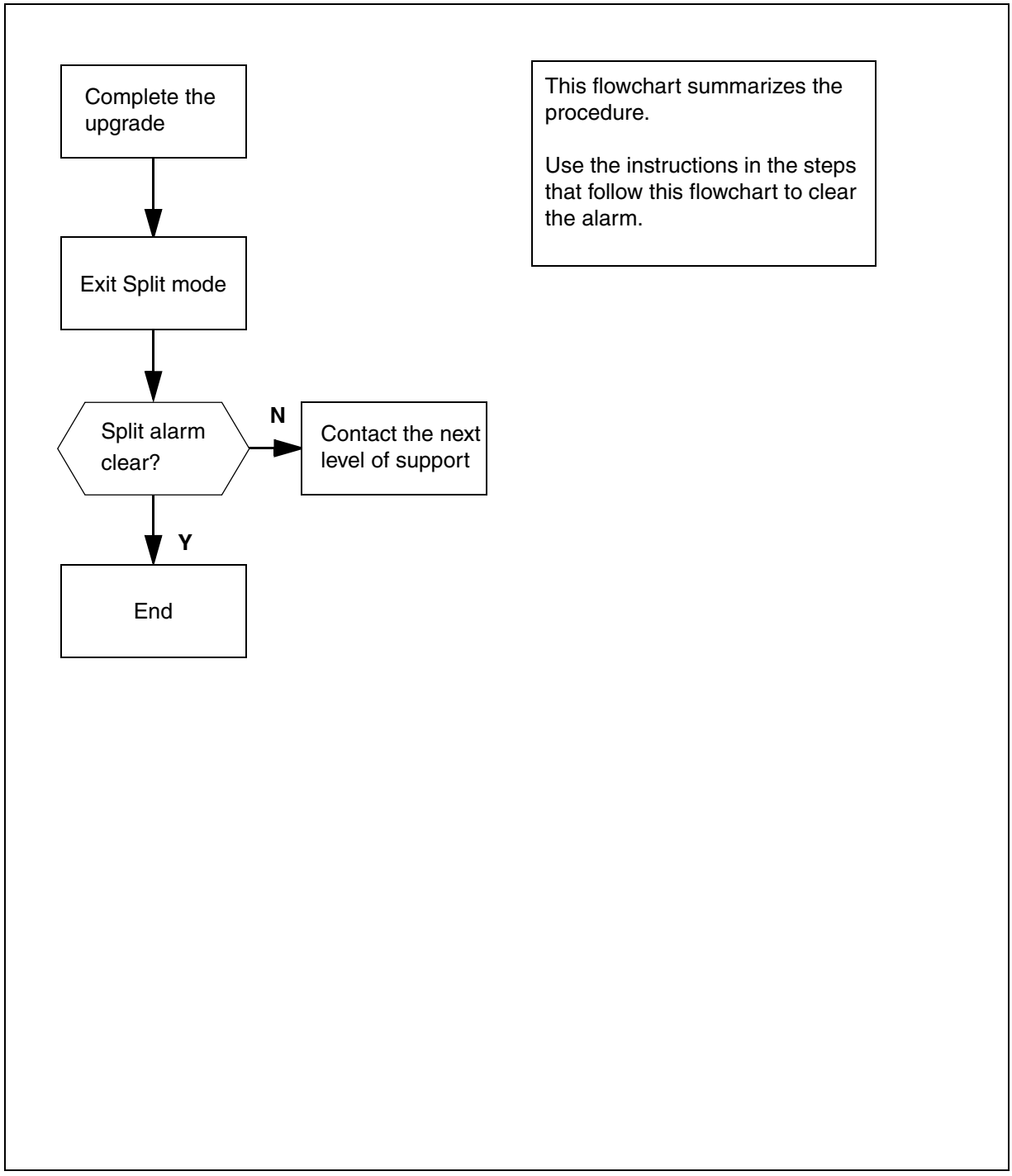
There are no common procedures.

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)

Figure 1-53 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 packlet 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)
- 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

XAC Split - Minor (continued)

The following is a sample MAP display.

XAC MAP level

```
 XAC       MS       IOD      Net      PM       CCS      Lns      Trks      Ext      APPL
 Split     .        .        .        .        .        .        .         .        .


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
 5 PE
 6 IO          XAC:
 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

5 Perform the correct alarm clearing procedure described in this document.

If the alarm is	Do
not clear	step 6
clear	step 7

XAC Split - Minor (end)

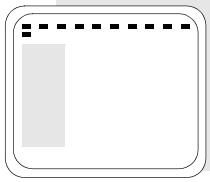
6 Call the next level of support.

7 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

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XAC SysBTh - Major

Alarm display



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

Indication

A SysBTh alarm code appears under the XAC header of the alarm banner. The alarm code indicates a SysBTh major alarm.

Meaning

During the last 42 to 48 hours, a component has transitioned too frequently from the in-service (InSv) state to the system-busy (SysB) state, which indicates that one or more components may be unstable.

> ***Note:*** For simplicity, we use the following terminology throughout this section. The term "SysB transition" means a transition from the InSv state to the SysB state. The term "48-hour" total means the total number of SysB transitions occurring in the last 42 to 48 hours.

The system monitors the SysB transitions for many components. It maintains separate counts for each instance of each monitored component.

The monitored components are separated into groups.

The following list shows the groups and the monitored components.

- The PE group includes PE circuit packs.
- The SM group includes SM circuit packs.

XAC SysBTh - Major (continued)

- The IO link (IOlk) group includes all IO links.
- The IO hardware (IOhw) group includes
  - IOP, HIOP, and HCMIC circuit packs
  - all packlets: disk, tape, CMIC, RTIF, Ethernet, and AMDI
  - sections of HIOP circuit packs that are supporting ETHR and AMDI connections
  - sections of HCMIC circuit packs that are supporting CMIC, RTIF, and ETHR connections
  - time-of-day (TOD) devices
  - ports

For each instance of each monitored component, the system counts the SysB transitions that occur during the current six-hour interval. It also maintains records of the numbers of transitions that occurred during the seven preceding six-hour intervals. For each component, the system sums the totals from the seven preceding intervals and the total from the current interval, producing the 48-hour total, which is the number of SysB transitions occurring over the last 42 to 48 hours.

For each component group, there are minor and major SysB-transition threshold values. The thresholds apply to each component in the component group. To obtain a list of the major and minor thresholds that apply to the component groups, use the CNTRS QUERY command. The system displays the threshold values as part of its response to the CNTRS QUERY command. For detailed information on the display of threshold values, see the description of the QUERY parameter of the CNTRS command in the XAC MAP level. The description is found in the *XA-Core Reference Manual*, in the chapter that describes MAP levels and user interfaces.

For each monitored component, the system compares the component's 48-hour transition total to the major SysB transition threshold for the group. If the 48-hour SysB transition total equals or exceeds the major SysB transition threshold, and if the SysBTh major alarm is not already raised, the system raises the SysBTh major alarm (unless the alarm has been disabled).

Note: There are also minor SysB transition thresholds. If the component's 48-hour total of SysB transitions equals or exceeds the minor threshold, and if the SysBTh minor alarm or the SysB major alarm is not already raised, the system raises the SysBTh minor alarm (unless the alarm has been disabled). See the section describing the SysBTh minor alarm in this chapter.

XAC SysBTh - Major (continued)

The SysBTh major alarm remains raised until one of the following events occurs:

- The 48-hour totals of SysB transitions for all components fall below the major thresholds. The totals can fall below the thresholds because at the beginning of each new six-hour interval, the system deletes the SysB transition data from the oldest six-hour interval and starts counting SysB transitions for the current interval from zero.
- You replace a component. On this occasion the system resets to zero all interval counters for that component. If, following the resetting, there is no other component whose 48-hour SysB-transition total equals or exceeds the applicable major threshold, then the system clears the SysBTh major alarm.
- A warm restart, cold restart, or reload restart occurs.
- You use the CNTRS RESET command to reset the counters for a component. On this occasion the system resets to zero all interval counters for that component. If, following the resetting, there is no other component whose 48-hour SysB-transition total equals or exceeds the applicable major threshold, then the system clears the SysBTh major alarm.

  Note 1: Ordinarily, you should use the CNTRS RESET command only for links. Use it after you have corrected a link fault, to reset the SysB transition counters for the link. For all components other than links, you should let the system reset the counters automatically. Automatic resetting occurs when you replace a component. Also, each time that a new six-hour interval begins, the system discards the oldest interval count for each component.

  Note 2: Detailed information on the CNTRS RESET command is found in the *XA-Core Reference Manual*, in the chapter that describes MAP levels and user interfaces.

XAC SysBTh - Major (continued)

Impact

Frequent transitions to the system-busy (SysB) state may indicate that the component is unstable. An unstable component may cause a degradation of performance. Otherwise, there is no change in subscriber service.

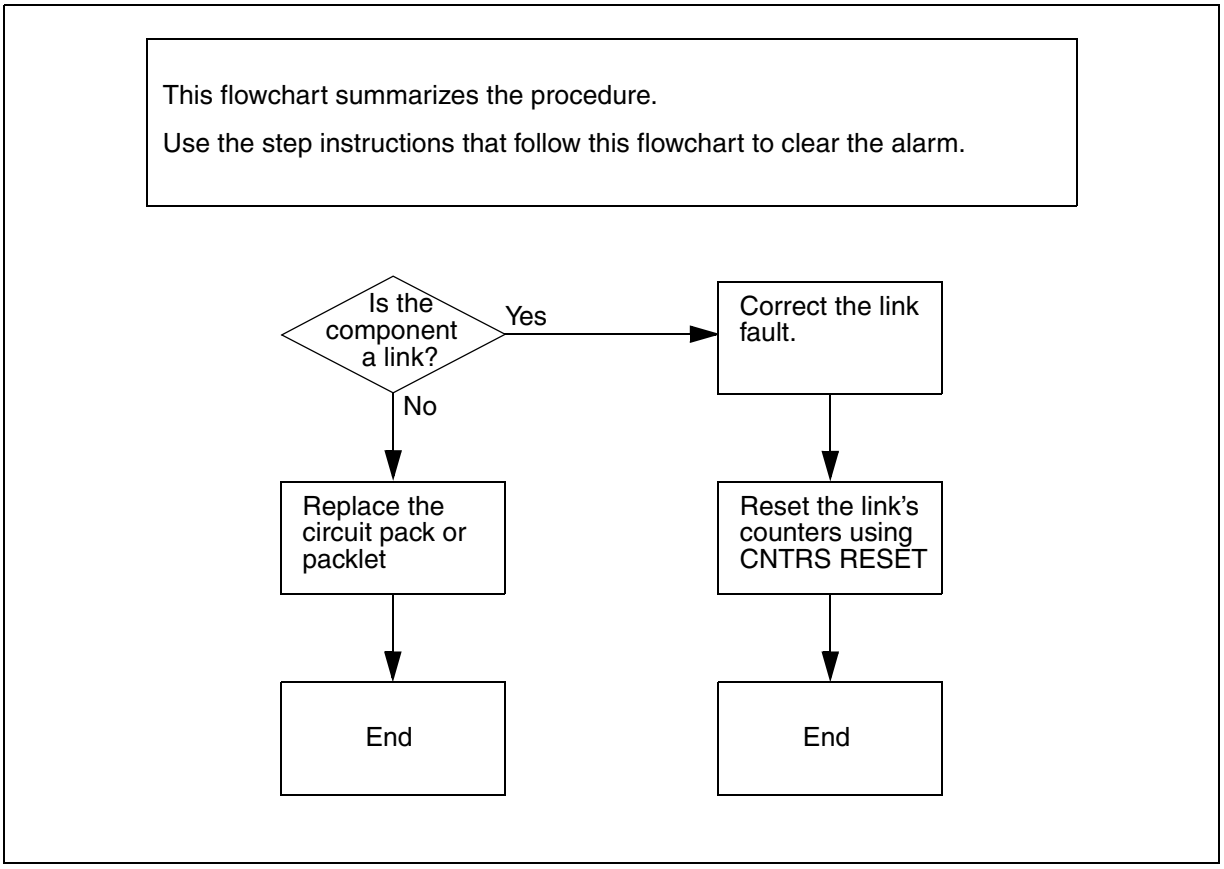
Common procedures

This procedure refers to the card replacement procedures found in Chapter 2 of this document.

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.

Figure 1-54 Summary of clearing a SysBTh major alarm



XAC SysBTh - Major (continued)

How to clear a SysBTh major 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 SysBTh

and press the Enter key.

In response, the system displays a list of components whose SysB transition totals equal or exceed the major thresholds.For each listed component, the system displays the state of the component, and the location of the component.

3 Select the next step as follows:

If the unstable component is	Do
an IO link	step 4
any component other than an IO link	step 6

4 Investigate the link fault and correct it.

5 Reset the SysB transition counters for the link. Type either

>CNTRS RESET <nn> <s> <p> <link-name>

or

>CNTRS RESET <nn> <s> <link-name>

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 to which the link is connected - 1 to 18

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

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

Note: You do not need to use the <p> parameter if the link is connected to the Ethernet or AMDI section of an HIOP circuit pack, or to the CMIC, RTIF, or Ethernet section of an HCMIC circuit pack.

<link-name> is the name of the link, for example, link for an Ethernet link, link0 or link1 for an AMDI link

Note: Ordinarily, you should use the CNTRS RESET command only for links. The reason is that links are the only components for which the system does not reset the SysB transition counters automatically. Ordinarily, you should not use the CNTRS RESET command for other components because the system resets their counters automatically.

XAC SysBTh - Major (end)

6 If the unstable component is one of the following, replace the circuit pack:

- a circuit pack
- the Ethernet or AMDI section of an HIOP circuit pack
- the CMIC, RTIF, or Ethernet secrion of an HCMIC circuit pack
- a port on an HIOP circuit pack
- a port on an HCMIC circuit pack
- the time-of-day device on an HCMIC circuit pack

If the unstable component is one of the following, replace the packlet:

- a packlet
- a port on a packlet
- the time-of-day device on a CMIC packlet

Perform the appropriate replacement procedure. Replacement procedures are found in Chapter 2 of this document. Return to this point when done.

When you replace the circuit pack or packlet, the system automatically resets to zero all the SysB transition counters for the current six-hour interval for the circuit pack or packlet. At the same time, the system also resets to zero the SysB transition totals for the seven preceding six-hour intervals for the circuit pack or packlet. If, following the resetting, there is no other component whose 48-hour SysB-transition total equals or exceeds the applicable minor threshold, then the system clears the SysBTh minor alarm

Note 1: If you replace a circuit pack or packlet that has one or more associated devices, the system does not automatically reset the transition counters for the devices. Examples of devices are ports, links, and time-of-day devices. If you want to reset the transition counters for the associated devices, you must use the CNTRS RESET command.

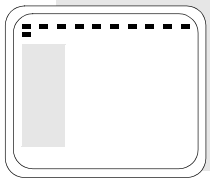
Note 2: If the system repeatedly raises the SysBTh alarm, and if the SysB transitions are traceable to a specific circuit pack or packlet, and if replacing that circuit pack or packlet does not prevent the alarm from recurring, the source of the problem may be a damaged fiber.

7 You have completed this procedure.

Note: After the SysBTh major alarm clears, you may find that it has been replaced by the SysBTh minor alarm. The reason is that after the SysBTh major alarm clears, there may still be at least one other component whose 48-hour SysB-transition total equals or exceeds the applicable minor threshold.

XAC SysBTh - Minor

Alarm display



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

Indication

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

Meaning

During the last 42 to 48 hours, a component has transitioned too frequently from the in-service (InSv) state to the system-busy (SysB) state, which indicates that one or more components may be unstable.

> ***Note:*** For simplicity, we use the following terminology throughout this section. The term "SysB transition" means a transition from the InSv state to the SysB state. The term "48-hour" total means the total number of SysB transitions occurring in the last 42 to 48 hours.

The system monitors the SysB transitions for many components. It maintains separate counts for each instance of each monitored component.

The monitored components are separated into groups.

The following list shows the groups and the monitored components.

- The PE group includes PE circuit packs.
- The SM group includes SM circuit packs.

XAC SysBTh - Minor (continued)

- The IO link (IOlk) group includes IO links: all CMIC links, all Ethernet links, all AMDI links, and all RTIF links.
- The IO hardware (IOhw) group includes
  - IOP, HIOP, and HCMIC circuit packs
  - all packlets: disk, tape, CMIC, RTIF, Ethernet, and AMDI
  - sections of HIOP circuit packs that are supporting ETHR and AMDI connections
  - sections of HCMIC circuit packs that are supporting CMIC, RTIF, and ETHR connections
  - time-of-day (TOD) devices
  - ports

For each instance of each monitored component, the system counts the SysB transitions that occur during the current six-hour interval. It also maintains records of the numbers of transitions that occurred during the seven preceding six-hour intervals. For each component, the system sums the totals from the seven preceding intervals and the total from the current interval, producing the 48-hour total, which is the number of SysB transitions occurring over the last 42 to 48 hours.

For each component group, there are minor and major SysB-transition threshold values. The thresholds apply to each component in the component group. To obtain a list of the major and minor thresholds that apply to the component groups, use the CNTRS QUERY command. The system displays the threshold values as part of its response to the CNTRS QUERY command. For detailed information on the display of threshold values, see the description of the QUERY parameter of the CNTRS command in the XAC MAP level. The description is found in the *XA-Core Reference Manual*, in the chapter that describes MAP levels and user interfaces.

For each monitored component, the system compares the component's 48-hour transition total to the minor SysB transition threshold for the group. If the 48-hour SysB transition total equals or exceeds the minor SysB transition threshold, and if the SysBTh minor alarm or the SysBTh major alarm is not already raised, the system raises the SysBTh minor alarm (unless the alarm has been disabled).

Note: There are also major SysB transition thresholds. If the component's 48-hour total of SysB transitions equals or exceeds the major threshold, and if the SysBTh major alarm is not already raised, the system raises the SysBTh major alarm (unless the alarm has been disabled). See the section describing the SysBTh major alarm in this chapter.

XAC SysBTh - Minor (continued)

The SysBTh minor alarm remains raised until one of the following events occurs:

- The 48-hour totals of SysB transitions for all components fall below the minor thresholds. The totals can fall below the thresholds because at the beginning of each new six-hour interval, the system deletes the SysB transition data from the oldest six-hour interval and starts counting SysB transitions for the current interval from zero.
- You replace a component. On this occasion the system resets to zero all interval counters for that component. If, following the resetting, there is no other component whose 48-hour SysB-transition total equals or exceeds the applicable minor threshold, then the system clears the SysBTh minor alarm.
- A warm restart, cold restart, or reload restart occurs.
- You use the CNTRS RESET command to reset the counters for a component. On this occasion the system resets to zero all interval counters for that component. If, following the resetting, there is no other component whose 48-hour SysB-transition total equals or exceeds the applicable minor threshold, then the system clears the SysBTh minor alarm.

  Note 1: Ordinarily, you should use the CNTRS RESET command only for links. Use it after you have corrected a link fault, to reset the SysB transition counters for the link. For all components other than links, you should let the system reset the counters automatically. Automatic resetting occurs when you replace a component. Also, each time that a new six-hour interval begins, the system discards the oldest interval count for each component.

  Note 2: Detailed information on the CNTRS RESET command is found in the *XA-Core Reference Manual*, in the chapter that describes MAP levels and user interfaces.

XAC SysBTh - Minor (continued)

Impact

Frequent transitions to the system-busy (SysB) state may indicate that the component is unstable. An unstable component may cause a degradation of performance. Otherwise, there is no change in subscriber service.

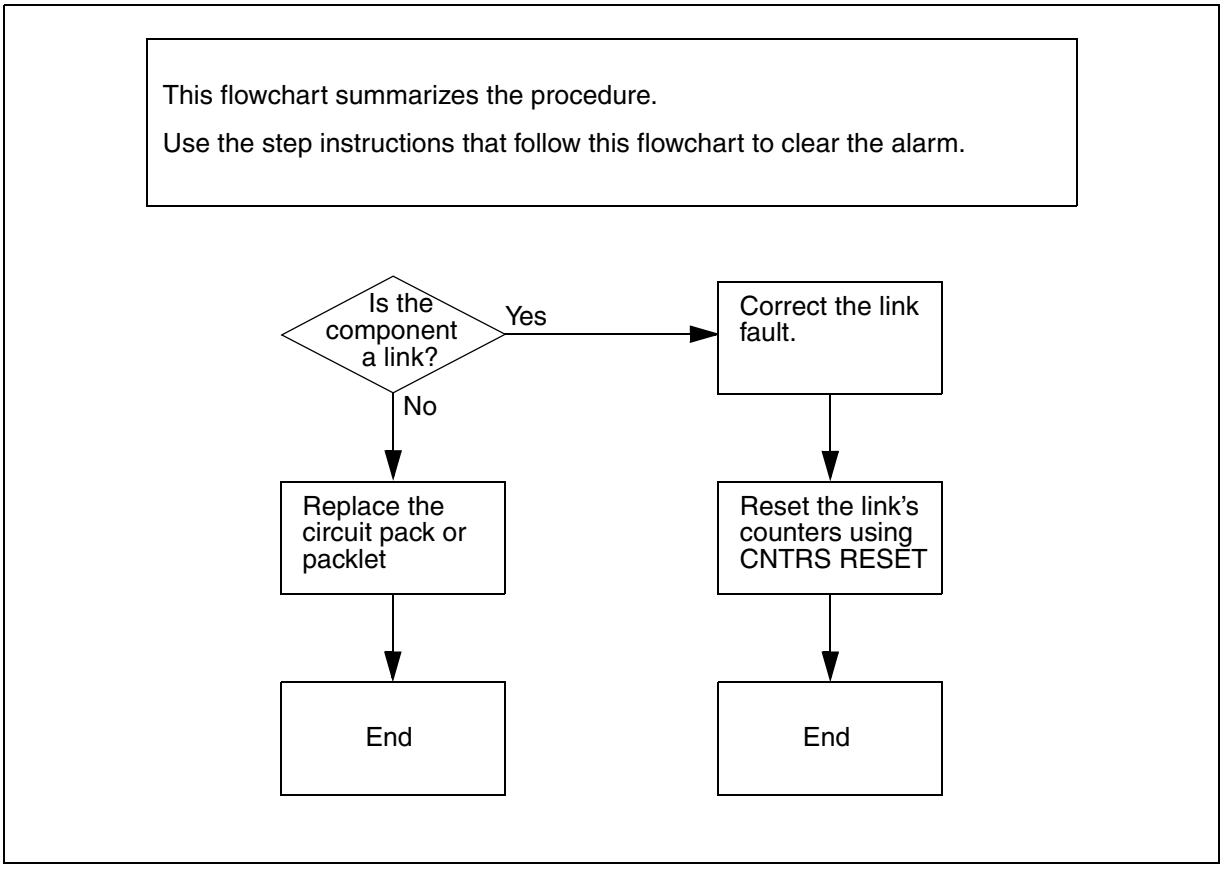
Common procedures

This procedure refers to the card replacement procedures found in Chapter 2 of this document.

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.

Figure 1-55 Summary of clearing a SysBTh minor alarm



XAC SysBTh - Minor (continued)

How to clear a SysBTh 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 SysBTh

and press the Enter key.

In response, the system displays a list of components whose SysB transition totals equal or exceed the major thresholds.For each listed component, the system displays the state of the component, and the location of the component.

3 Select the next step as follows:

If the unstable component is	Do
an IO link	step 4
any component other than an IO link	step 6

4 Investigate the link fault and correct it.

5 Reset the SysB transition counters for the link. Type either

>CNTRS RESET <nn> <s> <p> <link-name>

or

>CNTRS RESET <nn> <s> <link-name>

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 to which the link is connected - 1 to 18

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

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

Note: You do not need to use the <p> parameter if the link is connected to the Ethernet or AMDI section of an HIOP circuit pack , or to the CMIC, RTIF, or Ethernet section of an HCMIC circuit pack.

<link-name> is the name of the link, for example, link for an Ethernet link, link0 or link1 for an AMDI link

Note: Ordinarily, you should use the CNTRS RESET command only for links. The reason is that links are the only components for which the system does not reset the SysB transition counters automatically. Ordinarily, you should not use the CNTRS RESET command for other components because the system resets their counters automatically.

XAC SysBTh - Minor
minor (end)

6 If the unstable component is one of the following, replace the circuit pack:

- a circuit pack
- the Ethernet or AMDI section of an HIOP circuit pack
- the CMIC, RTIF, or Ethernet secrion of an HCMIC circuit pack
- a port on an HIOP circuit pack
- a port on an HCMIC circuit pack
- the time-of-day device on an HCMIC circuit pack

If the unstable component is one of the following, replace the packlet:

- a packlet
- a port on a packlet
- the time-of-day device on a CMIC packlet

Perform the appropriate replacement procedure. Replacement procedures are found in Chapter 2 of this document. Return to this point when done.

When you replace the circuit pack or packlet, the system automatically resets to zero all the SysB transition counters for the current six-hour interval for the circuit pack or packlet. At the same time, the system also resets to zero the SysB transition totals for the seven preceding six-hour intervals for the circuit pack or packlet. If, following the resetting, there is no other component whose 48-hour SysB-transition total equals or exceeds the applicable minor threshold, then the system clears the SysBTh minor alarm

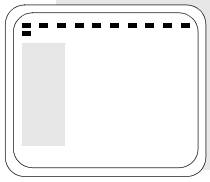
Note 1: If you replace a circuit pack or packlet that has one or more associated devices, the system does not automatically reset the transition counters for the devices. Examples of devices are ports, links, and time-of-day devices. If you want to reset the transition counters for the associated devices, you must use the CNTRS RESET command.

Note 2: If the system repeatedly raises the SysBTh alarm, and if the SysB transitions are traceable to a specific circuit pack or packlet, and if replacing that circuit pack or packlet does not prevent the alarm from recurring, the source of the problem may be a damaged fiber.

7 You have completed this procedure.

XAC Tape - Minor

Alarm display



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

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

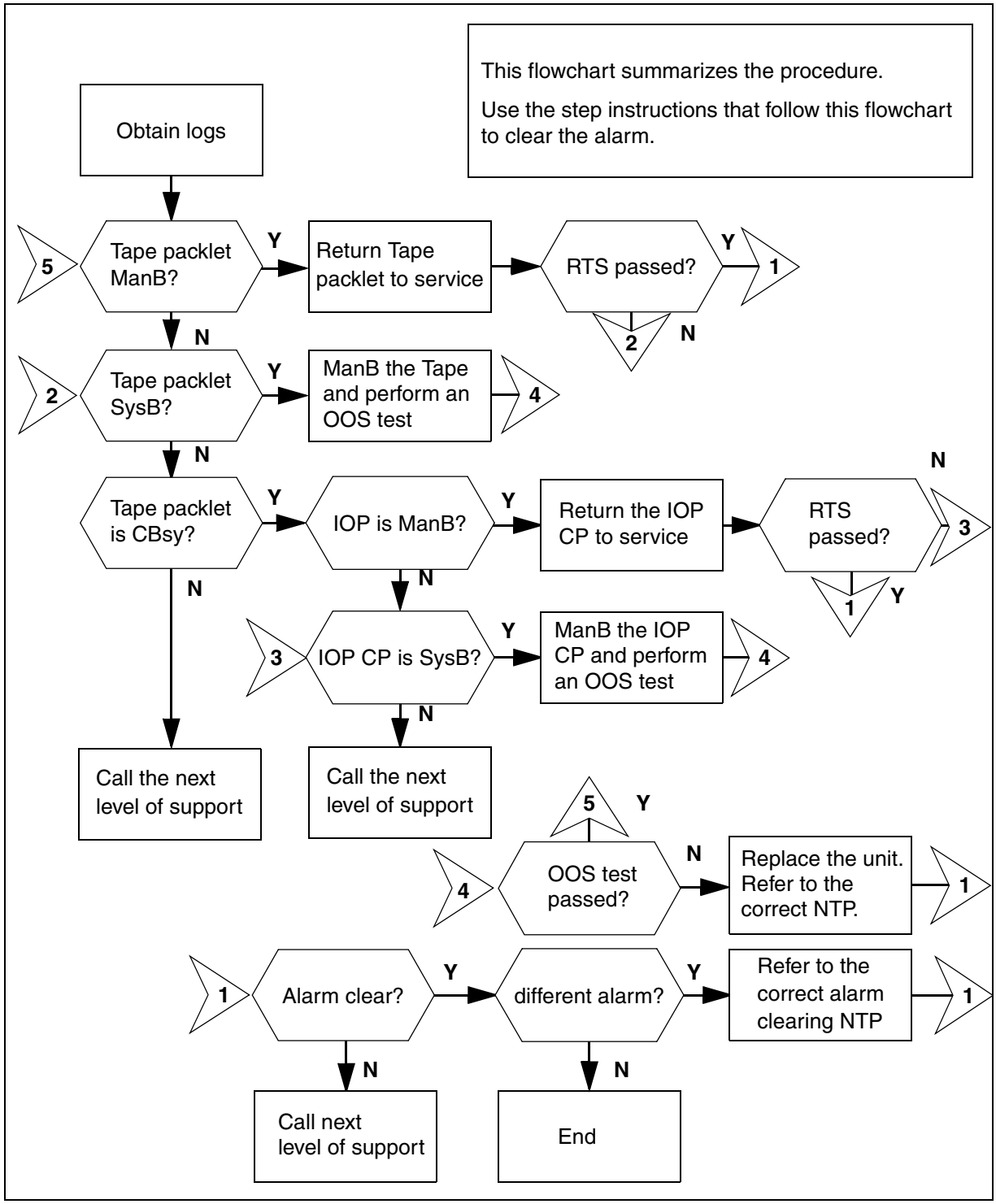
There are no common procedures.

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 - Minor (continued)

Tape MAP level

```
 XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
 TAPE      .       .        .       .        .        .        .         .        .

Tape                Front:   111111111  Rear: 111111   SM      PE       IO      PKLT
 0 Quit             123456789012345678  456789012345   .       .        .       TAPE C
 2                  -.-.--..-.---.-.M-  .----------.    0       0        0       1
 3                  Dep:                F
 4                  Typ:  *             *
 5                  Slot:   Side:    Packlet:   Status:    User Name:      Drive:
 6 Tst_                2    Front    Upper      .          .               Unmounted
 7 Bsy_               17    Front    Upper      C          .               Unmounted
 8 RTS_              TAPE:
 9
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

4 Manually busy the OOS 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 - 1 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 Tape - Minor (continued)

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 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 Tape packlet. 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 - 1 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:

>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 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 - 1 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)

<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        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 Tape       .        .        .         .       .        .       .        .        .

IO                 Front:   111111111  Rear: 111111      SM     PE     IO     PKLT
 0 Quit            123456789012345678  456789012345      .      .      IOP M Tape 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 - 1 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
```

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 - 1 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 - 1 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:

XAC Tape - Minor (continued)

>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 - 1 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

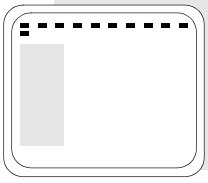
18 Call the next level of support.

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

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XAC TOD - Critical

Alarm display



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

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 TOD devices are OOS. The XA-Core TOD devices are on HCMIC circuit packs or on OC-3 two port interface packlets.
- 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

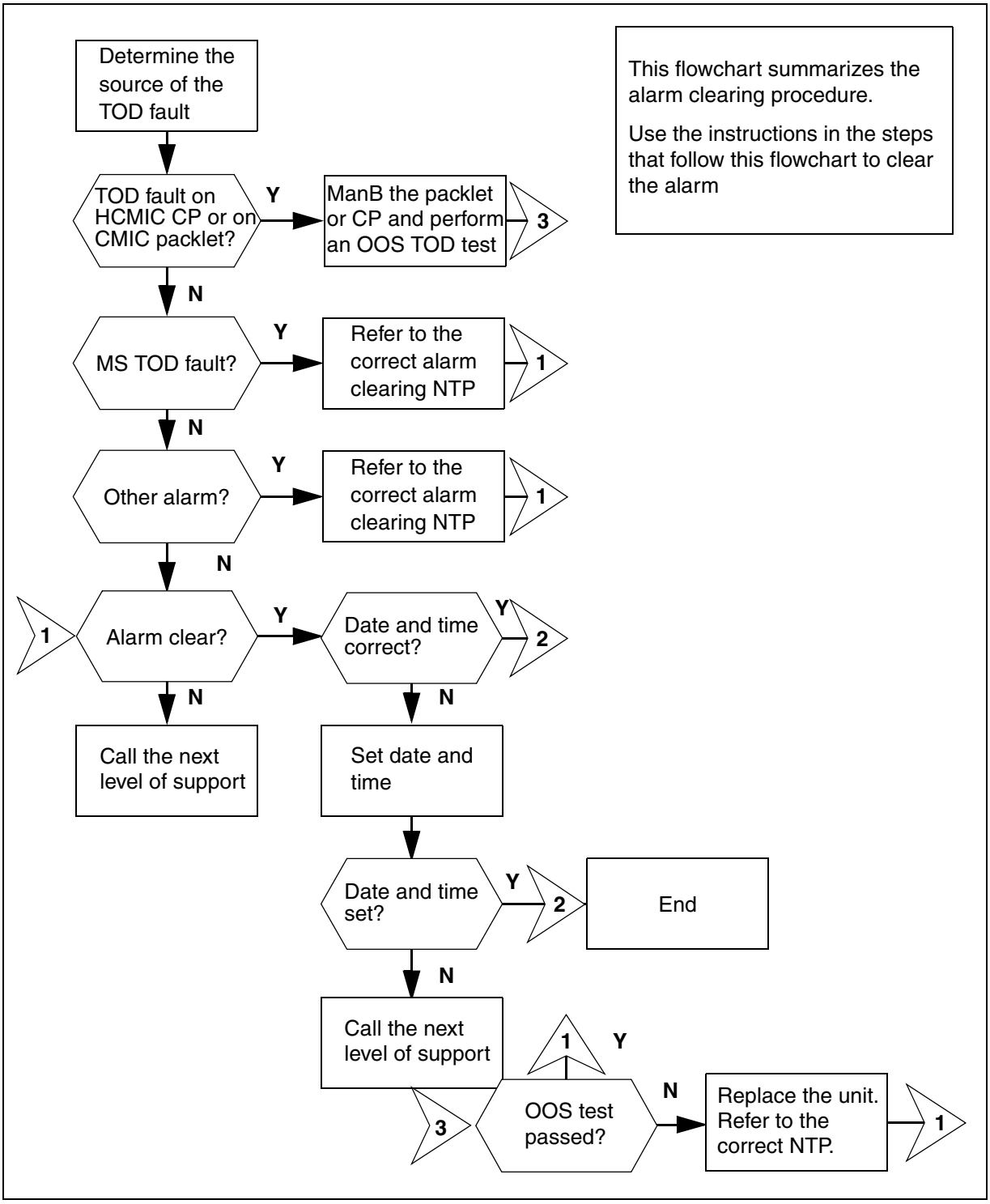
This procedure refers to the replacement procedure for the HCMIC circuit pack and the replacement procedure for the OC-3 two port interface packlet. The procedures are in this document.

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)

Figure 1-56 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 14
the TOD critical alarm condition is clear	step 18

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 CMIC hardware, which will be either HCMIC circuit packs or OC-3 two-port interface packlets and the IOP 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), indicating an OC-3 two port interface packlet
- a status code appears under the Status, Link, Port, or TOD headers in the command interpreter output area

XAC TOD - Critical (continued)

The following is a sample MAP display.

CMIC MAP level, showing TOD faults in HCMICs in slot 4 rear and 15 rear

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

CMIC                Front:   111111111  Rear: 111111   SM      PE       IO       PKLT
 0 Quit             123456789012345678  456789012345   .       .        .        .
 2                  Sta: -.-.--..-..--.-..-  .--.--------.   0       0        0        0
 3                  Dep:                       F           F
 4                  Typ:                      *           *
 5                  Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_              4    Rear                    .     .     .      .      S    S
 7 Bsy_             15    Rear                    .     .     .      .      S    S
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

CMIC MAP level, showing TOD faults in CMIC packlets in slots 4 rear and 15 rear

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

CMIC                Front:   111111111  Rear: 111111   SM      PE       IO       PKLT
 0 Quit             123456789012345678  456789012345   .       .        .        TODfl
 2                  Sta: -.-.--..-..--.-..-  .--.--------.   0       0        0        2
 3                  Dep:                       F           F
 4                  Typ:                      *           *
 5                  Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_              4    Rear  Lower     .                     .      .      S
 7 Bsy_             15    Rear  Lower     .                     .      .      S
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

XAC TOD - Critical (continued)

If the CMIC MAP level indicates	Do
XA-Core TODs are in a SysB state and the alarm code under the SSSF IO header or under the SSSF PKLT header is TODflt	step 4
XA-Core TODs are in a CBsy state and the alarm code under the SSSF IO header or under the SSSF PKLT header is MSTOD	step 12
a different alarm	step 14
no alarm and all CPs and TODs are in service	step 18

XAC TOD - Critical (continued)

4 Select the next step as follows.

If the CMIC hardware is	Do
HCMIC circuit packs	step 5
OC-3 two port interface circuit packs	step 8

5 Go to IO MAP level. Type

>IO

and press the Enter key.

6 Manually busy the HCMIC circuit pack. 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 - 1 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 4 r

Example of system response:

```
BSY 4 rear 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 circuit pack is	Do
in a ManB state	step 7
not in a ManB state	step 17

7 Perform OOS test on the HCMIC circuit pack. 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 - 1 to 18

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

XAC TOD - Critical (continued)

Example of command use:

>TST 4 r

If the OOS test	Do
passed	step 10
did not pass	step 11

8 Manually busy the OC-3 two port interface 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 - 1 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 upper completed
```

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

If the HCMIC circuit pack or the OC-3 two port interface packlet is	Do
in a ManB state	step 9
not in a ManB state	step 17

XAC TOD - Critical (continued)

9 Perform an OOS test on the packlet. 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

<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 10
did not pass	step 11

10 Confirm that the TOD critical alarm is clear. Examine the CMIC MAP level.

If the TOD alarm is	Do
changed to different alarm	step 14
clear	step 15
not clear	step 17

11 Perform the replacement procedure for the HCMIC circuit pack or for the OC-3 two port interface packlet. Refer to the correct NTP. Return to this point when complete.

If the XA-Core CMIC hardware (the HCMIC circuit pack or the OC-3 two port interface packlet) and the TODs are	Do
in an InSv state	step 10
in a SysB state	step 17

12 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

XAC TOD - Critical (continued)

>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 paddelboards (see the MS Card MAP level diagram in this step).

The following is a sample MAP display.

MS Card MAP level

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


MS
 0 Quit          Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 2          MS 0        .            M Free              .                    - -
 3          MS 1        .            Slave               F                    - -
 4
 5          Shelf  0                 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2
 6 Tst_     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 Bsy_     Chain
 8 RTS_     MS 0   . . . - . - - - - - - - - - - - - - - - - . . . . .
 9          MS 1   . . . - . - - - - - - - - - - - - - - - - . . . . .
10 LoadMS_
11          Card 24 CMIC Interface Card        Port: 0
12 SwMast   MS 0         .                          .
13 Shelf    MS 1         .                          S
14 QueryMS
15
16
17 InterMS_
18 Clock

 XMAP0
Time  14:12    >
```

If the MS Card MAP level indicates	Do
OC-3 two port interface paddleboard ports are OOS	step 13

XAC TOD - Critical (continued)

If the MS Card MAP level indicates	Do
a different alarm	step 14
no faults or alarms	step 17

13 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 14
clear	step 15
not clear	step 17

14 Perform the correct alarm clearing procedure. Refer to the correct NTP. Return to this point when complete.

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

15 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 16
not set	step 17

XAC TOD - Critical (end)

16 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

Example of system response:

```
Time is 08:24:00 on WED. 1999/04/14
Timezone is 0 minutes from GMT
```

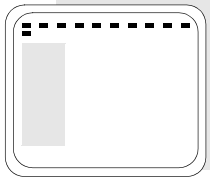
If the system time is	Do
not set	step 17
set	step 18

17 Call the next level of support.

18 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 article of CMIC hardware in the XA-Core shelf (an HCMIC circuit pack or an 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:

- In the XA-Core shelf, a single TOD device on an article of CMIC hardware (an HCMIC circuit pack or an OC-3 two port interface packlet) is OOS.
- An MS OC-3 two port interface paddleboard cannot send a TOD clock signal.
- In the XA-Core shelf, a single article of CMIC hardware (an HCMIC circuit pack or an OC-3 two port interface packlet) is in a SysB, ManB or Cbsy state.

Impact

There is no immediate change in subscriber service. In the XA-Core shelf, a single article of CMIC hardware (an HCMIC circuit pack or an OC-3 two port interface packlet) is isolated from the XA-Core system.

Common procedures

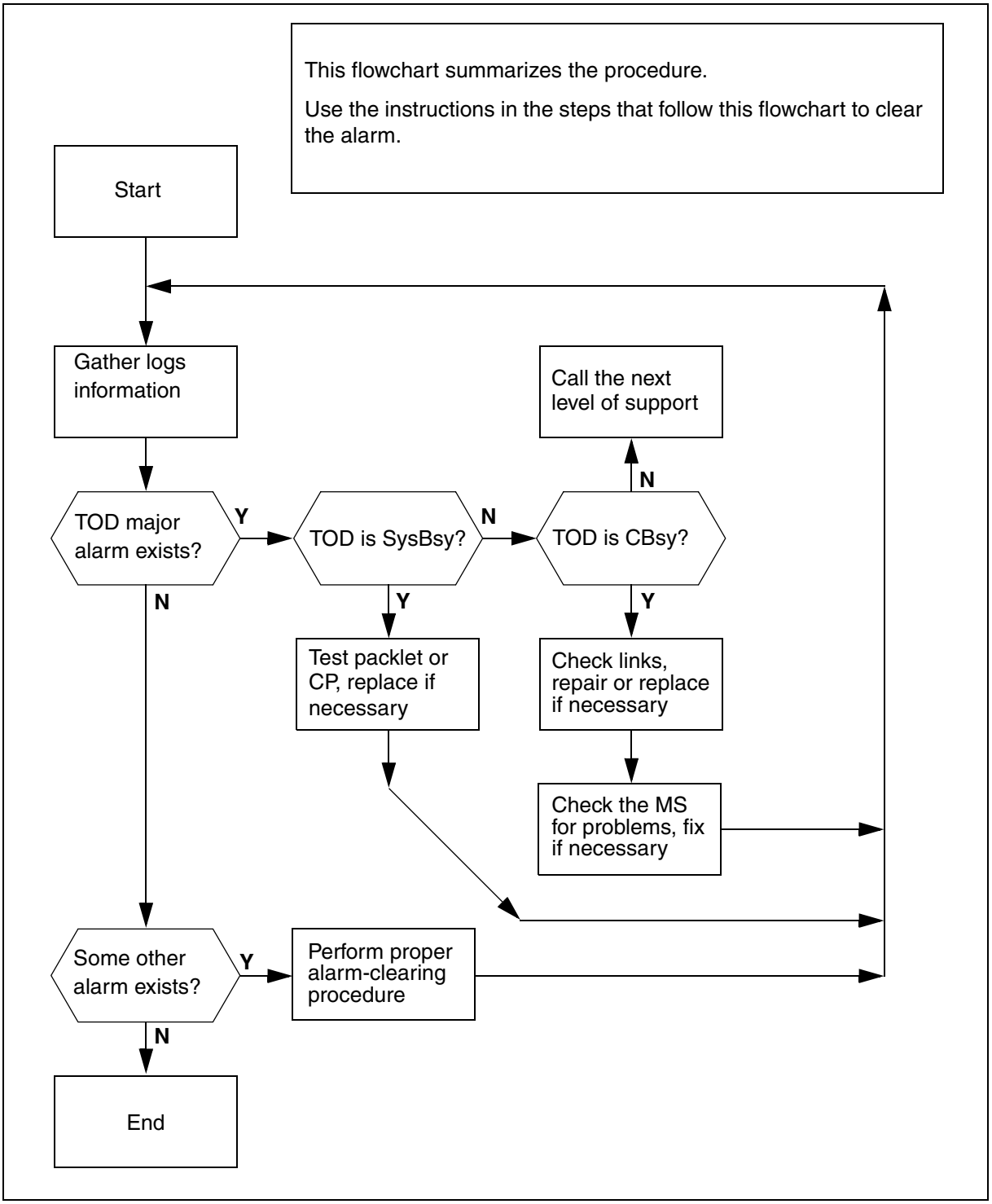
This procedure refers to the replacement procedure for the HCMIC circuit pack and the replacement procedure for the OC-3 two port interface packlet. The procedures are in this document.

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)

Figure 1-57 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.

2 Select the next step as follows.

If the log information indicates	Do
a TOD major alarm condition	step 3
a different alarm condition	step 32
the TOD major alarm condition is clear	step 35

3 Access the CMIC MAP level (if you are not already at that level). Type

>MAPCI;MTC;XAC;CMIC

and press the Enter key.

4 Examine the CMIC MAP level. Record the location and state of the links and the time-of-day devices. If the CMIC hardware is OC-3 two port interface packlets, record the location and state of those packlets.

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), indicating an OC-3 two port interface packlet
- a status code appears under the Status, Link, Port, or TOD headers in the command interpreter output area

The following is a sample MAP display.

XAC TOD - Major (continued)

CMIC MAP level, showing TOD faults in the HCMICs in slot 4 rear

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

CMIC                 Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit              123456789012345678  456789012345   .      .       .       .
 2                Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       0
 3                Dep:
 4                Typ:                       *         *
 5                Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_            4    Rear                  .     .     .      .      S    S
 7 Bsy_           15    Rear                  .     .     .      .      .    .
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

CMIC MAP level, showing a TOD fault in the CMIC packlet in slots 4 rear

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

CMIC                 Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit              123456789012345678  456789012345   .      .       .       TODfl
 2                Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       1
 3                Dep:                       F           F
 4                Typ:                       *         *
 5                Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_            4    Rear  Lower    .                   .      .      S
 7 Bsy_           15    Rear  Lower    .                   .      .      .
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

XAC TOD - Major (continued)

If the MAP indicates	Do
a TOD is SysB	step 5
a TOD is CBsy	step 14
a different alarm exists	step 32
no alarm exists and all OC-3 XA-Core and MS TODs are in service	step 35

5 Select the next step as follows.

If the CMIC hardware is	Do
HCMIC circuit packs	step 6
OC-3 two port interface circuit packs	step 9

6 Go to IO MAP level. Type

>IO

and press the Enter key.

7 Manually busy the HCMIC circuit pack. 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 - 1 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 4 r

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.

If the circuit pack is	Do
in a ManB state	step 8
not in a ManB state	step 34

XAC TOD - Major (continued)

8 Perform OOS test on the HCMIC circuit pack. 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 - 1 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:

>TST 4 r

If the OOS test	Do
did not pass	step 11
passed	step 12

9 Manually busy the 0C-3 two-port interface 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 - 1 to 18

<s> is the side parameter value to indicate the 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:

```
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.

If the packlet is	Do
in a ManB state	step 10
not in a ManB state	step 34

10 Perform an OOS test on the 0C-3 two-port interface packlet. Type

>TST <nn> <s> <p>

and press the Enter key

where

XAC TOD - Major (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 to 18

<s> is the side parameter value to indicate the 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
did not pass	step 11
passed	step 12

11 Perform the replacement procedure for the HCMIC circuit pack or for the OC-3 two interface packlet. Refer to the correct procedure located in this document. Return to this point when complete.

12 Return the HCMIC circuit pack or the OC-3 two port interface 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 - 1 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 used only if the CMIC hardware is a packlet, and 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 to return a packlet to service:

>RTS 4 r l

Example of system response:

```
RTS 4 rear upper passed
```

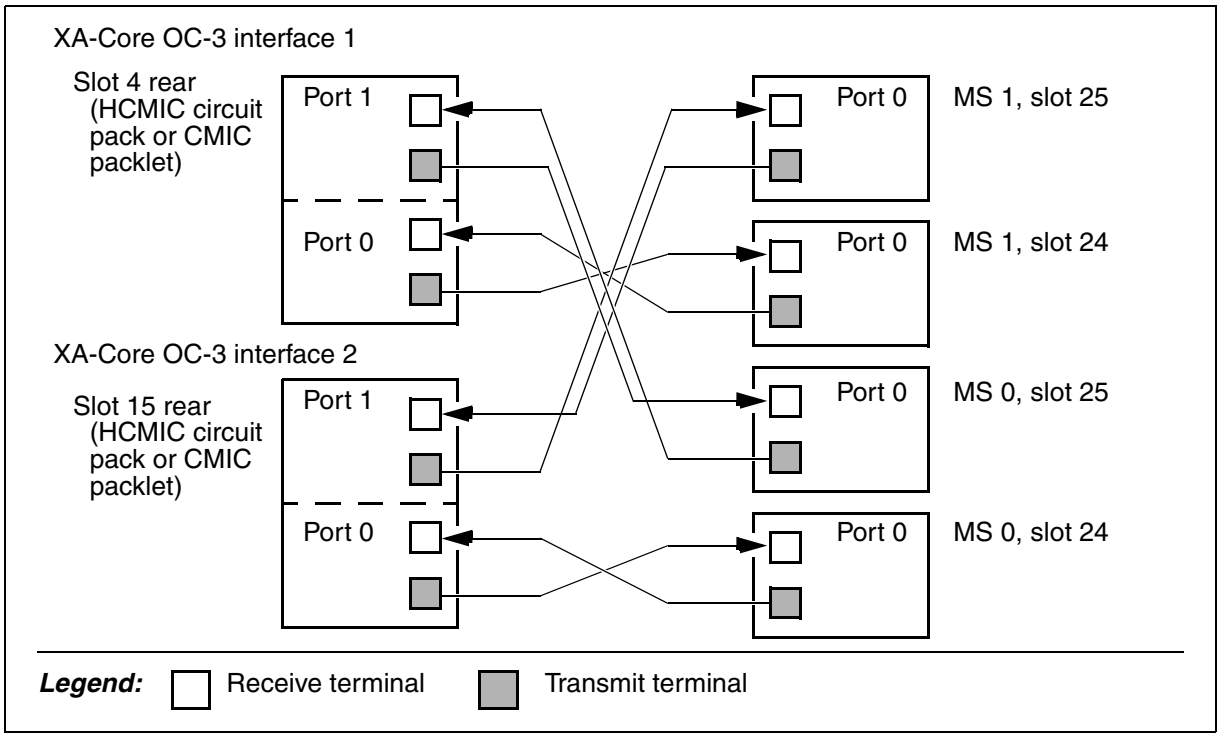
13 Go to step 2.

At the XA-Core physical shelf

14 Locate the CMIC hardware that has the CBsy TOD. The CMIC hardware is either an HCMIC circuit pack or an OC-3 two port interface packlet.

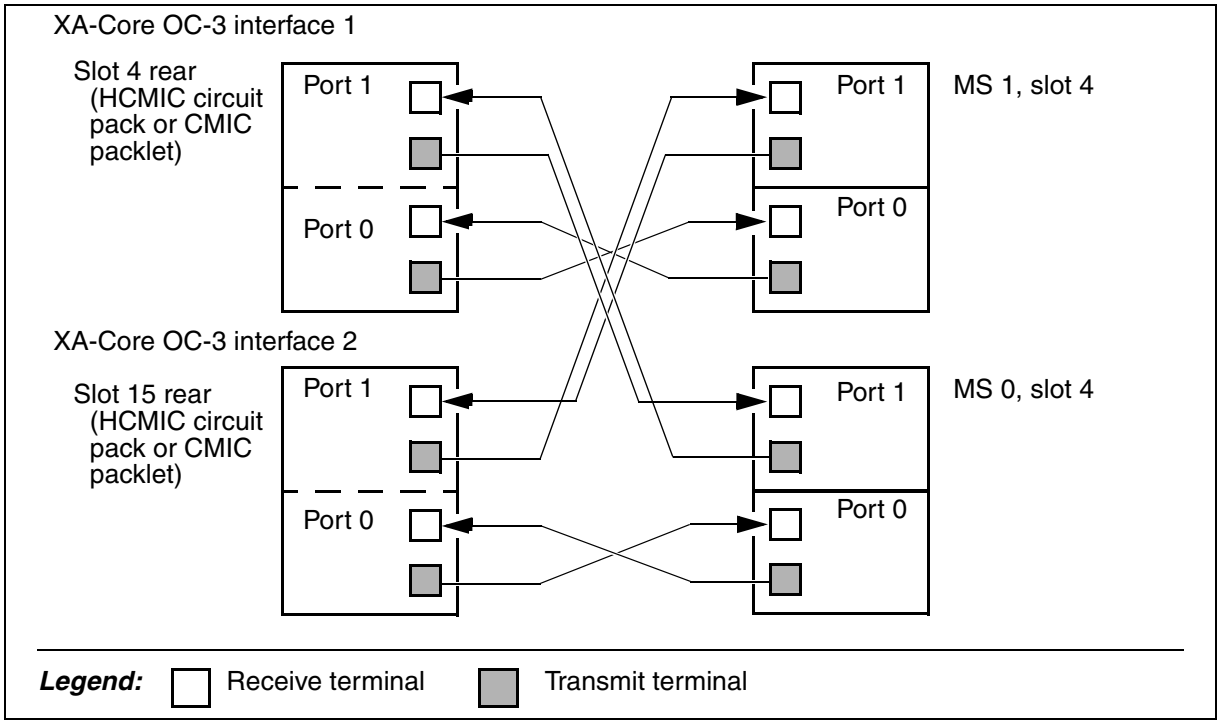
15 Examine the fiber optic cables on the HCMIC circuit pack or on the OC-3 two port interface packlet. Look for visible damage or disconnection of the cables or cable connectors. Make sure that the link connections fit into the correct OC-3 interface on the HCMIC circuit pack or on the OC-3 two port interface packlet. Make sure that the link connections fit into the correct paddleboard ports in the message switch (MS). Use the following diagrams to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)

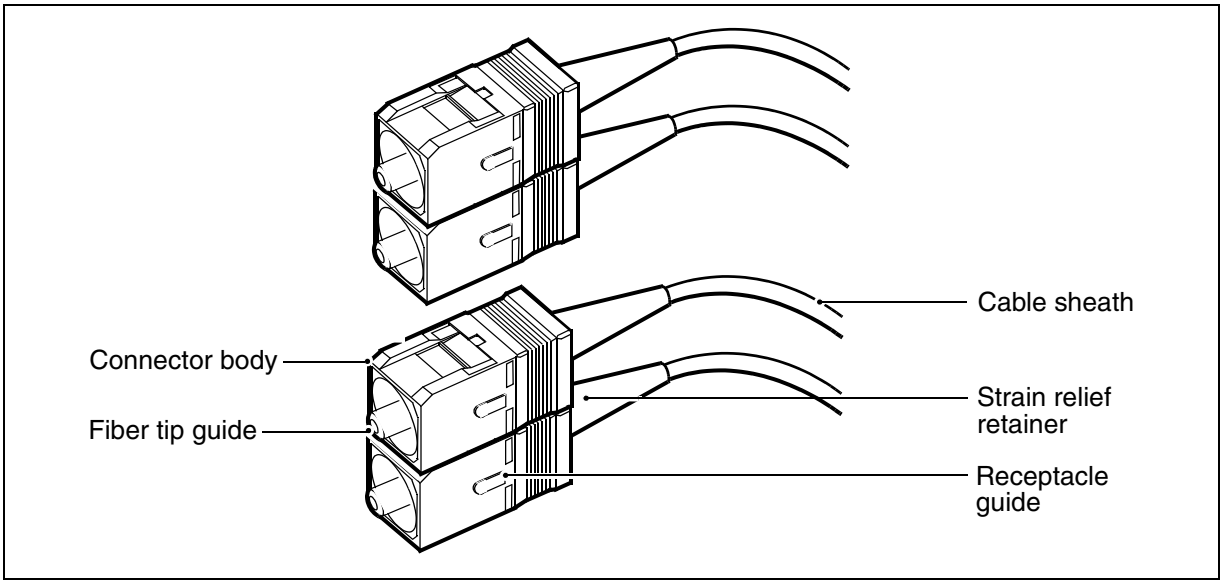


XAC TOD - Major (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



Paired fiber optic cable connectors



If OC-3 fiber optic cables or connectors are	Do
damaged	step 16
not correctly connected to the MS	step 20
not visibly damaged or disconnected	step 23

16 Obtain replacement cables as necessary.

17 Disconnect the fiber optic cables from the CMIC hardware in the XA-Core (HCMIC circuit pack or OC-3 two port interface packlet) and from the OC-3 two-port interface paddleboard in the message switch.

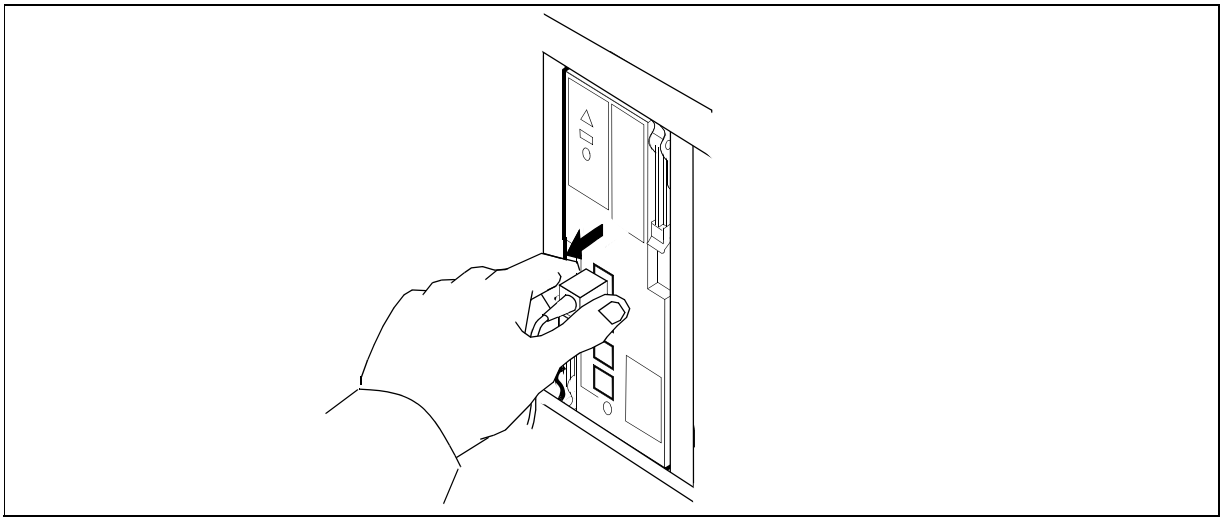
a Hold the connector by the receptacle body only

b Carefully pull the fiber optic connector away from the receptacle.

c Cover the ends of the fiber optic cable with dust caps.

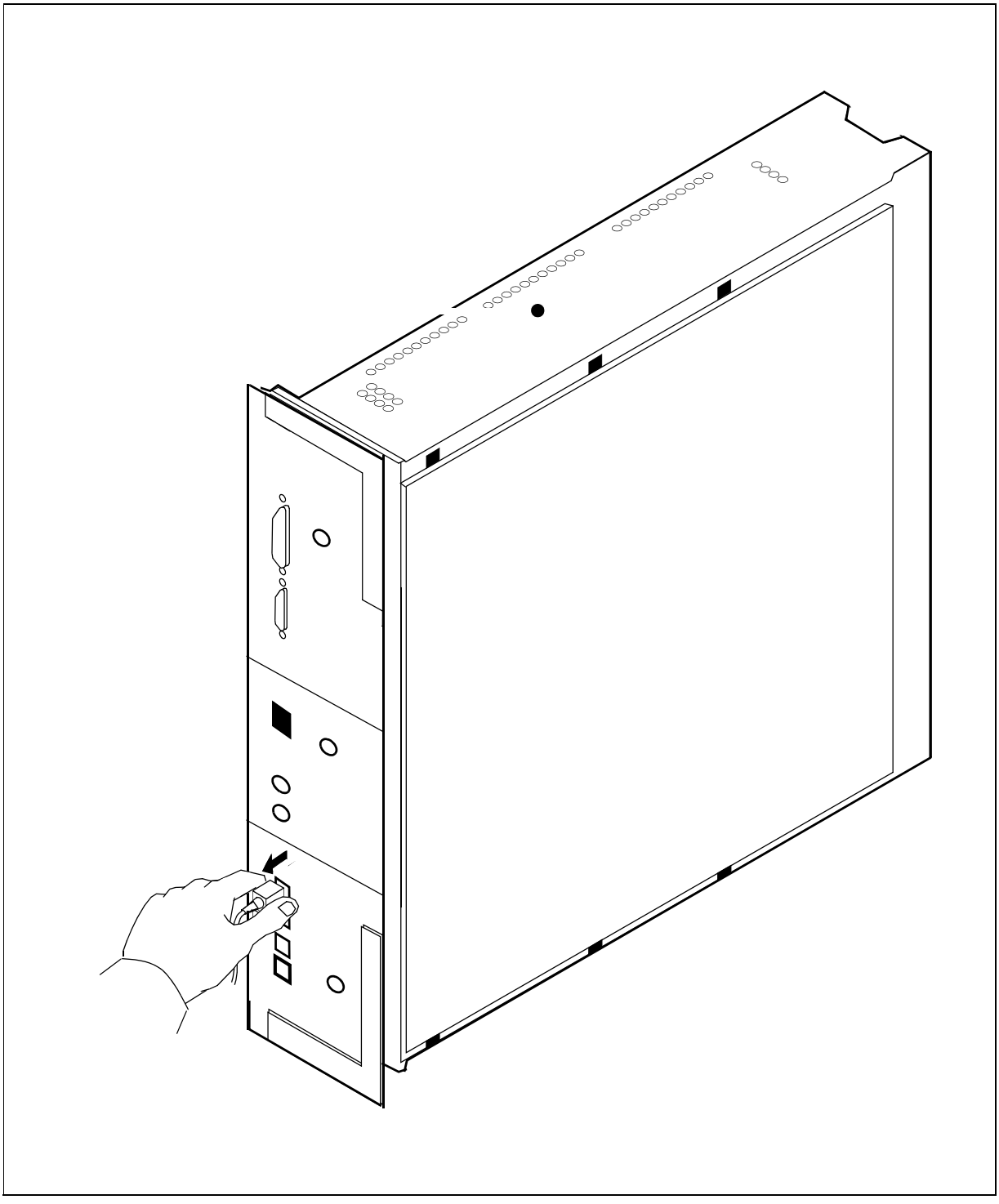
d Place the cables in a safe location away from the circuit pack or packlet

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



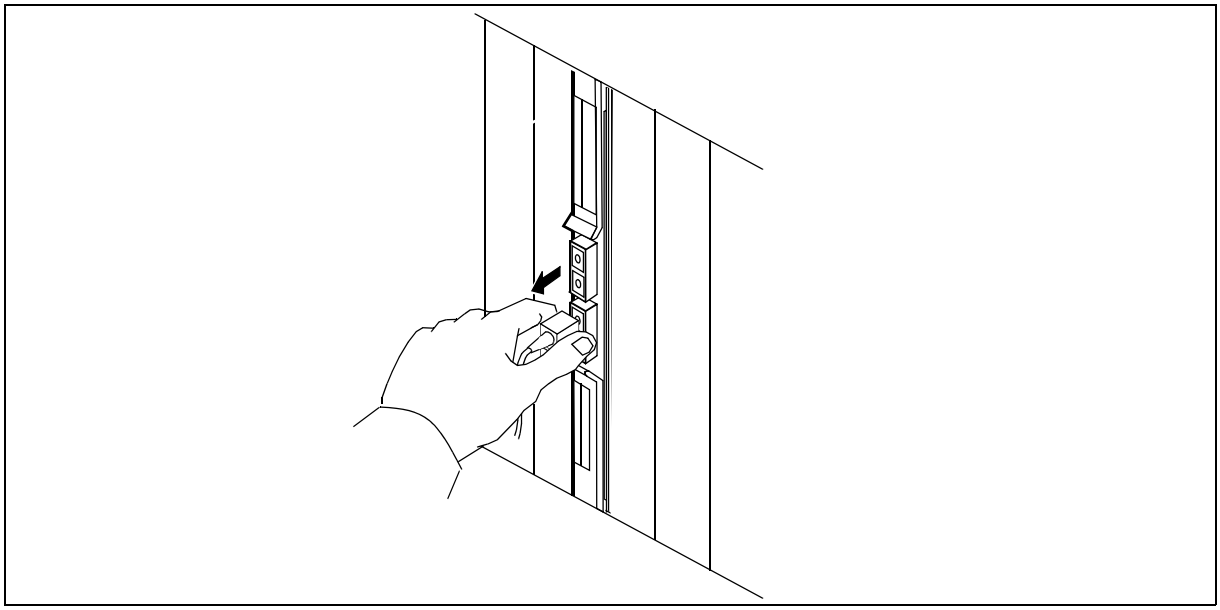
XAC TOD - Major (continued)

Disconnect the fiber optic cables from the OC-3 ports on the HCMIC circuit pack



XAC TOD - Major (continued)

Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports



18 Connect the replacement fiber optic cables to the correct CMIC hardware in the XA-Core (HCMIC circuit pack or OC-3 two port interface packlet) and to the OC-3 two-port interface paddleboard ports in the message switch. Use the link connection diagrams shown in this step.

a Hold the connector by the body only.

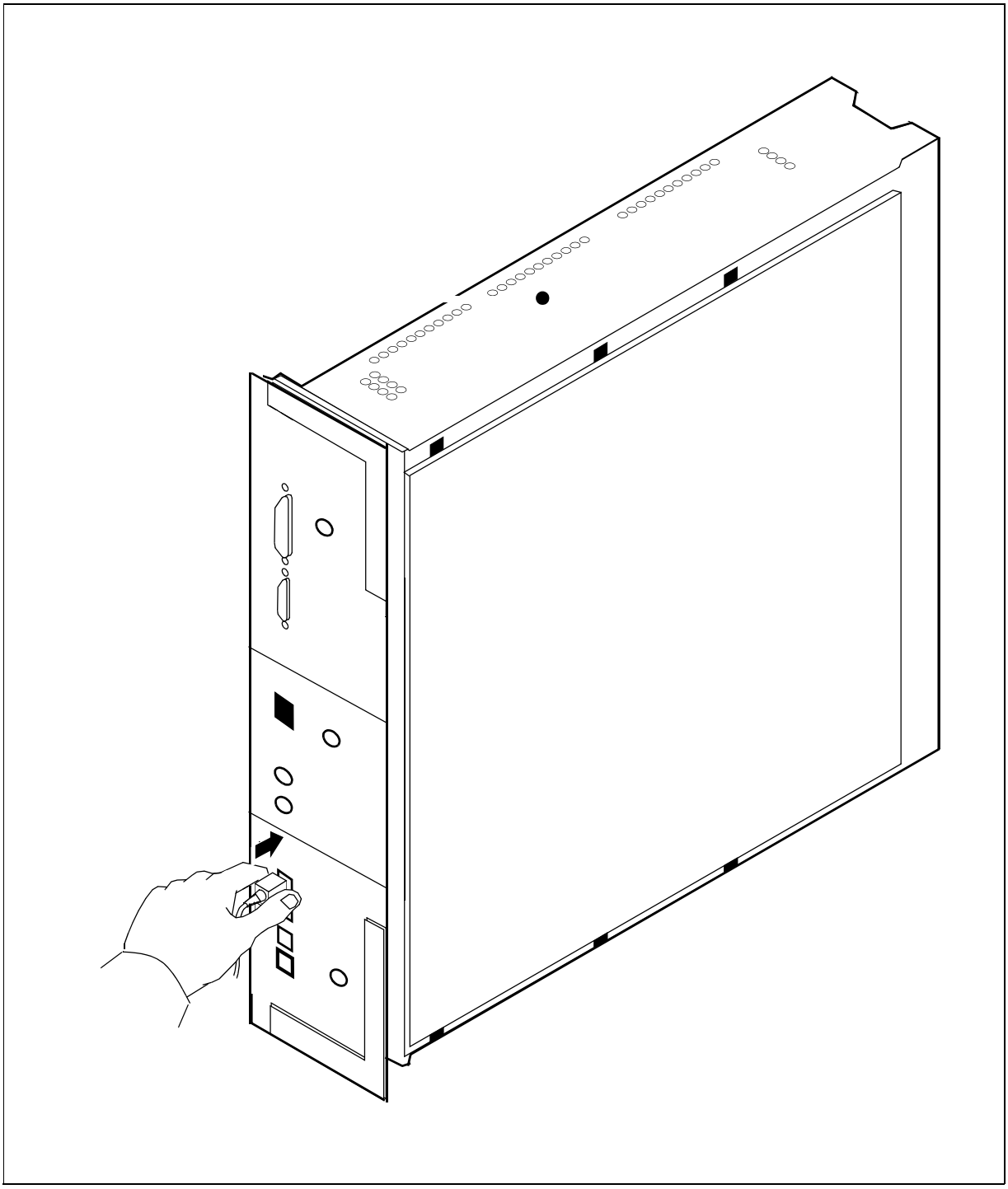
b Remove the fiber optic cable dust caps.

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.

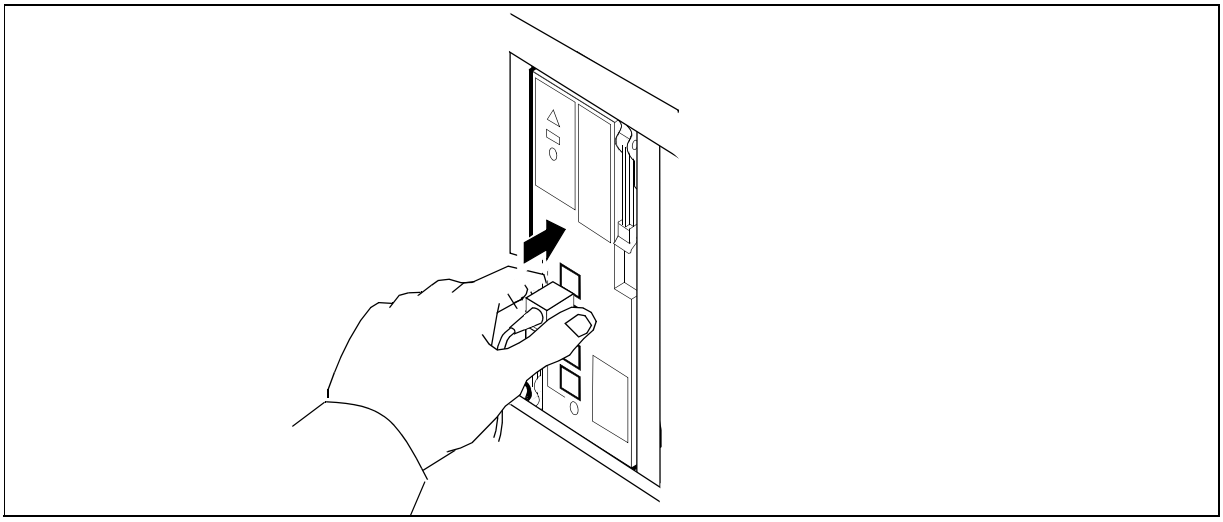
XAC TOD - Major (continued)

Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack

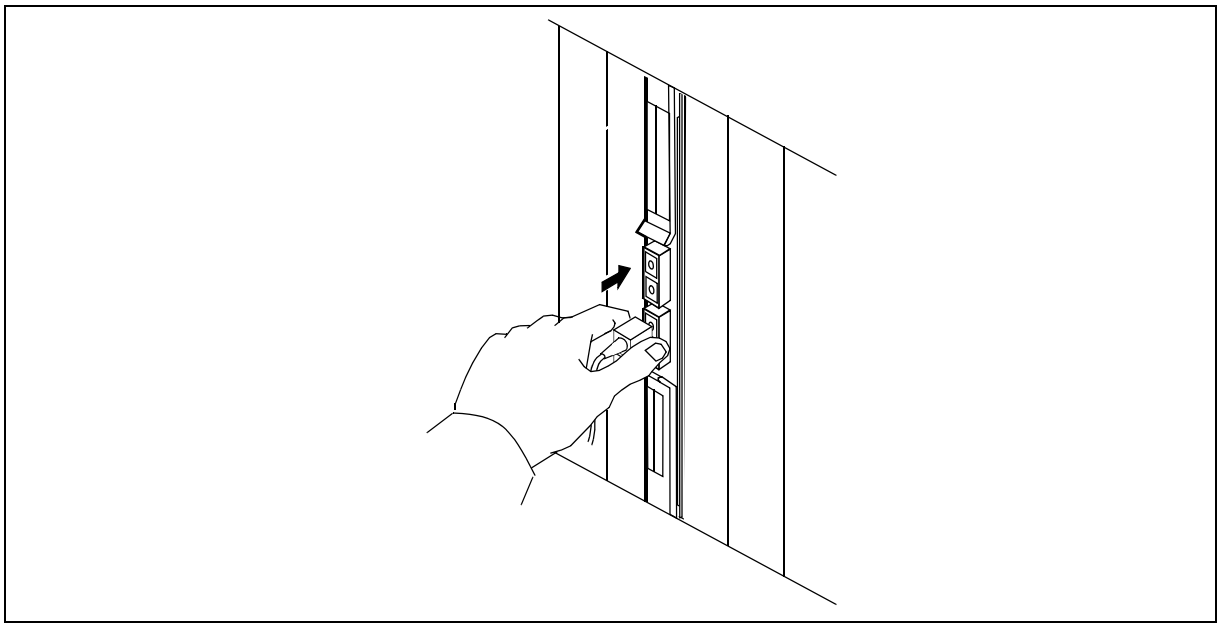


XAC TOD - Major (continued)

Connect the fiber optic cables to the OC-3 two port interface packlet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



19 Go to step 30.

20 If you found that the connections were wrong, fix them, referring to the diagrams in step 15.

21 Connect the fiber optic cables to the correct CMIC hardware in the XA-Core (HCMIC circuit pack or OC-3 two port interface packlet) and to the OC-3 two-port interface paddleboard ports in the message switch. Use the link connection diagrams shown in this step.

a Hold the connector by the body only.

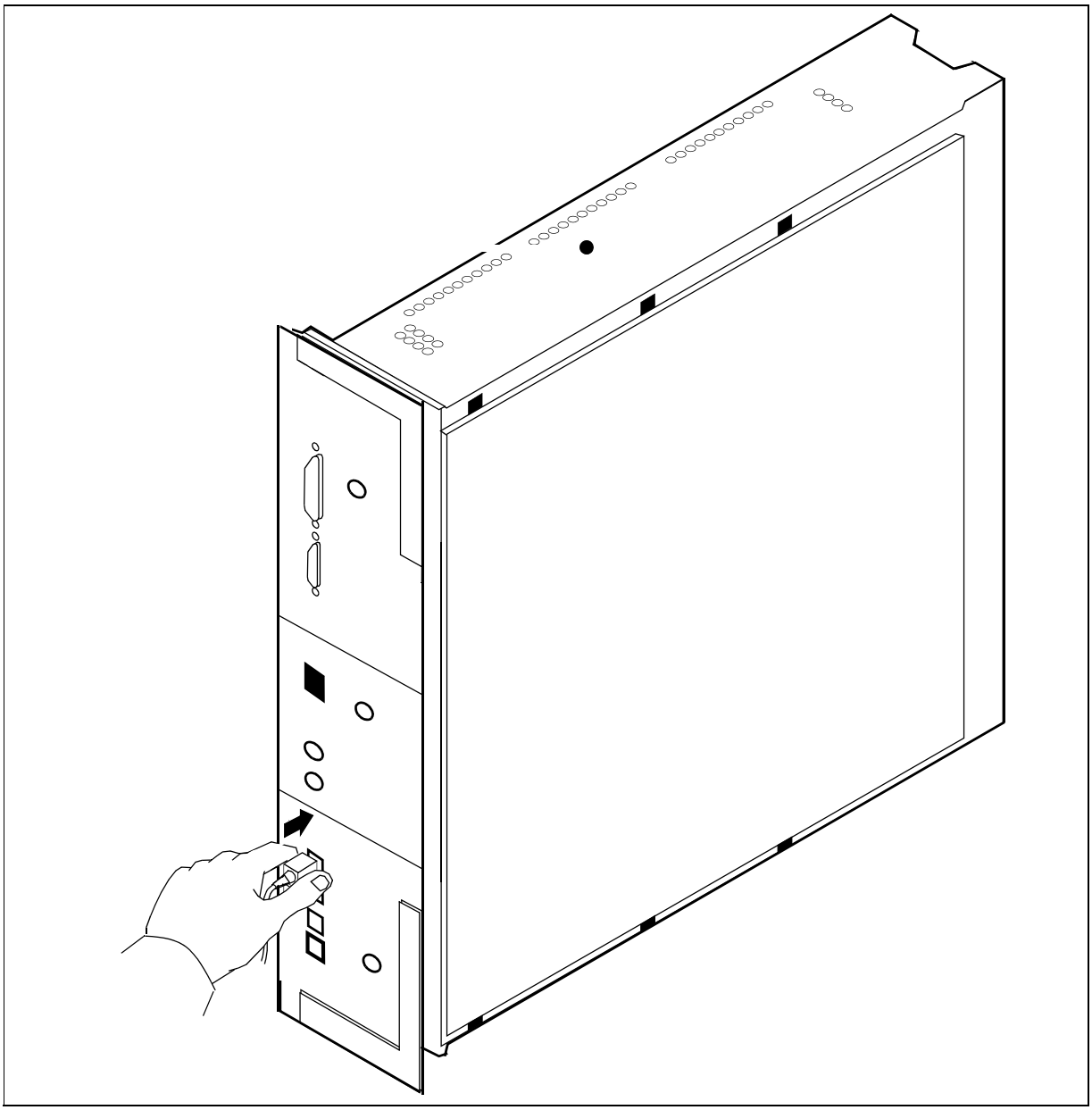
XAC TOD - Major (continued)

b Remove the fiber optic cable dust caps.

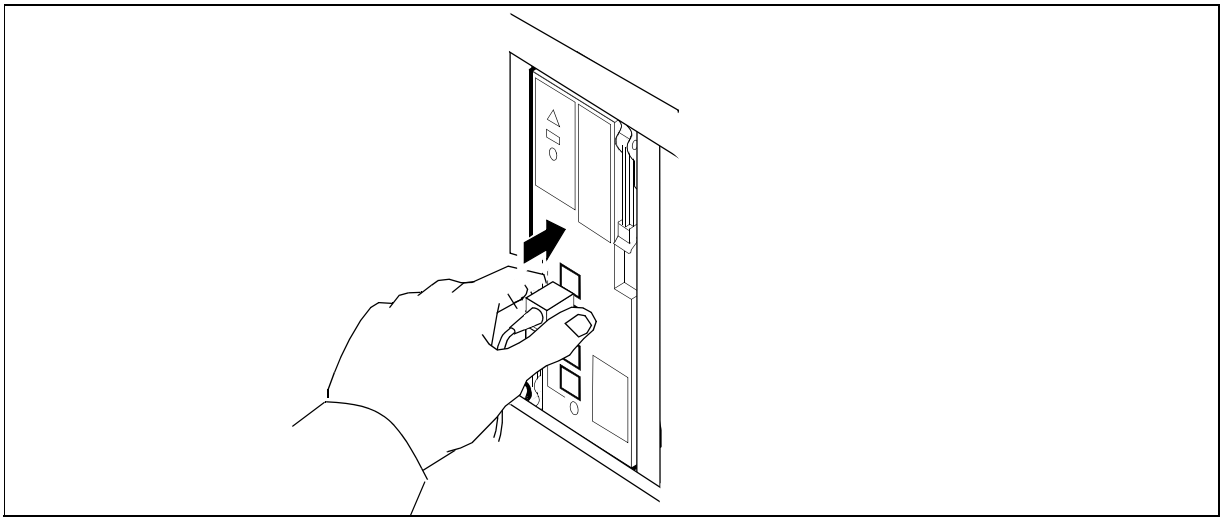
c Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure.

d Push the connector into the correct receptacle until the connector is fit into position.

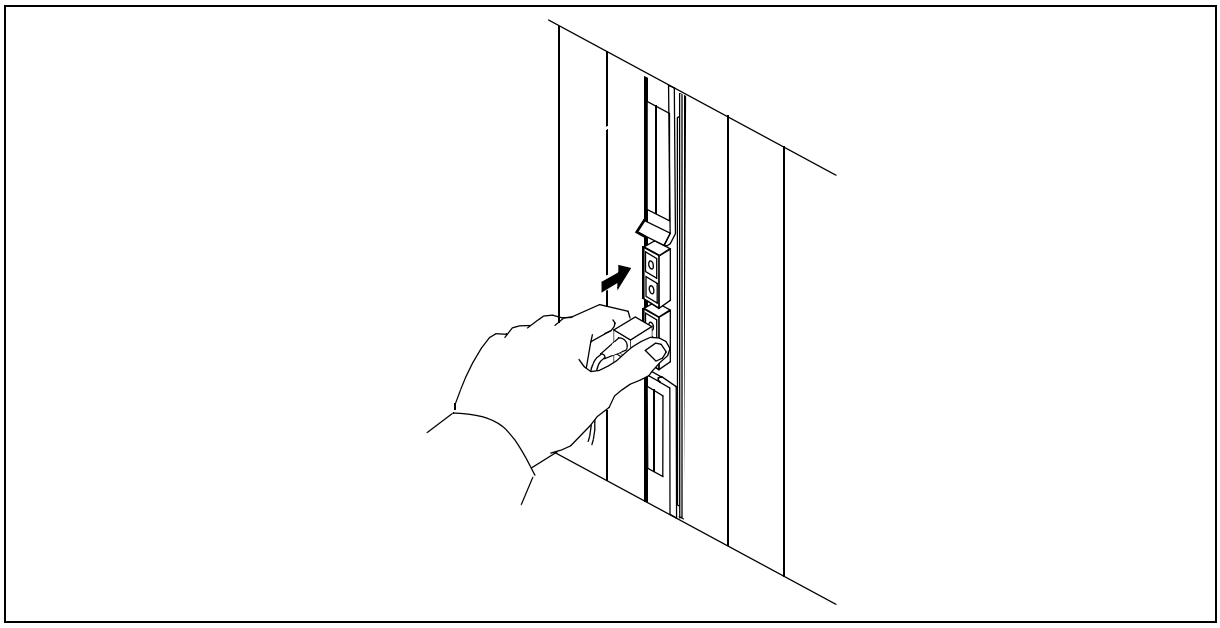
Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack



Connect the fiber optic cables to the OC-3 two port interface packlet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



22 Go to step 30.

23 Perform the replacement procedure for the HCMIC circuit pack or for the OC-3 two interface packlet. Refer to the correct procedure located in this document. Return to this point when complete.

24 Select the next step as follows.

If the CMIC hardware is	Do
HCMIC circuit packs	step 27

XAC TOD - Major (continued)

If the CMIC hardware is	Do
OC-3 two port interface circuit packs	step 25

25 Return the OC-3 two port interface 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 - 1 to 18

<s> is the side parameter value to indicate the 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
```

26 Go to step 2.

27 Go to IO MAP level. Type

>IO

and press the Enter key.

28 Return the HCMIC circuit pack to service. 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 - 1 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:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

29 Go to step 2.

At the XA-Core MAP terminal

30 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).

XAC TOD - Major (continued)

The following is a sample MAP display.

MS Card MAP level

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


MS                    Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 0 Quit          MS 0        .            M Free              .                    - -
 2               MS 1        .            Slave               F                    - -
 3
 4               Shelf  0                  1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2
 5               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
 6 Tst_          Chain
 7 Bsy_          MS 0   . . . - . - - - - - - - - - - - - - - - - - . . . . .
 8 RTS_          MS 1   . . . - . - - - - - - - - - - - - - - - - - . . . . .
 9
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    >
```

If the MS Card MAP level indicates	Do
OC-3 two port interface paddleboard ports are OOS	step 31
a different alarm	step 32
no faults or alarms	step 33

XAC TOD - Major (end)

31 Perform the correct MS CP replacement procedure. Return to this point when complete.

If the TOD alarm is	Do
changed to a different alarm	step 32
not clear	step 34
clear	step 33

32 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 34
clear	step 33

33 Go to step 2.

34 Call the next level of support.

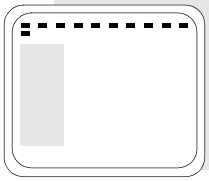
35 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as indicated.

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XAC (or APPL) TOD - Minor

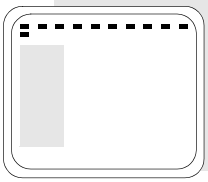
Alarm display

XAC TOD Display



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

APPL TOD Display



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

Indication

A TOD alarm code appears under the XAC or APPL header of the alarm banner. The alarm code indicates the time-of-day (TOD) minor alarm.

Meaning

In the XA-Core shelf, a single article of CMIC hardware (an HCMIC circuit pack or an OC-3 two port interface packlet) has lost TOD clock synchronization for the following reasons:

- The TOD device on the article of CMIC hardware in the XA-Core shelf cannot synchronize TOD signals from the message switch (MS).
- A single MS OC-3 TOD device on a single message switch is out of service.

Impact

There is no immediate change in subscriber service. In the XA-Core shelf, a single article of CMIC hardware (an HCMIC circuit pack or an OC-3 two port interface packlet) cannot obtain an accurate TOD signal.

Common procedures

This procedure refers to the replacement procedure for the HCMIC circuit pack and the replacement procedure for the OC-3 two port interface packlet. The procedures are in this document.

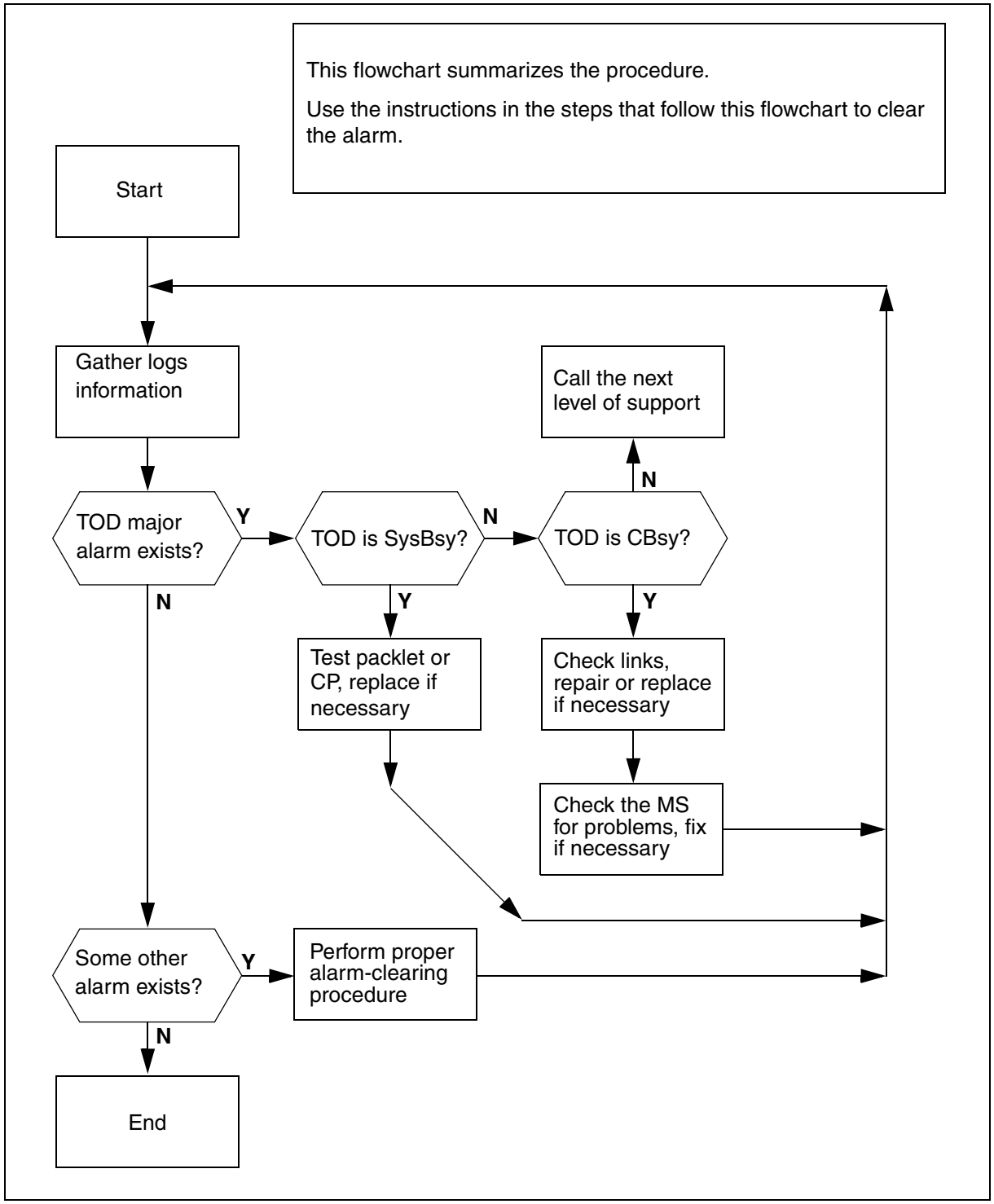
XAC (or APPL) TOD - Minor (continued)

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 (or APPL) TOD - Minor (continued)

Figure 1-58 Summary of clearing a TOD minor alarm



XAC (or APPL) 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 (or APPL) TOD - Minor (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.

2 Select the next step as follows.

If the log information indicates	Do
a TOD major alarm condition	step 3
a different alarm condition	step 32
the TOD major alarm condition is clear	step 35

3 Access the CMIC MAP level (if you are not already at that level). Type

>MAPCI;MTC;XAC;CMIC

and press the Enter key.

4 Examine the CMIC MAP level. Record the location and state of the links and the time-of-day devices. If the CMIC hardware is OC-3 two port interface packlets, record the location and state of those packlets.

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), indicating an OC-3 two port interface packlet
- a status code appears under the Status, Link, Port, or TOD headers in the command interpreter output area

The following is a sample MAP display. The TOD alarm indication can also appear under the APPL header.

XAC (or APPL) TOD - Minor (continued)

CMIC MAP level, showing a TOD faults in the HCMIC in slot 4 rear

```
 XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
 TOD       .       .        .       .        .        .        .        .        .


CMIC                 Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit              123456789012345678  456789012345   .      .       .       .
 2                Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       0
 3                Dep:
 4                Typ:                      *         *
 5                Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_            4    Rear                  .     .     .      .      S    .
 7 Bsy_           15    Rear                  .     .     .      .      .    .
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

CMIC MAP level, showing a TOD fault in the CMIC packlet in slots 4 rear

```
 XAC      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
 TOD       .       .        .       .        .        .        .        .        .


CMIC                 Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit              123456789012345678  456789012345   .      .       .       TODfl
 2                Sta: -.-.--..-..--.-..-  .--.-------.   0      0       0       1
 3                Dep:
 4                Typ:                      *         *
 5                Slot: Side: Packlet: Status: Port0 Port1 Link0: Link1: TOD0 TOD1
 6 Tst_            4    Rear  Lower     .                 .      .      S
 7 Bsy_           15    Rear  Lower     .                 .      .      .
 8 RTS_
 9
10
11
12 Uneq_
13 Route_
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  XMAP0
Time 14:12    >
```

XAC (or APPL) TOD - Minor (continued)

If the MAP indicates	Do
a TOD is SysB	step 5
a TOD is CBsy	step 14
a different alarm exists	step 32
no alarm exists and all OC-3 XA-Core and MS TODs are in service	step 35

5 Select the next step as follows.

If the CMIC hardware is	Do
HCMIC circuit packs	step 6
OC-3 two port interface circuit packs	step 9

6 Go to IO MAP level. Type

>IO

and press the Enter key.

7 Manually busy the HCMIC circuit pack. 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 - 1 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 4 r

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.

If the circuit pack is	Do
in a ManB state	step 8
not in a ManB state	step 34

XAC (or APPL) TOD - Minor (continued)

8 Perform OOS test on the HCMIC circuit pack. 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 - 1 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:

>TST 4 r

If the OOS test	Do
did not pass	step 11
passed	step 12

9 Manually busy the 0C-3 two-port interface 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 - 1 to 18

<s> is the side parameter value to indicate the 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:

```
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.

If the packlet is	Do
in a ManB state	step 10
not in a ManB state	step 34

10 Perform an OOS test on the 0C-3 two-port interface packlet. 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

<s> is the side parameter value to indicate the 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
did not pass	step 11
passed	step 12

11 Perform the replacement procedure for the HCMIC circuit pack or for the OC-3 two interface packlet. Refer to the correct procedure located in this document. Return to this point when complete.

12 Return the HCMIC circuit pack or the OC-3 two port interface 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 - 1 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 used only if the CMIC hardware is a packlet, and 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 to return a packlet to service:

>RTS 4 r l

Example of system response:

```
RTS 4 rear upper passed
```

13 Go to step 2.

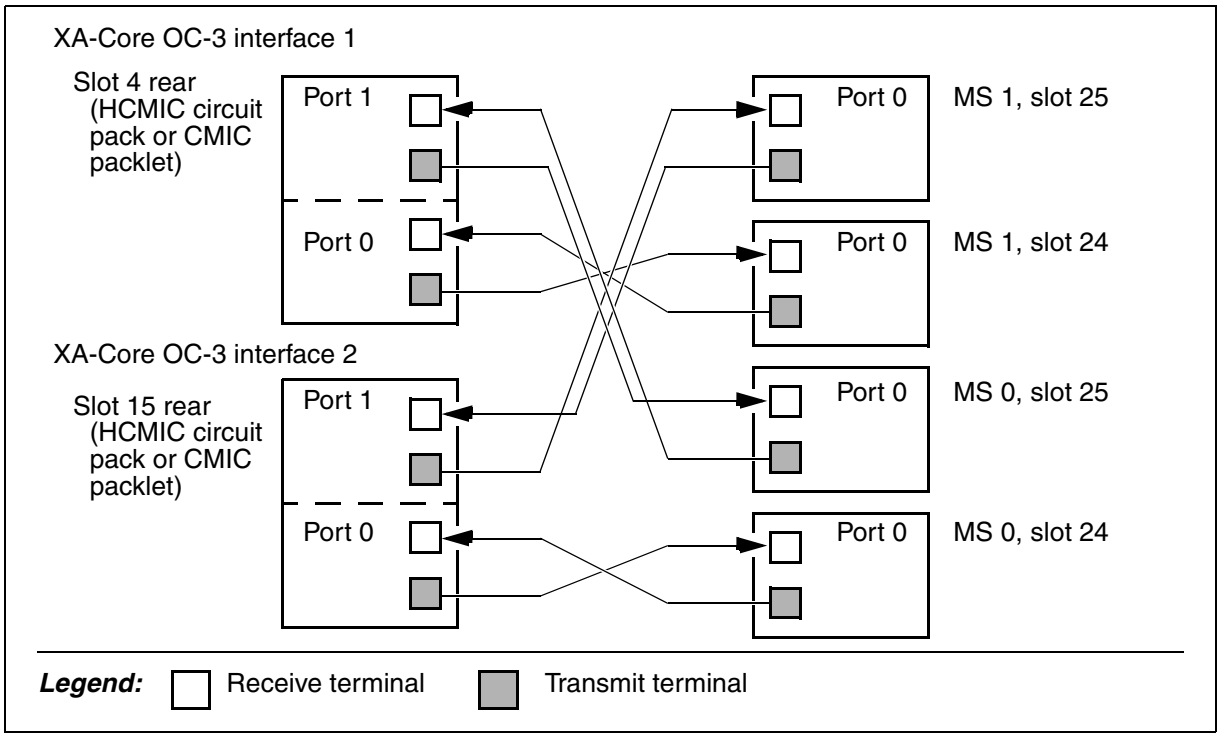
At the XA-Core physical shelf

14 Locate the CMIC hardware that has the CBsy TOD. The CMIC hardware is either an HCMIC circuit pack or an OC-3 two port interface packlet.

XAC (or APPL) TOD - Minor (continued)

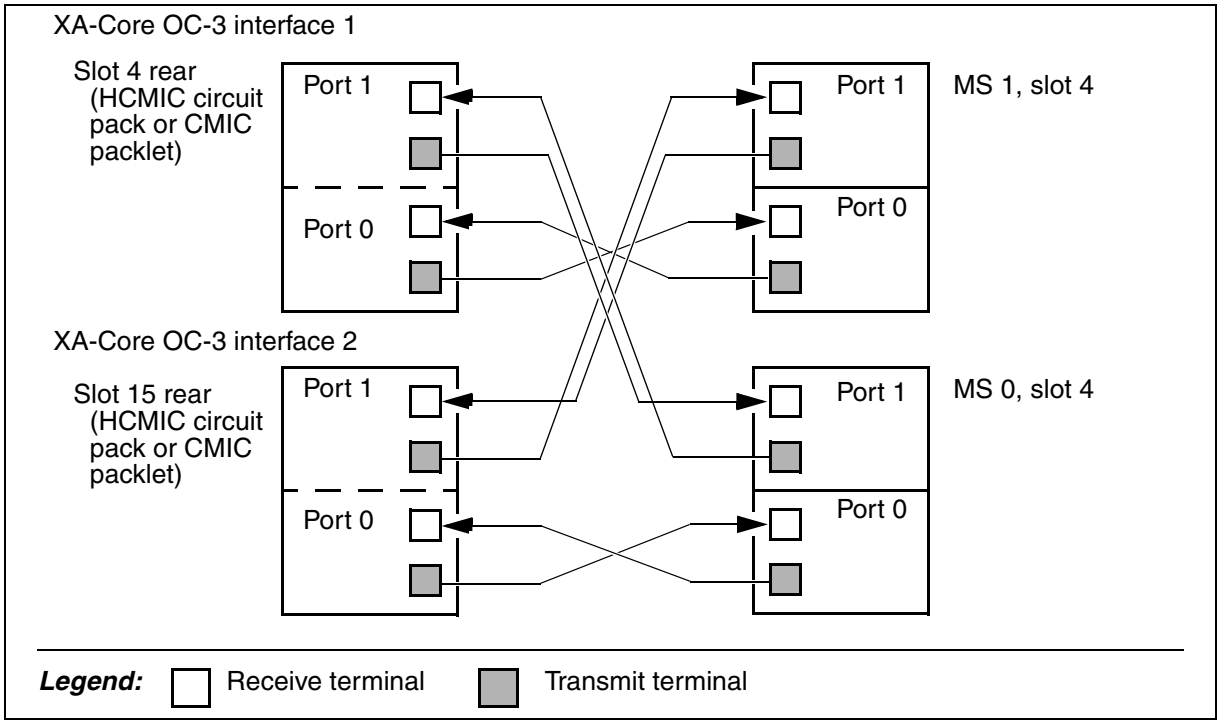
15 Examine the fiber optic cables on the HCMIC circuit pack or on the OC-3 two port interface packlet. Look for visible damage or disconnection of the cables or cable connectors. Make sure that the link connections fit into the correct OC-3 interface on the HCMIC circuit pack or on the OC-3 two port interface packlet. Make sure that the link connections fit into the correct paddleboard ports in the message switch (MS). Use the following diagrams to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)

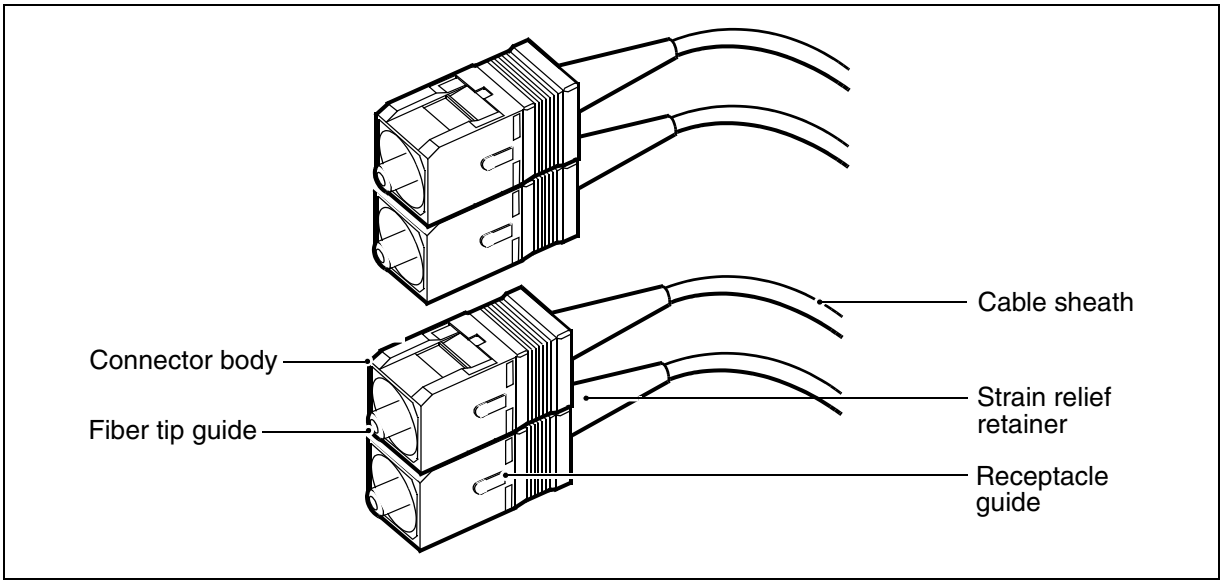


XAC (or APPL) TOD - Minor (continued)

XA-Core and MS fiber optic cable connections (SuperNode SE)



Paired fiber optic cable connectors



XAC (or APPL) TOD - Minor (continued)

If OC-3 fiber optic cables or connectors are	Do
damaged	step 16
not correctly connected to the MS	step 20
not visibly damaged or disconnected	step 23

16 Obtain replacement cables as necessary.

17 Disconnect the fiber optic cables from the CMIC hardware in the XA-Core (HCMIC circuit pack or OC-3 two port interface packlet) and from the OC-3 two-port interface paddleboard in the message switch.

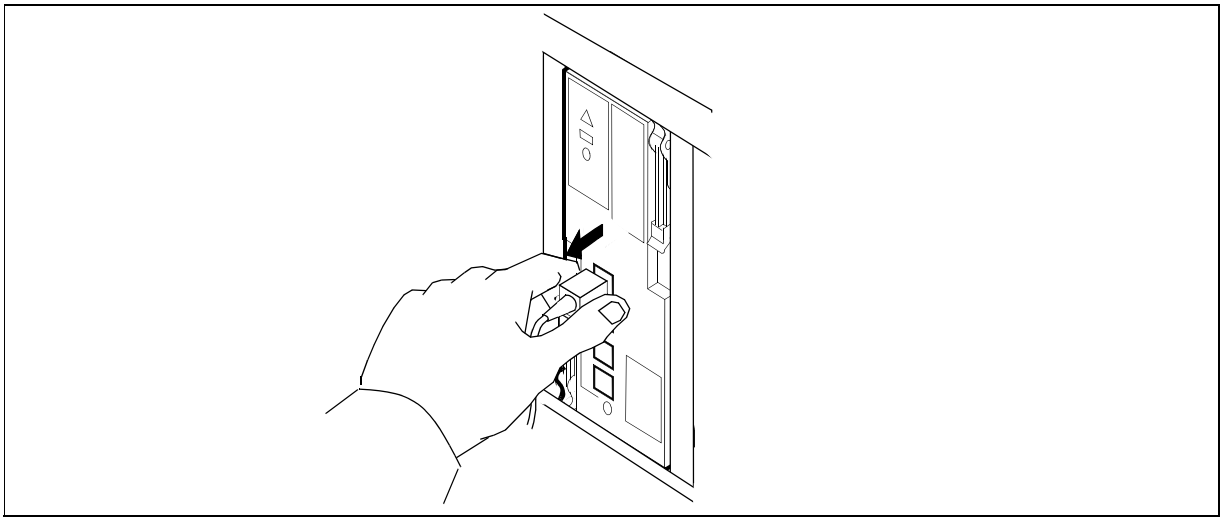
a Hold the connector by the receptacle body only

b Carefully pull the fiber optic connector away from the receptacle.

c Cover the ends of the fiber optic cable with dust caps.

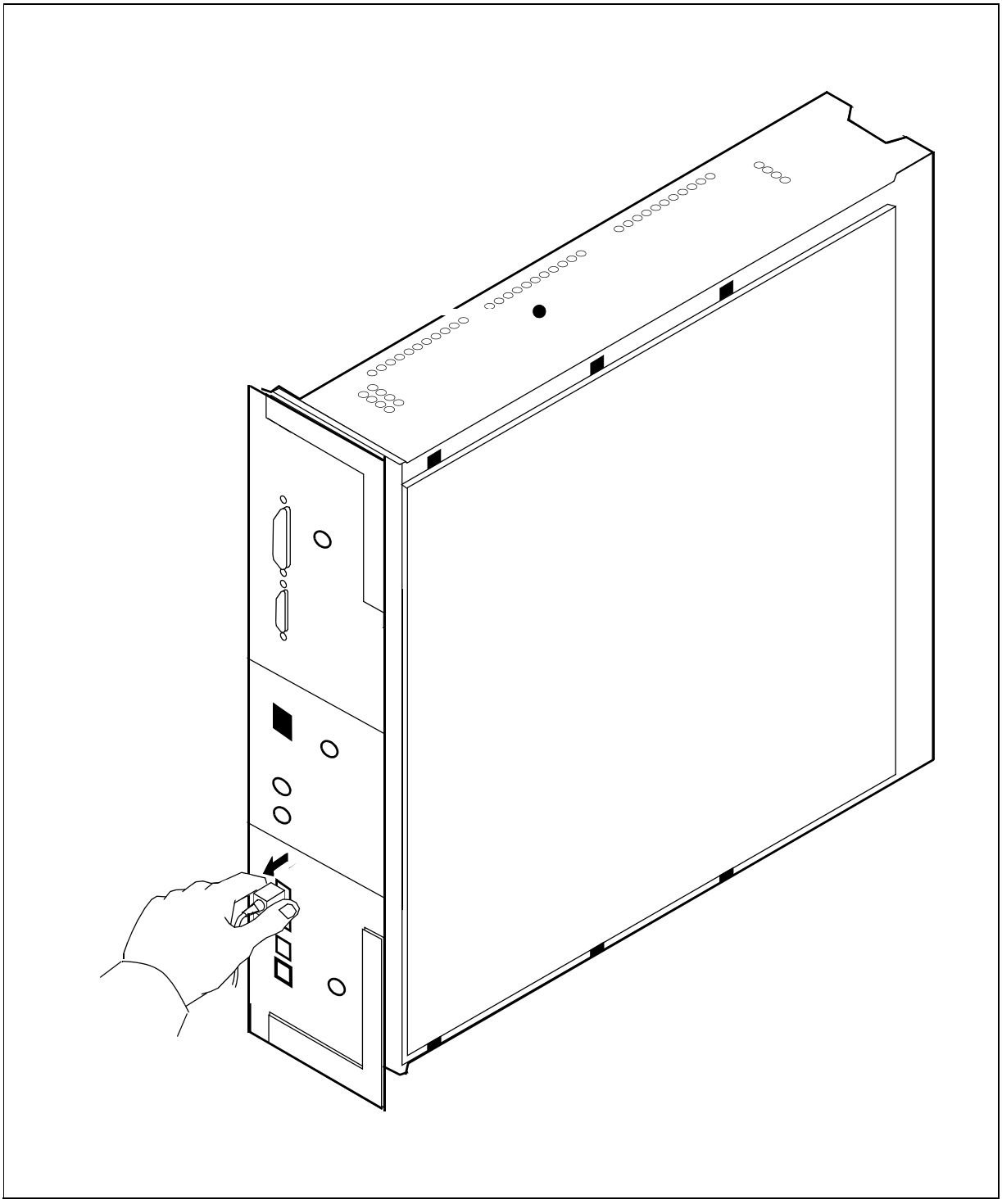
d Place the cables in a safe location away from the packlet

Disconnect the fiber optic cables from the OC-3 two port interface packlet ports



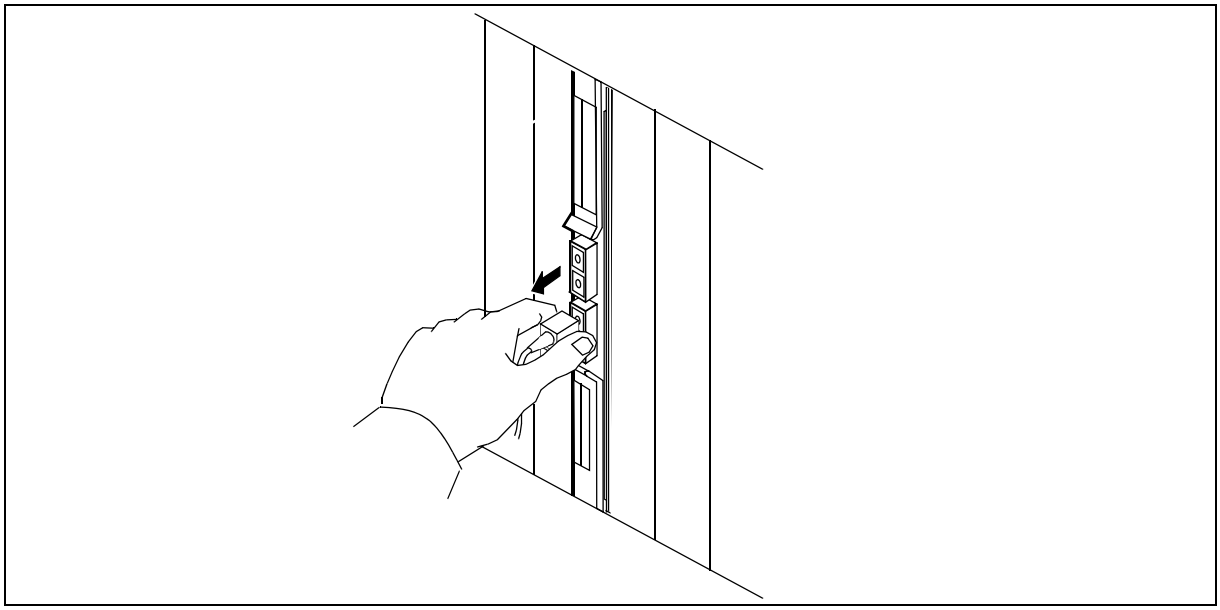
XAC (or APPL) TOD - Minor (continued)

Disconnect the fiber optic cables from the OC-3 ports on the HCMIC circuit pack



XAC (or APPL) TOD - Minor (continued)

Disconnect the OC-3 fiber optic cables from the OC-3 two port interface paddleboard ports



18 Connect the replacement fiber optic cables to the correct CMIC hardware in the XA-Core (HCMIC circuit pack or OC-3 two port interface packlet) and to the OC-3 two-port interface paddleboard ports in the message switch. Use the link connection diagrams shown in this step.

a Hold the connector by the body only.

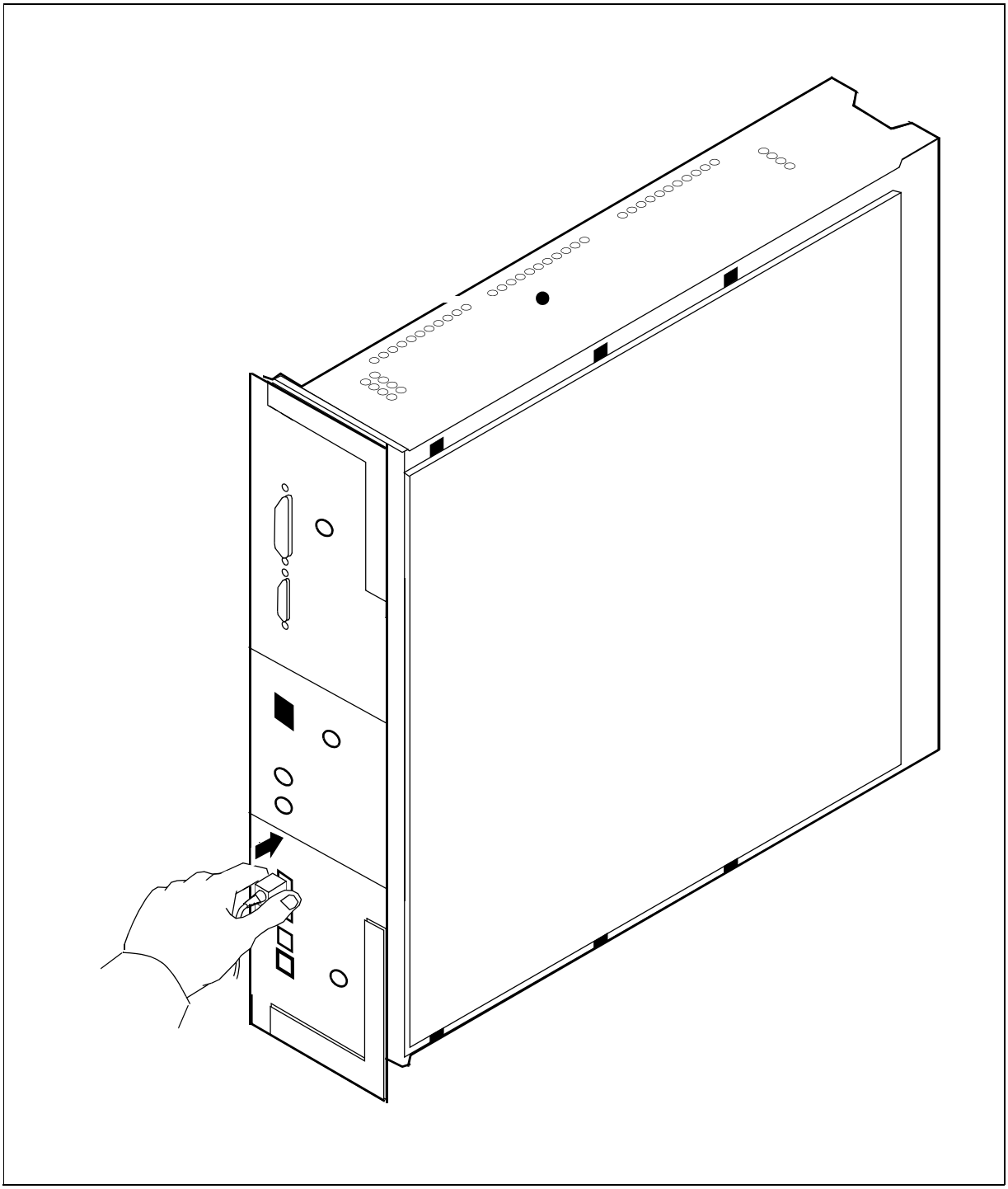
b Remove the fiber optic cable dust caps.

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.

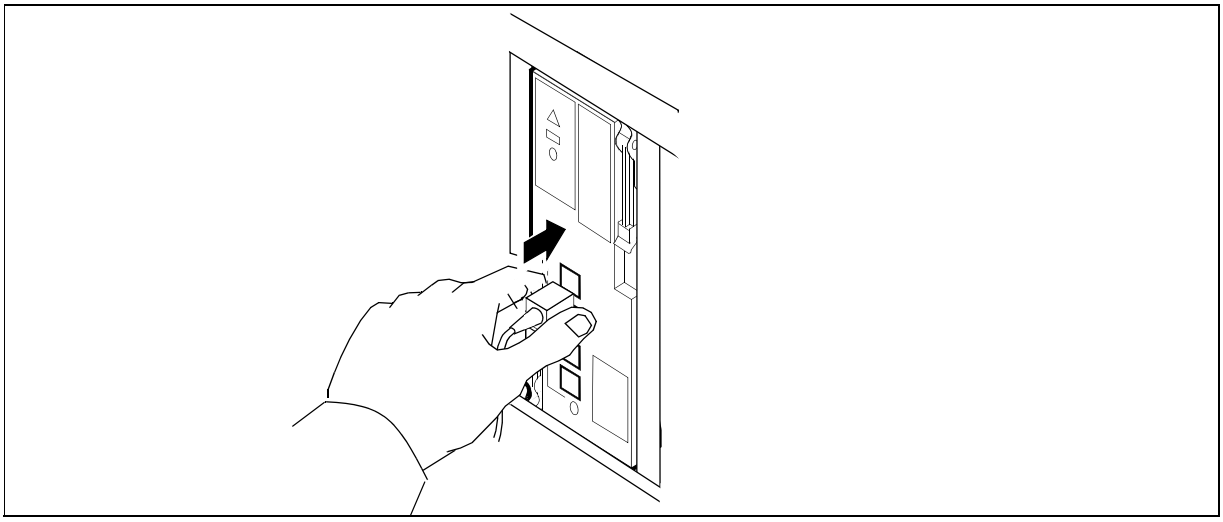
XAC (or APPL) TOD - Minor (continued)

Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack

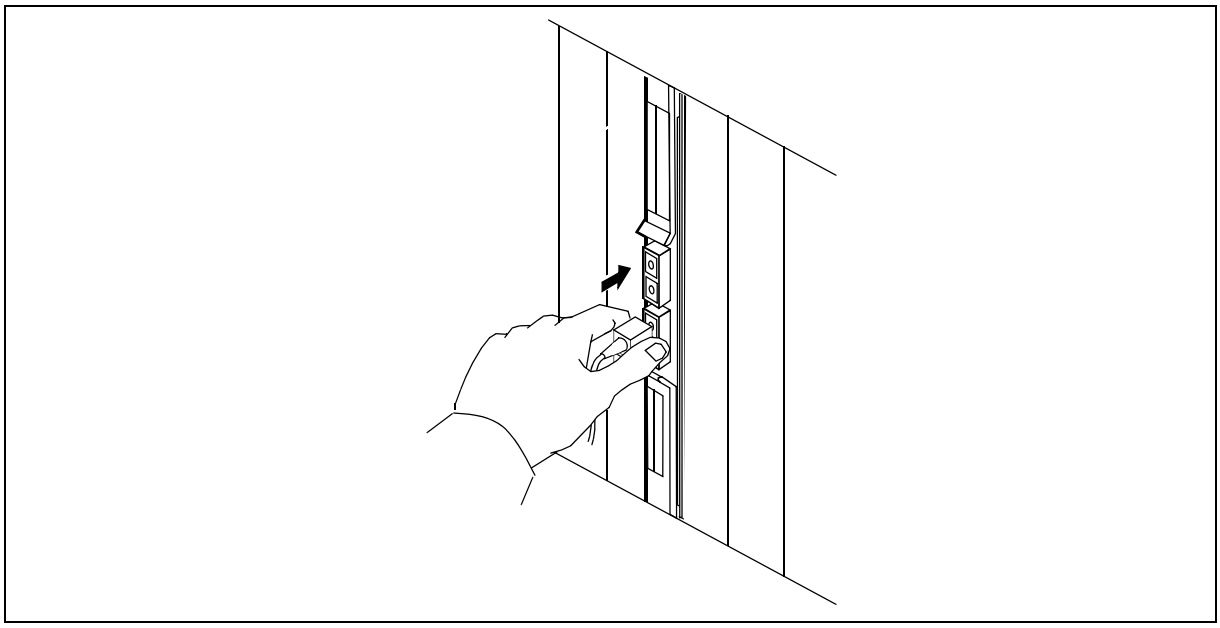


XAC (or APPL) TOD - Minor (continued)

Connect the fiber optic cables to the OC-3 two port interface packlet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



19 Go to step 30.

20 If you found that the connections were wrong, fix them, referring to the diagrams in step 15.

21 Connect the fiber optic cables to the correct CMIC hardware in the XA-Core (HCMIC circuit pack or OC-3 two port interface packlet) and to the OC-3 two-port interface paddleboard ports in the message switch. Use the link connection diagrams shown in this step.

a Hold the connector by the body only.

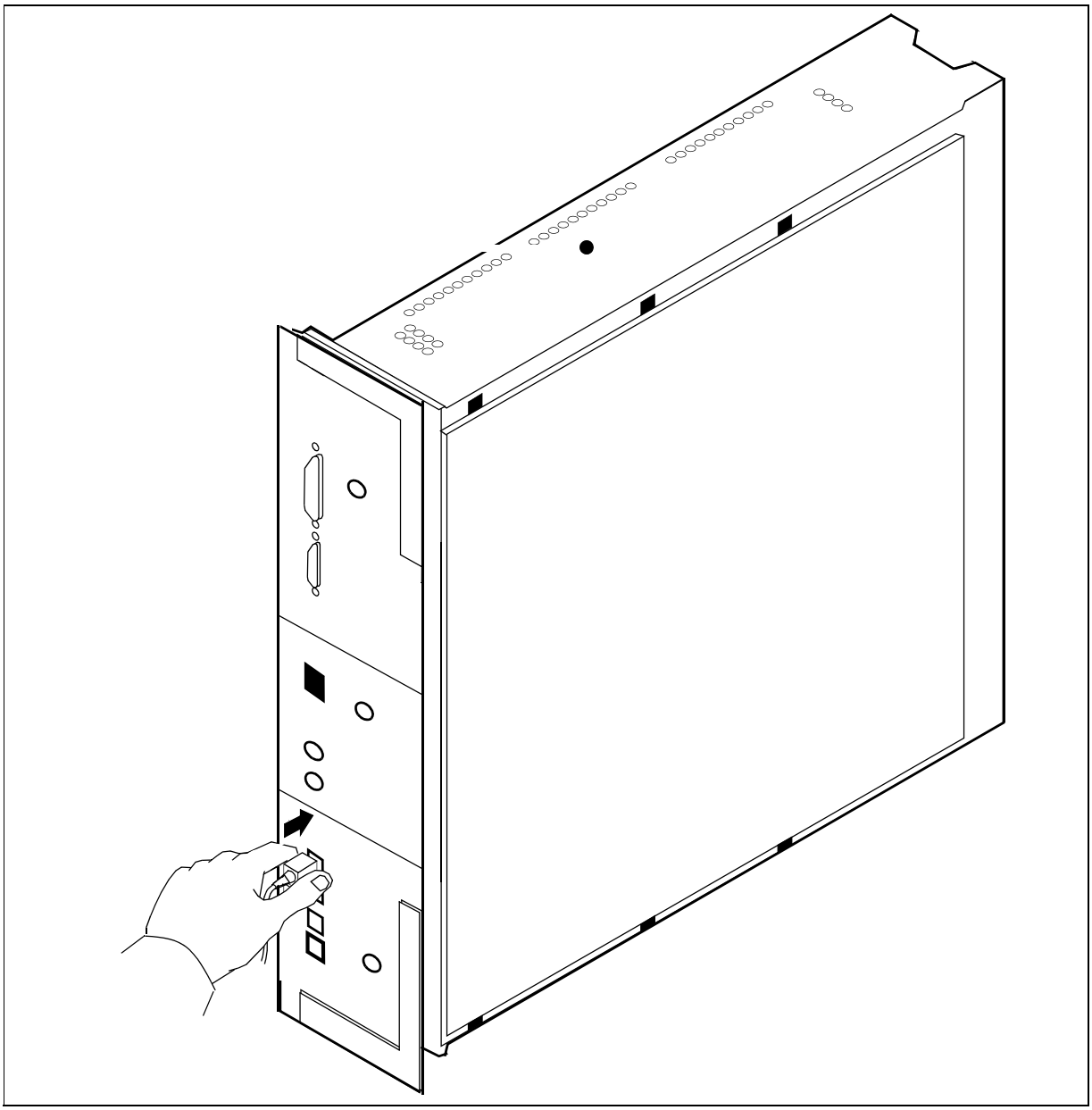
XAC (or APPL) TOD - Minor (continued)

b Remove the fiber optic cable dust caps.

c Clean the tips of the fiber optic cables. Use the correct fiber optic cleaning procedure.

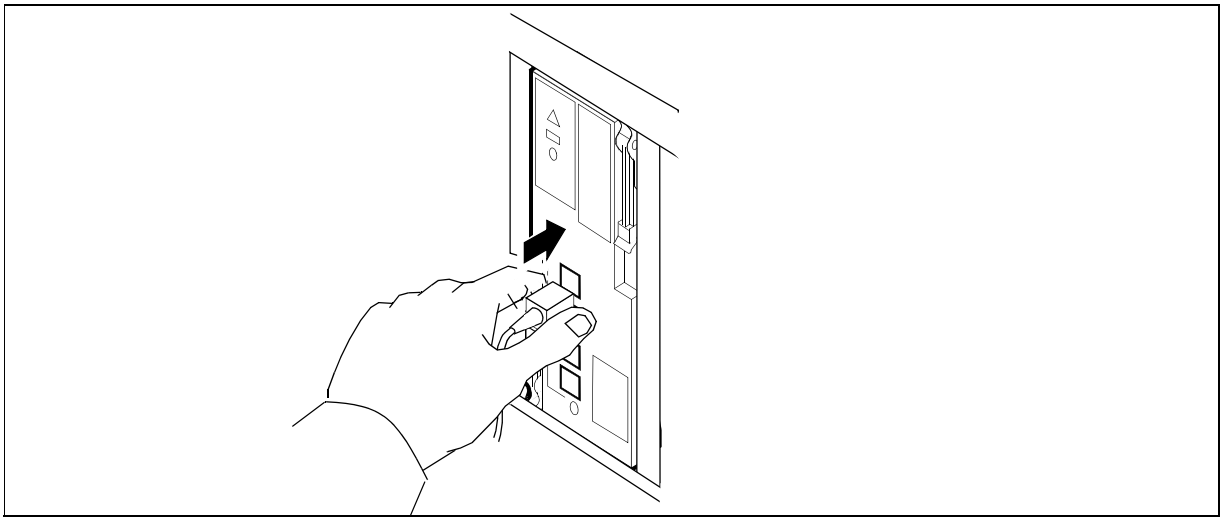
d Push the connector into the correct receptacle until the connector is fit into position.

Connect the fiber optic cables to the OC-3 ports on the HCMIC circuit pack

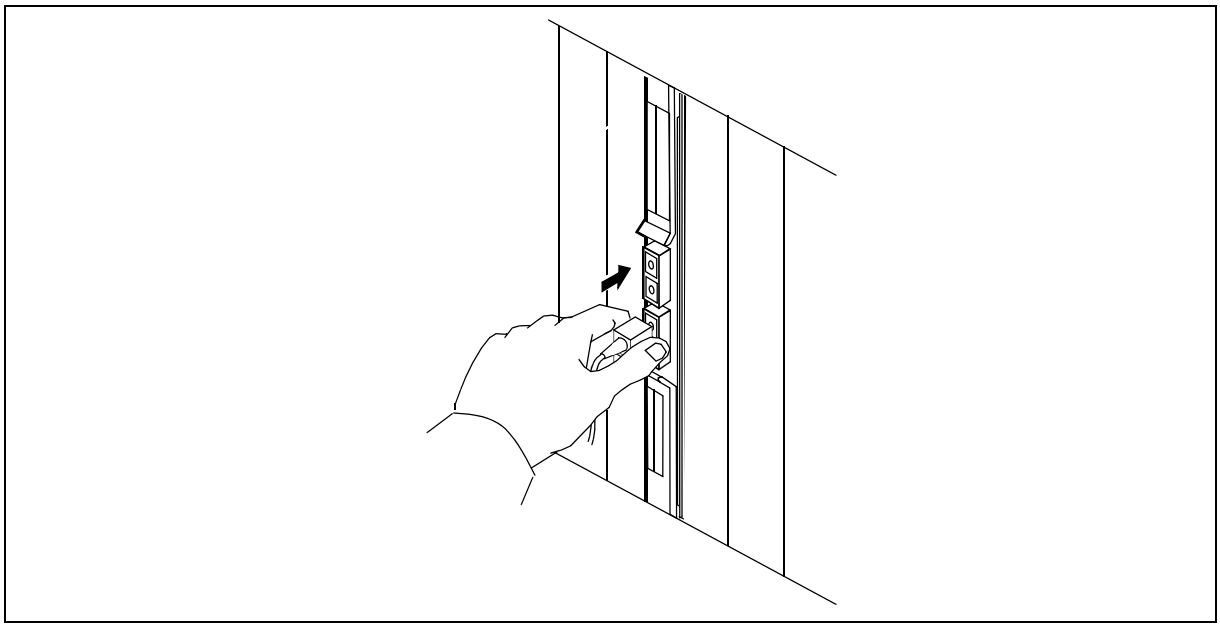


XAC (or APPL) TOD - Minor (continued)

Connect the fiber optic cables to the OC-3 two port interface packlet ports



Connect the fiber optic cables to the OC-3 two port interface paddleboard ports



22 Go to step 30.

23 Perform the replacement procedure for the HCMIC circuit pack or for the OC-3 two interface packlet. Refer to the correct procedure located in this document. Return to this point when complete.

24 Select the next step as follows.

If the CMIC hardware is	Do
HCMIC circuit packs	step 27

XAC (or APPL) TOD - Minor (continued)

If the CMIC hardware is	Do
OC-3 two port interface circuit packs	step 25

25 Return the OC-3 two port interface 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 - 1 to 18

<s> is the side parameter value to indicate the 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
```

26 Go to step 2.

27 Go to IO MAP level. Type

>IO

and press the Enter key.

28 Return the HCMIC circuit pack to service. 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 - 1 to 18

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

XAC (or APPL) TOD - Minor (continued)

Example of command use:

>RTS 4 r

Example of system response:

```
RTS 4 rear passed
```

29 Go to step 2.

At the XA-Core MAP terminal

30 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).

XAC (or APPL) TOD - Minor (continued)

The following is a sample MAP display.

MS Card MAP level

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

MS                    Message Switch      Clock       Shelf  0      Inter-MS Link 0 1
 0 Quit          MS 0        .            M Free             .                    - -
 2               MS 1        .            Slave              F                    - -
 3
 4               Shelf  0                  1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2
 5               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
 6 Tst_          Chain
 7 Bsy_          MS 0   . . . - . - - - - - - - - - - - - - - - - - . . . . .
 8 RTS_          MS 1   . . . - . - - - - - - - - - - - - - - - - - . . . . .
 9
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    >
```

If the MS Card MAP level indicates	Do
OC-3 two port interface paddleboard ports are OOS	step 31
a different alarm	step 32
no faults or alarms	step 33

31 Perform the correct MS CP replacement procedure. Return to this point when complete.

If the TOD alarm is	Do
changed to a different alarm	step 32
not clear	step 34
clear	step 33

XAC (or APPL) TOD - Minor (end)

32 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 34
clear	step 33

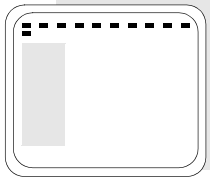
33 Go to step 2.

34 Call the next level of support.

35 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

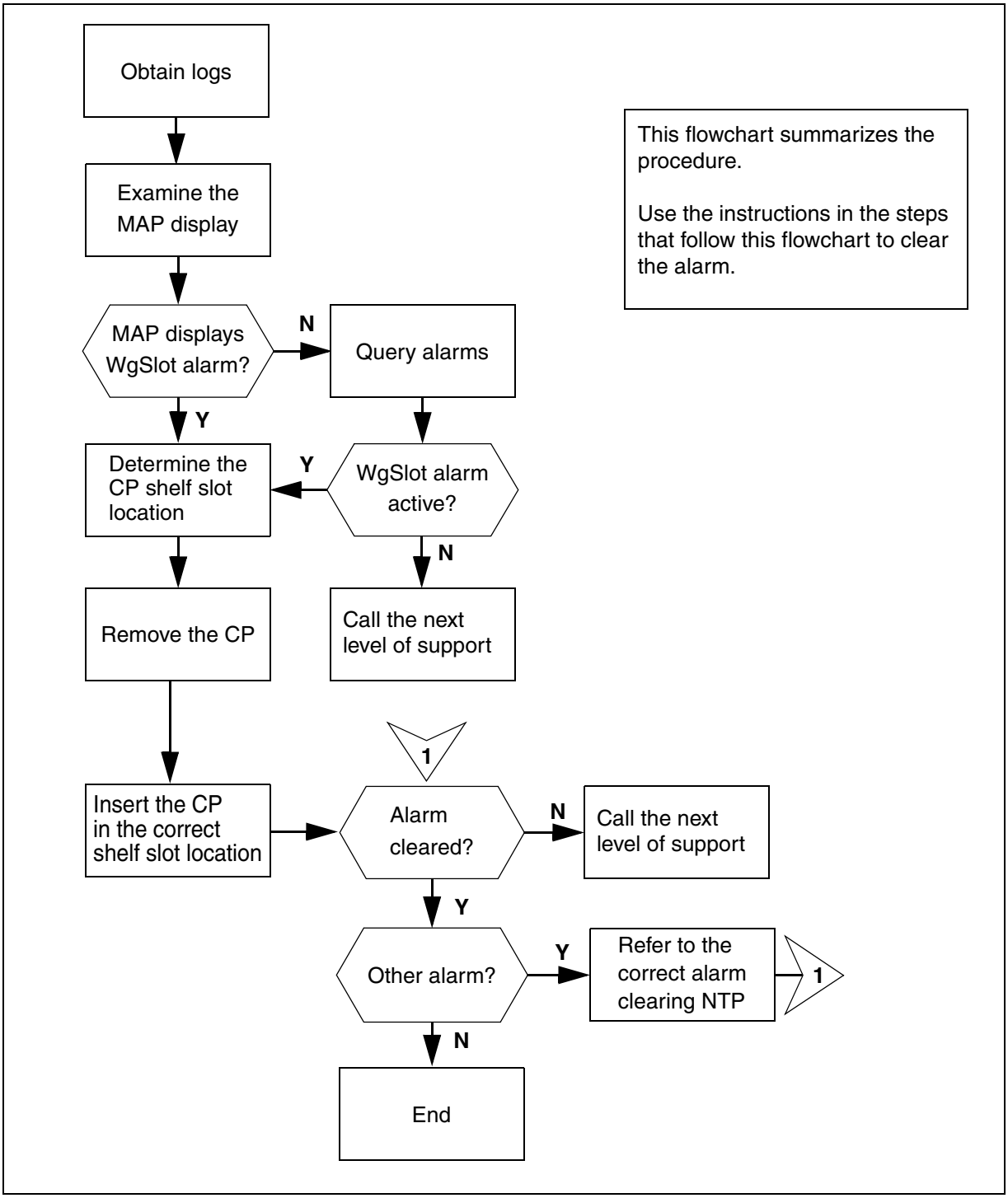
There are no common procedures.

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.

Figure 1-59 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

2 Access the correct XA-Core MAP level using the information from 1. Examine the state and location of the CP or packlet.

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.

XAC WgSlot - Minor (continued)

PE MAP level

```
 XAC      MS      TOD      Net      PM      CCS      Lns     Trks     Ext     APPL
WgSlot     .       .        .       .        .        .       .       .       .


PE                    Front:   111111111  Rear: 111111   SM     PE      IO     PKLT
 0 Quit               123456789012345678  456789012345   .      badPEC  .      .
 2                Sta: -.-S--..-..--.-..-  .--.-------.   0      1       0      0
 3                Dep:
 4                Typ:    *           *
 5                 PE:
 6 Tst_
 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 packlets 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

<type> is the slot number parameter value to indicate the number of the physical shelf slot - 1 to 18

<subsystem_name> 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:

>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.

XAC WgSlot - Minor (end)

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.

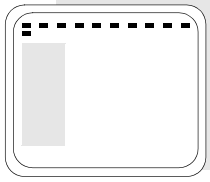
If the alarm is	Do
not clear	step 8
clear	step 6

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.

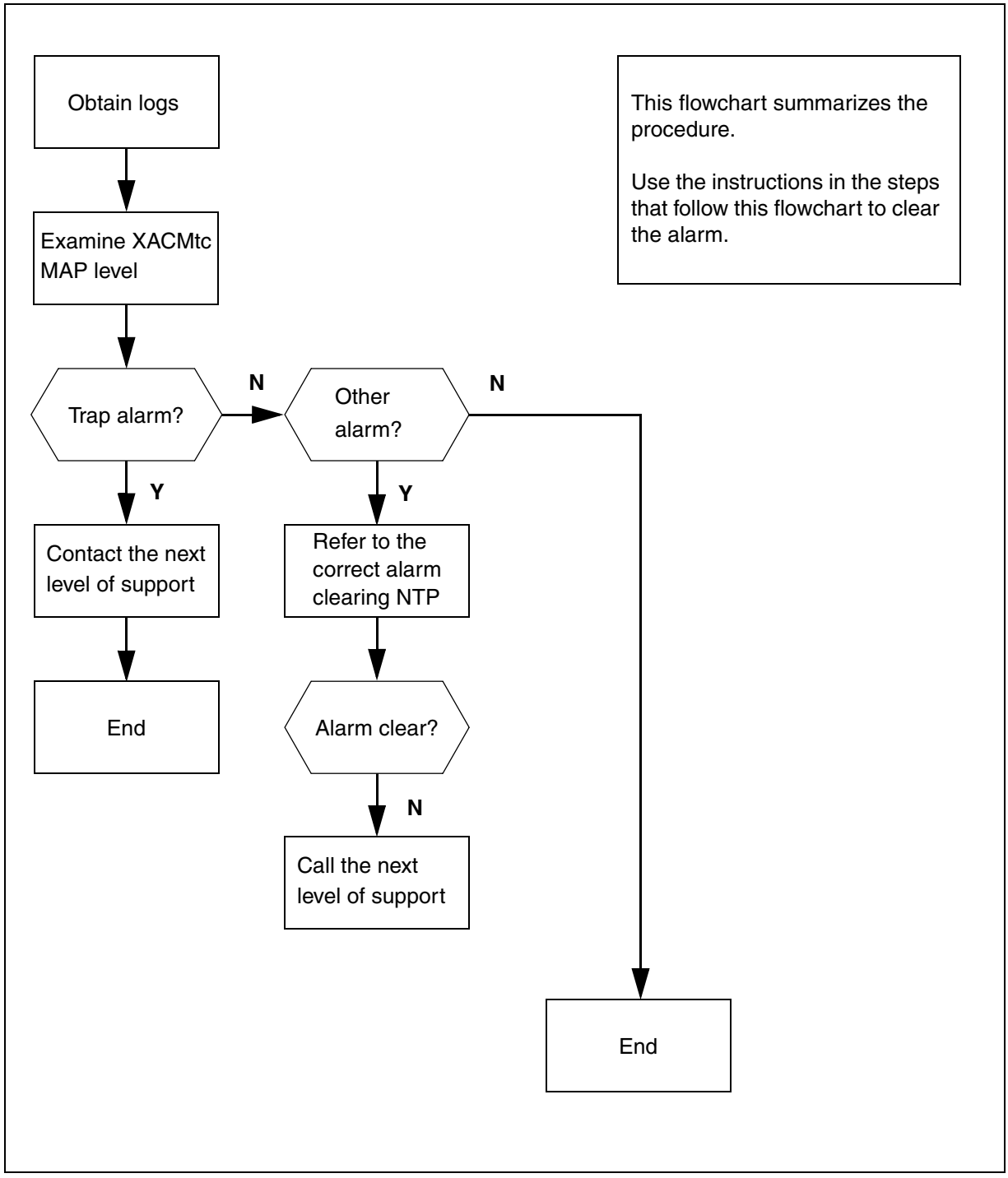
Action

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

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)

Figure 1-60 Summary of clearing an XATrap major alarm



XAC XATrap - Major (continued)

How to clear an XATrap major alarm



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

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

XAC XATrap - Major (end)

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           Front:   111111111     Rear: 111111    SM      PE      IO       PKLT
 0 Quit          123456789012345678     456789012345    .       .       .        .
 2               Sta: -.-.--..-..----..-     .--.-------.    0       0       0        0
 3               Dep:
 4               Typ: ***MTC************   ***MTC******
 5
 6               Traps:        Per Minute:   = 0           Total = 1
 7               AutoLdev:     Primary       = Slot 2 front, Lower Packlet
 8                             Secondary     = Slot 17 rear, Upper Packlet
 9               Image:        Restartable = No image test
10                             Next image test restart type = WARM
11 Image        Last XARExTst: executed at hh:mm:ss on mmm dd yyyy
12 RExTst_
13 RExInt_      XACMTC:
14 Alarm_
15
16
17 Indicat_
18 Query_

 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

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

This chapter contains procedures for replacing circuit packs (CP) and packlets in XA-Core shelves in SuperNodes (SN) and SuperNode SEs (SNSE). It also contains procedures for adding and removing PE circuit packs and Ethernet packlets.

Chapter summary

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:

- C42 SuperNode-XA cabinet
- C42 SuperNode SE-XA (SNSE-XA) cabinet
- C42 XA-Extension cabinet

Figure 2-1 C42 SuperNode-XA cabinet layout

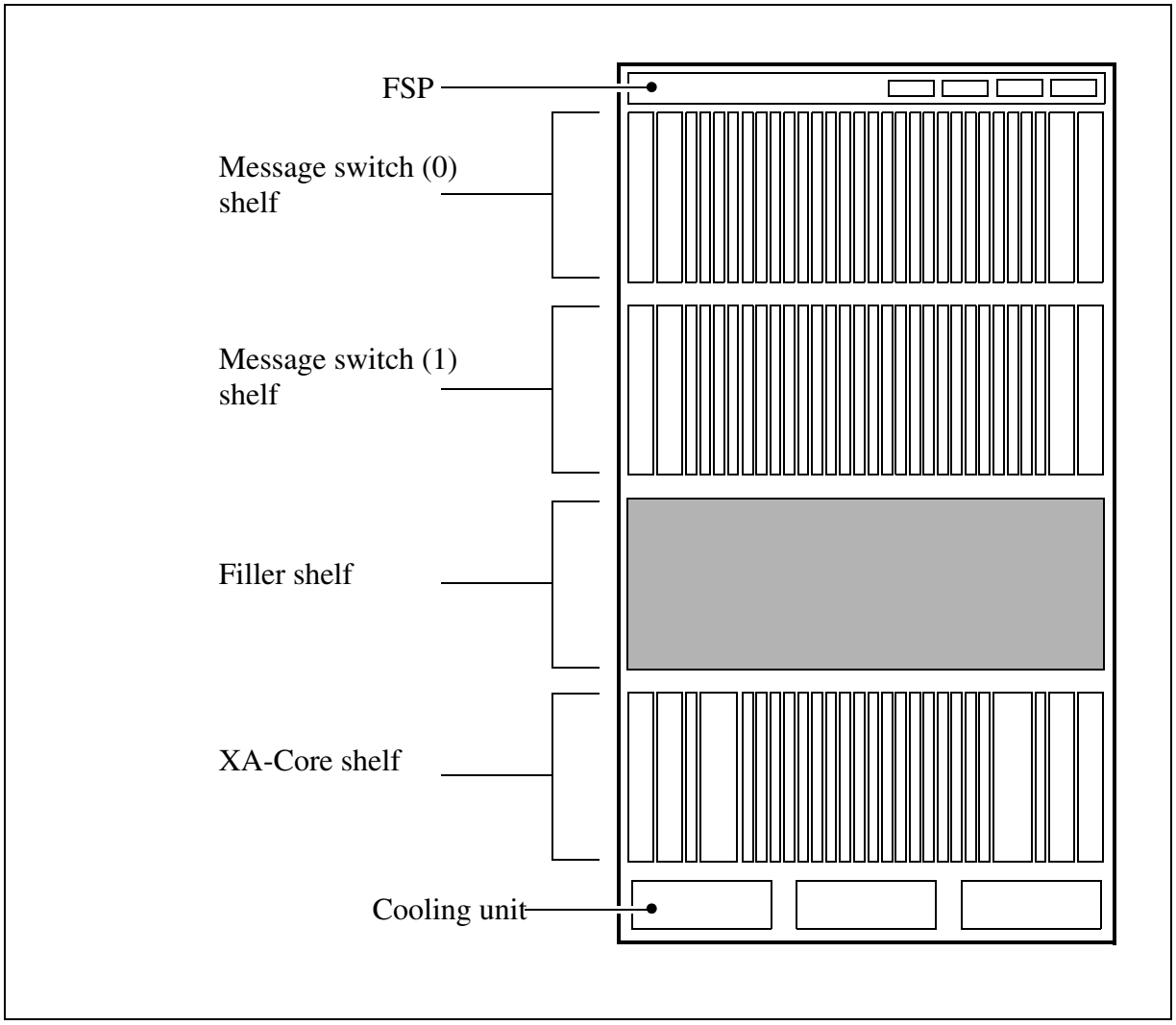


Figure 2-2 C42 SNSE-XA cabinet layout

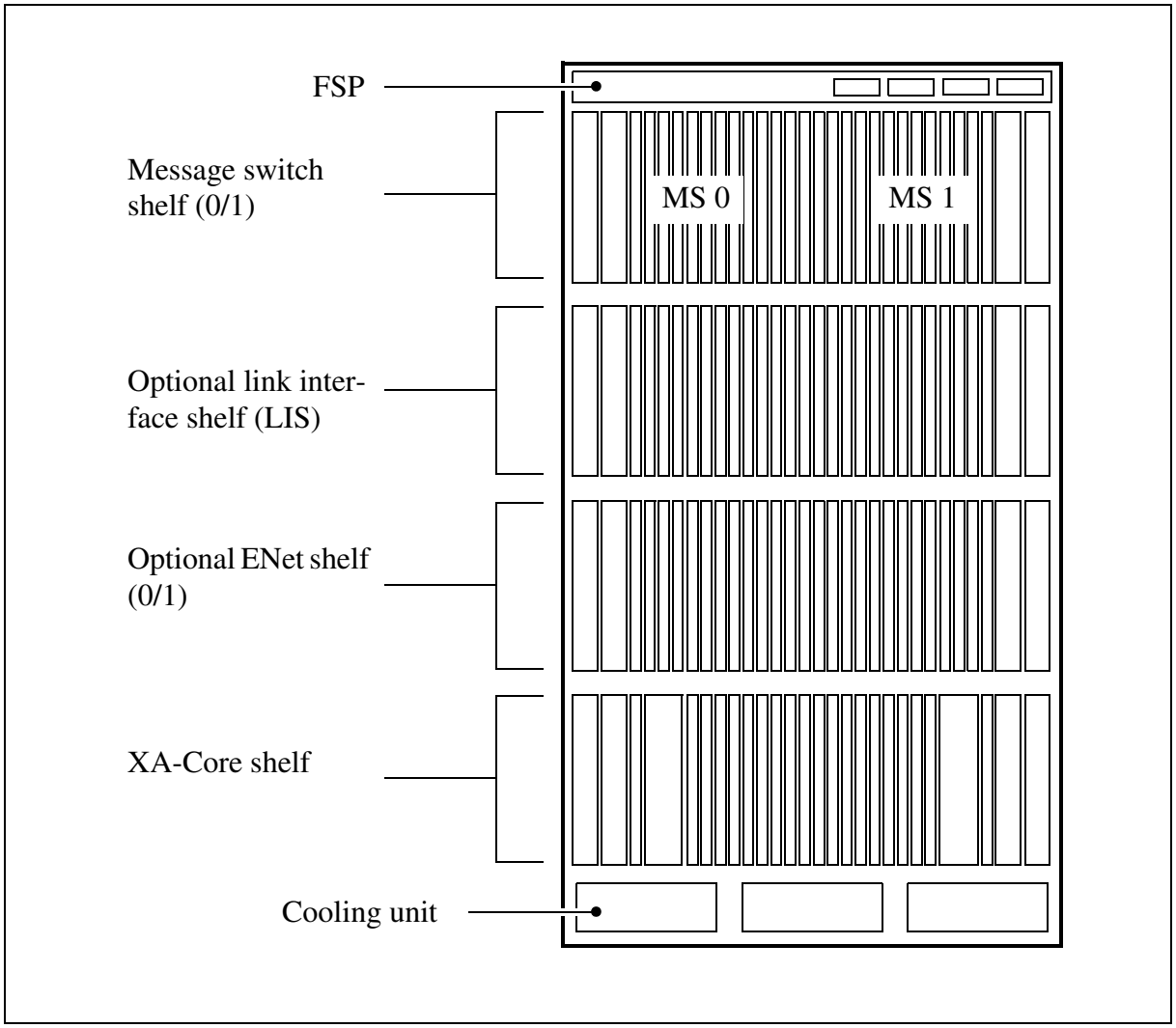
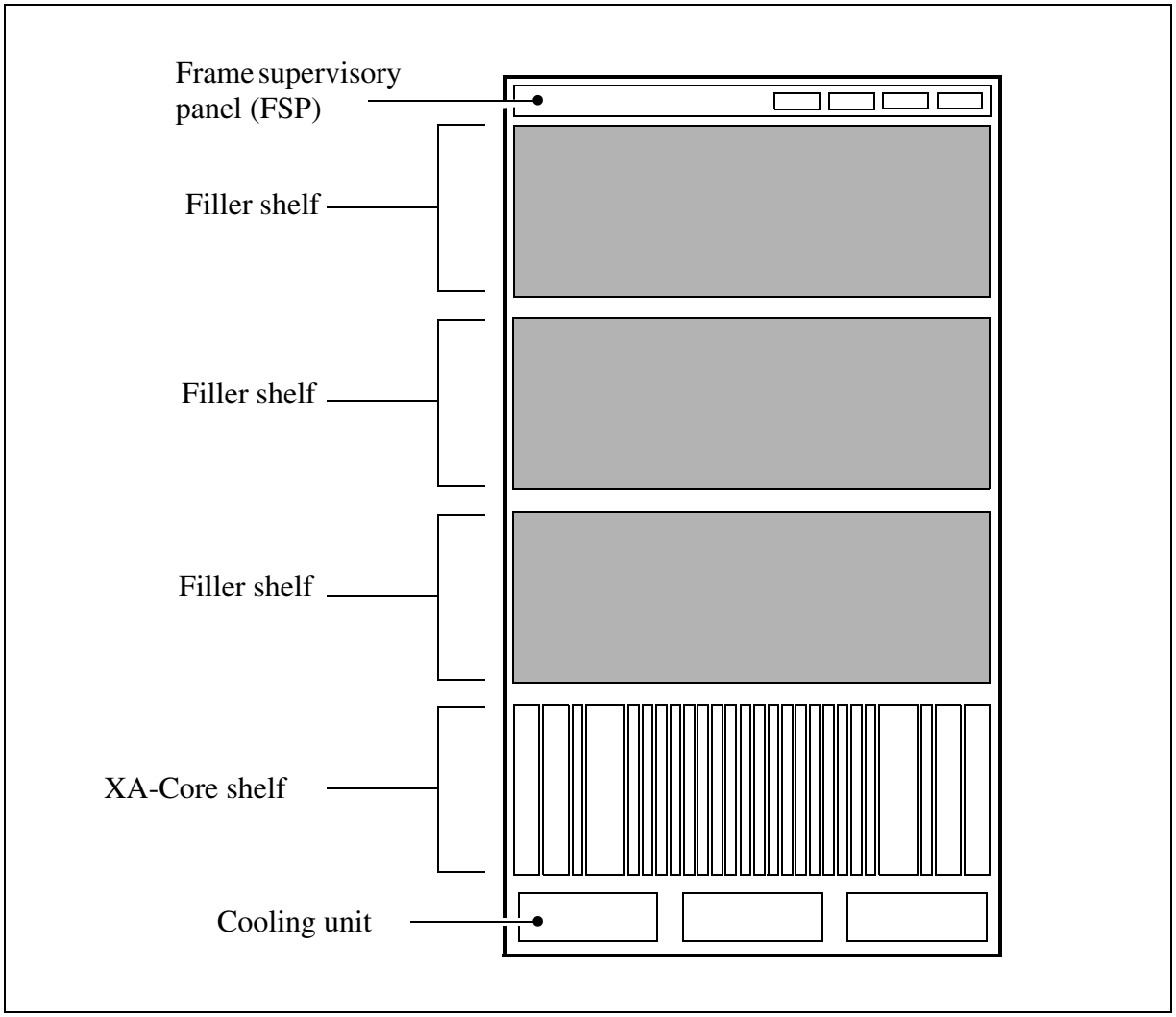


Figure 2-3 C42 XA-Extension cabinet layout



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)

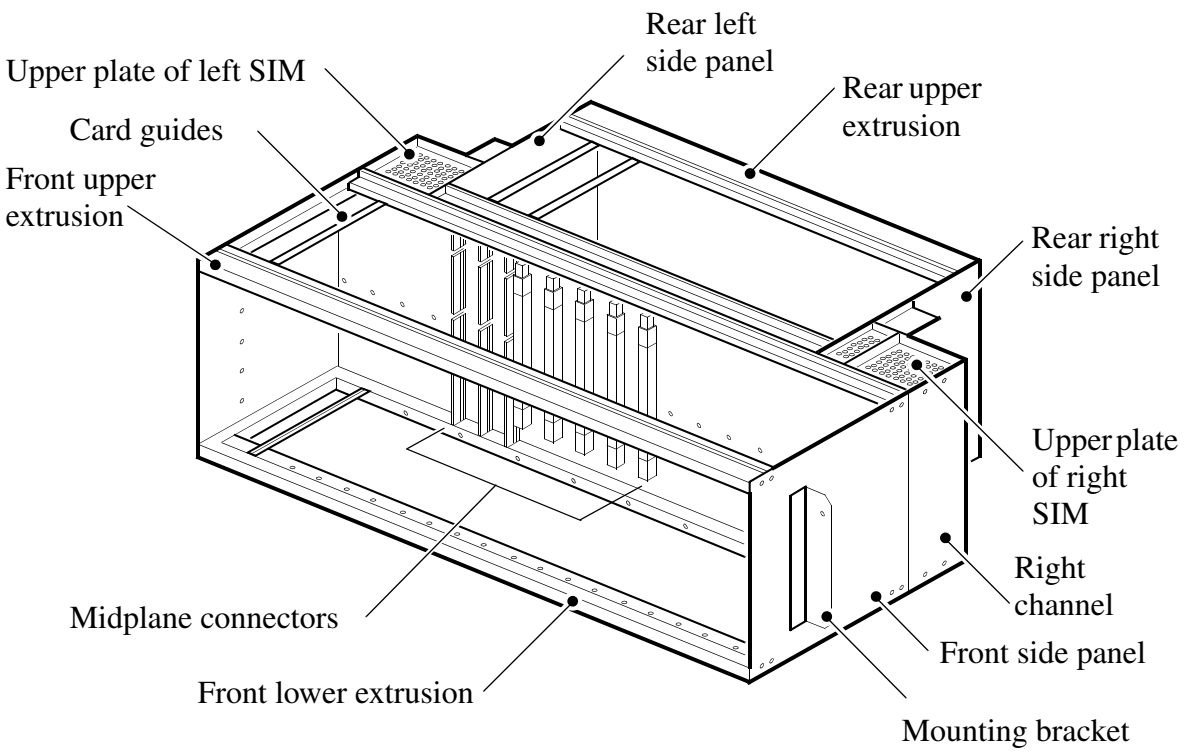
The front side houses IOP CPs that contain non-cable supporting packlets such as the Disk and Tape. The rear side contains IOP CPs that contain all cable-supporting packlets such as the OC-3 dual port interface and the RTIF.

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



Note 1: Only representative card guides, T-bars, support plates, and connector stack-ups are shown.
Note 2: The XA-Core shelf contains thirty 50mm I/O, PE, and MEM modules, and two 40.5mm SIM modules.

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), IOP, and HIOP 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 (Sheet 1 of 2)

PEC	Version	Name	Description
NTLX02	AA CA	Processor element (PE) circuit pack	256 MByte processor element
NTLX02	DA	Processor element (PE) circuit pack	512 MByte processor element
NTLX03	AA AB	Input/output processor (IOP) circuit pack	Single-width IOP
NTLX03	BA BB	Input/output processor (IOP) circuit pack	Dual-width IOP for Disk & Tape packlets
NTLX04	AA BA CA	High performance input/output processor (HIOP) circuit pack	Occupies one slot. Does not take packlets. Version AA supports ethernet links only. Versions BA and CA support both ethernet and AMDI links. The CA version cannot coexist with the earlier versions.
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-node data interface (AMDI) packlet--interfaces to the ATM edge switch

Table 2-1 Equipment provisioning summary (Sheet 2 of 2)

PEC	Version	Name	Description
NTLX06	AA AB AC	Disk packlet	4 GByte disk drive packlet (AA) 8 GByte disk drive packlet (AB) 34.2 GByte disk drive packlet (AC)
NTLX07	AA AB	Digital audio tape (DAT) drive packlet	Supports 60-meter (1.3 GByte) tapes (AA only) or 90-meter (2.0 GByte) tapes (AA/ BA) or 120-meter (4.0 GByte) tapes (AA/BA)
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
NTLX17	AA	High performance CMIC (HCMIC) circuit pack	Occupies one slot. Does not take packlets. Supports CMIC and RTIF links, and can also support Ethernet links.
NTLX20	AA	Filler circuit pack	Single-width slot filler circuit pack
NTLX20	BA	Terminating filler circuit pack	Single-width plug-in module

Shelf layout

This section describes CP and packlet placement in an XA-Core shelf.

The XA-Core shelf supports a variety of PE configurations ranging from 1+1 to 9+1. However, not all PE configurations are available in all cases. There are restrictions associated with certain products, and restrictions associated with the SuperNodeSE cabinet. For detailed information on the PE configurations, see the descriptions of the NTLX02CA and NTLX02DA circuit packs in the XA-Core Reference Manual, 297-8991-810, in the chapter titled "XA-Core hardware description overview".

Note: In each PE configuration, the spare processing power is the equivalent of one PE unit.

The XA-Core can contain from five to ten SM circuit packs. For detailed information on the SM configurations, see the description of the NTLX14CA circuit pack in the XA-Core Reference Manual, 297-8991-810, in the chapter titled "XA-Core hardware description overview".

Note: In an XA-Core shelf in a SuperNode SE cabinet (NTLX01BA), the maximum number of SM circuit packs is seven, except if the SuperNode SE is used in HLR applications, in which case the XA-Core shelf can have up to ten SE circuit packs.

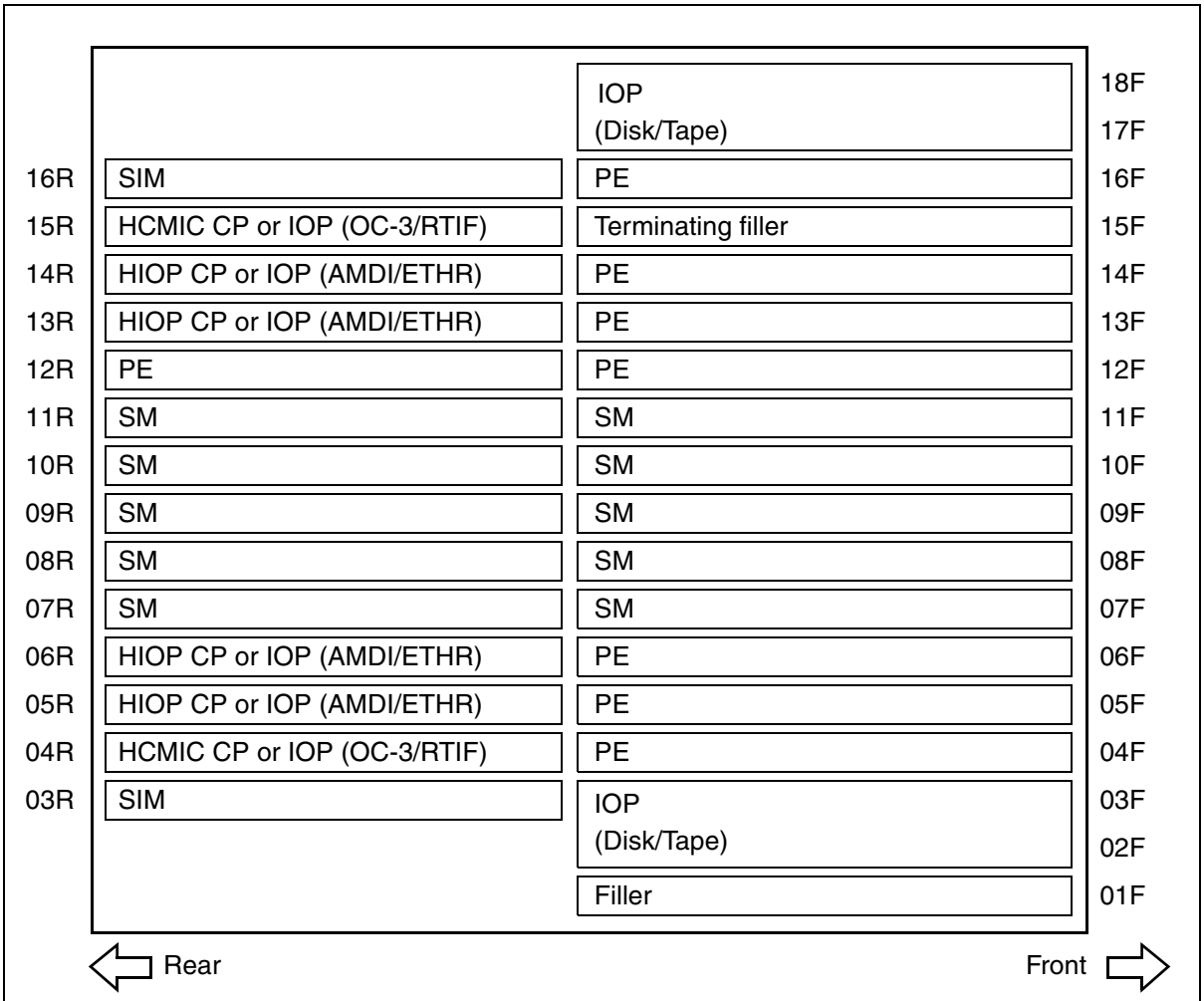
Slots 5R, 6R, 13R, and 14R can contain single-width IOP circuit packs.

HIOP circuit packs can be installed in slots 5R and 14R. If NTLX04CA HIOPs are used, then there can be up to four HIOPs in the shelf, the third and fourth installing in slots 6R and 13R. The HIOP circuit packs may support only ethernet links, or may support both ethernet links and AMDI links. If ethernet links are supported by NTLX04 HIOP circuit packs, then ethernet packlets are not used. If ATM AMDI links are supported by NTLX04 HIOP circuit packs, then AMDI packlets are not used. (NTLX04AA HIOP circuit packs support ethernet links only.)

HCMIC circuit packs can be installed in slots 4R and 15R. The HCMIC circuit packs support CMIC links and RTIF links, and can also support ethernet links. If HCMIC circuit packs are equipped, then CMIC packlets and RTIF packlets are not used, and ethernet packlets cannot be installed in the shelf. The HCMIC circuit packs can support ethernet links if there are no HIOP circuit packs in the shelf or if there are two HIOP circuit packs in the shelf, but not if there are four HIOP circuit packs in the shelf.

Figure 2-5 shows the shelf layout for an XA-Core shelf that has the 7+1 PE configuration and the 9+1 SM configuration.

Figure 2-5 Example of XA-Core shelf layout



Note 1: HIOP circuit packs can support ethernet links only, or both ethernet links and ATM AMDI links. HCMIC circuit packs support CMIC links and RTIF links, and can also support ethernet links. Co-existence rules are as follows. (1) All instances of a given type of link must be supported by the same type of hardware. For example, RTIF links must all be on packlets, or all be on HCMIC CPs. (2) If there are HCMIC CPs in the shelf, then there cannot be ethernet packlets. (3) If there HCMIC CPs in the shelf, and if there are no HIOP CPs or only two HIOP CPs, then the HCMIC CPs can support ethernet links. If there are four HIOP CPs in the shelf, then HCMIC CPs cannot support ethernet links.

Note 2: If IOP circuit packsare s installed in slot 5R, 6R, 13R, or 14R. then depending the application, they contain ethernet and/or AMDI packlets.

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. The shelf supports multiple PE configurations. Also, the shelf can contain four Ethernet packlets, or two, or none. Also, the shelf can contain four HIOP circuit packs, or two, or none. Addition and removal refer to changing the number of PE circuit packs, Ethernet packlets, or HIOP circuit packs 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. In addition, amber LEDs are found on the SIM circuit pack, the HIOP circuit pack, the HCMIC circuit pack, and the packlets (CMIC, RTIF, AMDI, and ethernet).

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

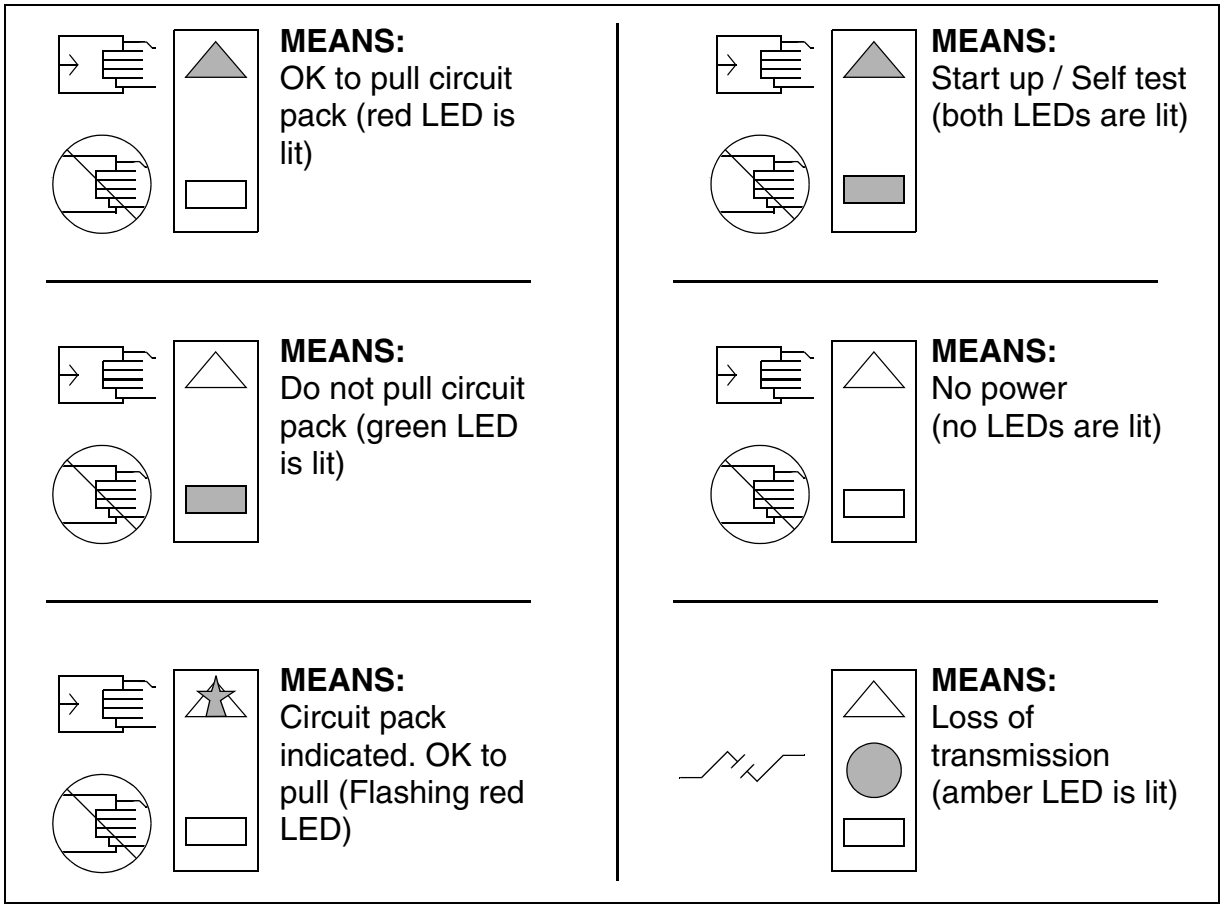
LED Status		Reason	Action	Safe to Remove?
Green	**Red**			
Off	Off	Dual-primary power failure	Call the next level of support. Do not remove the CP.	No
		CP power failure	Examine alarm status on the MAP terminal. Replace the CP.	Yes
		LED failure on one or two LEDs	Examine alarm status on the MAP terminal. 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 2-6 LED label interpretation



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OC-3 two port interface paddleboard in a SuperNode or SuperNode SE Message Switch

OC-3 two port interface paddleboard

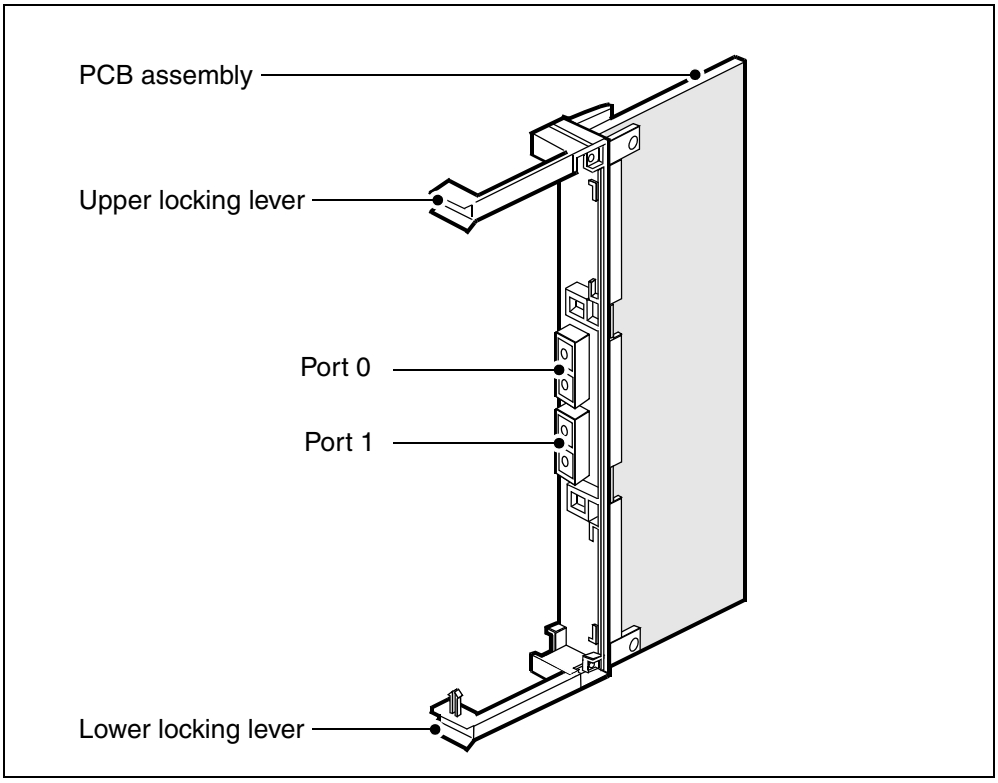
Application

Use this procedure to replace the NTLX02 Shared memory in a a SuperNode and SuperNode SE XA-Core shelf. Use this procedure for circuit pack (CP) versions shown in the following table.

Table 2-4 Valid OC-3 two port interface paddleboards

PEC	Suffix	Card name
NTLX02	AA	Shared memory
NT9X63	AB	OC-3 two port interface paddleboard

Figure 2-7 OC-3 two port interface paddleboard front and side view



Common procedures

The OC-3 two port interface paddleboard replacement procedure refers to the Failure to switch clock mastership common procedure.

OC-3 two port interface paddleboard (continued)

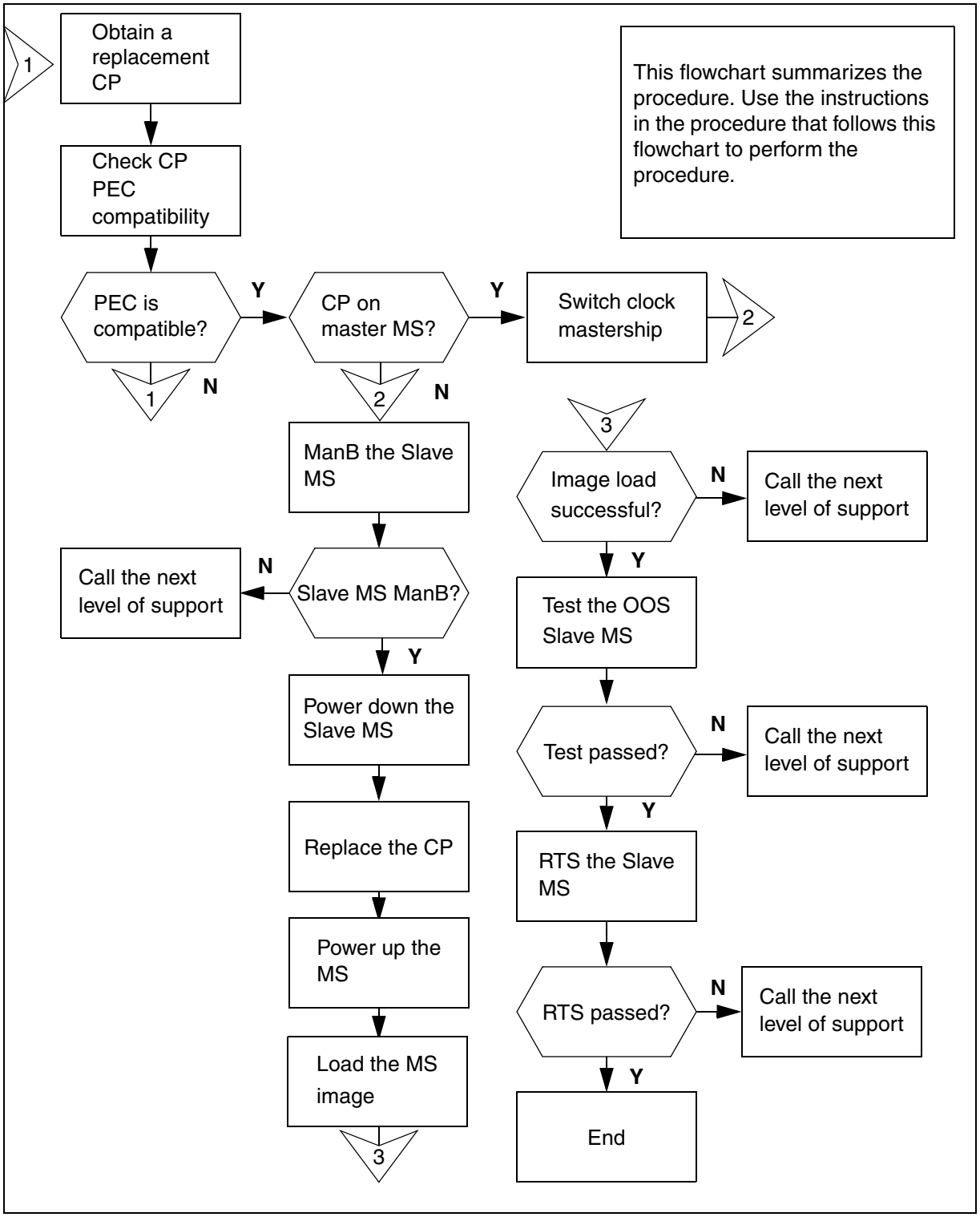
Do not go to a common procedure unless indicated in the step-action procedure.

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.

OC-3 two port interface paddleboard (continued)

Figure 2-8 Summary of OC-3 paddleboard replacement in a Message Switch



OC-3 two port interface paddleboard (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          Message Switch      Clock      Shelf  0      Inter-MS Link 0 1
 2                MS 0       S       M Free             C                    - -
 3                MS 1       S       Slave              C                    - -
 4
 5              MS:
 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    >
```

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.

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

OC-3 two port interface paddleboard (continued)

>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

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.

OC-3 two port interface paddleboard (continued)

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.

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.

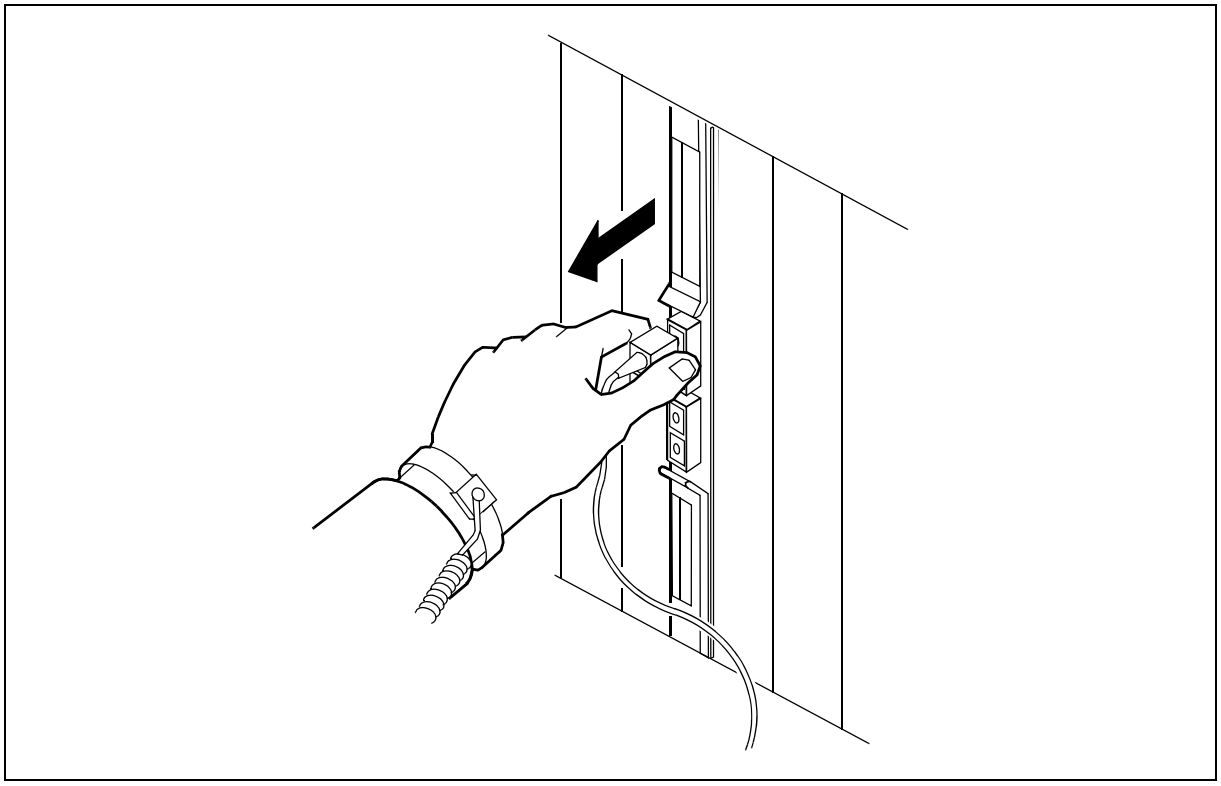
Disconnect the fiber optic cables from the faceplate of the OC-3 two port interface paddleboard CP. Use the diagrams shown in this step.

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

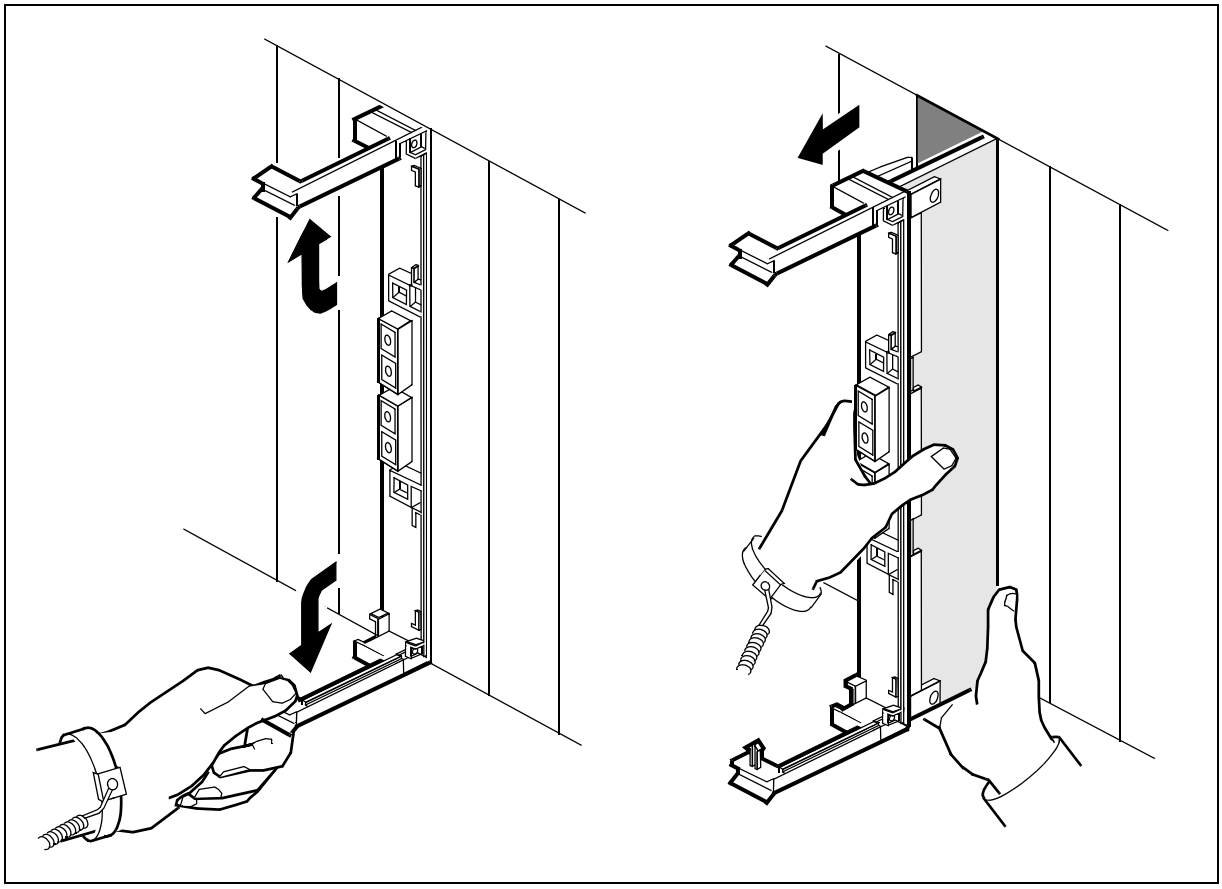


OC-3 two port interface paddleboard (continued)

14 Remove the OC-3 two port interface paddleboard from the MS shelf. Use the diagrams shown in this step.

- **a** Open the 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 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.

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.

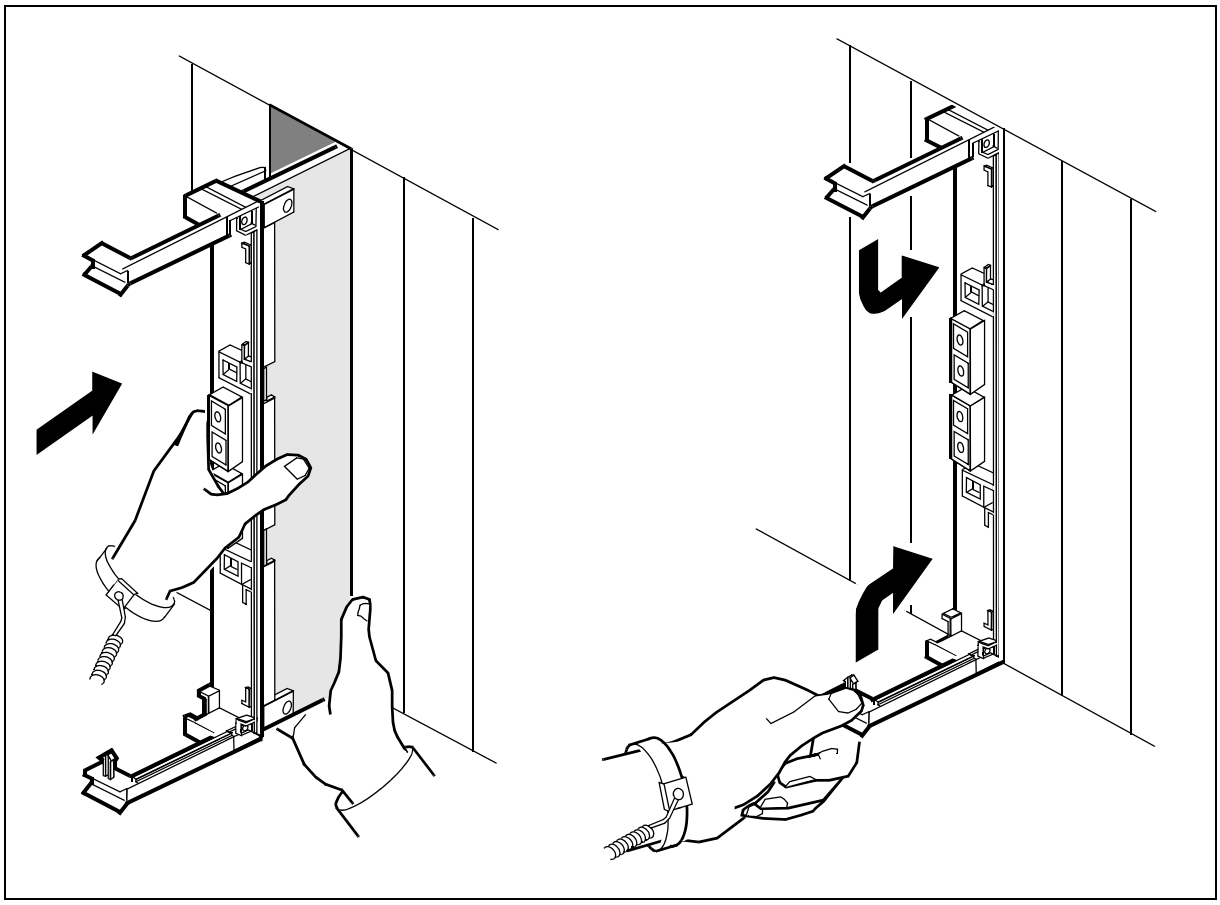
OC-3 two port interface paddleboard (continued)

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



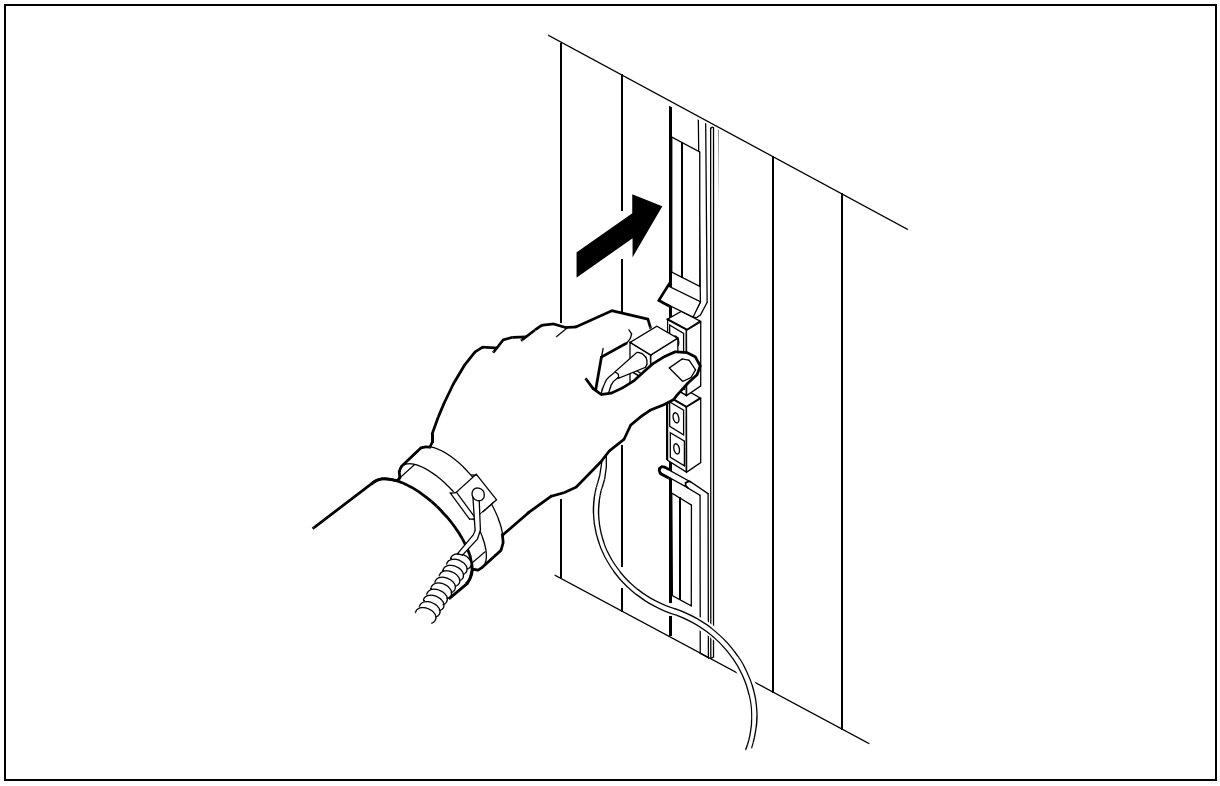
17 Connect the fiber optic cables to the OC-3 two port interface paddleboard CP. Use the diagrams shown in this step.

a Hold the connector by the receptacle body only.

b Carefully insert the fiber optic connector into the correct receptacle.

OC-3 two port interface paddleboard (continued)

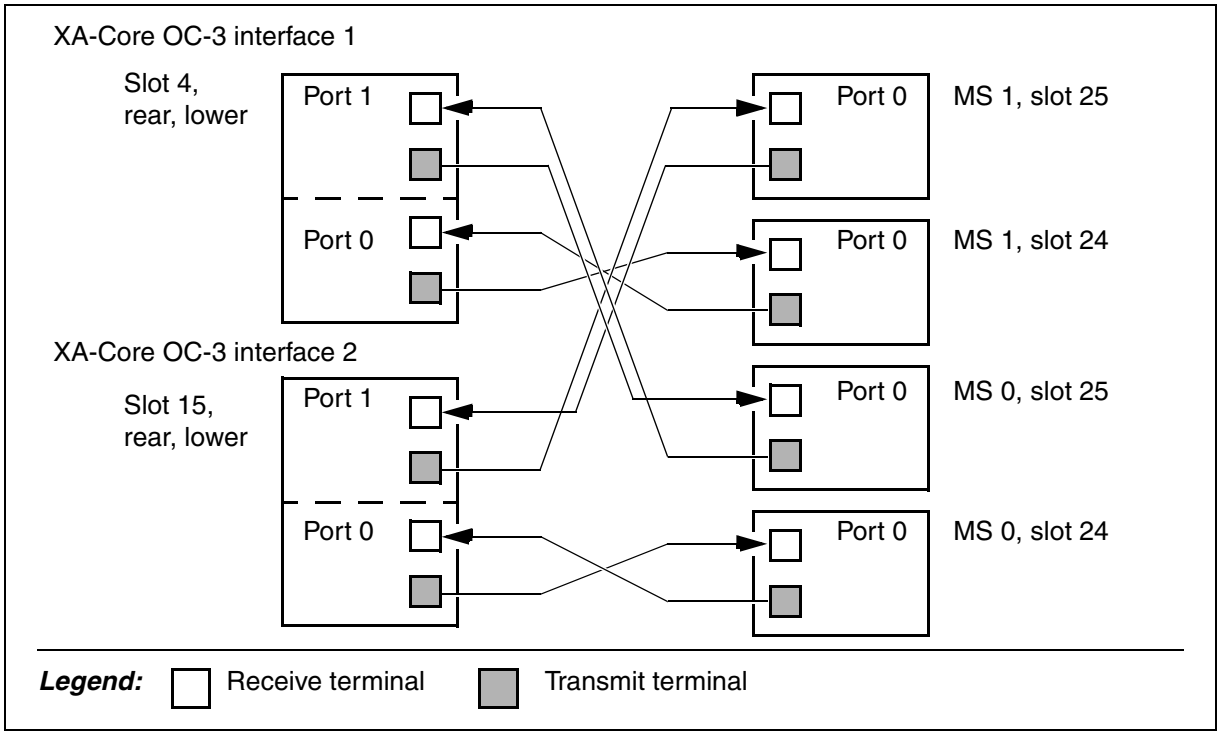
Connect the fiber optic cable to the OC-3 two port interface paddleboard



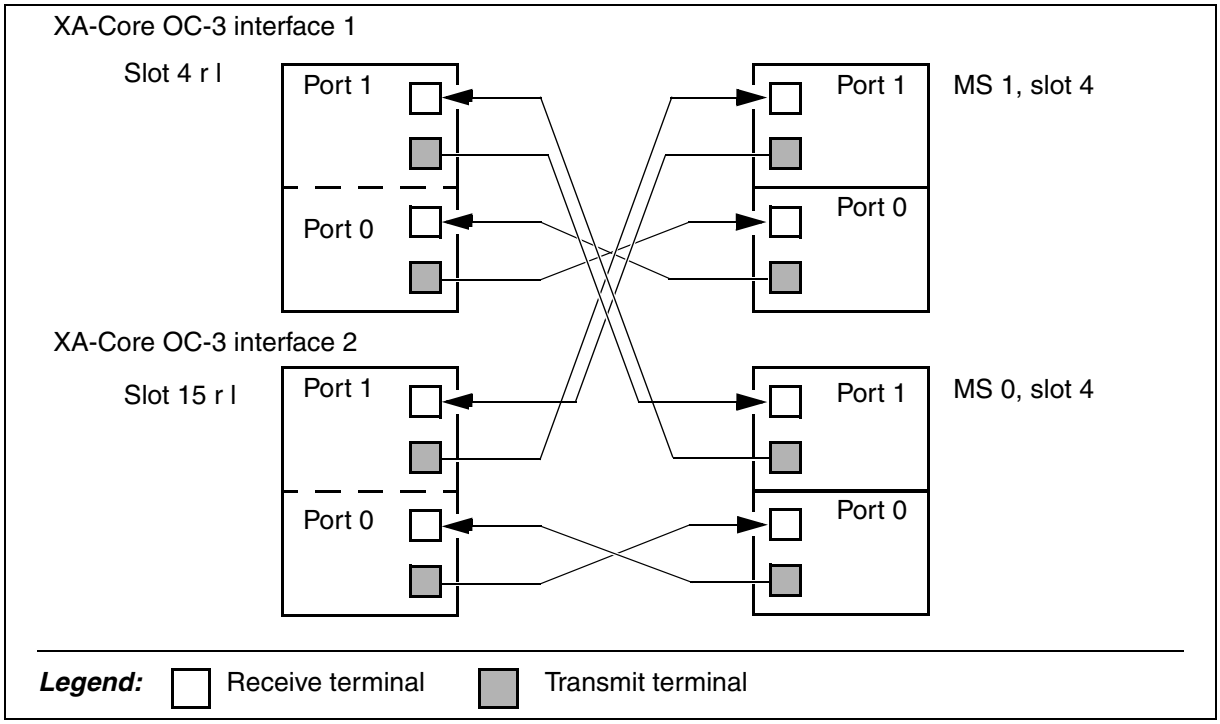
18 Examine the fiber optic cable connections. Make sure that the fiber optic connectors fit correctly into the OC-3 two-port interface packlet and OC-3 two-port interface paddleboard ports. Use the diagrams in this step to check the link connections.

OC-3 two port interface paddleboard (continued)

XA-Core and MS fiber optic cable connections (SuperNode)



XA-Core and MS fiber optic cable connections (SuperNode SE)



OC-3 two port interface paddleboard (continued)

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.

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

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)

OC-3 two port interface paddleboard (end)

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.

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NTLX02 PE circuit pack in a SuperNode and SuperNode SE XA-Core

NTLX02 PE circuit pack

Application

This section contains the procedure for replacing an NTLX02AA, CA, or DA processor element (PE) circuit pack (CP).

Use this procedure

- to replace a defective circuit pack
- to replace a circuit pack that does not meet the baseline requirements

If you are replacing a defective circuit pack, the replacement that you install should have the same product engineering code and version as the circuit pack that you remove. That means you should substitute AA for AA, CA for CA, or DA for DA.

If you are replacing a circuit pack that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

The following table lists the PE CP versions.

Table 2-5 Valid Processor Element circuit packs

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.

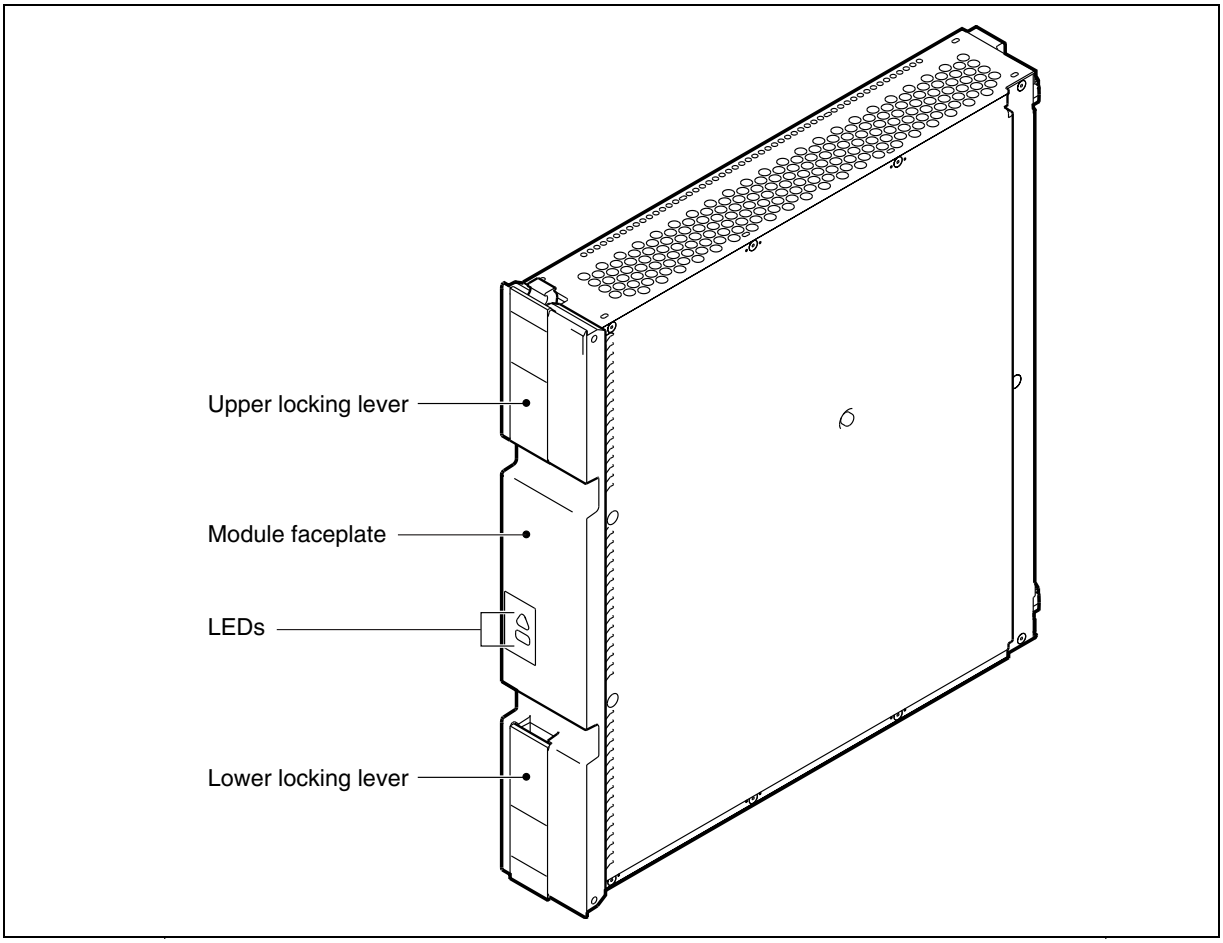
NTLX02 PE circuit pack (continued)

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.

Figure 2-9 NTLX02 Processor element (PE) CP front and side views



Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

NTLX02 PE circuit pack (continued)

Light emitting diode (LED) visual indicators

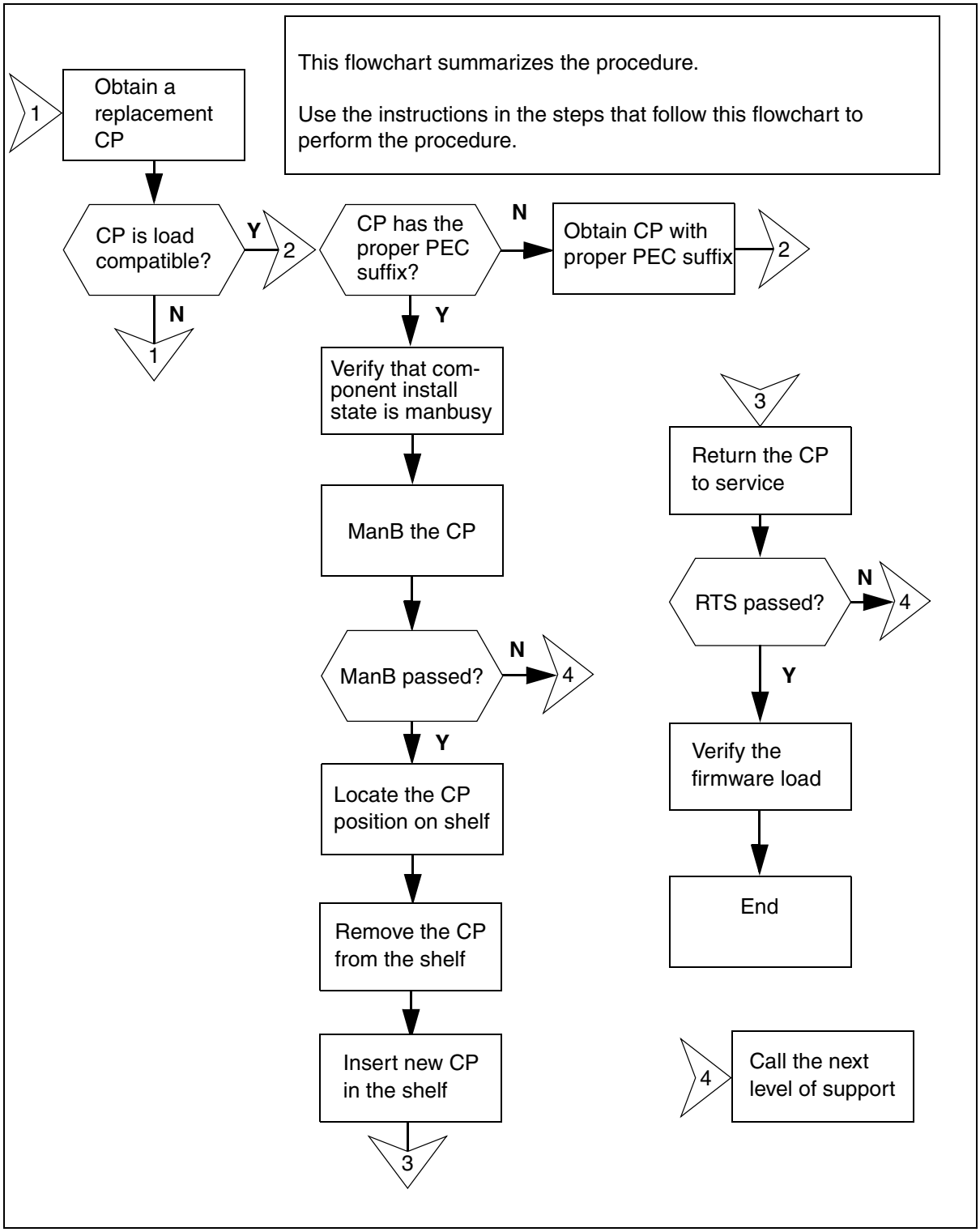
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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 (continued)

Figure 2-10 Summary of NTLX02 PE CP replacement procedure



NTLX02 PE circuit pack (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 (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. If you are replacing a defective CP, make sure that the replacement CP has the same product engineering code (PEC) and PEC suffix. If you are replacing a CP that does not meet baseline hardware requirements, make sure that the replacement CP meets those requirements.

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_STATE

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	substep c
MANBUSY	step 4

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.

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.

NTLX02 PE circuit pack (continued)

PE MAP level

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


PE                Front:   111111111  Rear: 111111   SM      PE       IO       PKLT
 0 Quit           123456789012345678  456789012345   .       PEfl     .        .
 2          Sta: -.-..-..-..-..-..-   .--.-------.   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> FORCE

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

<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 FORCE

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 front complete
```

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 - 1 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

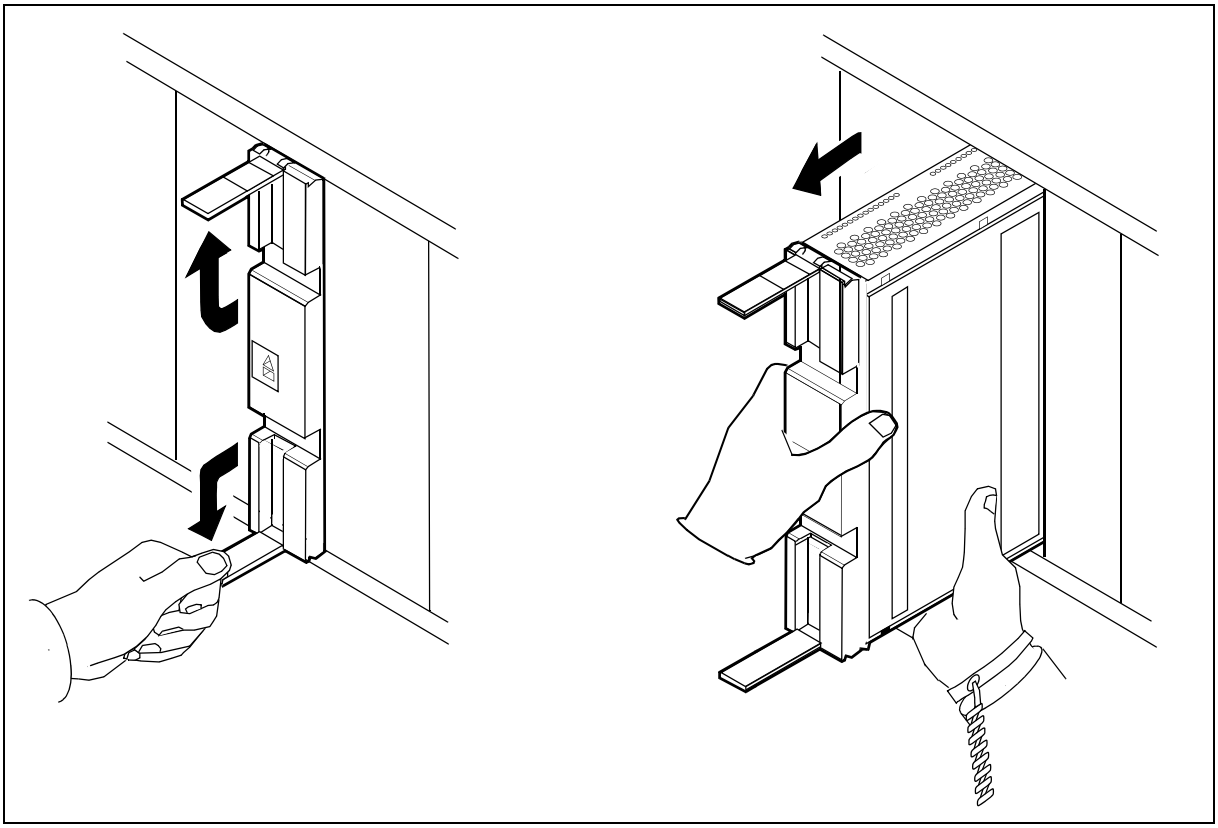
7 Locate the PE CP on the XA-Core physical shelf. Use the CP location information recorded from the PE MAP in step 4. Look for a winking, red triangular LED (from step 6).

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 (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.

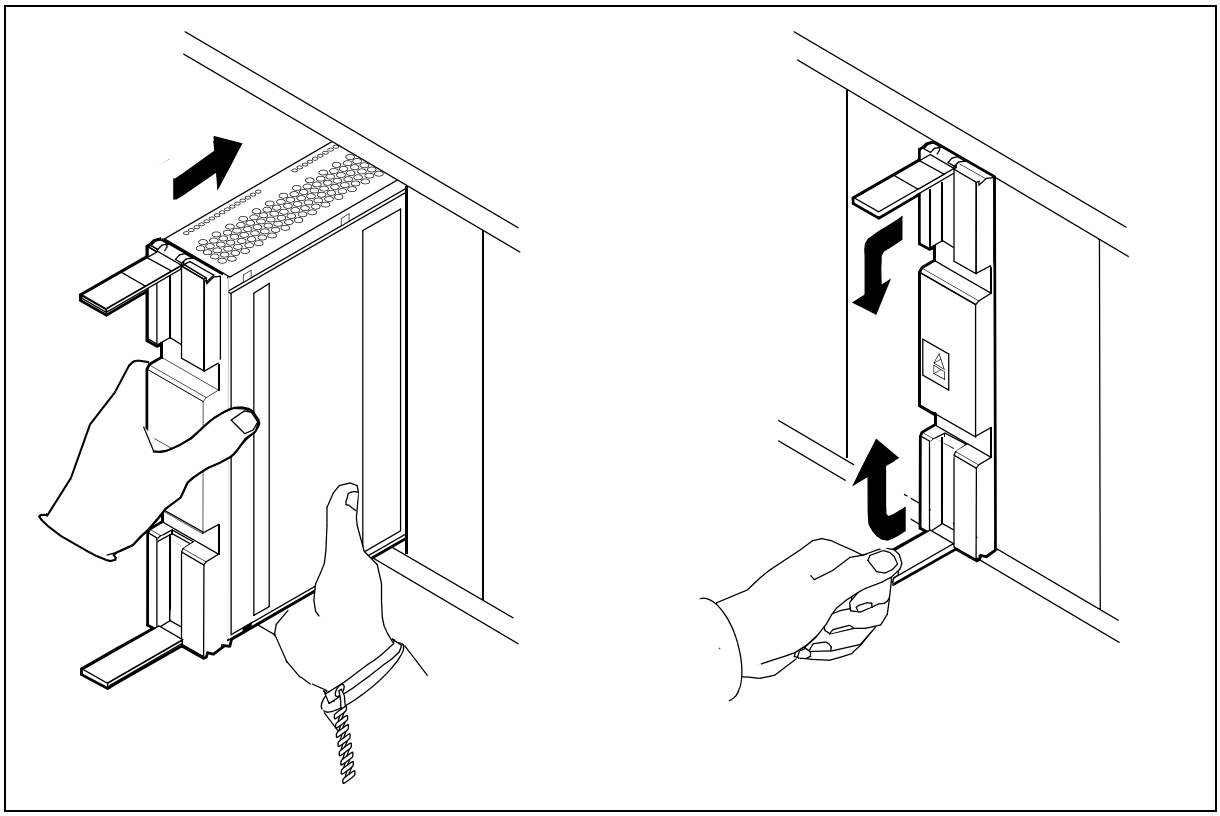
11 Insert the replacement PE CP into the physical shelf slot. Use the diagrams shown in this step.

- **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 (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



NTLX02 PE circuit pack (continued)

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 - 1 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 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 - 1 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:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline
OK
--- ---- ---- -- --- -- -- ------------ -------- --------
--
                                                  <vers>   <blv>
```

```
<ok>
```

where

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware version	Do
is the proper version	step 16
is not the proper version	step 15

15 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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.

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NTLX03 single width IOP circuit pack in a SuperNode and SuperNode SE XA-Core

NTLX03 single width IOP circuit pack

Application

This section contains the procedure for replacing an NTLX03AA or AB single-width Input/Output processor (IOP) circuit pack (CP).

Use this procedure

- to replace a defective circuit pack
- to replace a circuit pack that does not meet the baseline requirements

If you are replacing a defective circuit pack, then you can do like-for-like replacements (AA for AA or AB for AB). Also, you can use an AA as a replacement for an AB or vice versa, unless the baseline requirements impose restrictions.

If you are replacing a circuit pack that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

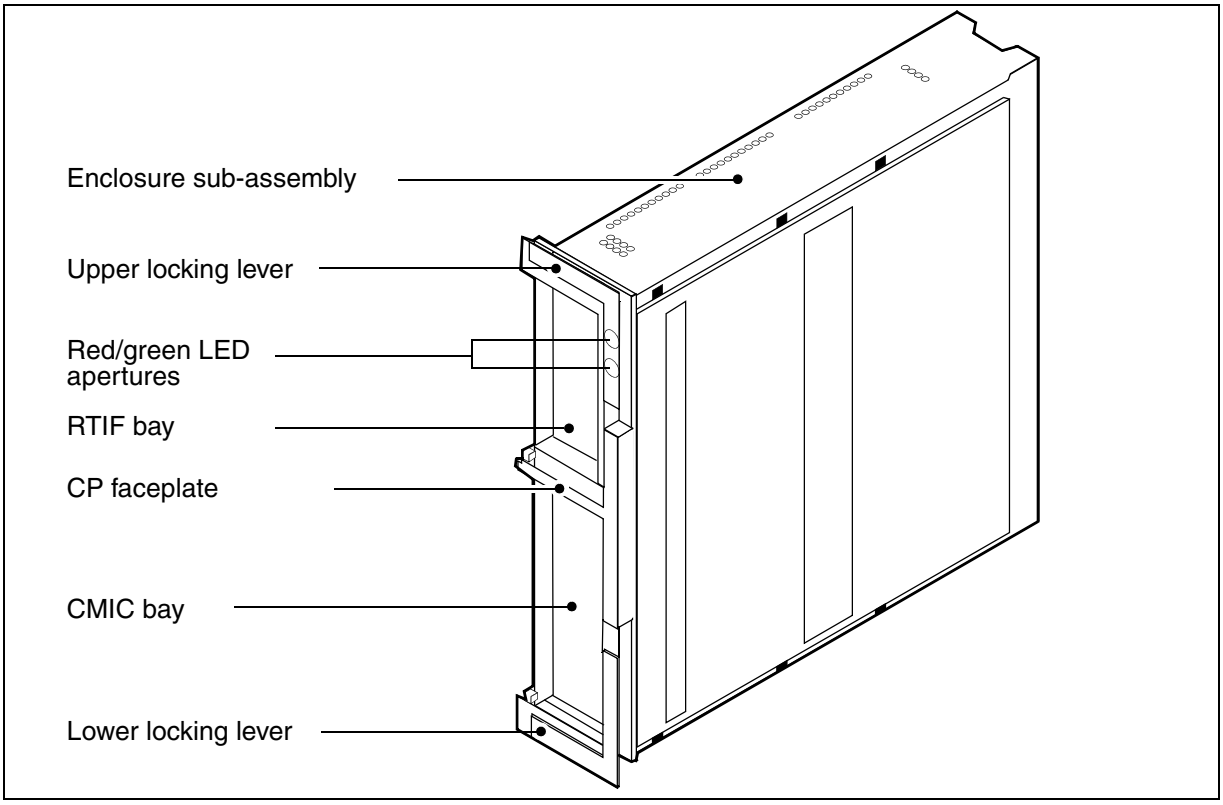
Remove the packlets from the NTLX03 first. The following table lists the correct single-width IOP CP versions.

Table 2-6 Valid single width IOP circuit packs

PEC	Suffix	CP name
NTLX03	AA, AB	Single width Input/Output Processor (IOP) CP

NTLX03 single width IOP circuit pack (continued)

Figure 2-11 NTLX03AA single width IOP CP front and side views



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

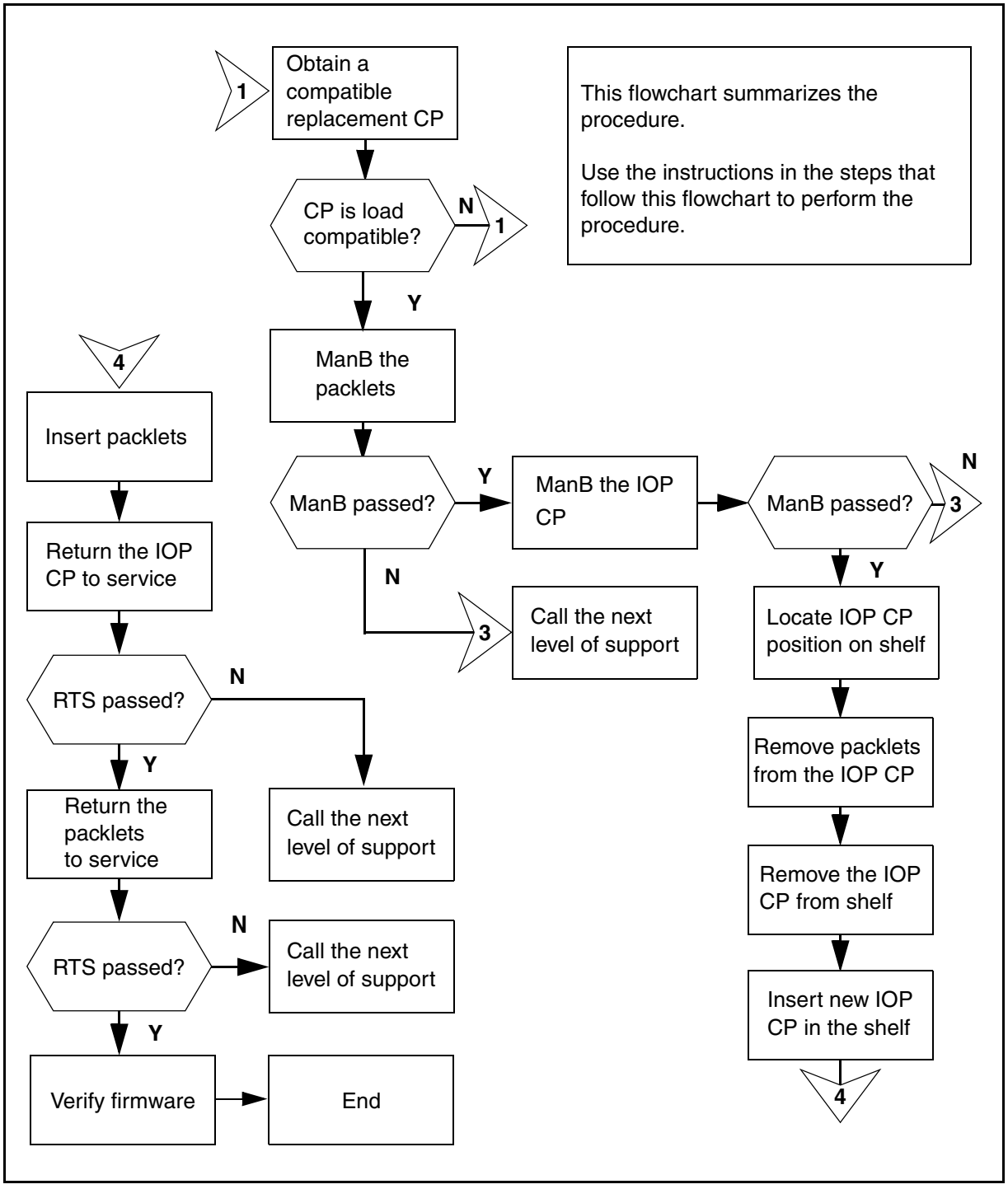
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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.

NTLX03 single width IOP circuit pack (continued)

Figure 2-12 Summary of NTLX03 replacement procedure in an XA-Core



NTLX03 single width IOP circuit pack (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 (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. If you are replacing a CP that does not meet baseline hardware requirements, make sure that the replacement CP meets those requirements. If you are replacing a defective CP, you can replace an AA with an AB or vice versa, if the replacement meets the baseline requirements. (The AA and AB versions can coexist in the XA-Core, unless baseline requirements impose restrictions.)

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:   111111111  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 (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 - 1 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 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.

b ManB the OC-3 two port interface packlet. At the CMIC MAP level type

>BSY <nn> <s> <p>

or

NTLX03 single width IOP circuit pack (continued)

>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 - 1 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.

b ManB the RTIF packlet. 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.

NTLX03 single width IOP circuit pack (continued)

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

<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

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 packlet 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.

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

NTLX03 single width IOP circuit pack (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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 - 1 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 r

Example of system response:

```
Indicate 4 rear complete
```

At the XA-Core physical shelf:

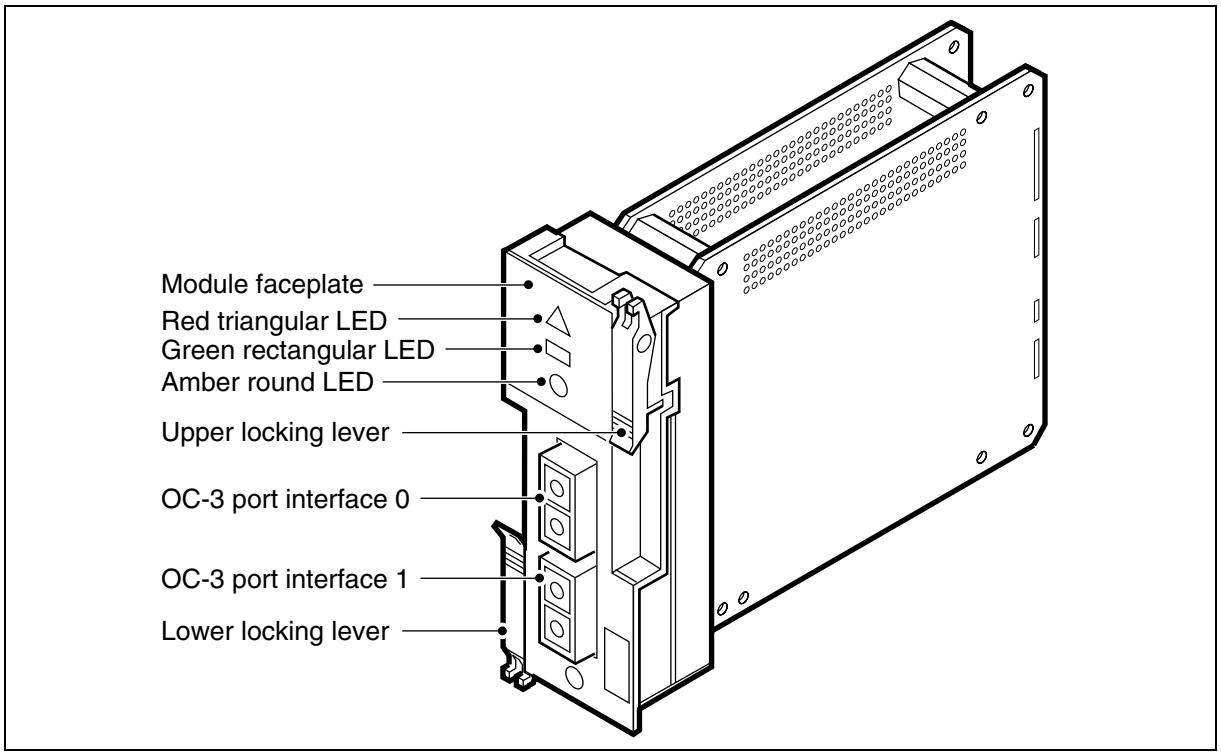
9 Locate the IOP CP on the XA-Core physical shelf. Refer to the IOP CP location recorded from 3. Examine the CP faceplates on the XA-Core physical shelf.

Look for a flashing, red triangular LED on the IO CP. Look for lit red LEDs on the related packlets.

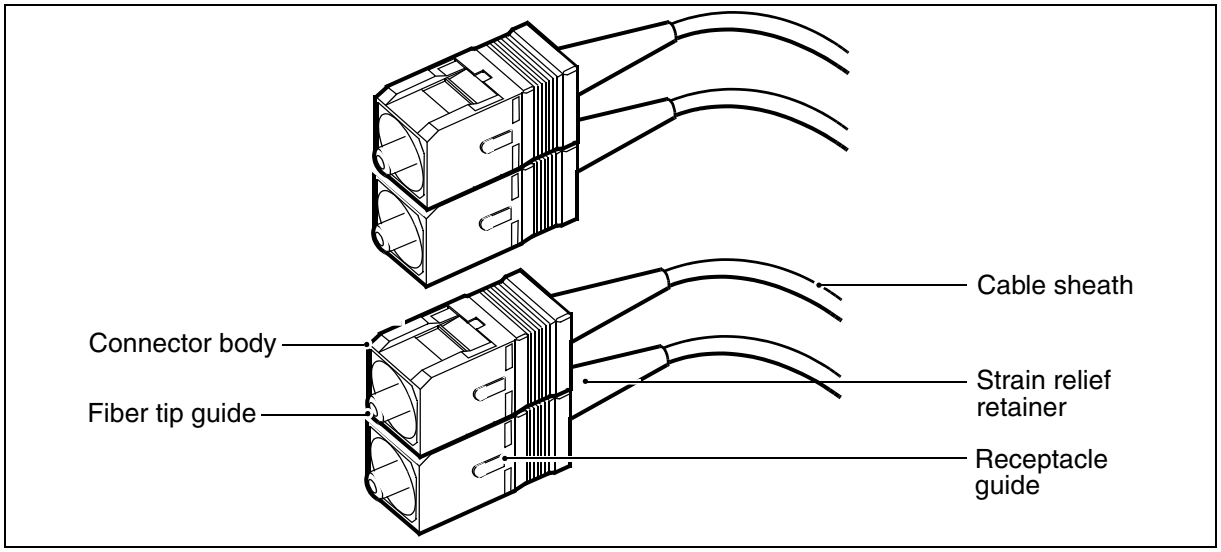
NTLX03 single width IOP circuit pack (continued)

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



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.

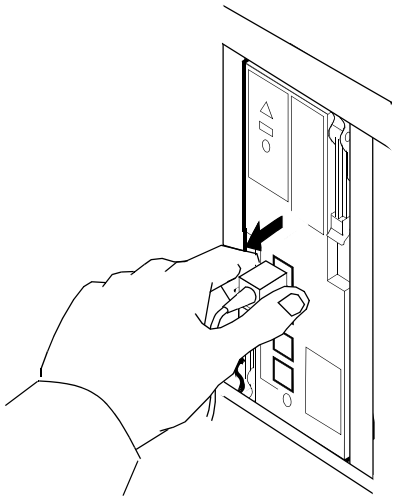
Disconnect the fiber optic cables from the faceplate of the OC-3 two port interface packlet.

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 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.

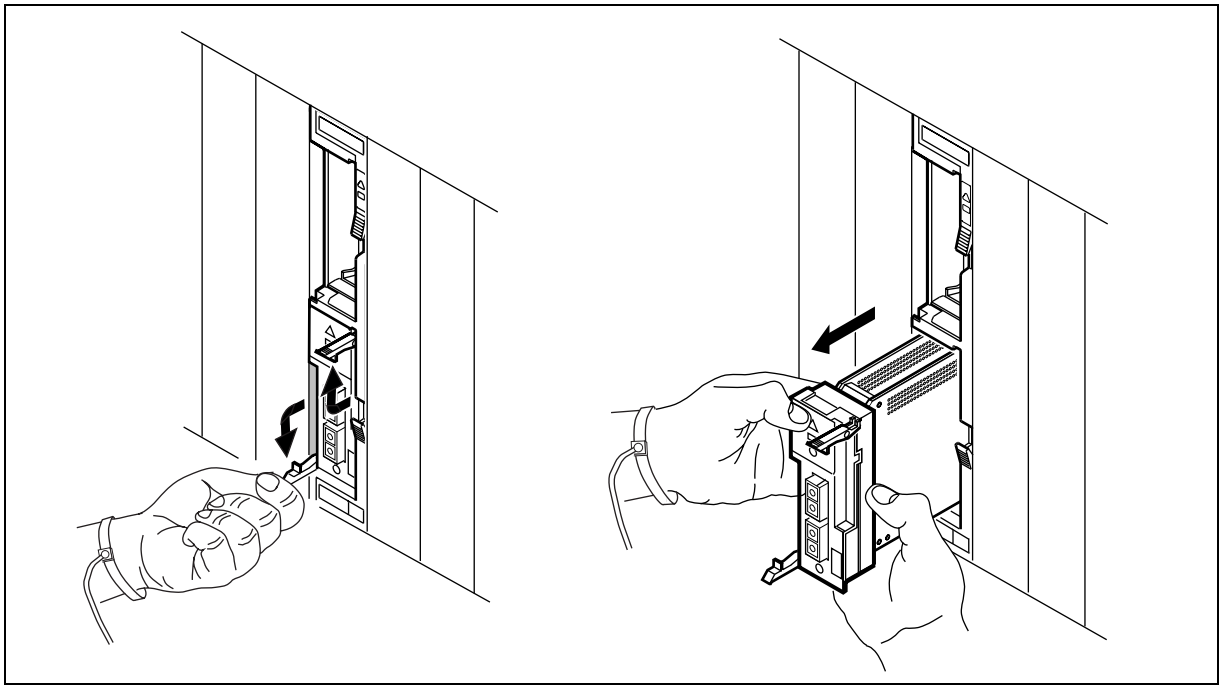
b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

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.

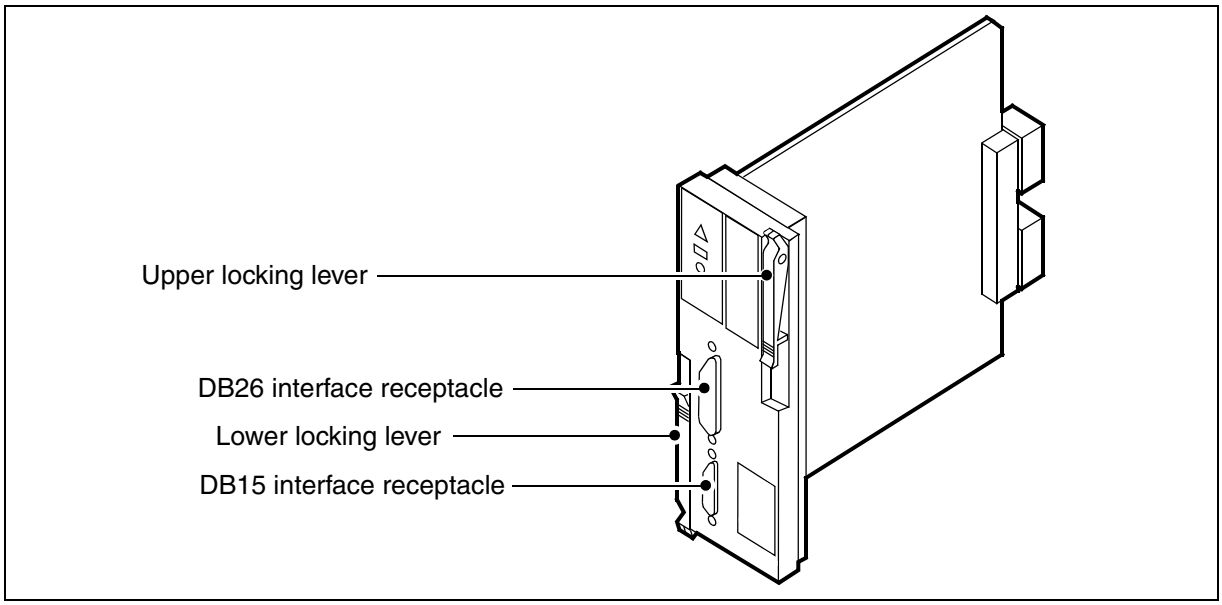
NTLX03 single width IOP circuit pack (continued)

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



14 Disconnect the remote port cable from the RTIF packlet (see illustrations in this step).

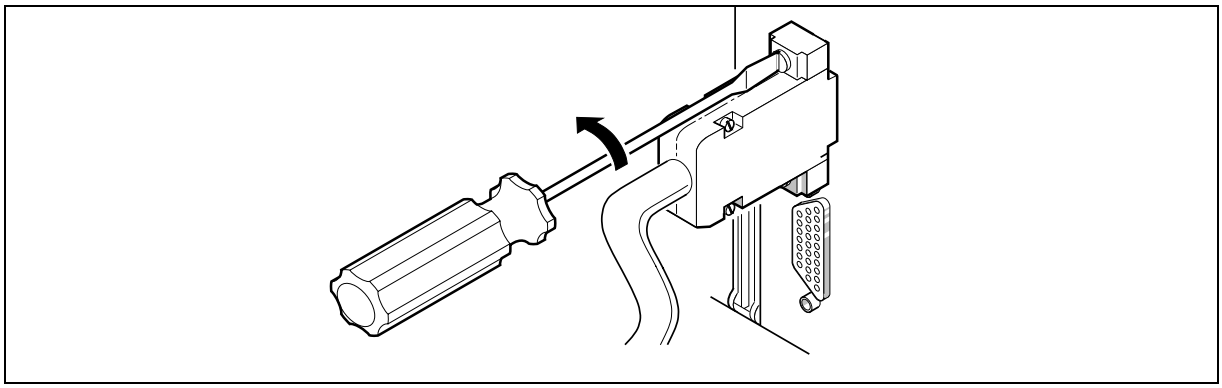
a Loosen the connector retaining screws from the RTIF ports.

b Hold the connector by the body only.

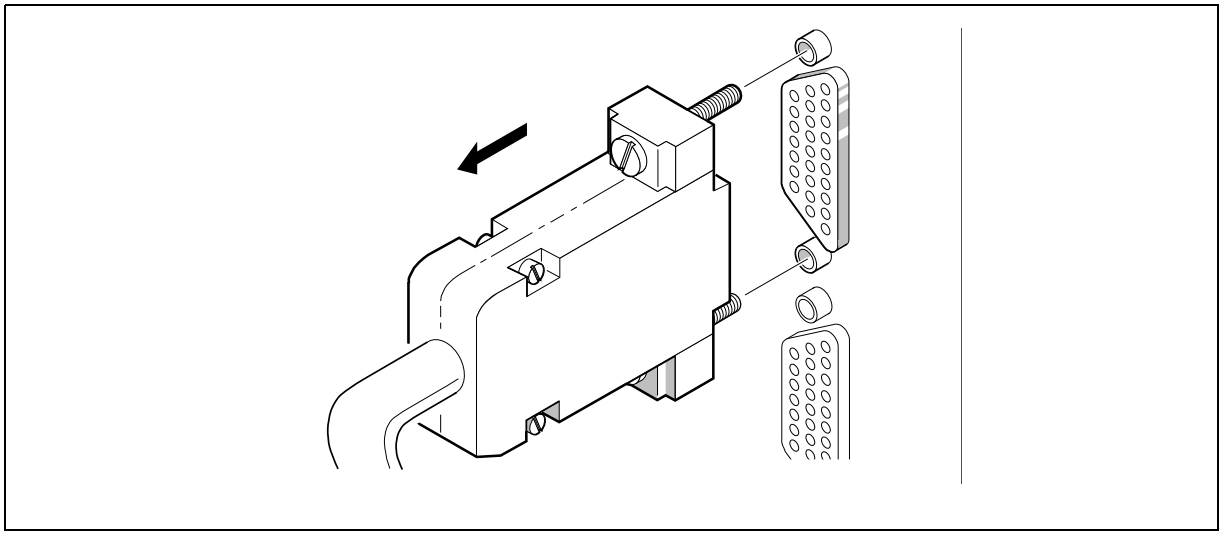
c Carefully pull the connectors away from the port receptacles.

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



15 Disconnect the local port cable from the RTIF packlet.

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.

16 Remove the RTIF packlet from the IOP CP. Perform the following steps:

a Open the locking levers on the RTIF packlet.

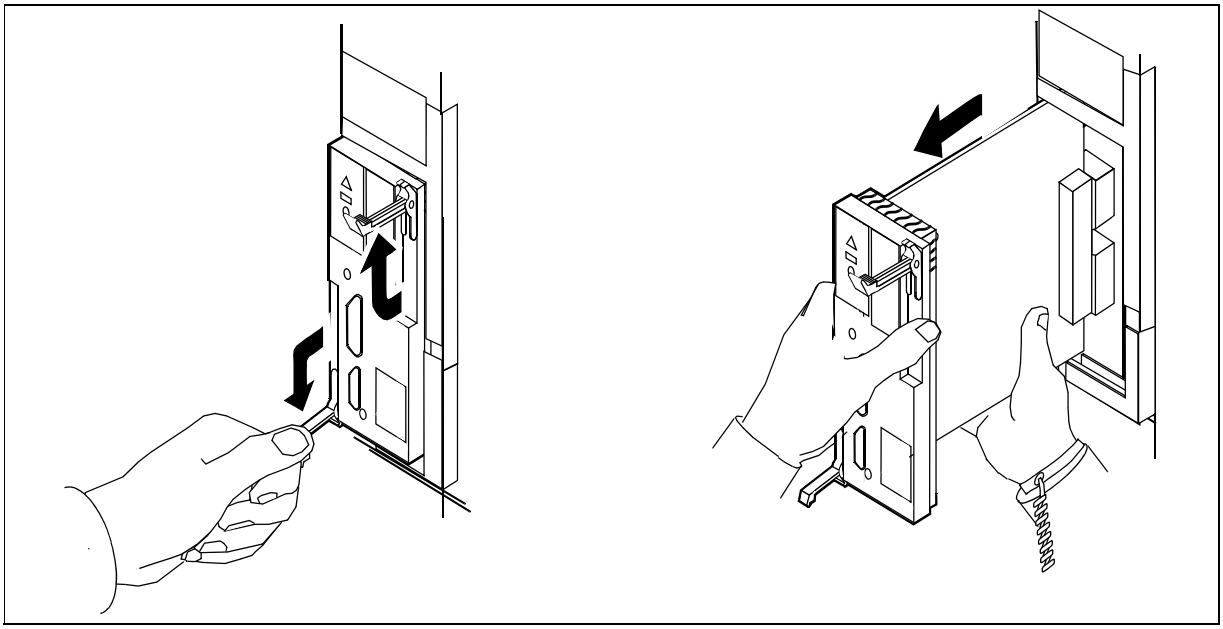
NTLX03 single width IOP circuit pack (continued)

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.

Remove the RTIF packlet from the IOP CP



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.

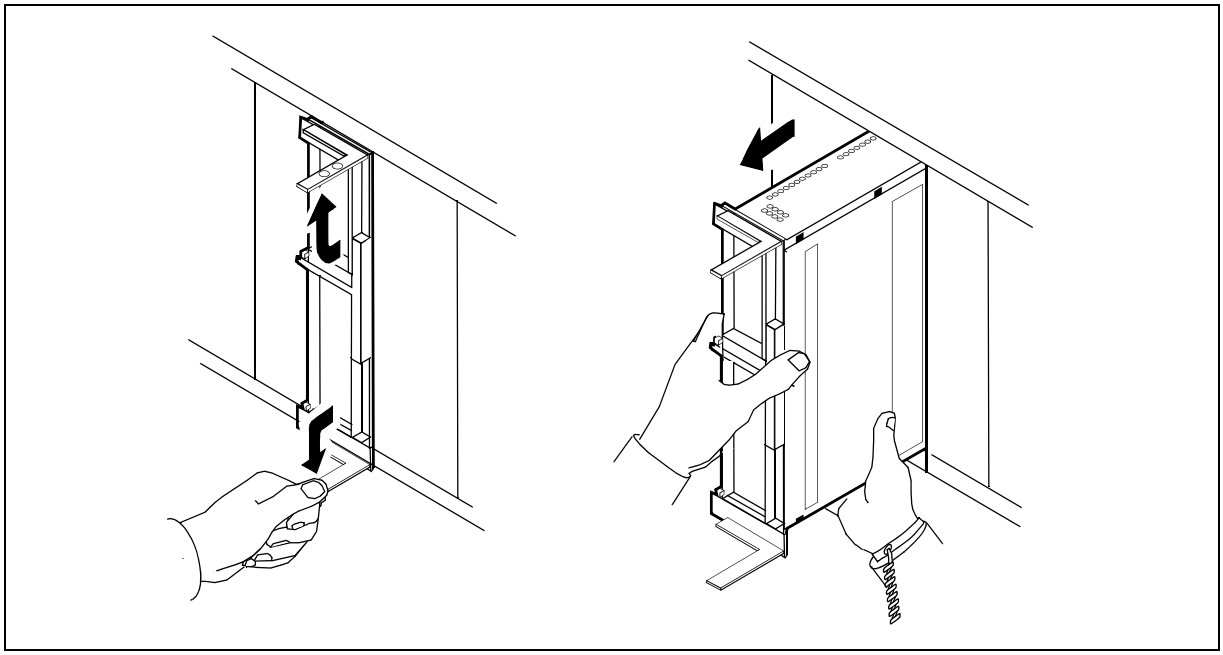
b Carefully pull the CP toward you by the locking levers until it extends half way from the shelf opening.

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.

NTLX03 single width IOP circuit pack (continued)

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.

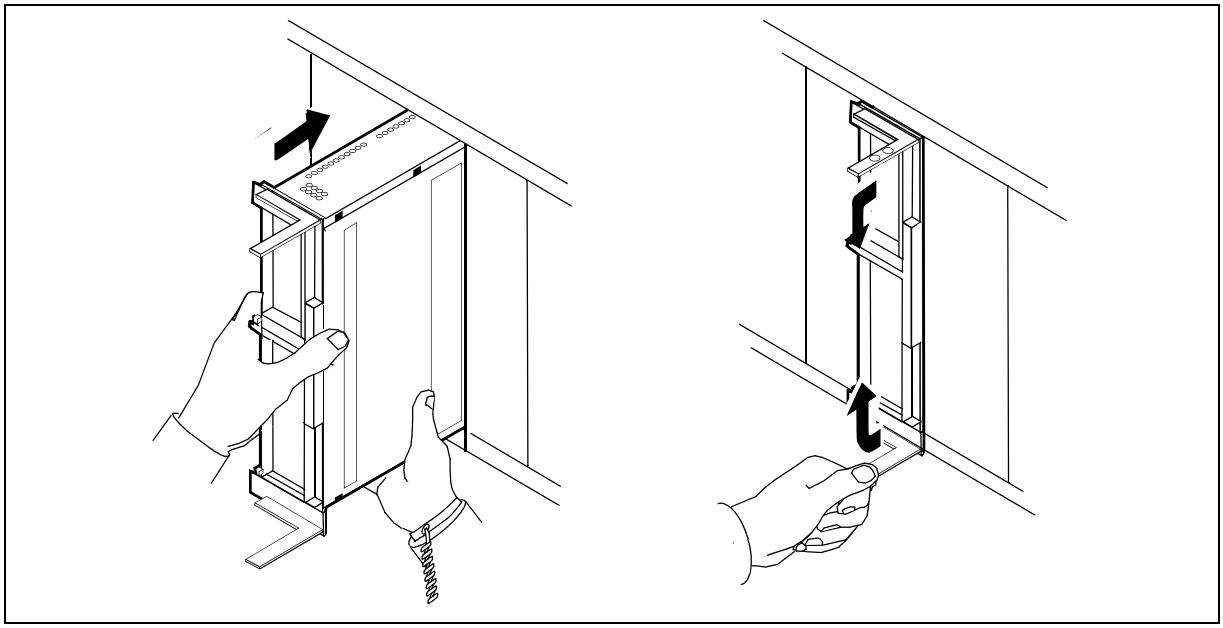
If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

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. Do not force the locking levers to close.

NTLX03 single width IOP circuit pack (continued)

Insert the IOP CP in the XA-Core shelf



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.

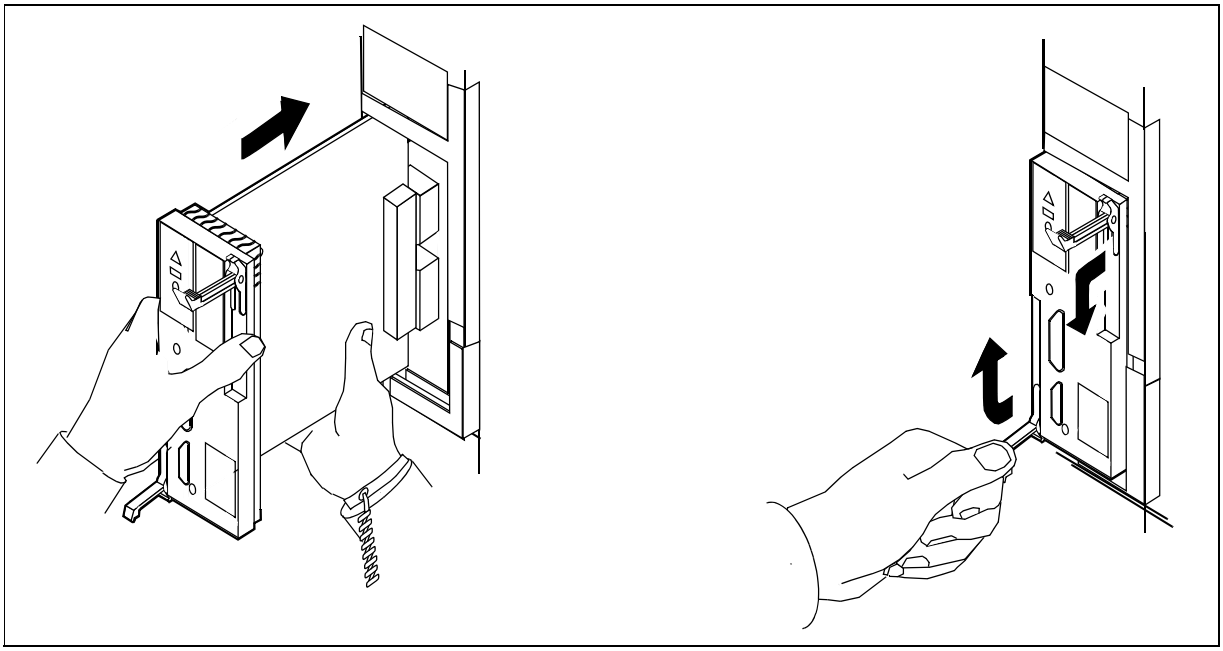
d Align the RTIF packlet with the upper IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.

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.

NTLX03 single width IOP circuit pack (continued)

Insert the RTIF packlet into the IOP CP



21 Connect the local cable to the correct RTIF port receptacle.

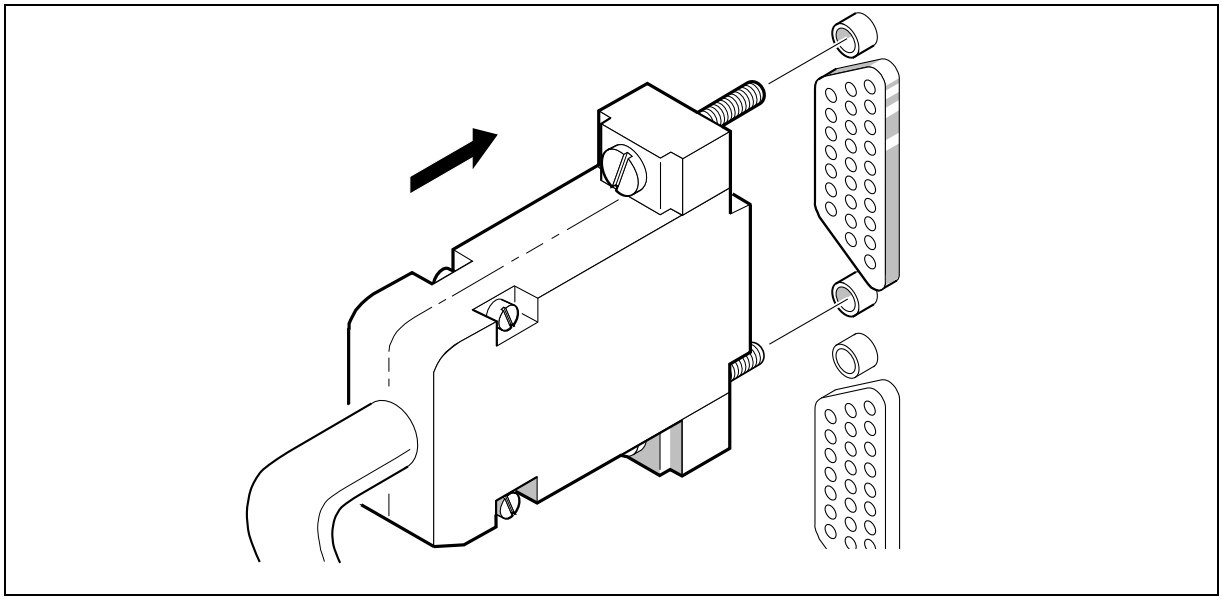
- **a** Hold the connector by the receptacle body only.
- **b** Align the connector to the correct RTIF port receptacle.
- **c** Push the connector into the receptacle.
- **d** Tighten the connector retaining screws.

22 Connect the remote cable to the correct RTIF port receptacle (see illustrations in this step).

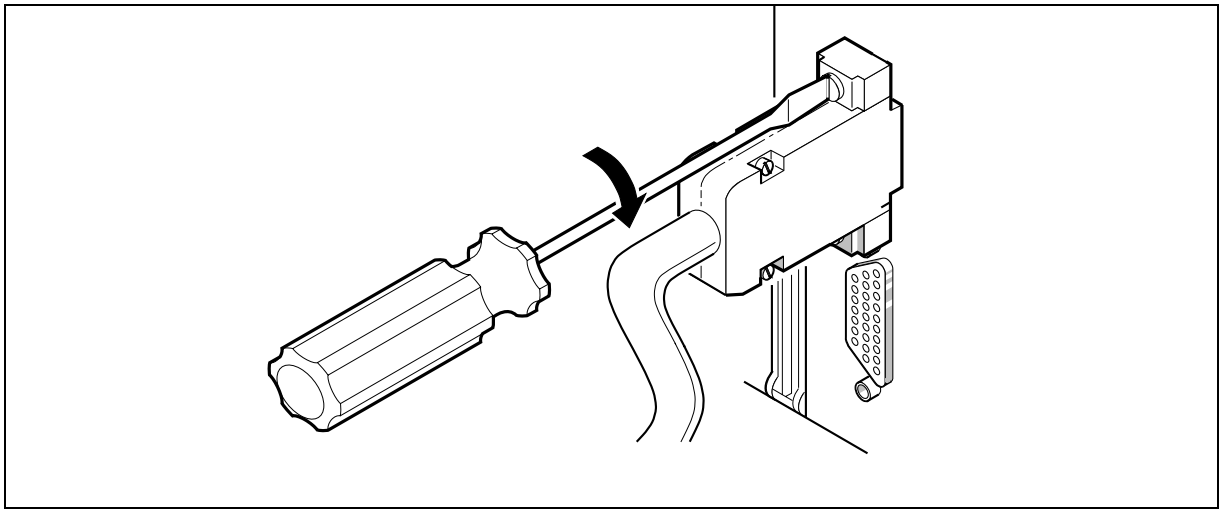
- **a** Hold the connector by the receptacle body only.
- **b** Align the connector to the correct RTIF port receptacle.
- **c** Push the connector into the receptacle.
- **d** Tighten the connector retaining screws.

NTLX03 single width IOP circuit pack (continued)

Insert the RTIF port connectors in the RTIF port receptacles



Tighten the RTIF port connectors to the RTIF port receptacles



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.

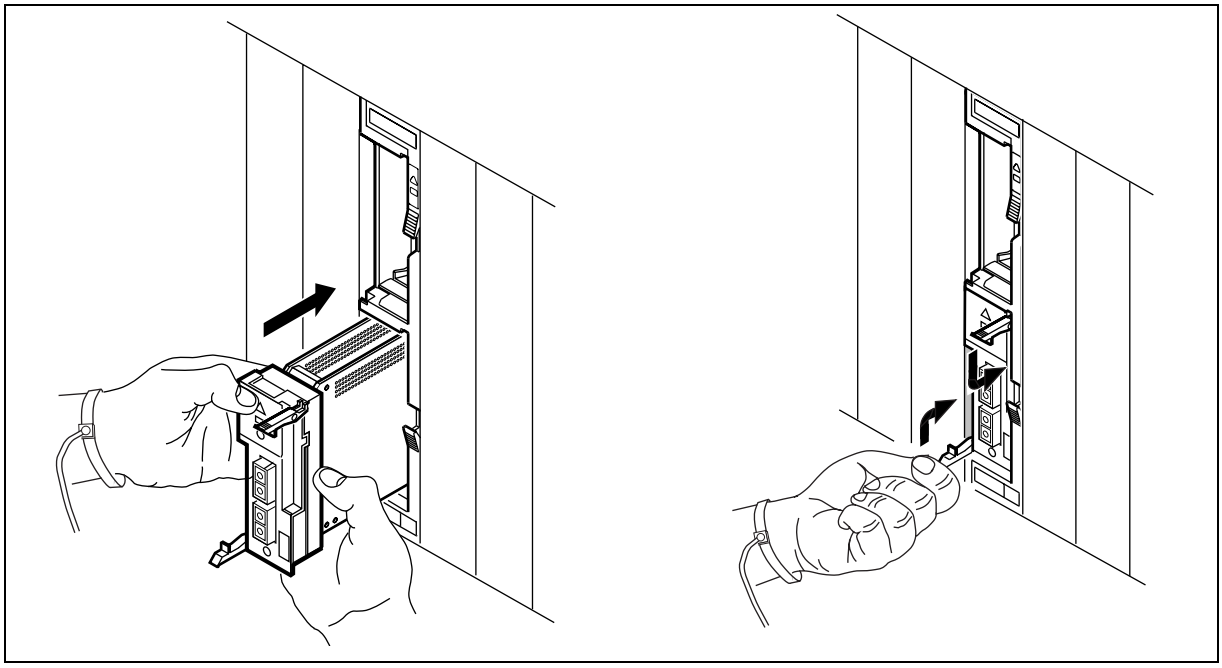
d Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.

NTLX03 single width IOP circuit pack (continued)

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.

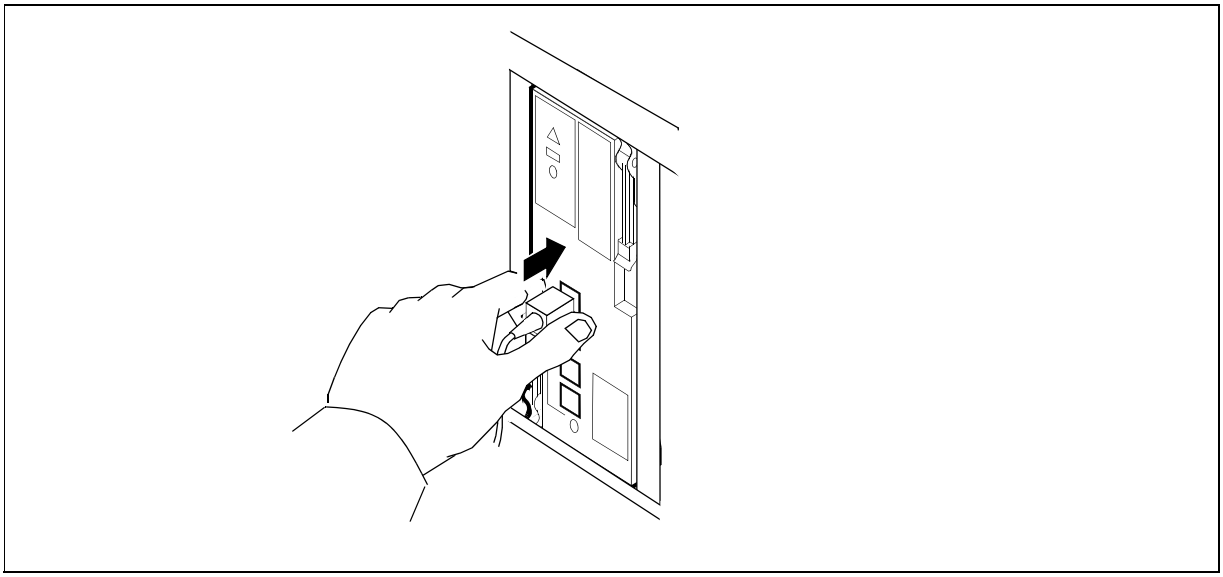
b Clean the fiber optic cables in accordance with office standards.

c Hold the fiber optic cable connector by the body only.

d Carefully insert the fiber optic cable connector into the correct receptacle.

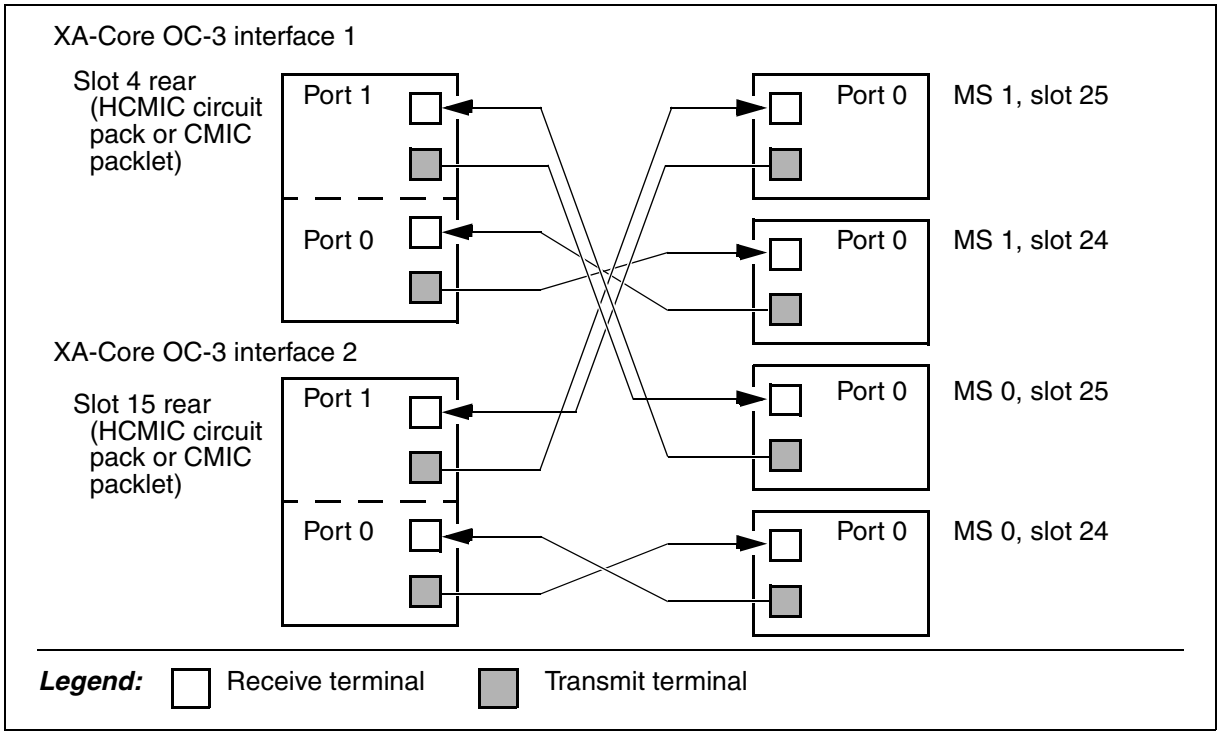
NTLX03 single width IOP circuit pack (continued)

Connect the OC-3 two port interface fiber optic cable



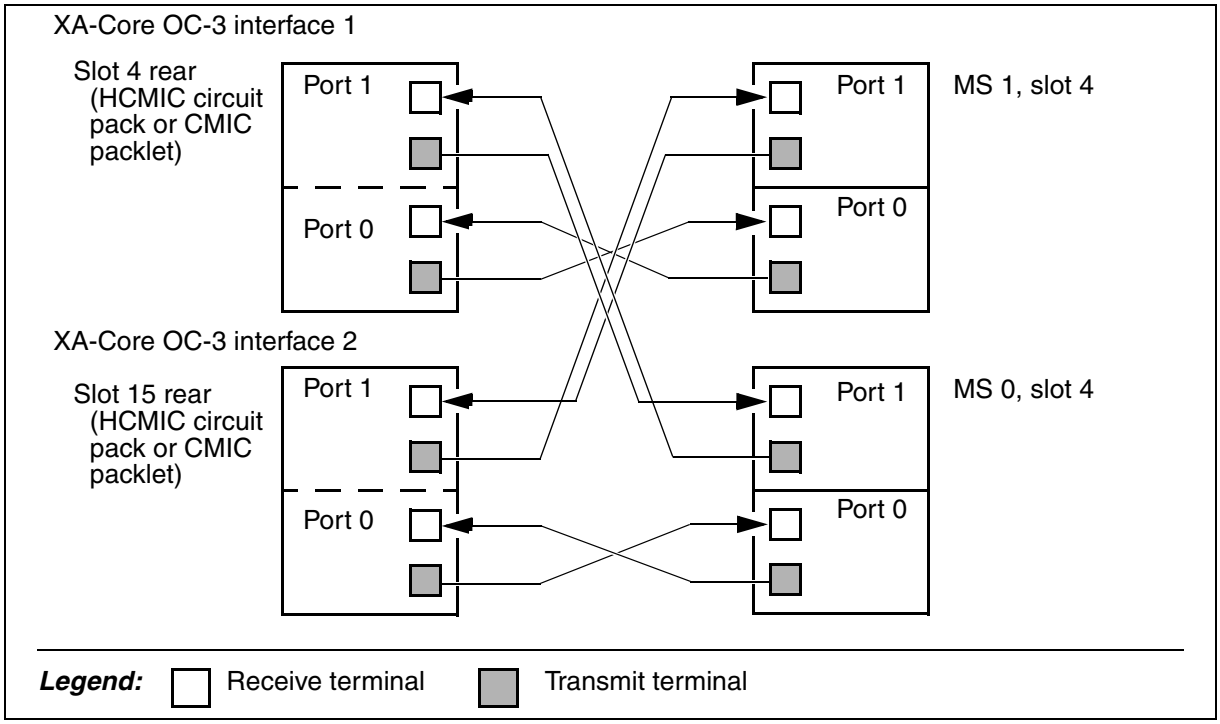
25 Examine the fiber optic cables and connectors. Make sure that the link connections fit into the correct OC-3 interface ports. Use the diagrams in this step to check the link connections.

XA-Core and MS fiber optic cable connections (SuperNode)



NTLX03 single width IOP circuit pack (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 - 1 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 passed
```

If the IOP CP is	Do
in service	step 27
not in service	step 29

NTLX03 single width IOP circuit pack (continued)

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 - 1 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

28 Return the RTIF packlet 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 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 - 1 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 7 r l

Example of system response:

```
RTS 4 rear upper passed
```

If the RTIF packlet is	Do
not in service	step 29
in service	step 30

29 Call the next level of support

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 - 1 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 6 r

The system displays several items of information, including the firmware version.

Example of system response:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline
OK
--- ---- ---- -- --- -- -- ------------ -------- --------
--
                                                <vers>   <blv>
  <ok>
```

where

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table

NTLX03 single width IOP circuit pack (end)

FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware version	Do
is the proper version	step 32
is not the proper version	step 31

31 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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

NTLX03 dual width IOP circuit pack

Application

This section contains the procedure for replacing an NTLX03BA or BB dual-width Input/Output processor (IOP) circuit pack (CP).

Use this procedure

- to replace a defective circuit pack
- to replace a circuit pack that does not meet the baseline requirements

If you are replacing a circuit pack that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

> ***Note:*** This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

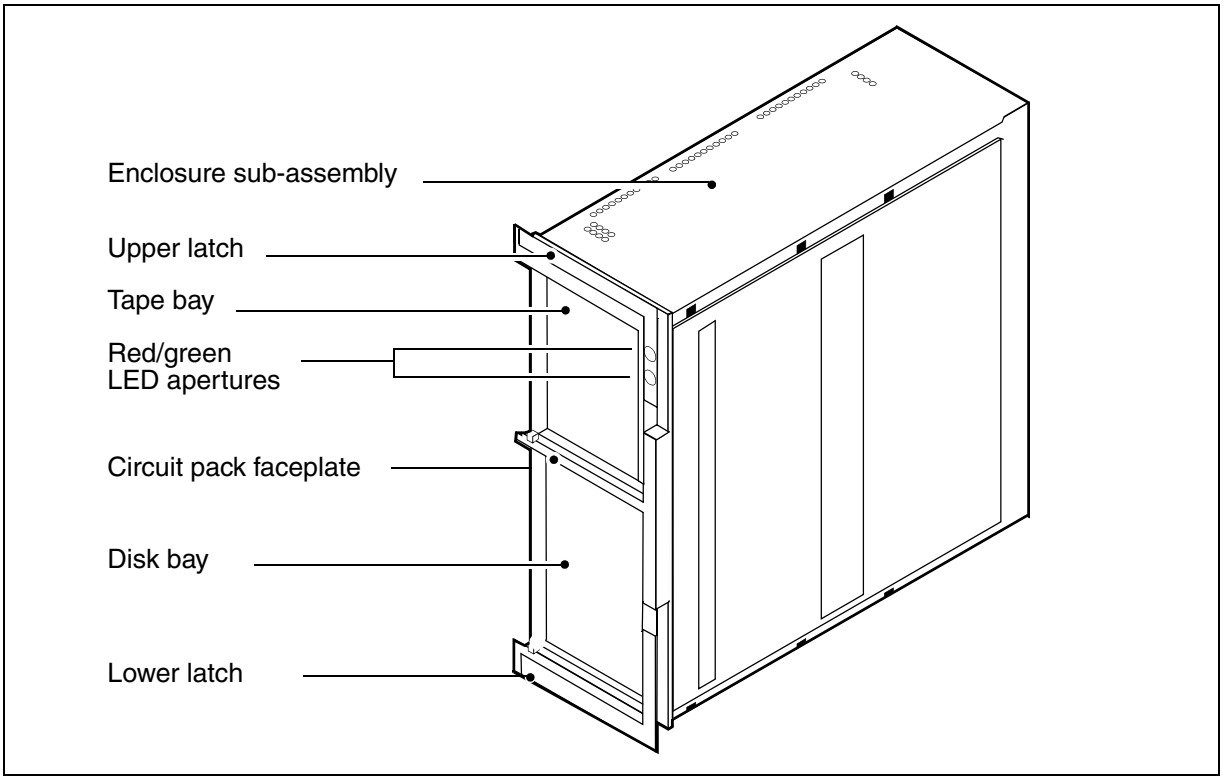
The dual-width IOP CP contains tape and disk packlets. Remove the packlets from the NTLX03 first. The following lists the valid XA-Core dual-width IOP CPs.

Table 2-7 Valid XA-Core dual-width IOPs

PEC	Suffix	Circuit pack name
NTLX03	BA, BB	Dual width Input/Output Processor (IOP) circuit pack

NTLX03 dual width IOP circuit pack (continued)

Figure 2-13 NTLXO3BA dual-width IOP CP front and side views



Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

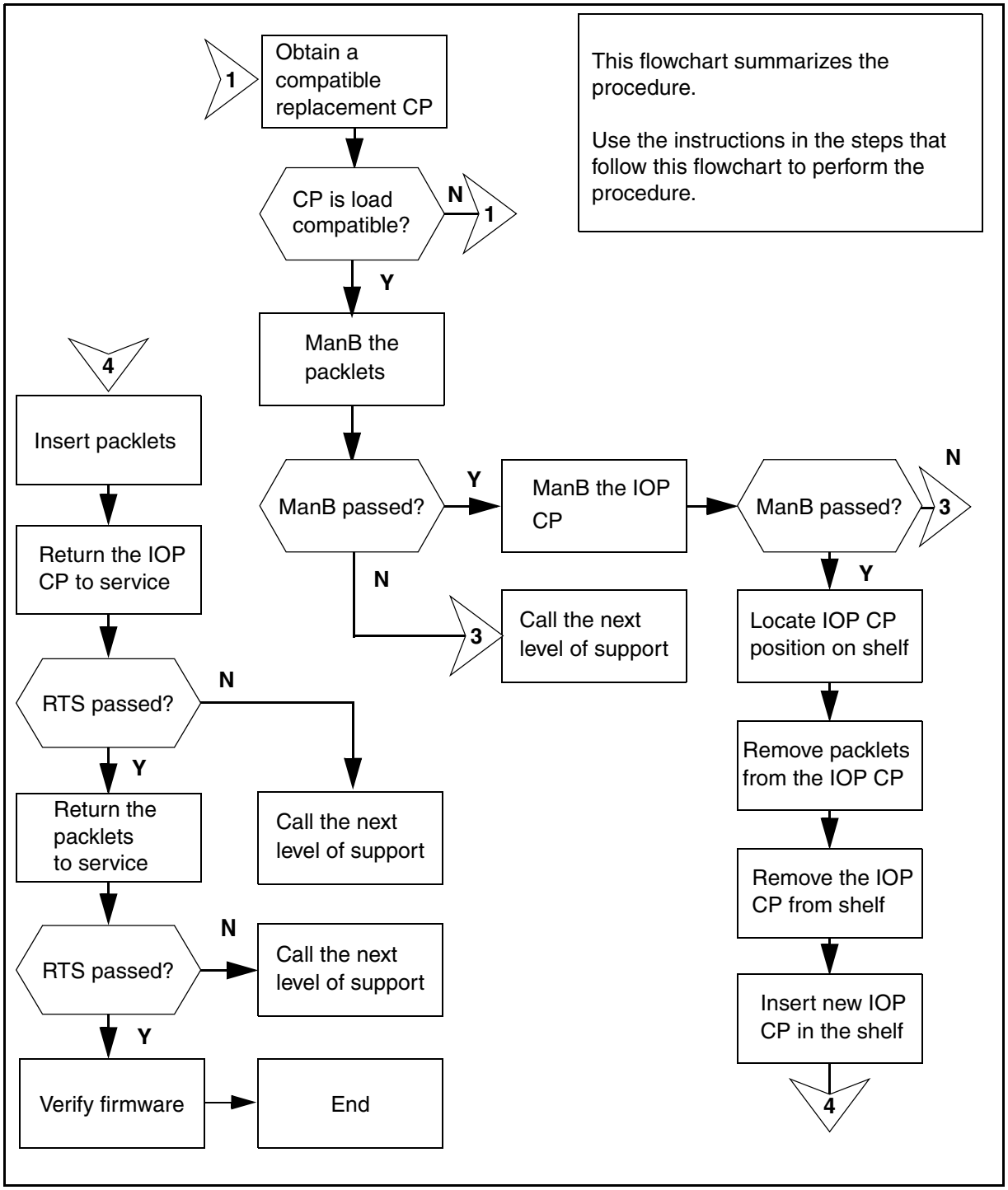
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the CP, use the instructions in the step-action procedure that follows the flowchart.

NTLX03 dual width IOP circuit pack (continued)

Figure 2-14 Summary of NTLX03 replacement procedure in an XA-Core



NTLX03 dual width IOP circuit pack (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 (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. If you are replacing a CP that does not meet baseline hardware requirements, make sure that the replacement CP meets those requirements. If you are replacing a defective CP, you can replace a BA with a BB or vice versa, if the replacement meets the baseline requirements. (The BA and BB versions can coexist in the XA-Core, unless baseline requirements impose restrictions.)

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:   111111111  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 (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 - 1 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

Example of system response:

```
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.

b Access the image table of contents (ITOCCI) MAP interface. At the CI MAP level prompt type

>ITOCCI

and press the Enter key.

NTLX03 dual width IOP circuit pack (continued)

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_XA
 0   05/01/1999 19:21:19 F02LIMAGE IMG0501CU_XA
```

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 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 level prompt, type

>AUTODUMP MANUAL

and press the Enter key.

NTLX03 dual width IOP circuit pack (continued)

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.

Tape MAP level

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


Tape            Front:   111111111  Rear: 111111   SM     PE      IO     PKLT
 0 Quit         123456789012345678  456789012345   .      .       IOPflt TAPE C.
 2              Sta: -S-.--..-.---.-..-  .----------.   0      0       1      2
 3              Dep:  F
 4              Typ:  *              *
 5              Slot:   Side:    Packlet:   Status:    User Name:      Drive:
 6 Tst_            2    Front    Upper      C          .               unmounted
 7 Bsy_           17    Front    Upper      .          User1           mounted
 8 RTS_          TAPE:
 9
10
11
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

  XMAP0
Time  14:12    >
```

NTLX03 dual width IOP circuit pack (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 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

NTLX03 dual width IOP circuit pack (continued)

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 - 1 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 - 1 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

NTLX03 dual width IOP circuit pack (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 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.

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

NTLX03 dual width IOP circuit pack (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 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 - 1 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 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:

NTLX03 dual width IOP circuit pack (continued)

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 - 1 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 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

NTLX03 dual width IOP circuit pack (continued)

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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.
```

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 - 1 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.
```

NTLX03 dual width IOP circuit pack (continued)

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:

a Locate the Disk packlet in the IOP CP.

b Open the upper and lower locking levers on the packlet.

c Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

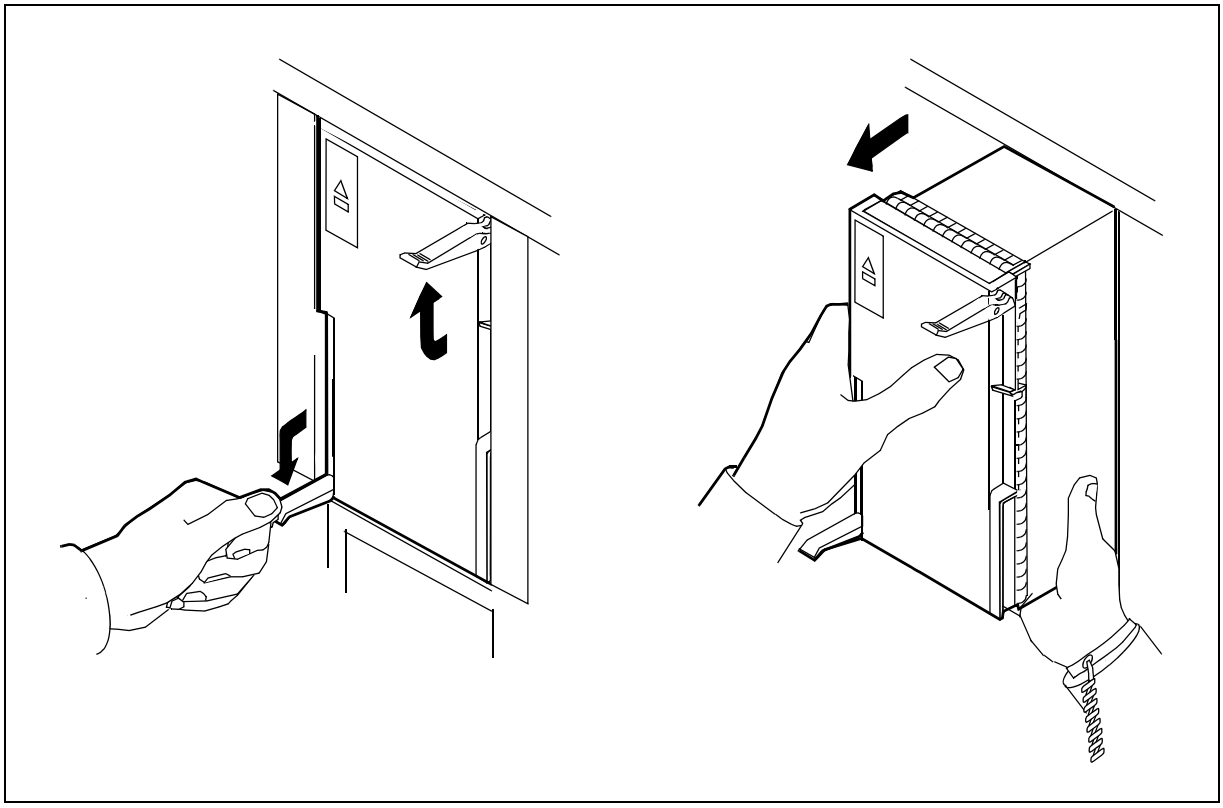
d Hold the packlet by the faceplate with one hand and support the bottom edge with the other. Remove the packlet completely from the shelf.

e Close the upper and lower locking levers on the packlet to prevent breakage.

f Place the packlet in ESD protective packaging.

NTLX03 dual width IOP circuit pack (continued)

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.

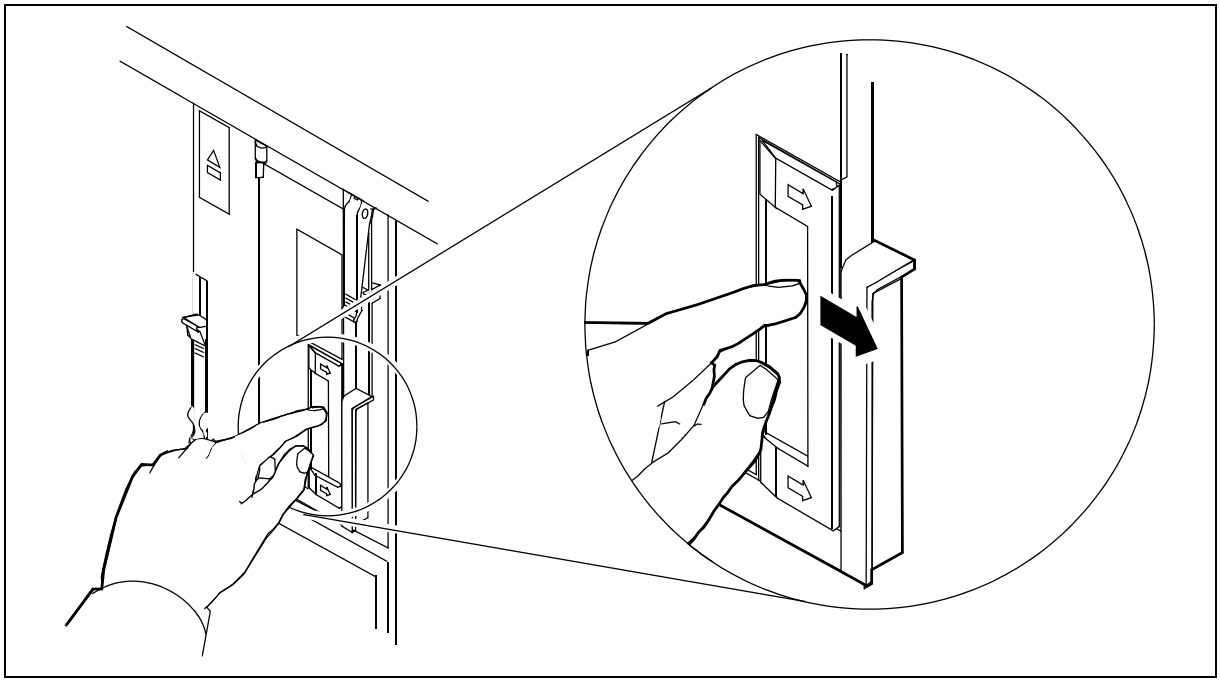
b Push the door lock in the direction of the arrow to unlock. The cassette door swings open.

c Press the tape eject button. The tape cassette partially ejects and is ready for removal.

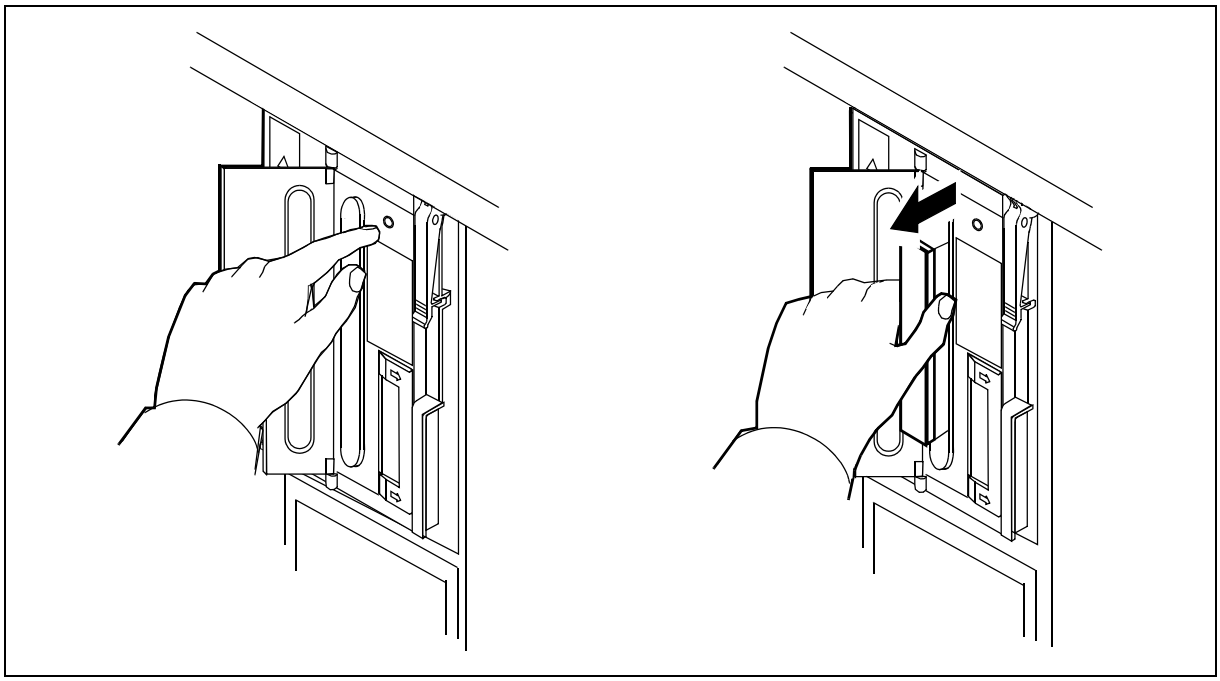
d Close the tape cassette door. Carefully push on the door until it locks in place.

NTLX03 dual width IOP circuit pack (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:

a Open the upper and lower locking levers on the packlet.

NTLX03 dual width IOP circuit pack (continued)

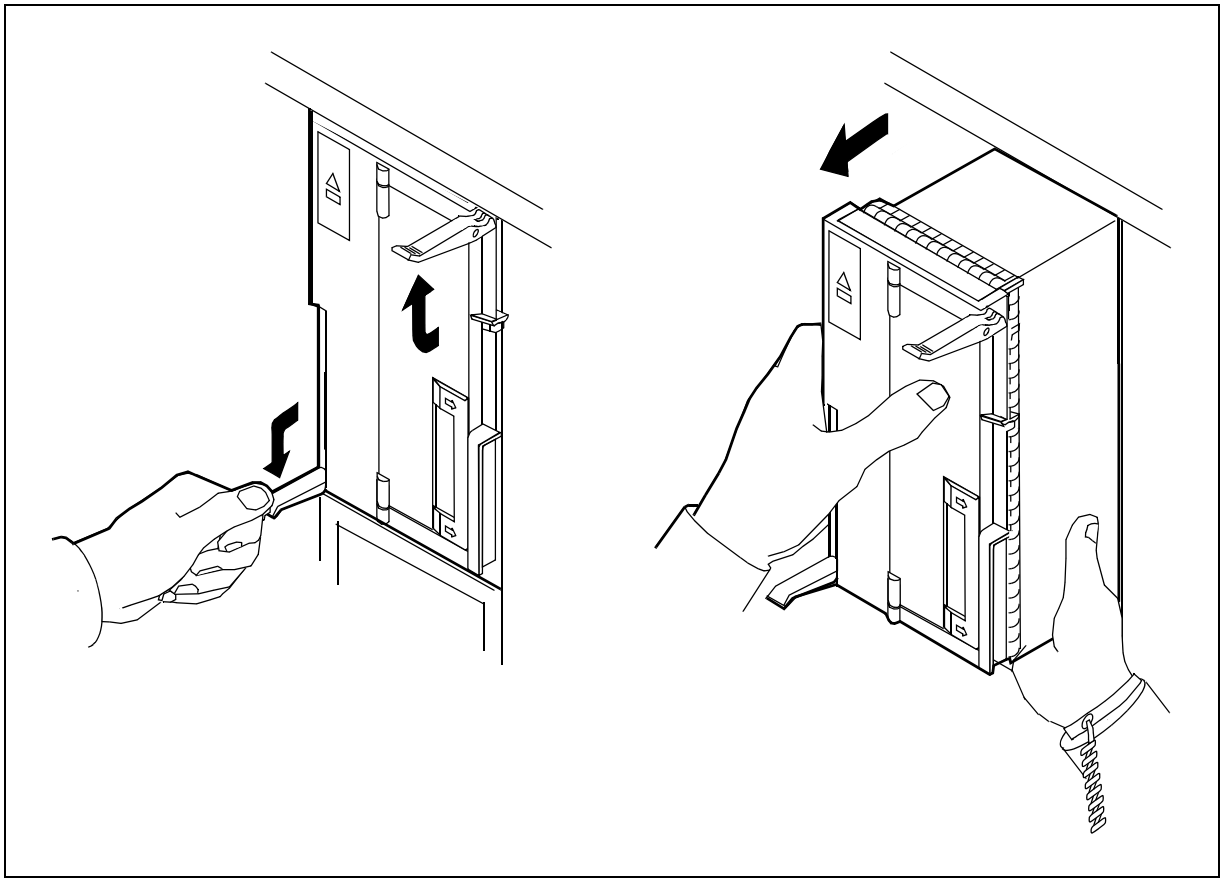
b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

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



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.

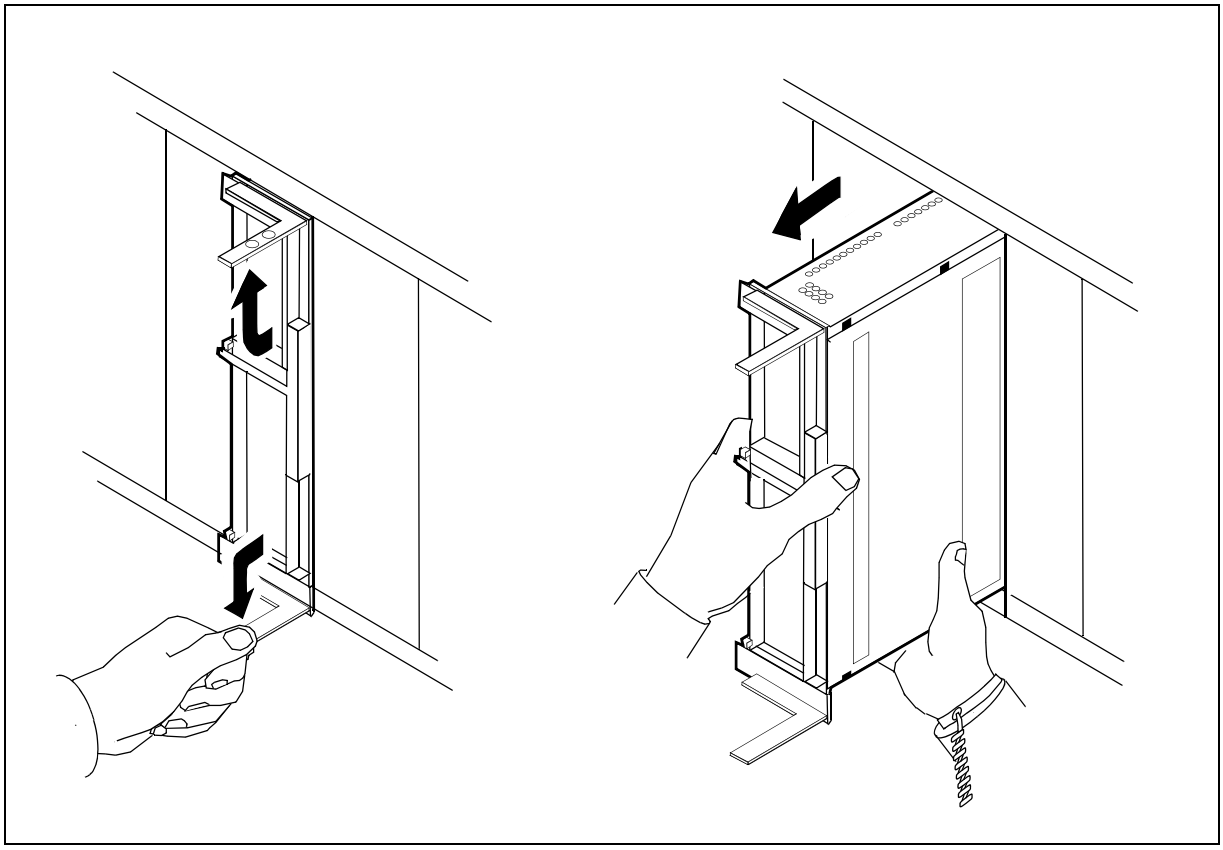
c Hold the CP by the faceplate with one hand and support the bottom edge with the other. Remove the CP completely from the shelf.

d Close the upper and lower locking levers on the CP to prevent breakage.

e Place the CP in ESD protective packaging.

NTLX03 dual width IOP circuit pack (continued)

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.

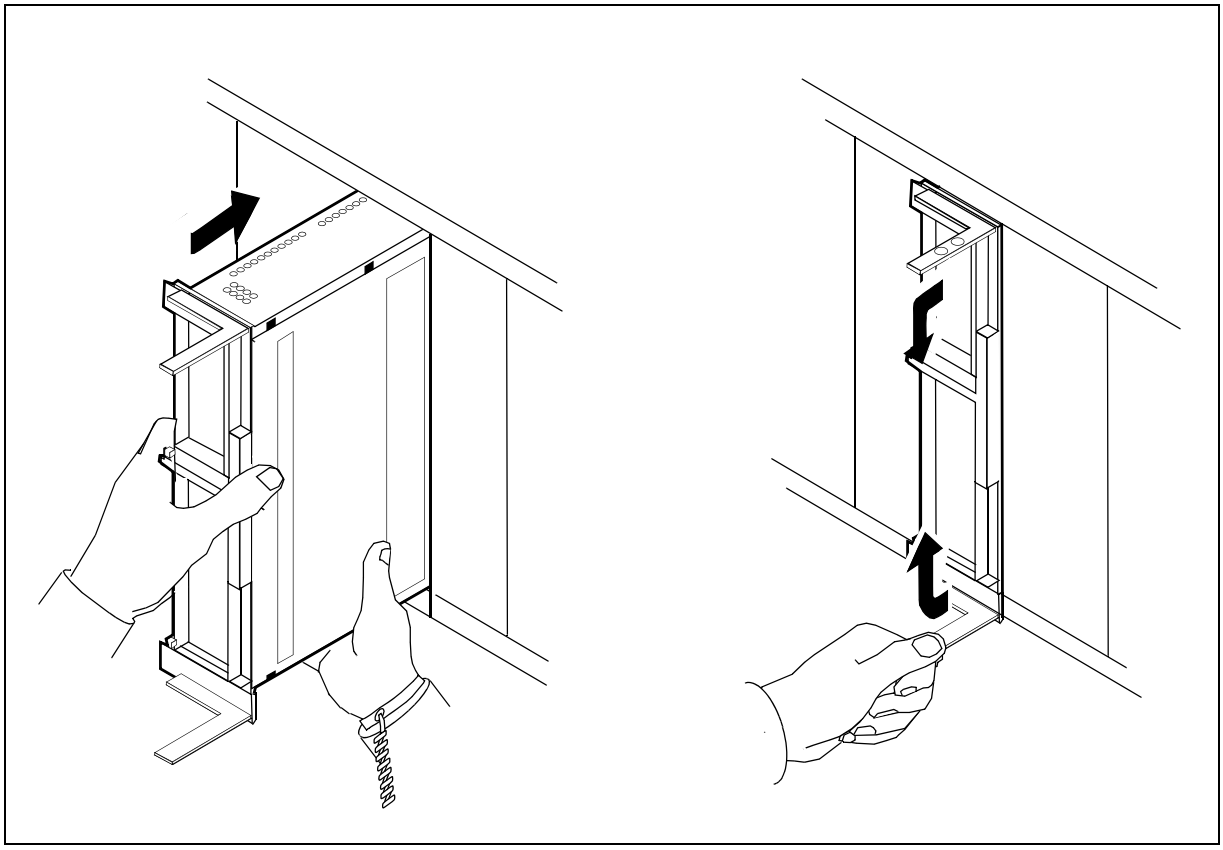
If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

25 Insert the replacement IOP CP in the physical shelf.

- **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. Do not force the locking levers to close.

NTLX03 dual width IOP circuit pack (continued)

Insert the dual width IOP CP in the XA-Core shelf

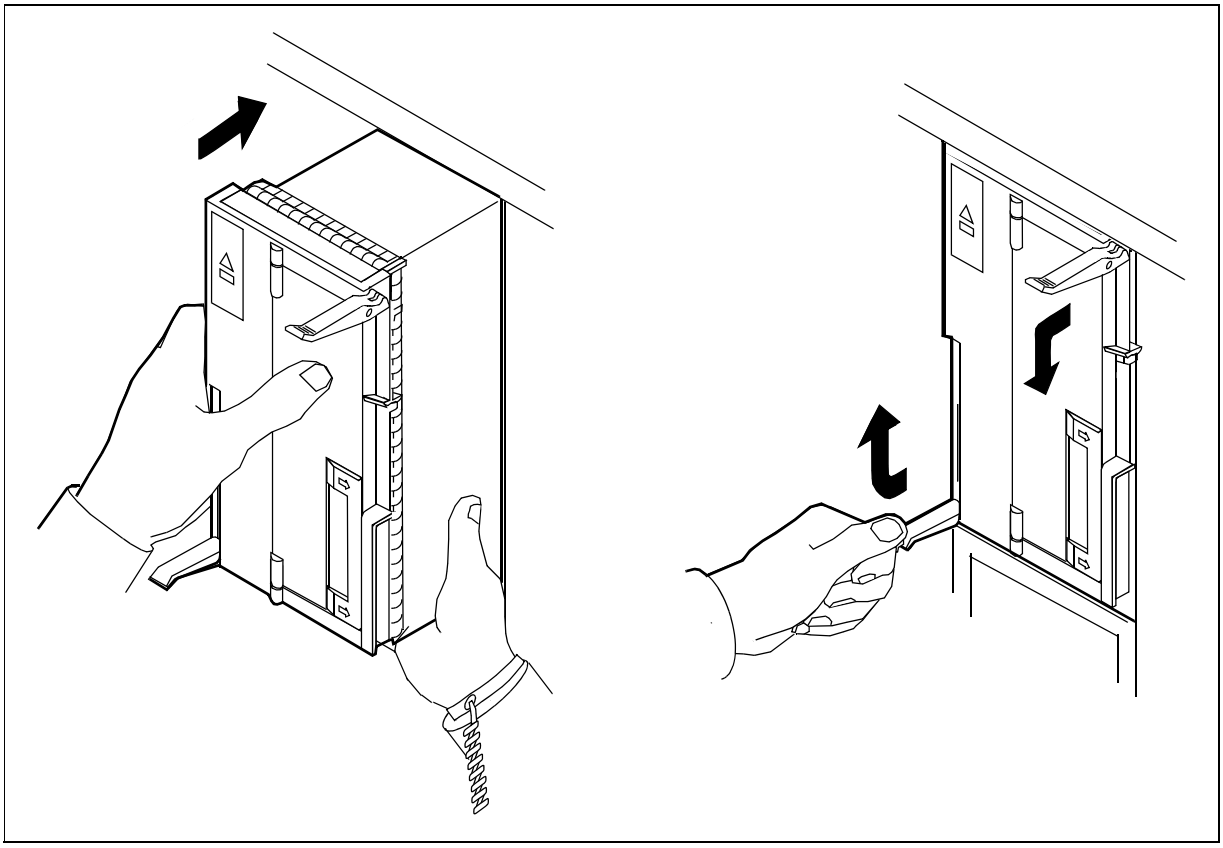


26 Insert the original Tape packlet in the upper slot of the replacement IOP CP.

- **a** Remove the original Tape packlet from the ESD protective packaging.
- **b** Open the locking levers on the Tape 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 to secure the circuit packlet. Do not force the locking levers to close.

NTLX03 dual width IOP circuit pack (continued)

Insert the Tape packlet in the IOP CP



27 Insert the original Disk packlet into the lower IOP CP slot. Perform the following steps:

a Open the locking levers on the original Disk packlet.

b Hold the packlet by the faceplate with one hand and support the bottom edge with the other.

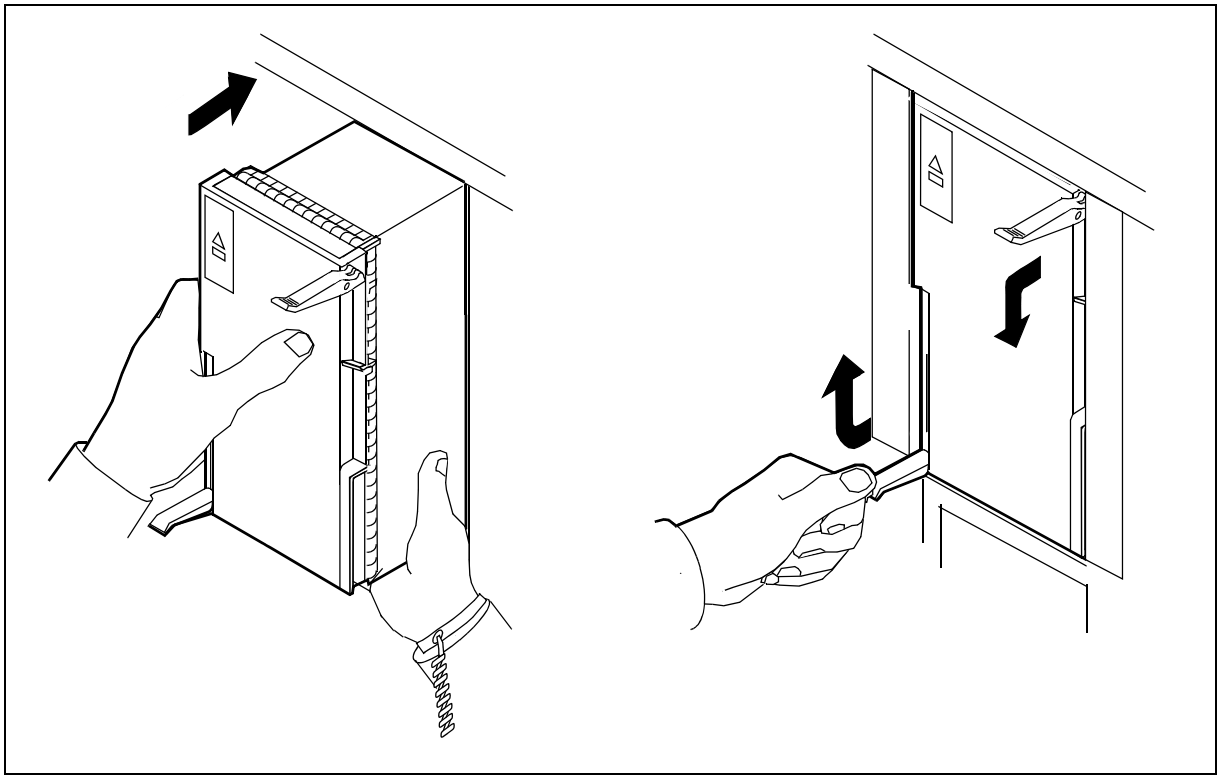
c Align the packlet with the slot in the shelf and slide the packlet into the physical slot. Do not force the packlet into the slot.

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.

NTLX03 dual width IOP circuit pack (continued)

Insert the Disk packlet in the IOP CP



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 - 1 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

NTLX03 dual width IOP circuit pack (continued)

29 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 - 1 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

Example of system response:

```
RTS 2 front upper passed
```

If the Tape packlet is	Do
in service	step 30
not in service	step 32

30 Return the Disk packlet 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 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 - 1 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:

NTLX03 dual width IOP circuit pack (continued)

>RTS 2 f l

Example of system response:

```
RTS of 2 front lower passed
```

If the Disk packlet is	Do
in service	step 31
not in service	step 32

31 Confirm that the IOP CP and all packlets 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

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 - 1 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:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline
OK
--- ---- ---- -- --- -- -- ------------ -------- --------
--
                                                  <vers>   <blv>
  <ok>
```

where

NTLX03 dual width IOP circuit pack (continued)

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware version	Do
is the proper version	step 36
is not the proper version	step 35

35 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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.

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NTLX04 high performance input/output circuit pack a SuperNode and SuperNode SE XA-Core

NTLX04 high performance input/output circuit pack

Application

This section contains the procedure for replacing an NTLX04 high performance input/output (HIOP) circuit pack (CP).

Use this procedure

- to replace a defective circuit pack
- to replace a circuit pack that does not meet the baseline requirements

If you are replacing a circuit pack that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

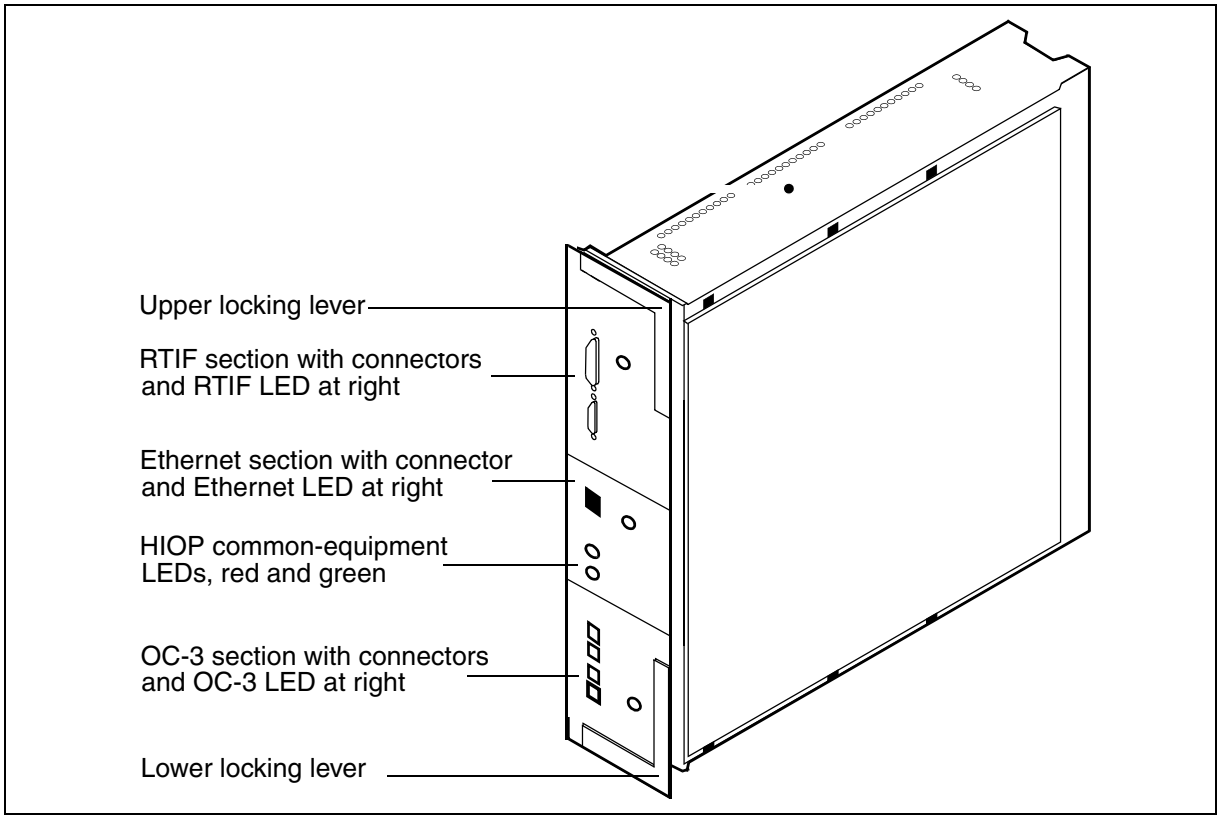
The following table lists the versions of the HIOP circuit pack.

Table 2-8 Valid HIOP circuit packs

PEC	Description
NTLX04AA	Supports Ethernet links only
NTLX04BA	Supports Ethernet links and ATM multi-node data interface (AMDI) links
NTLX04CA	Supports Ethernet links and ATM multi-node data interface (AMDI) links

NTLX04 high performance input/output circuit pack (continued)

Figure 2-15 NTLX04 high performance input/output circuit pack front and side views



Replacement rules

The NTLX04AA and NTLX04BA versions can co-exist in the same XA-Core shelf (unless the baseline requirements impose restrictions). However, the NTLX04CA cannot co-exist with the other versions. The following table explains which replacement scenarios are permitted.

Table 2-9 Permitted replacement scenarios

Replacement scenario	Comments
Remove an AA, replace with an AA.	Permitted.
Remove an AA, replace with a BA.	Permitted.
Remove an AA, replace with a CA.	If you do this, you must replace all HIOP CPs in the XA-Core with NTLX04CA versions. For details see “Rules for installing CA versions as replacements for AA or BA versions”.

NTLX04 high performance input/output circuit pack (continued)

Table 2-9 Permitted replacement scenarios

Replacement scenario	Comments
Remove a BA, replace with an AA.	Permitted. Note that replacing an NTLX04BA with an NTLX04AA makes sense only if the only links to be supported are Ethernet links.
Remove a BA, replace with a BA.	Permitted.
Remove a BA, replace with a CA.	If you do this, you must replace all HIOP CPs in the XA-Core with NTLX04CA versions. For details see “Rules for installing CA versions as replacements for AA or BA versions”.
Remove a CA, replace with an AA.	Not permitted.
Remove a CA, replace with a BA.	Not permitted.
Remove a CA, replace with a CA.	Permitted.

Rules for installing CA versions as replacements for AA or BA versions

If you intend to install NTLX04CA HIOP CPs as replacements for NTLX04AA HIOP CPs or as replacements for NTLX04BA HIOP CPs, the following rules apply.

- You must replace all the HIOP CPs in the XA-Core, so that the shelf contains only NTLX04CA versions.
- You must complete the replacement of all the HIOP CPs during a single maintenance window.

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

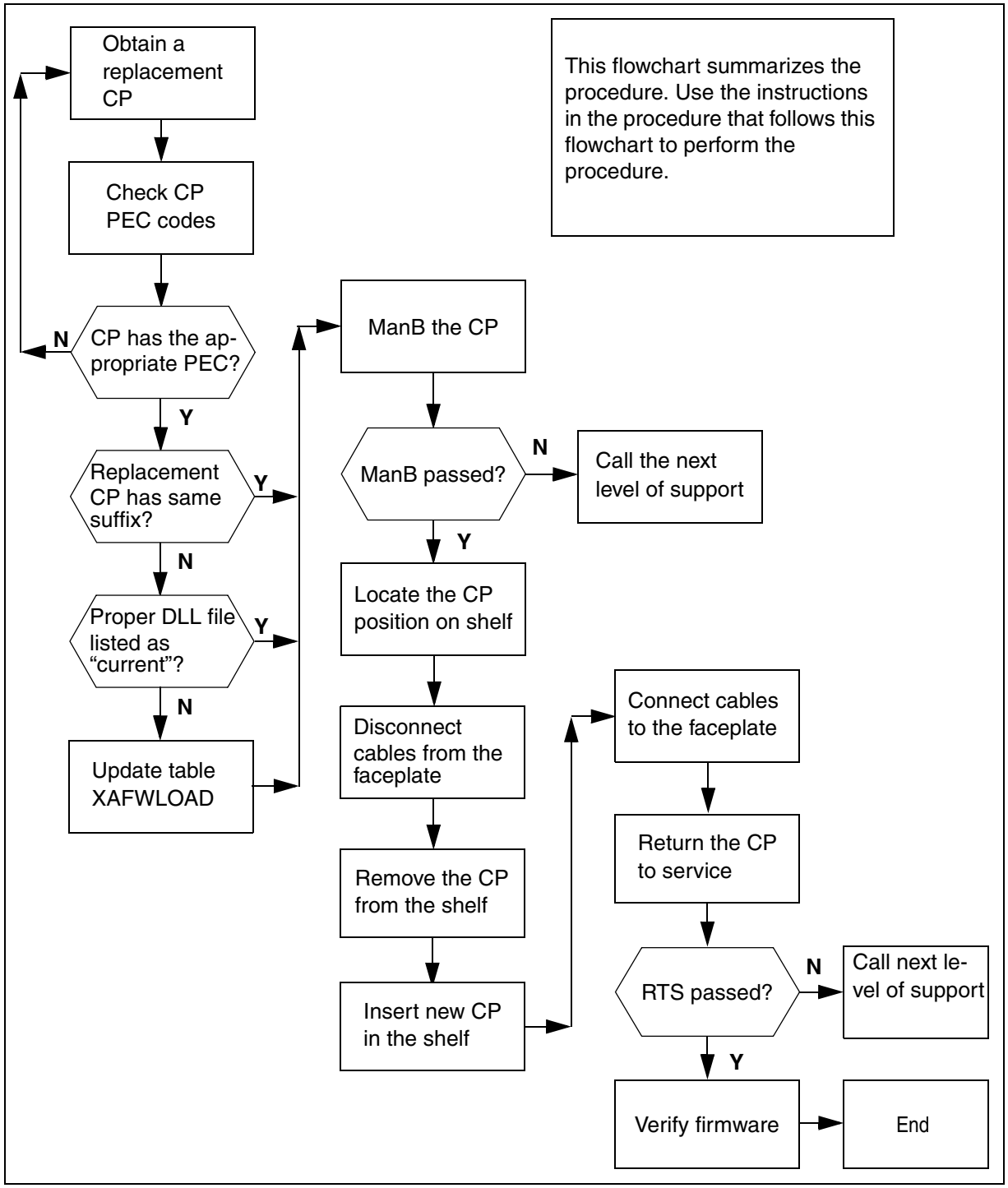
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP’s working status. Refer to Introduction to card replacement 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 (continued)

Figure 2-16 Summary of NTLX04 replacement procedure in an XA-Core



NTLX04 high performance input/output circuit pack (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. If you are replacing a CP that does not meet baseline hardware requirements, make sure that the replacement CP meets those requirements. If you are replacing a defective CP, make sure that the

NTLX04 high performance input/output circuit pack (continued)

replacement CP has an appropriate product engineering code (PEC) and PEC suffix, as explained in the following sentences. If the replacement has a PEC and suffix that are identical to the PEC and suffix of the CP that is to be replaced, you can proceed. If the replacement has a PEC that is the same, but a suffix that is different from that of the CP that is to be replaced, see "Replacement rules" in this module for information on whether the replacement scenario is permitted. If you intend to use an NTLX04CA to replace an earlier version (NTLX04AA or NTLX04BA), see "Rules for installing CA versions as replacements for AA or BA versions", earlier in this module.

At the MAP terminal

2 Select the next step as follows:

If the replacement HIOP CP	Do
has the same suffix as the HIOP CP that is to be removed	step 5
has a different suffix	step 3

3 Access table XAFWLOAD and verify that "current" DLL firmware load for the HIOP that you are going to install is the proper DLL load for that circuit pack, as stated in the Peripheral Module Software Release Document.

Proceed as follows.

a Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

b List all the tuples. Type

>LIST ALL

and press the Enter key.

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 XAIO01AA F02LFWLOADS ISEFW41  FW     old      0
5  IOP  NTLX03AA XAIO01AC F02LFWLOADS ISEFW44  FW     current  0
6  CMIC NTLX05AA PK10CU10 F02LFWLOADS 0C3FW75  FW     current  72
7  HIOP NTLX04AA XHIO01YC F02LPMLOADS XHIO01YC FW     current  48
8  HIOP NTLX04AA XHIO01YD F02LPMLOADS XHIO01YD DLL    current  0
.
.
.
```

c Find the tuple listing the current DLL firmware load for the HIOP CP that you intend to install.

NTLX04 high performance input/output circuit pack (continued)

d In the Peripheral Module Software Release Document for the software release that the system is running, look up the DLL firmware load that is listed for the HIOP CP that you intend to install.

e Select the next step as follows:

If the DLL loads from the two preceding substeps	Do
are the same	step 5
are different	step 4

4 Update table XAFWLOAD so that the it lists the proper DLL firmware load as the current DLL firmware load for the HIOP CP that you intend to install. If the load is not listed in the table, you will need to add a new tuple. Alternatively, if the load is listed but its status is not listed as “current”, you will need to change the status field for the load to “current”. (For examples of instructions to perform such updates, see the procedure titled “Upgrading firmware on the occasion of a software release”. The procedure is in this document, in the chapter “Introduction to routine maintenance procedures”.) If you are uncertain about what you should do, call the next level of support.

5 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:   111111111  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      .               RTIF .                  CMIC .
14 Alarm_      XAC:
15             IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

6 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

NTLX04 high performance input/output circuit pack (continued)

"Middle" field in the MAP display.) Record the HIOP CP location on the physical shelf, side and slot.

7 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> FORCE

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

<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 8
not in a ManB state	step 16

8 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 - 1 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.
```

At the XA-Core physical shelf

9 Locate the HIOP CP on the XA-Core physical shelf. Use the CP location information recorded from the IO MAP in step 6. Label the cable connections on the HIOP CP according to office standards.

10 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.

NTLX04 high performance input/output circuit pack (continued)

b Cover the ends of the cable with dust caps.

c Place the cable in a safe location away from the CP.

11

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.

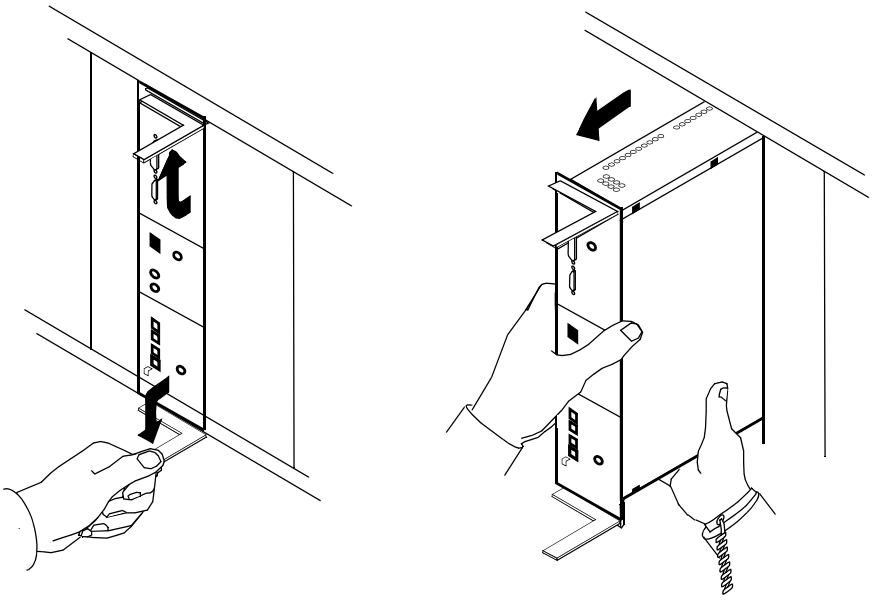
a Open the locking levers on the CP.

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.

Remove the NTLX04 HIOP CP from the XA-Core shelf



NTLX04 high performance input/output circuit pack (continued)

12 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.

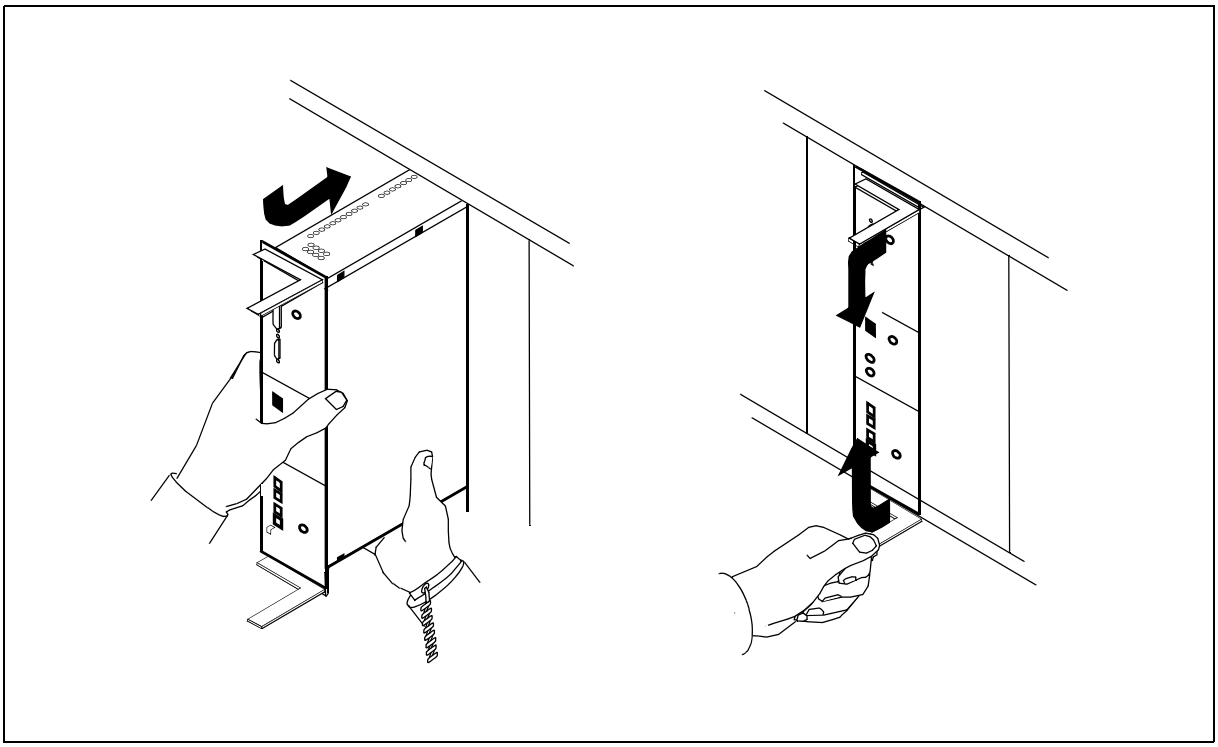
If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

13 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.

Insert the NTLX04 HIOP CP in the XA-Core shelf



14 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.

At the MAP terminal

15 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 - 1 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 16
returned to service	step 17

16 Call the next level of support.

17 Check that the newly installed circuit pack contains the proper firmware loads. 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 - 1 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 5 r

The system displays several items of information, including the firmware versions.

Example of system response:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline
```

NTLX04 high performance input/output circuit pack (end)

```
OK
--- ---- ---- -- --- -- -- ------------ -------- --------
--
                                                  <fwvers> <fblv>
  <ok>
                                                  <dlvers> <dblv>
  <ok>
```

where

<fwvers> identifies the FW firmware load that is in the circuit pack

<fblv> identifies the baseline FW firmware version

<dlvers> identifies the DLL firmware load that is in the circuit pack

<dblv> identifies the baseline DLL firmware load

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware versions	Do
are the proper versions	step 19
are not the proper versions	step 18

18 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “Introduction to routine maintenance procedures”. Return to this point when complete.

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

NTLX05 OC-3 CMIC two port interface packlet in a SuperNode and SuperNode SE XA-Core

NTLX05 OC-3 CMIC two port interface packlet

Application

This section contains the procedure for replacing an NTLX05AB OC-3 CMIC two port interface packlet. The packlet installs in a single-width IOP circuit pack (CP).

Use this procedure

- to replace a defective packlet
- to replace a packlet that does not meet the baseline requirements

If you are replacing a defective packlet, the replacement that you install should have the same product engineering code and version as the packlet that you remove.

If you are replacing a packlet that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

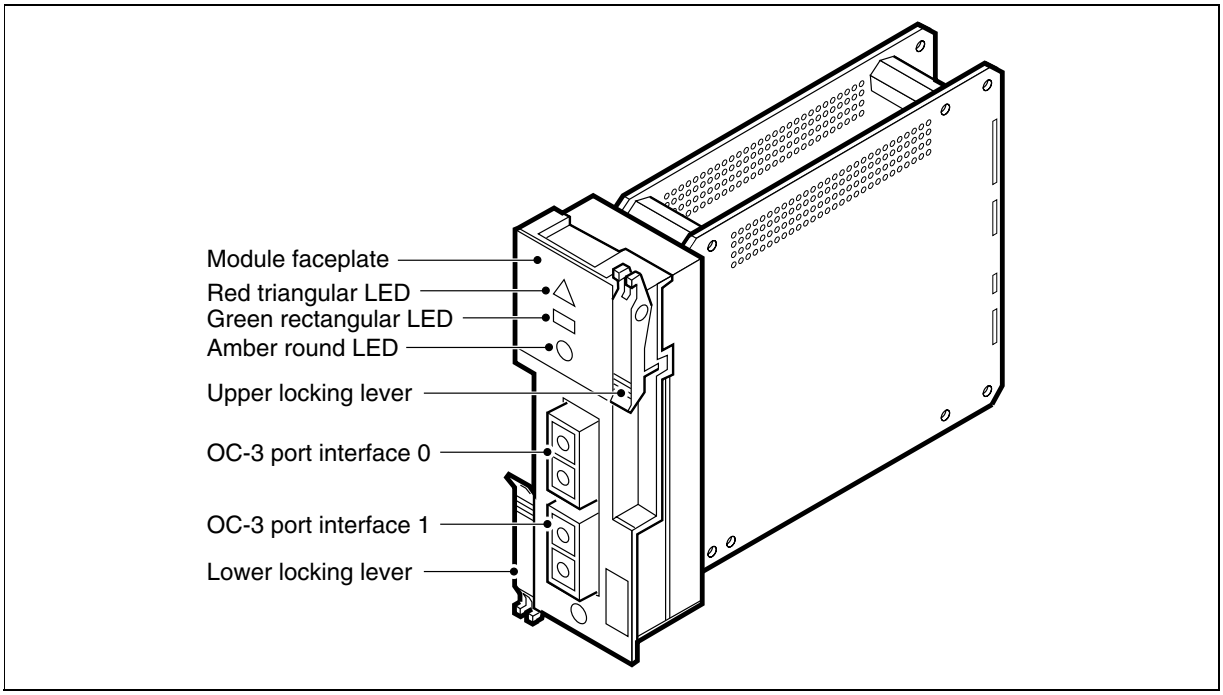
The following lists the valid OC-3 two port interface packlets.

Table 2-10 Valid OC-3 two port interface packlets

PEC	Suffix	Card name
NTLX05	AB	OC-3 two port interface packlet

NTLX05 OC-3 CMIC two port interface packlet (continued)

Figure 2-17 NTLX05 OC-3 two port interface packlet front and side views



Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

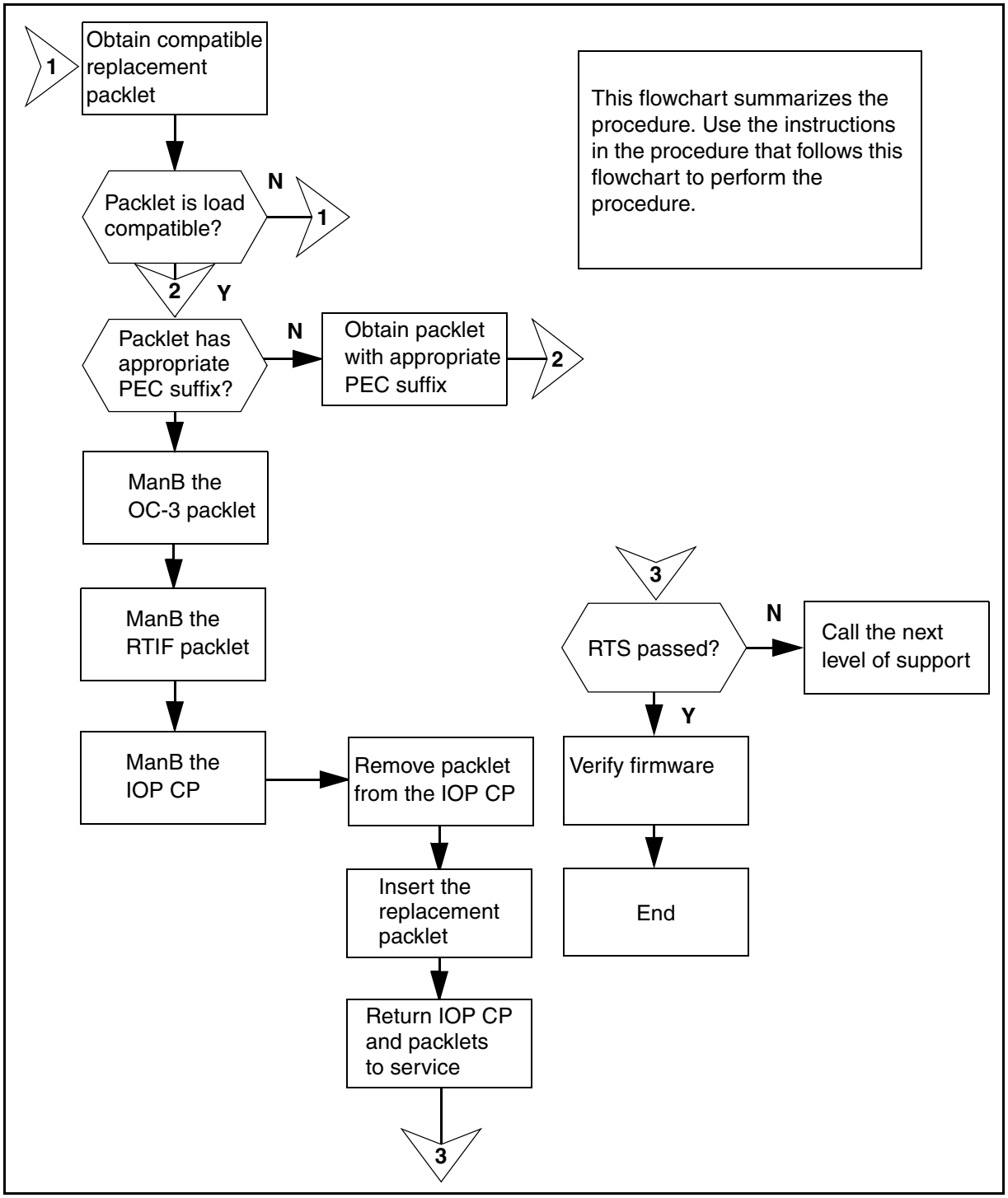
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's status. Refer to Introduction to card replacement procedures 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 CMIC two port interface packlet (continued)

Figure 2-18 Summary of NTLX05 replacement procedure in an XA-Core



NTLX05 OC-3 CMIC two port interface packlet (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. If you are replacing a packlet that does not meet baseline hardware requirements, make sure that the replacement packlet meets those requirements. If you are replacing a defective packlet, make sure that the replacement packlet has 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 CMIC two port interface packlet (continued)

CMIC MAP level

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

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: Port0 Port1 Link0: Link1: TOD0 TOD1
 7 Bsy_      4    Rear  Lower    S                    C      C      C
 8 RTS_     15    Rear  Lower    .                    .      .      .
 9
10
11
12 Uneq_
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 - 1 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:

NTLX05 OC-3 CMIC two port interface packlet (continued)

>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 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 - 1 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
```

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 CMIC MAP level, type

>INDICAT card <nn> <s> <p>

NTLX05 OC-3 CMIC two port interface packlet (continued)

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

<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 - 1 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

Example of system response:

```
Bsy 4 rear upper complete
```

NTLX05 OC-3 CMIC two port interface packlet (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 8
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 - 1 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.
```

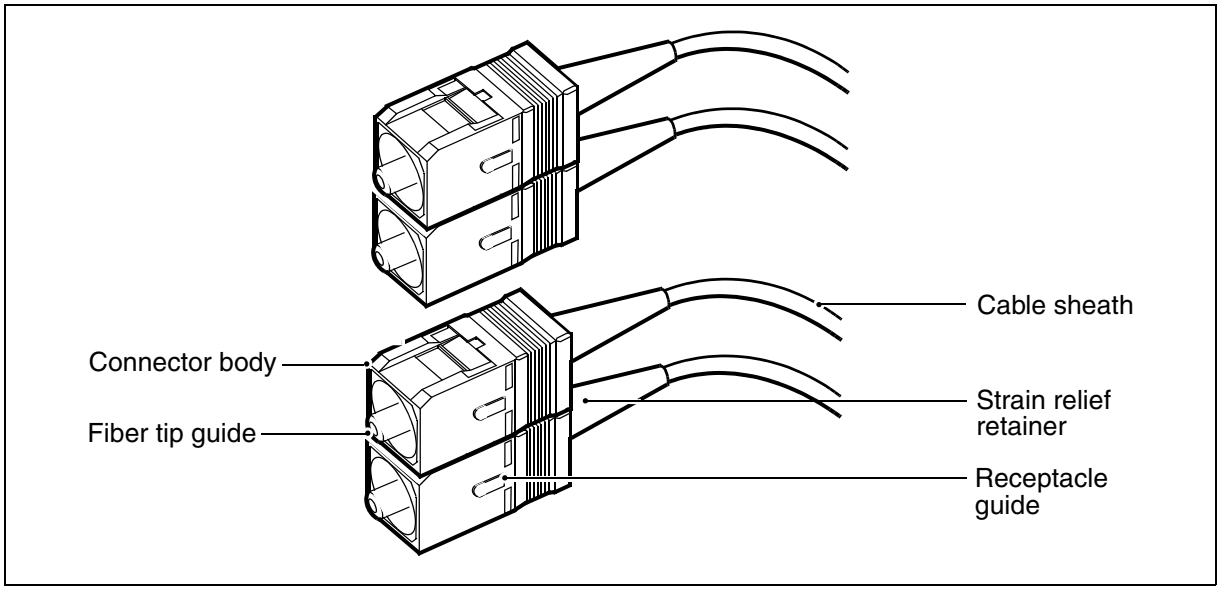
If the IOP CP is	Do
in a ManB state	step 9
not in a ManB state	step 17

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 CMIC two port interface packlet (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.

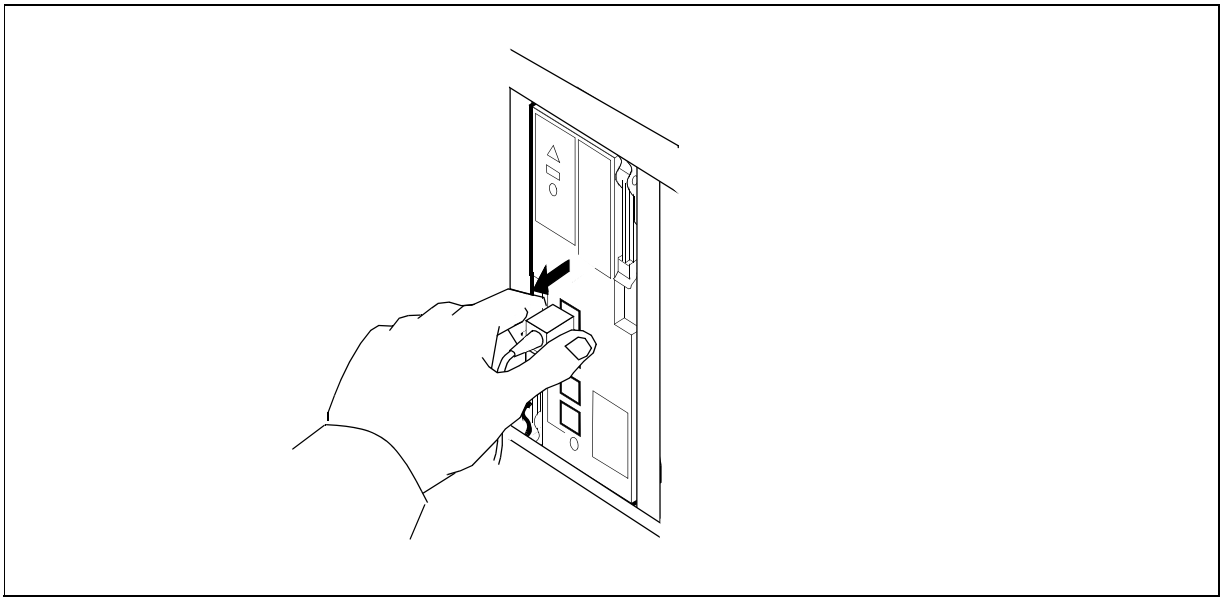
a Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.

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 CMIC two port interface packlet (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.

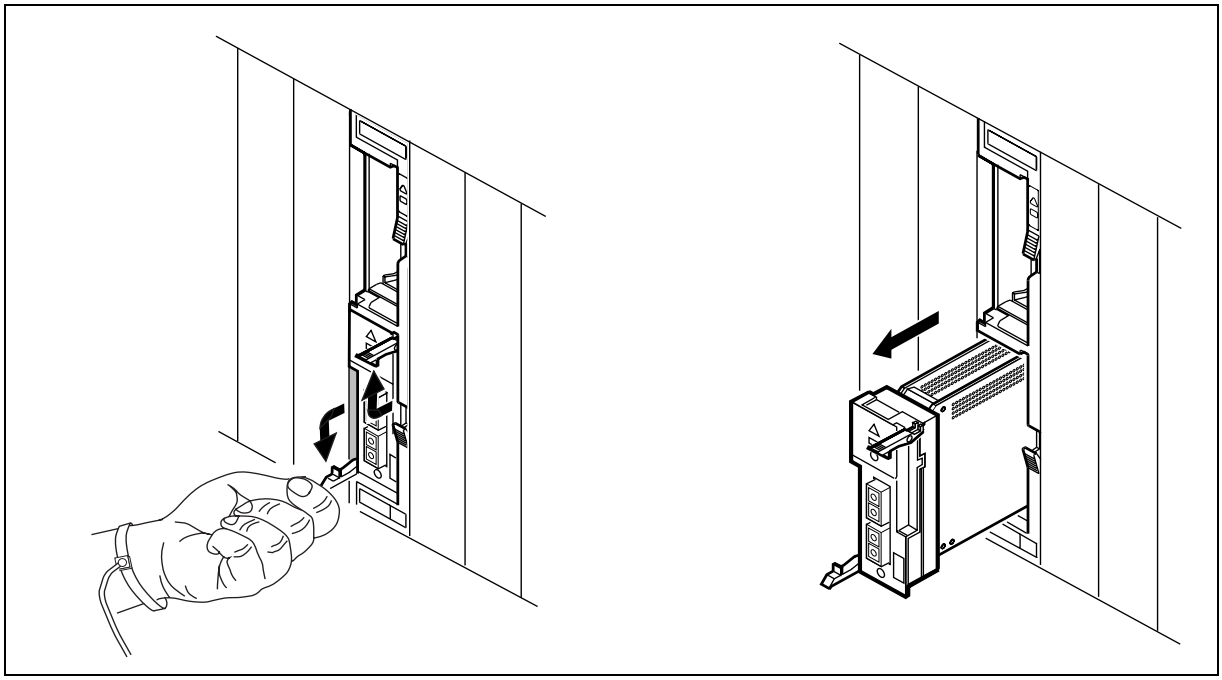
b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

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 CMIC two port interface packlet (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.

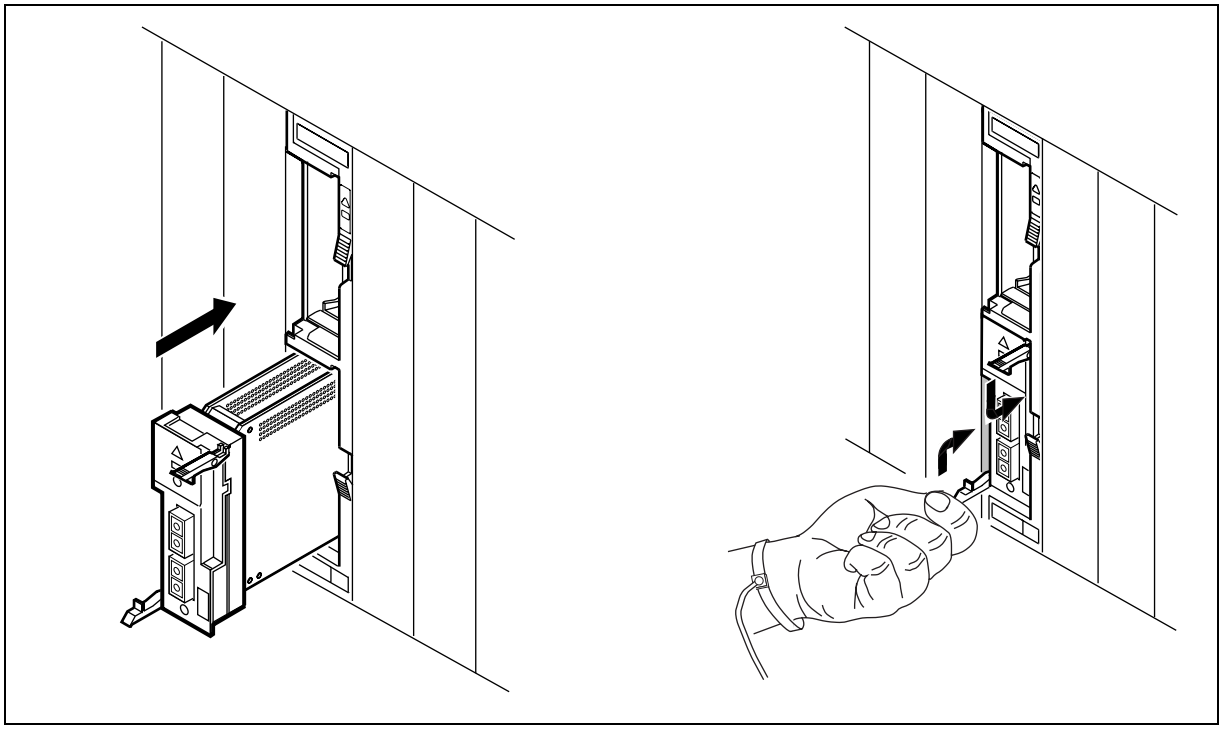
d Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.

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 CMIC two port interface packlet (continued)

Insert the OC-3 two port interface packlet into the IOP CP



13 Connect the replacement or original fiber optic cables to the correct OC-3 two port interface ports.

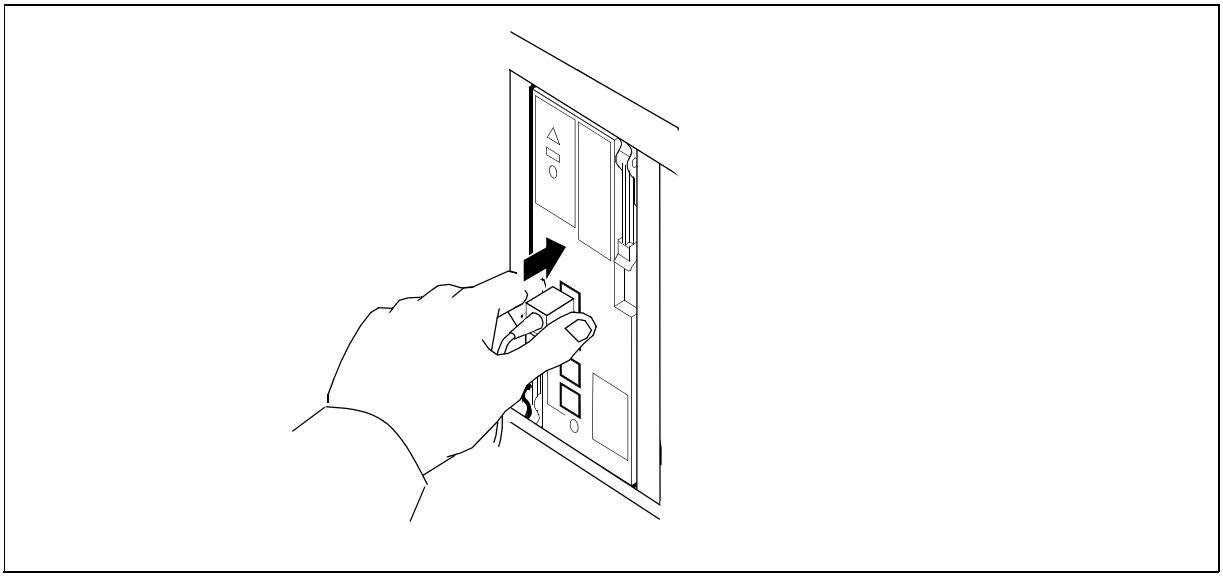
a Remove the dust caps from the fiber optic cable tips. Clean the tips of the fiber optic cables. Use the recommended cleaning methods.

b Hold the fiber optic cable connector by the body only.

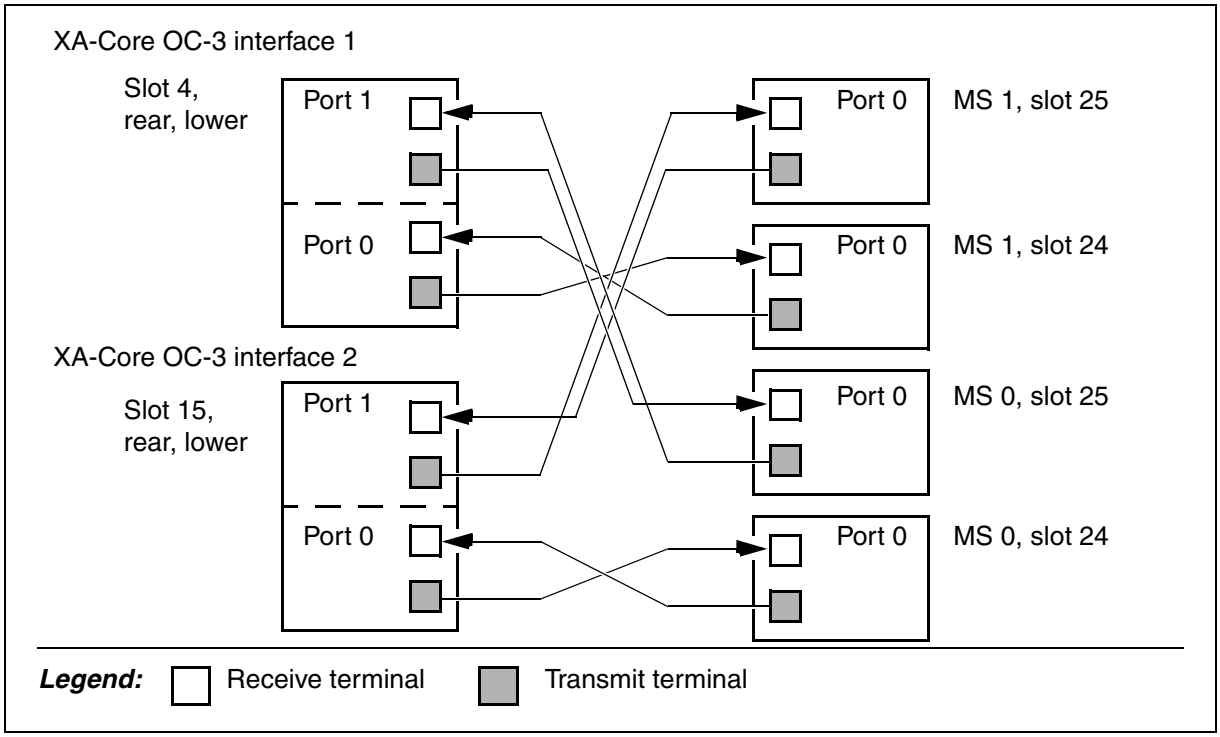
c Carefully insert the fiber optic cable connectors into the correct receptacles. See the diagrams in this step.

NTLX05 OC-3 CMIC two port interface packlet (continued)

Connect the OC-3 two port interface fiber optic cables

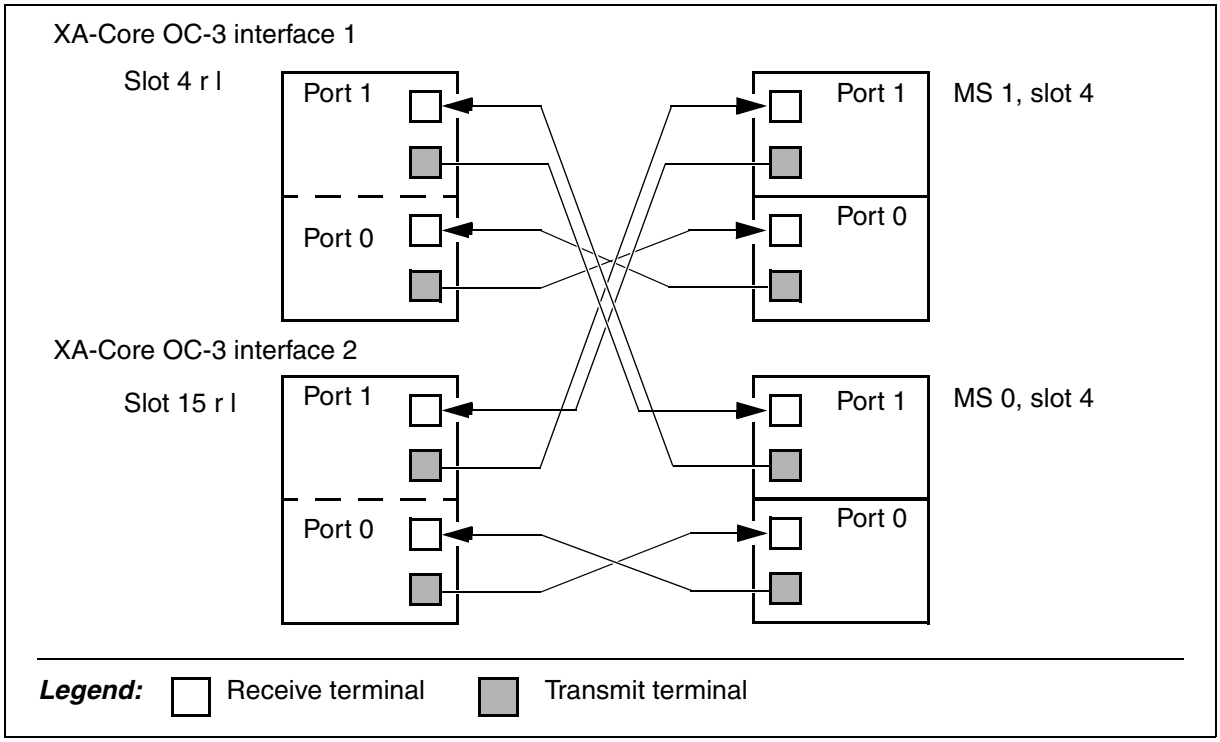


XA-Core and MS fiber optic cable connections (SuperNode)



NTLX05 OC-3 CMIC two port interface packlet (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 - 1 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 15
not in service	step 17

NTLX05 OC-3 CMIC two port interface packlet (continued)

15 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 - 1 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
in service	step 16
not in service	step 17

16 Return the RTIF packlet 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 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 - 1 to 18

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

NTLX05 OC-3 CMIC two port interface packlet (continued)

<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:

```
RTS 4 rear upper completed
```

If the RTIF packlet 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 packlet 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 - 1 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 packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Example of command:

>QUERY CARD 4 r u

The system displays several items of information, including the firmware version.

Example of system response:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline
OK
--- ---- ---- -- --- -- -- ------------ -------- --------
--
                                                 <vers>   <blv>
  <ok>
```

where

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

NTLX05 OC-3 CMIC two port interface packlet (end)

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware version	Do
is the proper version	step 20
is not the proper version	step 19

19 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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.

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NTLX05 OC-3 AMDI two port interface packlet in a SuperNode and SuperNode SE XA-Core

NTLX05 OC-3 AMDI two port interface packlet

Application

This section contains the procedure for replacing an NTLX05BA OC-3 AMDI two port interface packlet. The packlet installs in a single-width IOP circuit pack (CP).

Use this procedure

- to replace a defective packlet
- to replace a packlet that does not meet the baseline requirements

If you are replacing a defective packlet, the replacement that you install should have the same product engineering code and version as the packlet that you remove.

If you are replacing a packlet that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

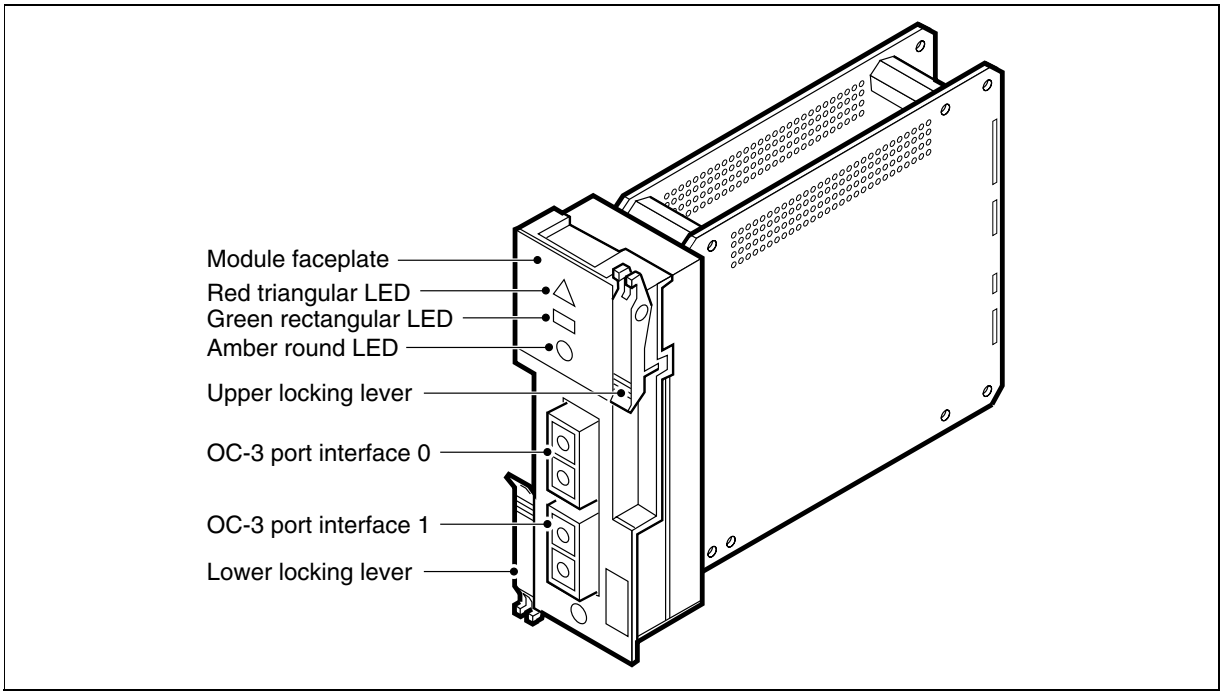
The following lists the valid OC-3 AMDI two port interface packlets.

Table 2-11 Valid OC-3 AMDI two port interface packlets

PEC	Suffix	Card name
NTLX05	BA	OC-3 AMDI two port interface packlet

NTLX05 OC-3 AMDI two port interface packlet (continued)

Figure 2-19 NTLX05 OC-3 two port interface packlet front and side views



Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

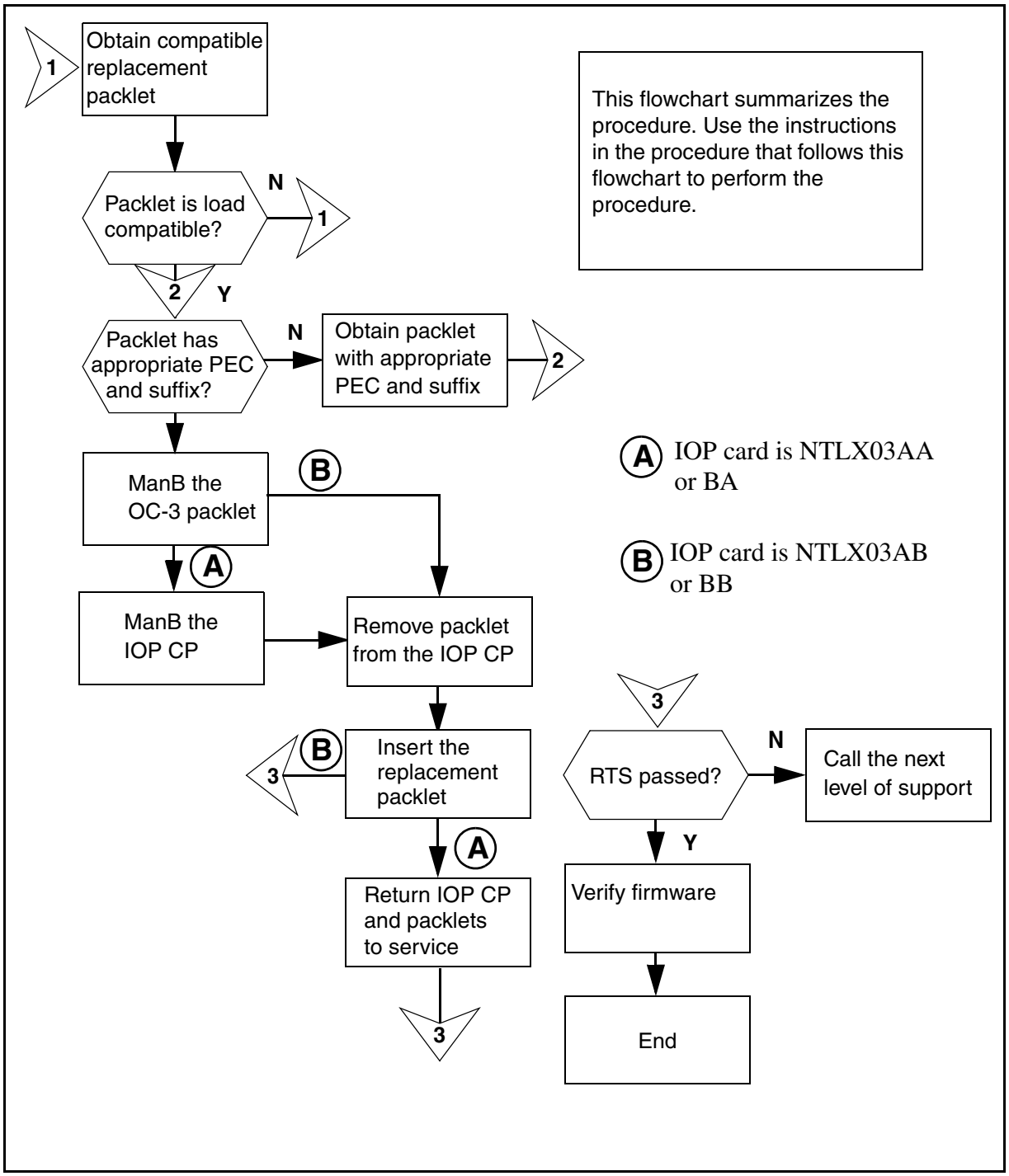
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's status. Refer to Introduction to card replacement procedures 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 packlet (continued)

Figure 2-20 Summary of NTLX05 replacement procedure in a SuperNode and SuperNode SE XA-Core



NTLX05 OC-3 AMDI two port interface packlet (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. If you are replacing a defective packlet, make sure that the replacement packlet has the same product engineering code (PEC) and PEC suffix. If you are replacing a packlet that does not meet baseline hardware requirements, make sure that the replacement packlet meets those requirements.

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
NTLX05 OC-3 AMDI two port interface packlet (continued)

AMDI MAP level

```
 XAC       MS      IOD     Net     PM      CCS      Lns    Trks    Ext   APPL
 AMDI      .       .       .       .       .        .      .       .     .
 *M*
AMDI            Front:   111111111  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:  Status:  Port0: Port1:  Link0: 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   >
```

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 (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 - 1 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 - 1 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
NTLX05 OC-3 AMDI two port interface packlet (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 - 1 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 (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 - 1 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.
```

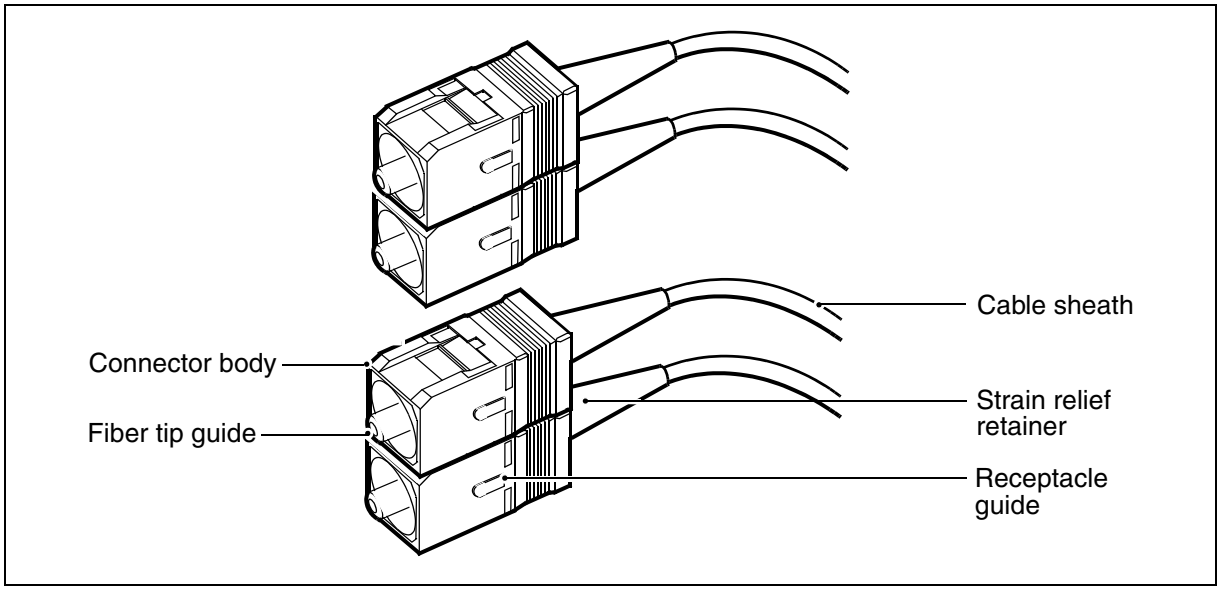
If the IOP CP is	Do
in a ManB state	step 9
not in a ManB state	step 17

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
NTLX05 OC-3 AMDI two port interface packlet (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.

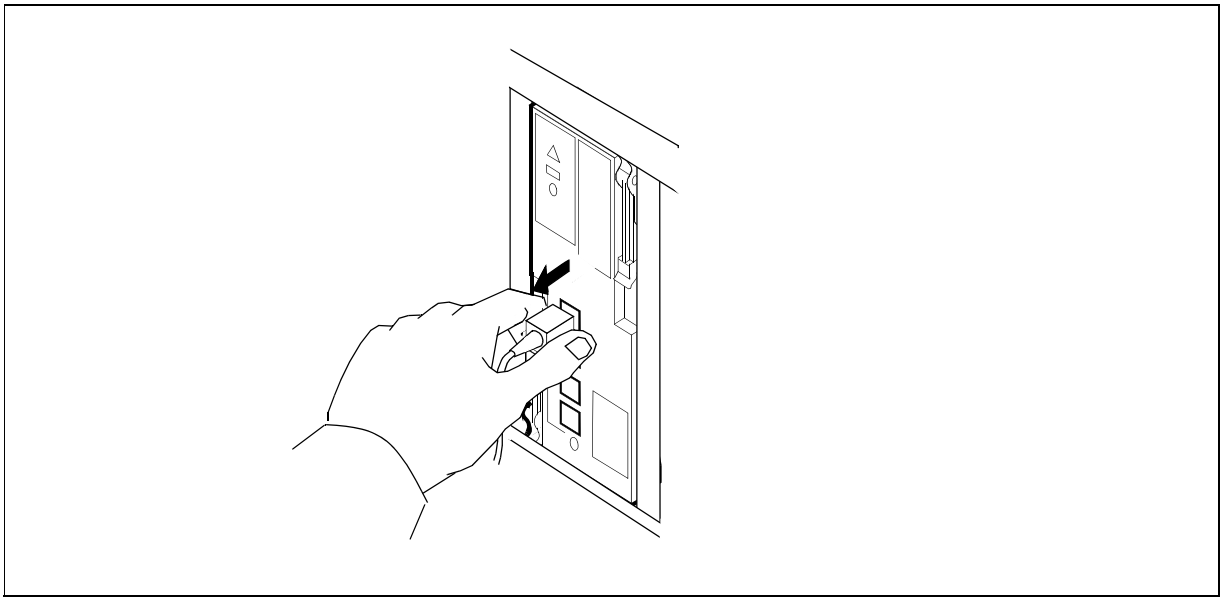
a Carefully pull the fiber optic connector away from the receptacle. Hold the connector by the body only.

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 (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.

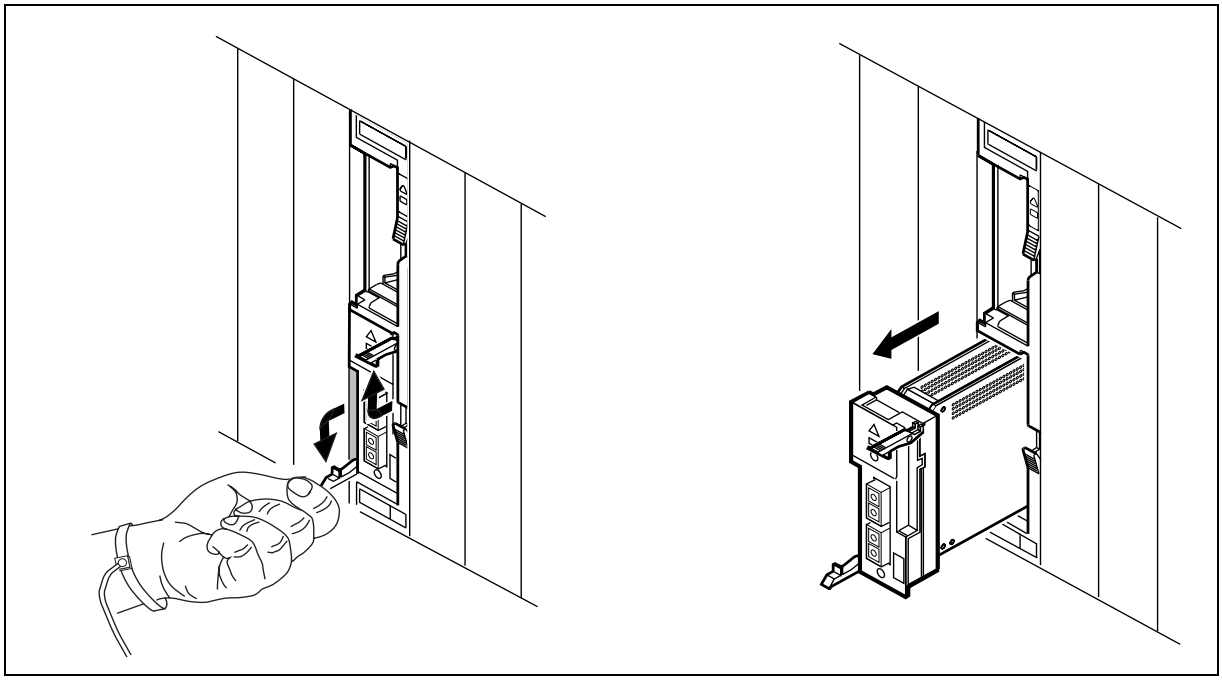
b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

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
NTLX05 OC-3 AMDI two port interface packlet (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.

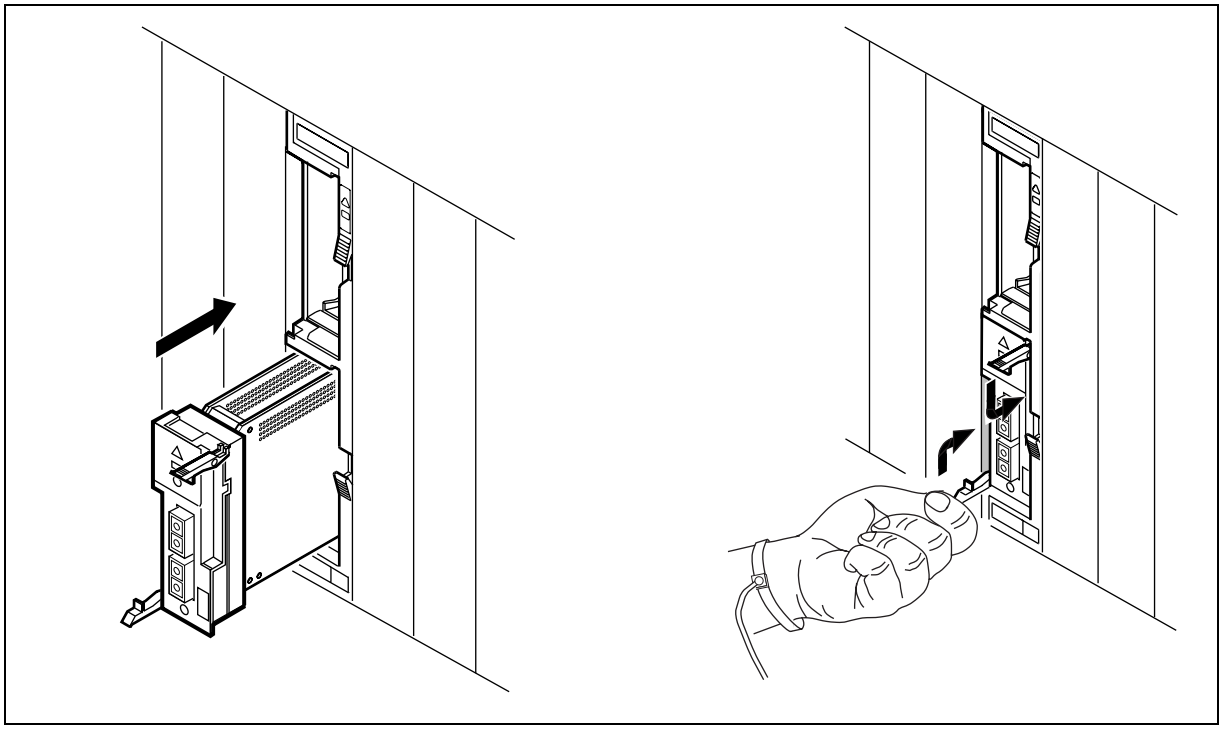
d Align the packlet with the lower IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.

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 packlet (continued)

Insert the OC-3 two port interface packlet into the IOP CP



13 Connect the replacement or original fiber optic cables to the correct OC-3 two port interface ports.

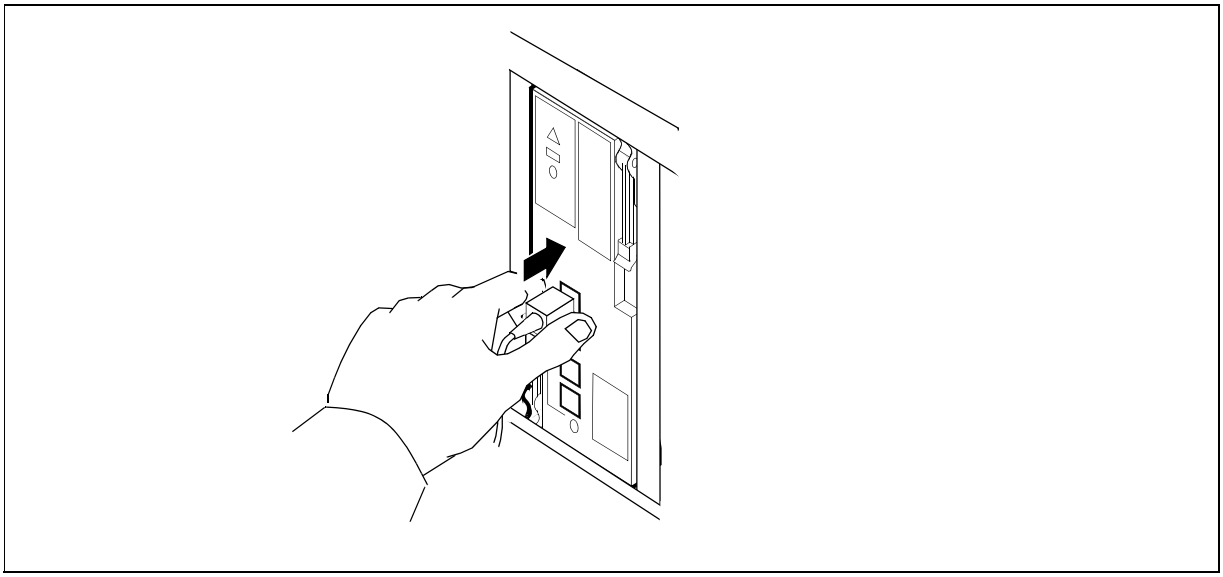
a Remove the dust caps from the fiber optic cable tips. Clean the tips of the fiber optic cables. Use the recommended cleaning methods.

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
NTLX05 OC-3 AMDI two port interface packlet (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 - 1 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 (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.

a Exit from the previous MAP level and access AMDI MAP level. At the previous MAP level type

>AMDI

and press the Enter key.

b 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 - 1 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 packlet (end)

18 Check that the newly installed AMDI packlet 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 - 1 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 packlet 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:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline OK
--- ---- ---- -- --- -- -- ------------- -------- -------- --
                                          <vers>   <blv>   <ok>
```

where

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware version	Do
is the proper version	step 20
is not the proper version	step 19

19 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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.

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NTLX06 disk packlet in a SuperNode and SuperNode SE XA-Core

NTLX06 disk packlet

Application

This section contains the procedure for replacing an NTLX06AA, AB, or AC disk packlet. The disk packlet installs in an NTLX03BA or BB dual-width Input/Output processor (IOP) circuit pack (CP).

Use this procedure

- to replace a defective packlet
- to replace a packlet that does not meet the baseline requirements

If you are replacing a defective packlet, the replacement that you install should have the same product engineering code and version as the packlet that you remove.

If you are replacing a packlet that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

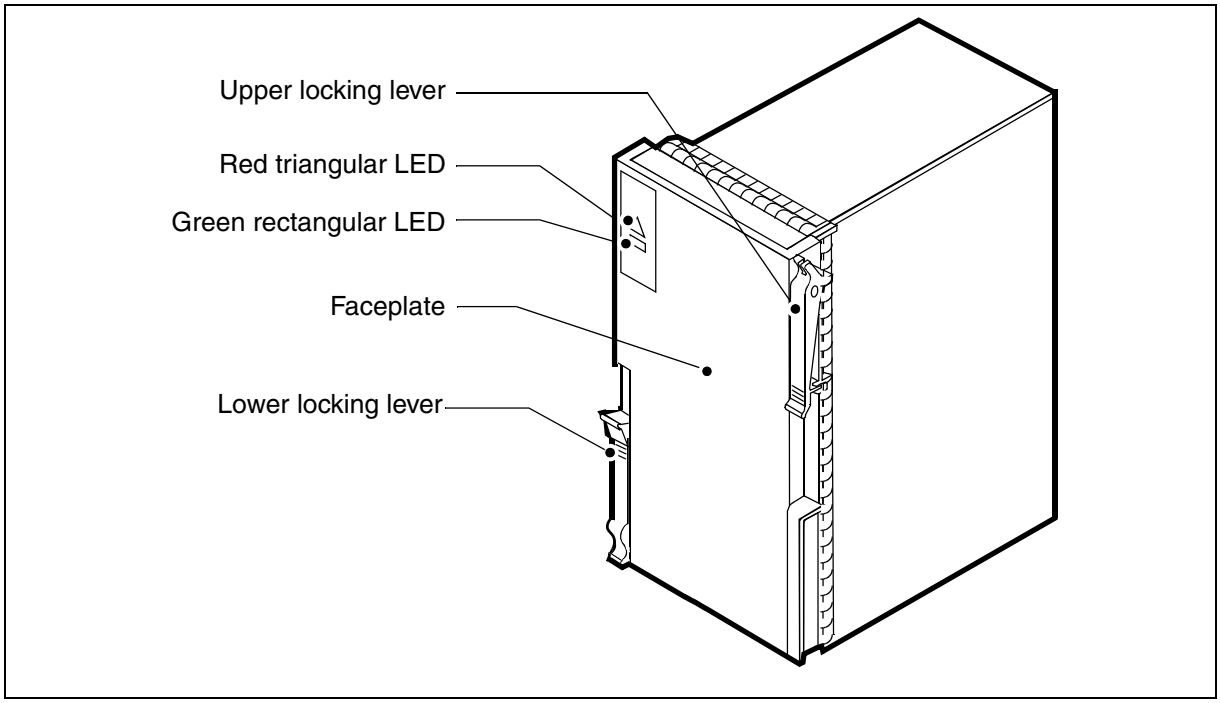
The following lists the valid disk packlets.

Table 2-12 Valid NTLX06 disk packlets

PEC	Suffix	Circuit packlet name
NTLX06	AA	Disk 4 GigaByte packlet
NTLX06	AB	Disk 8 GigaByte packlet
NTLX06	AC	Disk 34.2 GigaByte packlet

NTLX06 disk packlet (continued)

Figure 2-21 NTLX06 disk packlet front and side views



Common procedures

Do not go to a common procedure unless instructed in the step-action procedure.

Light emitting diode (LED) strategy

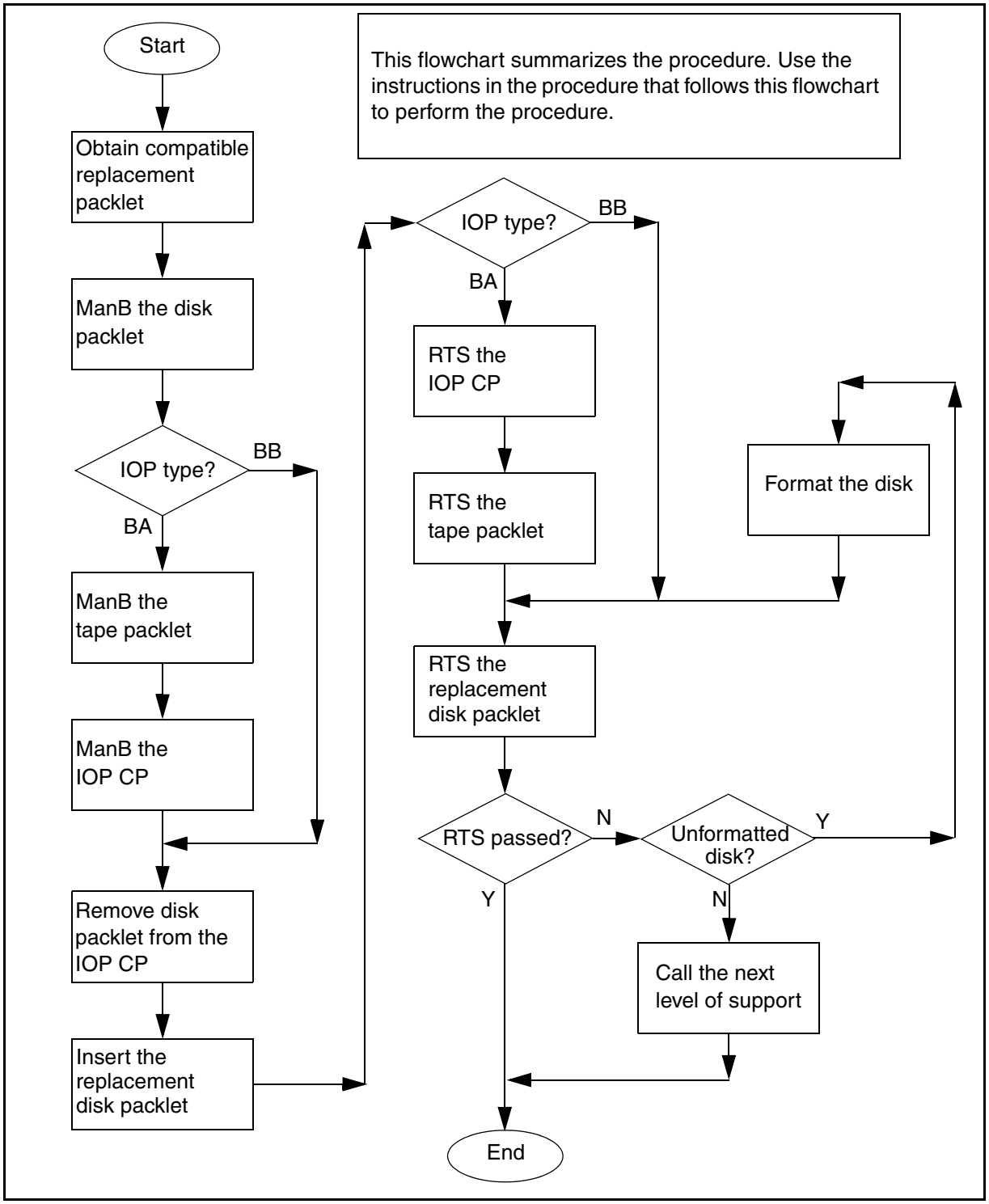
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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 packlet (continued)

Figure 2-22 Summary of NTLX06 replacement procedure in an XA-Core



NTLX06 disk packlet (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. If you are replacing a defective packlet, make sure that the replacement packlet has the same product engineering code (PEC) and PEC suffix. If you are replacing a packlet that does not meet baseline hardware requirements, make sure that the replacement packlet meets those requirements.

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 (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. (In the example shown here, the Disk packlet that needs to be replaced is in slot 17 front lower, and the redundant components are in slot 2.)

The following is a sample MAP display.

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                  -.-.--..-..----..-  .--.-------.   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                   DISK:
10
11 Format
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 31

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 (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 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 31

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.

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_XA
 0   05/01/1999 19:21:19 F02LIMAGE IMG0501CU_XA
```

NTLX06 disk packlet (continued)

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 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 31

8 Determine if the Tape packlet 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.

The Tape MAP level appears. 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.

NTLX06 disk packlet (continued)

Tape MAP level

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


Tape          Front:   111111111  Rear: 111111   SM     PE      IO     PKLT
 0 Quit       123456789012345678  456789012345   .      .       .      .
 2       Sta: -.-.--..-.---.-..-  .----------.   0      0       0      0
 3       Dep:
 4       Typ:  *              *
 5       Slot:   Side:    Packlet:   Status:    User Name:      Drive:
 6 Tst_     2    Front    Upper      .          User1           mounted
 7 Bsy_    17    Front    Upper      .                          Unmounted
 8 RTS_    TAPE:
 9
10
11
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

  XMAP0
Time  14:12   >
```

9 Record the user name and drive state of the redundant Tape packlet as shown on the Tape MAP level. (In the example shown here, the redundant Tape packlet is in slot 2 front upper.) 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 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 15

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 31

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 - 1 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

NTLX06 disk packlet (continued)

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 - 1 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 15
the tape is not rewound and the tape drive state is mounted	step 31

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 15
the tape is not rewound and the tape drive state is mounted	step 31

15 ManB the Disk packlet that you are going to replace. 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 - 1 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"):
```

NTLX06 disk packlet (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 16
not in a ManB state	step 31

16 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 - 1 to 18

<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.
```

17

If the IOP card is	Do
NTLX03BA	step 18
NTLX03BB	step 20

18 ManB the Tape packlet that is contained in the same IOP circuit pack that contains the Disk packlet that you intend to replace. 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 - 1 to 18

NTLX06 disk packlet (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)

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 19
not in a ManB state	step 31

19 ManB the IOP CP that contains the Disk packlet that you intend to replace. 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 - 1 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:

NTLX06 disk packlet (continued)

>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.
```

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 20
not in a ManB state	step 31

At the XA-Core physical shelf

20 Locate the Disk packlet that you intend to replace. Refer to the packlet location recorded from step 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.

21 Remove the Disk packlet from the IOP CP. Perform the following steps:

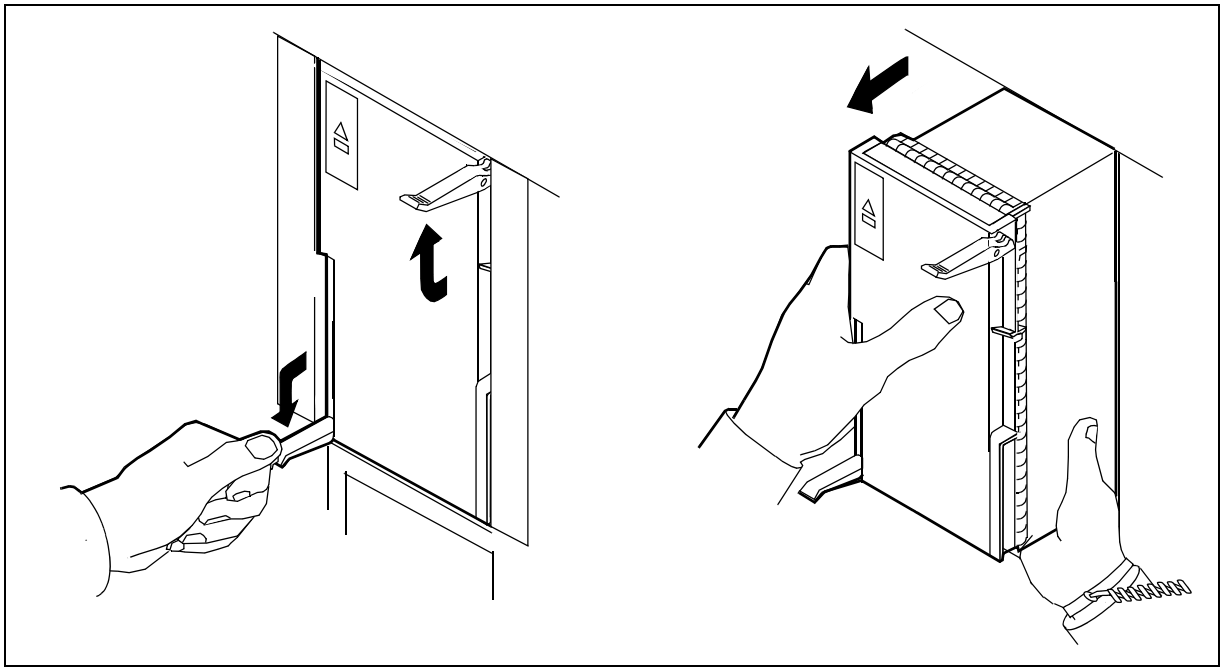
a Open the upper and lower locking levers on the packlet.

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.

NTLX06 disk packlet (continued)

Remove the Disk packlet from the IOP CP



d Close the upper and lower locking levers on the packlet to prevent breakage.

e Place the packlet in ESD protective packaging.

22 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.

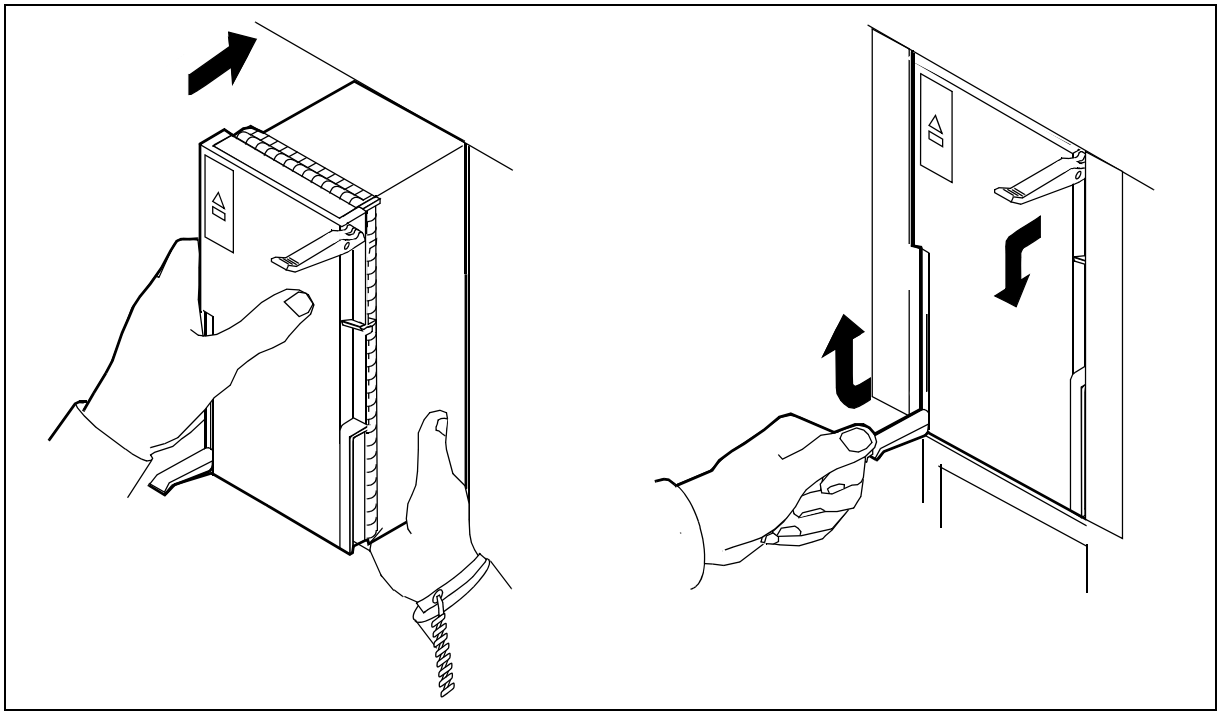
c Align the packlet with the slot in the shelf and slide the packlet into the physical slot. Do not force the packlet into the slot.

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.

NTLX06 disk packlet (continued)

Insert the Disk packlet in the IOP CP



23

If the IOP card is	Do
NTLX03BA	step 24
NTLX03BB	step 26

NTLX06 disk packlet (continued)

At the MAP terminal

24 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 - 1 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 25
not in service	step 31

25 Return the Tape packlet 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 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 - 1 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

NTLX06 disk packlet (continued)

Example of system response:

```
RTS 2 front upper passed
```

If the Tape packlet is	Do
not in service	step 31
in service	step 26

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 - 1 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 27
in service	step 32

27 Select the next step as follows:

If	Do
the system issues a message that the disk is not formatted	step 28
the system does not issue a “not formatted” message	step 31

28 Format the disk. Type

NTLX06 disk packlet (end)

>FORMAT <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

<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 usage:

FORMAT 2 f l

Example of system response:

```
format 2 f l
Warning: Format of the disk will result in LOST DATA.
Proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

29 Confirm the command. Type

>YES

and press the Enter key.

Example of system response:

```
yes
Command Submitted.
Format  2 front  lower    checking data
Format  2 front  lower    formatting disk
Format  2 front  lower    initializating
Format  2 front  lower   completed
```

30 Go back to step 26 and proceed from there.

31 Call the next level of support.

32 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

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NTLX07 tape packlet in a SuperNode and SuperNode SE XA-Core

NTLX07 tape packlet

Application

This section contains the procedure for replacing an NTLX07 DAT tape drive packlet. The packlet installs in a dual-width Input/Output processor (IOP) circuit pack (CP).

Use this procedure to replace a defective packlet or to replace a packlet that does not meet the baseline requirements.

If you are replacing a defective packlet, then the following replacements are possible. You use an AA as a replacement for an AA. You can use BA as a replacement for a BA. You can use an BA as a replacement for an AA, but you must comply with the instructions found in this section, in Step 1 of the procedure.

If you are replacing a packlet that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

The following table lists the versions of the DAT tape drive packlet.

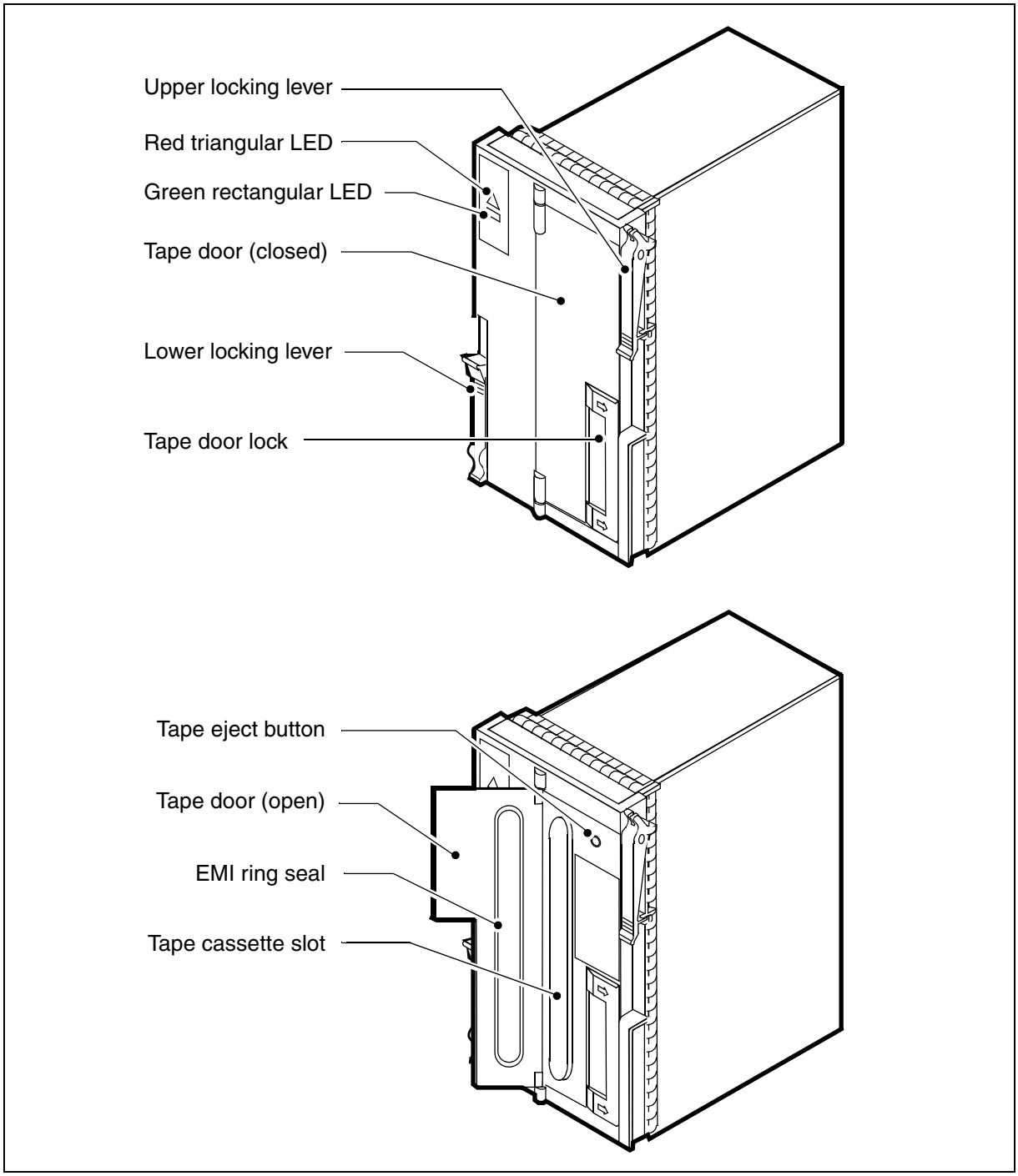
Table 2-13 Valid DAT tape drive packlets

PEC	Description
NTLX07AA	Supports 60-meter (1.3 GByte capacity) tapes, 90-meter (2.0 GByte capacity) tapes, and 120-meter (4.0 GByte capacity) tapes
NTLX07BA	Supports 90-meter (2.0 GByte capacity) tapes and 120-meter (4.0 GByte capacity) tapes.

NTLX07 tape packlet
NTLX07 tape packlet (continued)

Note: The NTLX07BA tape packlet does not support 60-meter tapes.

Figure 2-23 NTLX07 Tape drive packlet front and side views



NTLX07 tape packlet
NTLX07 tape packlet (continued)

Common procedures

Do not go to a common procedure unless instructed in the step-action procedure.

Light emitting diode (LED) strategy

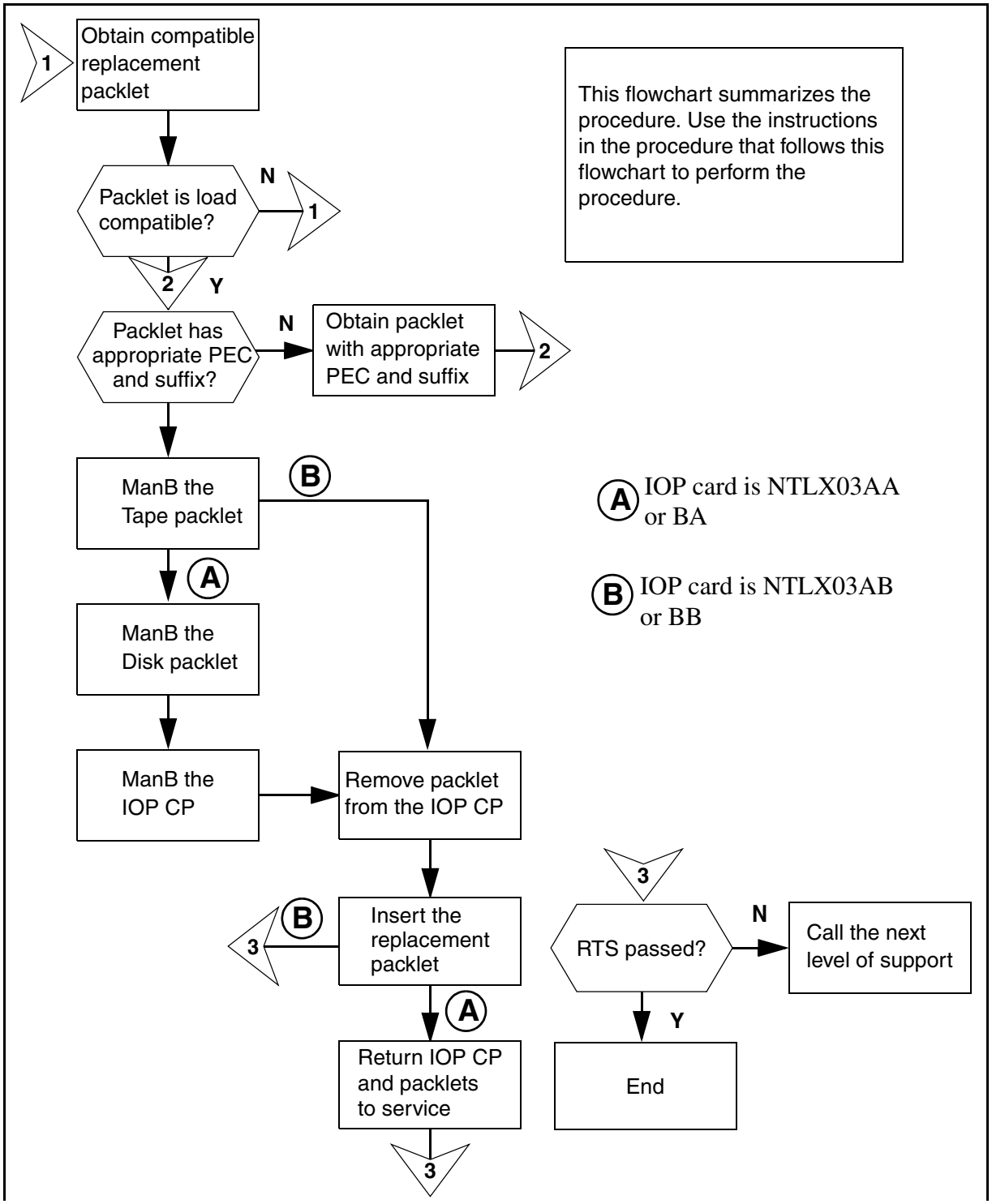
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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 packlet
NTLX07 tape packlet (continued)

Figure 2-24 Summary of NTLX07 replacement procedure in an XA-Core



NTLX07 tape packlet
NTLX07 tape packlet (continued)

How to replace an NTLX07 tape 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 packlet of the same equipment type at a time. Make sure that the unit you are replacing is inactive and the mate unit is active.

NTLX07 tape packlet
NTLX07 tape packlet (continued)

At your current location

1 Get a replacement packlet. If you are replacing a packlet that does not meet baseline hardware requirements, make sure that the replacement packlet meets those requirements. If you are replacing a defective packlet, make sure that the replacement packlet and the packlet you remove have the same product engineering code (PEC), that is, NTLX07, and follow the instructions found in the following notes.

Note 1: If the system is using CSP18 or later software, then the NTLX07AA and NTLX07BA packlets can co-exist in the same XA-Core (unless the baseline requirements impose restrictions). Therefore, if you need to replace a faulty NTLX07AA packlet, you can use an NTLX07AA packlet or an NTLX07BA packlet as a replacement. Similarly, if you need to replace a faulty NTLX07BA packlet, you can use an NTLX07AA packlet or an NTLX07BA packlet as a replacement.

Note 2: If the system is using CSP14, CSP15, CSP16, or CSP17 software, you must apply a software patch before you install an NTLX07BA packlet. The patch enables the system to accept the BA suffix in the inventory table. After you have applied the patch, the NTLX07AA and NTLX07BA packlets can co-exist in the XA-Core. See the patch bulletins for detailed information about the patch.

Note 3: Immediately after installing the first NTLX07BA packlet in an XA-Core shelf that has been using NTLX07AA packlets, perform the following maintenance activities. (1) Use the NTLX07BA packlet to copy all backup images for the office to 90-meter or 120-meter tapes. (2) Verify that the tapes can be restored to the disk in the NTLX07BA. Also, if the NTLX07BA is going to co-exist with an NTLX07AA, verify that the tapes can be restored to the disk in the NTLX07AA.

Note 4: If the NTLX07AA and NTLX07BA packlets are going to co-exist in an XA-Core, you should copy all data that is on 60-meter tapes to 90-meter tapes or 120-meter tapes, and you should stop using 60-meter tapes.

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
NTLX07 tape packlet (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       MS       IOD      Net      PM       CCS      Lns      Trks      Ext      APPL
 Tape      .        .        .        .        .        .        .         .        .

Tape
 0 Quit          Front: 111111111     Rear: 111111    SM     PE     IO     PKLT
 2               123456789012345678   456789012345    .      .      .      TAPEtb
 3          Sta: -.----..-.---.-.S-   .----------.    0      0      0      1
 4          Dep:
 5          Typ:  *             *
 6 Tst_     Slot:   Side:    Packlet:   Status:   User Name:      Drive:
 7 Bsy_        2    Front    Upper      .         USER1           mounted
 8 RTS_       17    Front    Upper      S                         Unmounted
 9            TAPE:
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

NTLX07 tape packlet
NTLX07 tape packlet (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 - 1 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 (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_XA
 0   05/01/1999 19:21:19 F02LIMAGE IMG0501CU_XA
```

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

NTLX07 tape packlet
NTLX07 tape packlet (continued)

8 Access the XA-Core Tape MAP level. At the CI MAP prompt type

>MAPCI;MTC;XAC;TAPE

and press the Enter key.

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

NTLX07 tape packlet
NTLX07 tape packlet (continued)

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

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 - 1 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
```

NTLX07 tape packlet
NTLX07 tape packlet (continued)

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 - 1 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 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

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 - 1 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

NTLX07 tape packlet
NTLX07 tape packlet (continued)

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>

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

<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.

NTLX07 tape packlet
NTLX07 tape packlet (continued)

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 - 1 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"),
```

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.

NTLX07 tape packlet
NTLX07 tape packlet (continued)

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 - 1 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.
```

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

NTLX07 tape packlet
NTLX07 tape packlet (continued)

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 step 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.

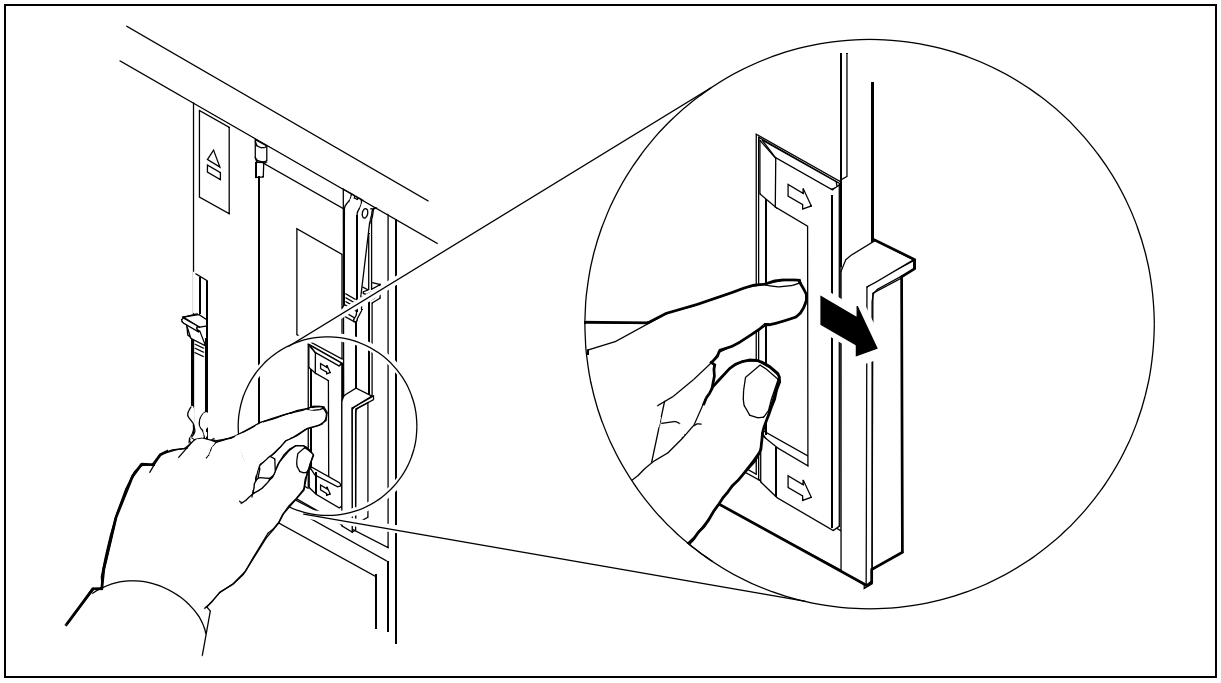
c Press the tape eject button. The tape cassette partially ejects and is ready for removal.

d Remove the tape cassette and place it in a safe location away from the physical shelf.

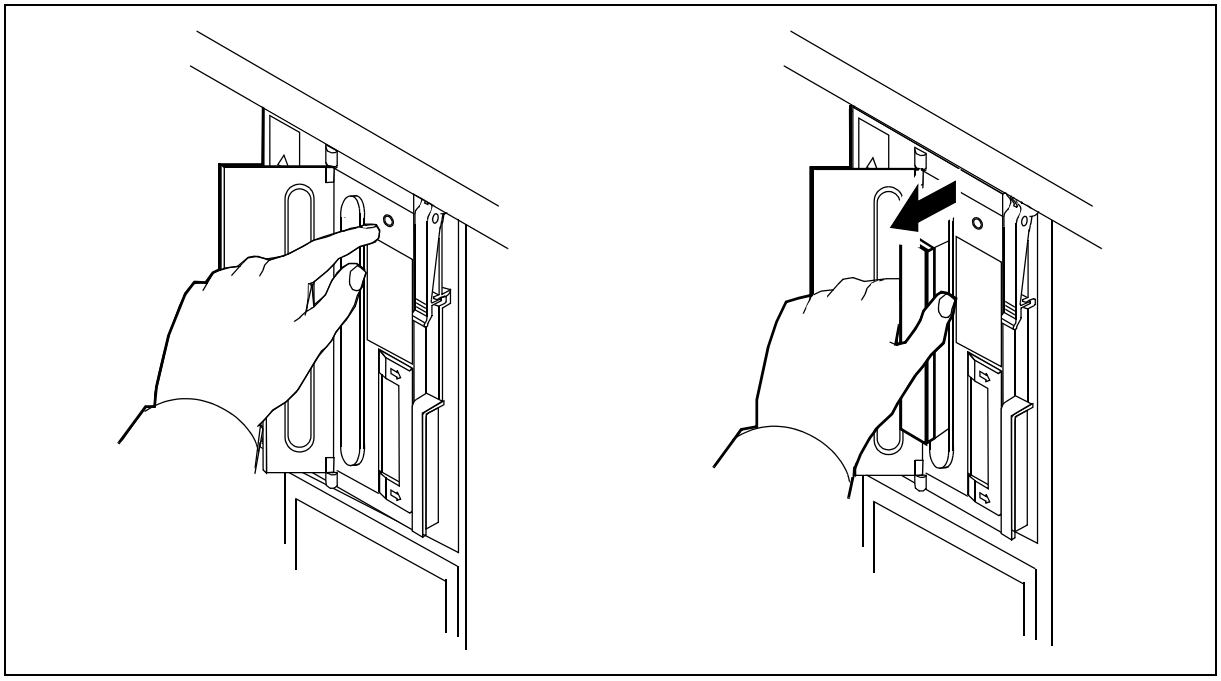
e Move the door to the closed position. Carefully push on the door until it locks in place.

NTLX07 tape packlet
NTLX07 tape packlet (continued)

Open the Tape cassette door



Eject and remove the Tape cassette



NTLX07 tape packlet
NTLX07 tape packlet (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.

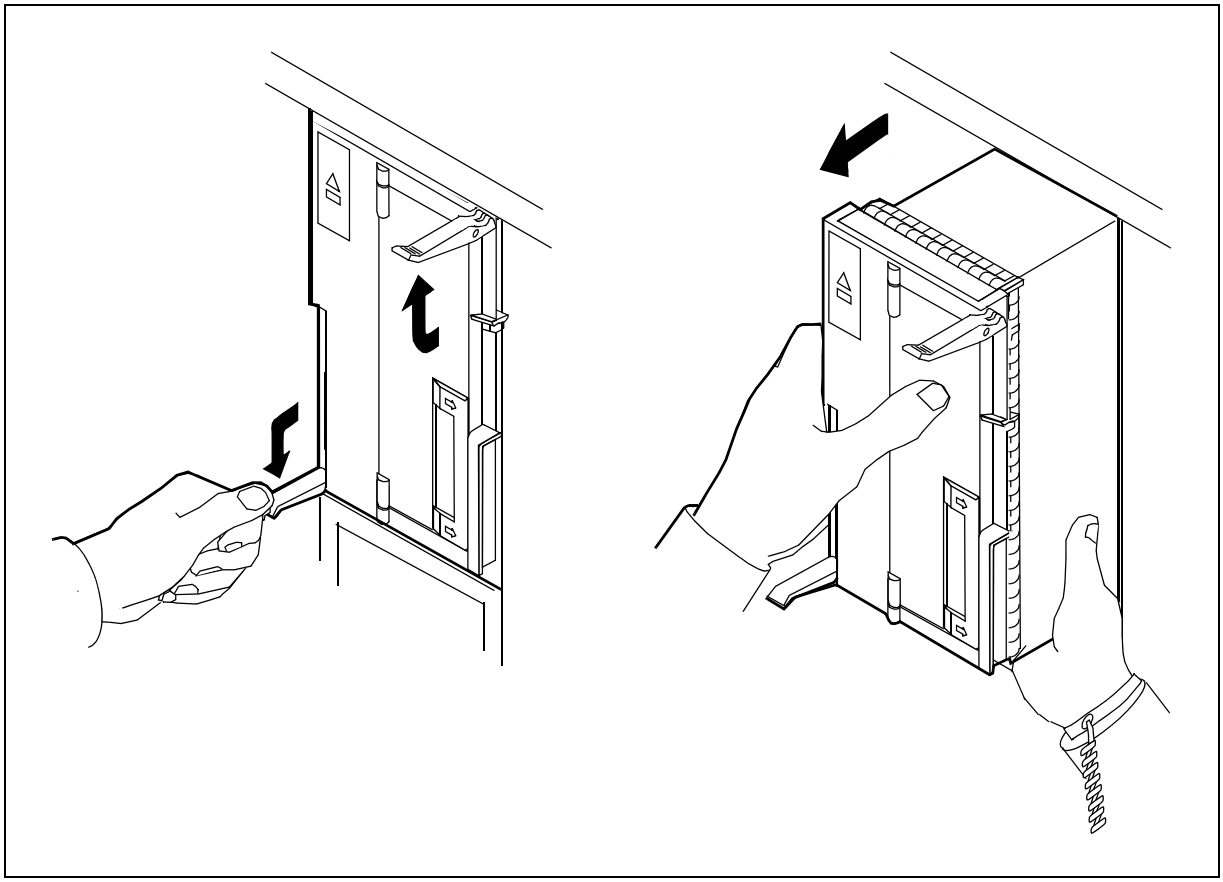
b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

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



23 Insert the replacement Tape packlet in the upper slot of the replacement IOP CP.

a Remove the replacement Tape packlet from the ESD protective packaging.

b Open the locking levers on the Tape packlet.

c Hold the packlet by the faceplate with one hand and support the bottom edge with the other.

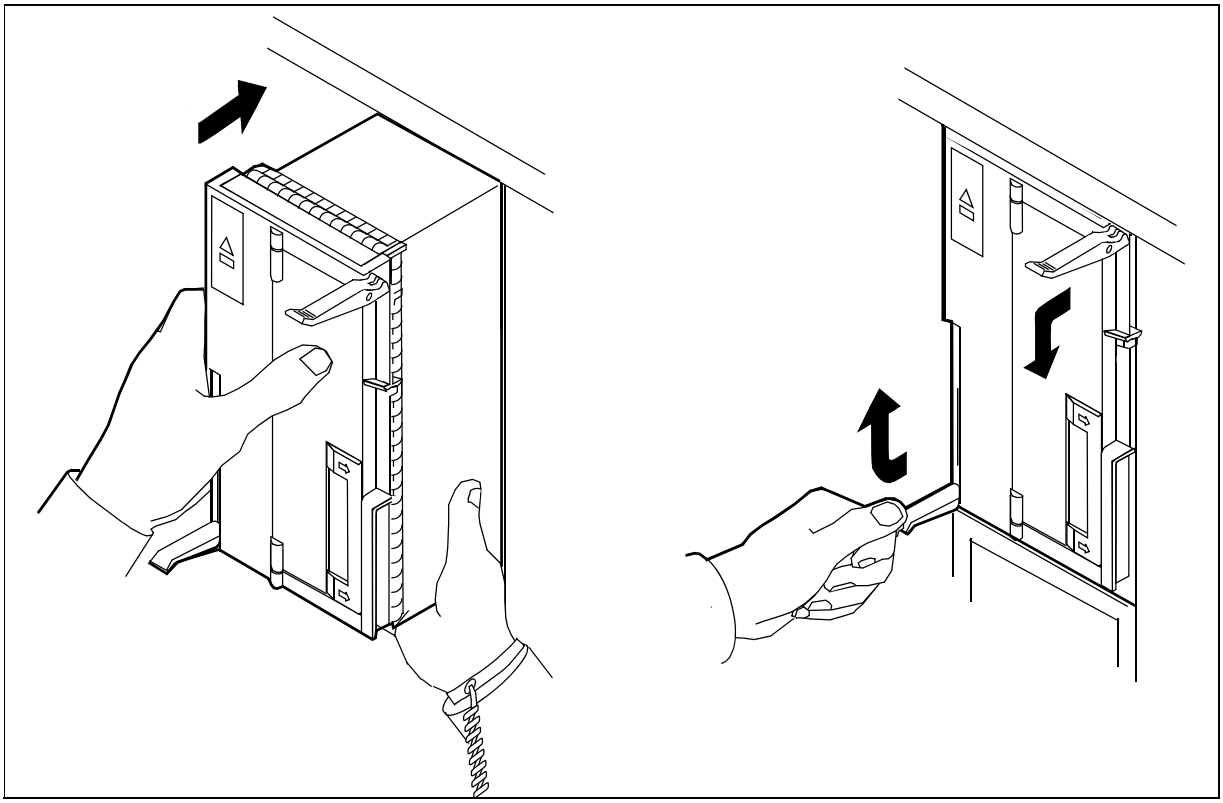
NTLX07 tape packlet
NTLX07 tape packlet (continued)

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
NTLX07 tape packlet (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 - 1 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 - 1 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
NTLX07 tape packlet (end)

If the Tape packlet is	Do
not in service	step 29
in service	step 27

27

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 - 1 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

Example of system response:

```
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 packlet in a SuperNode and SuperNode SE XA-Core

NTLX08 RTIF packlet

Application

This section contains the procedure for replacing an NTLX08AA or NTLX08AB reset terminal interface (RTIF) packlet. The packlet installs in a single-width IOP circuit pack (CP).

Use this procedure

- to replace a defective packlet
- to replace a packlet that does not meet the baseline requirements

If you are replacing a defective packlet, the replacement that you install should have the same product engineering code and version as the packlet that you remove.

If you are replacing a packlet that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

> ***Note:*** This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

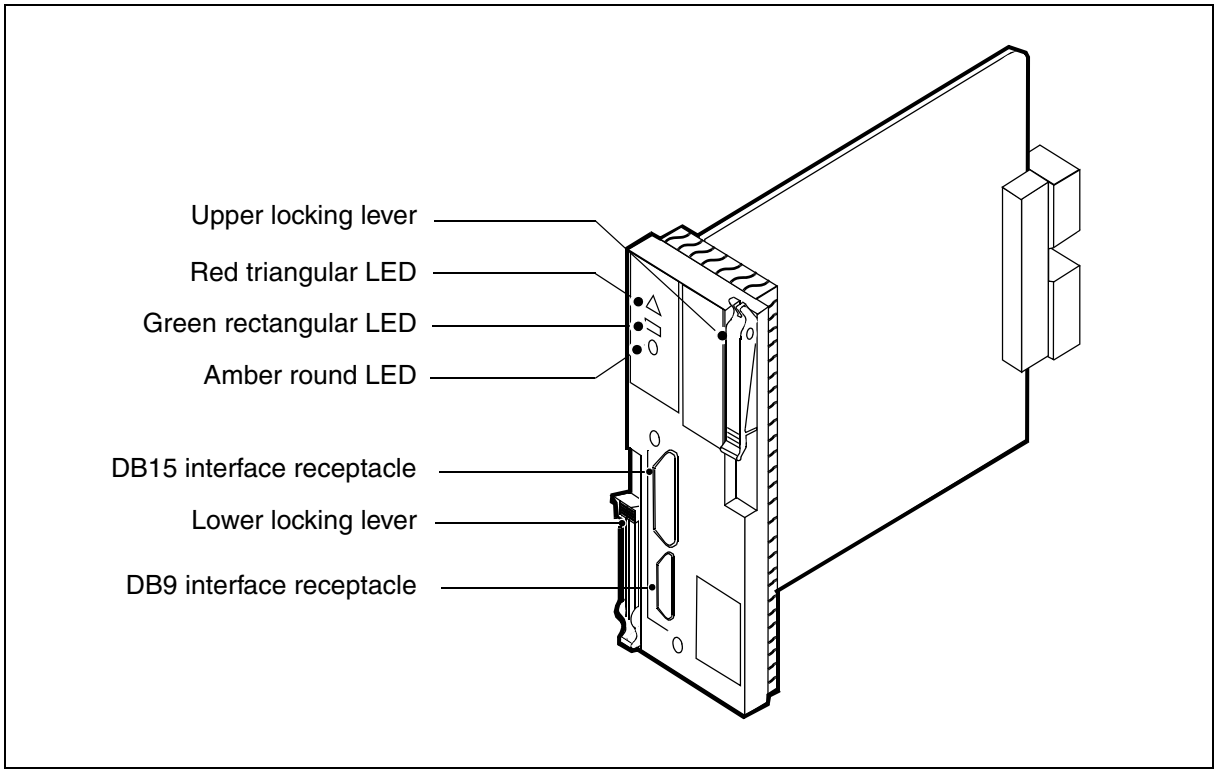
The following table lists the valid RTIF packlets.

Table 2-14 Valid RTIF packlets

PEC	Suffix	Card name
NTLX08	AA	Reset terminal interface (RTIF) packlet
NTLX08	AB	Reset terminal interface (RTIF) packlet

NTLX08 RTIF packlet (continued)

Figure 2-25 NTLX08 RTIF packlet front and side views



Common procedures

Do not go to a common procedure unless directed to do so in the step-action procedure.

Light emitting diode (LED) strategy

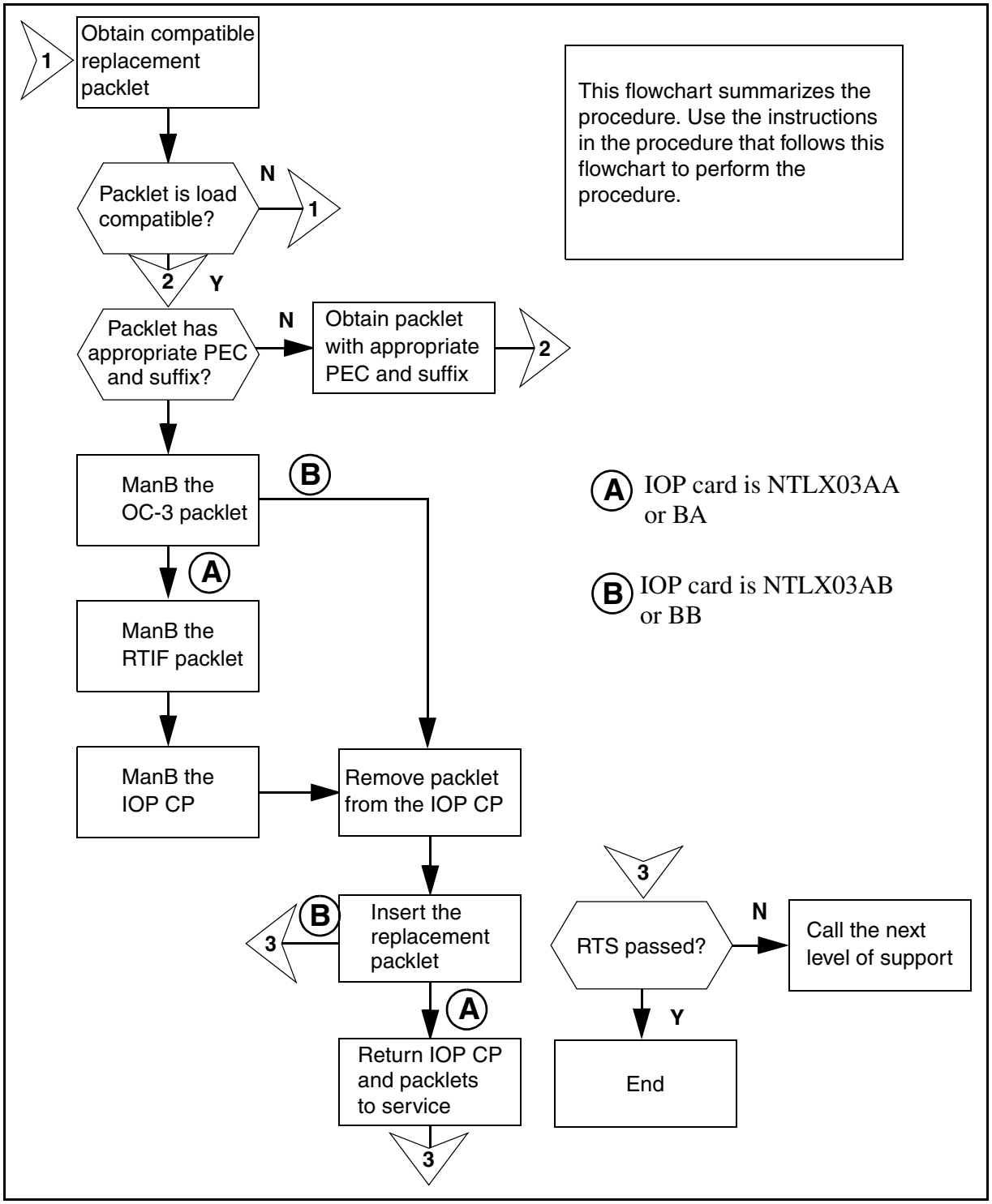
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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 packlet (continued)

Figure 2-26 Summary of NTLX08 replacement procedure in an XA-Core



NTLX08 RTIF packlet (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. If you are replacing a packlet that does not meet baseline hardware requirements, make sure that the replacement packlet meets those requirements. If you are replacing a defective packlet, make sure that the replacement packlet has 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.

NTLX08 RTIF packlet (continued)

The following is a sample MAP display.

RTIF MAP level

```
 XAC        MS       IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
 RTIF       .        .        .         .       .        .       .        .        .

RTIF              Front:   111111111  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:  Status   Port0:  Port1  Link0  Link1:
 6 Tst_            4    Rear   Upper     S        C       C
 7 Bsy_           15    Rear   Upper     .        .       .
 8 RTS_
 9
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 - 1 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 (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 - 1 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 (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 - 1 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

<nn> is the slot number parameter value to indicate the number of the physical shelf slot - 1 to 18

NTLX08 RTIF packlet (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:

>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 - 1 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.
```

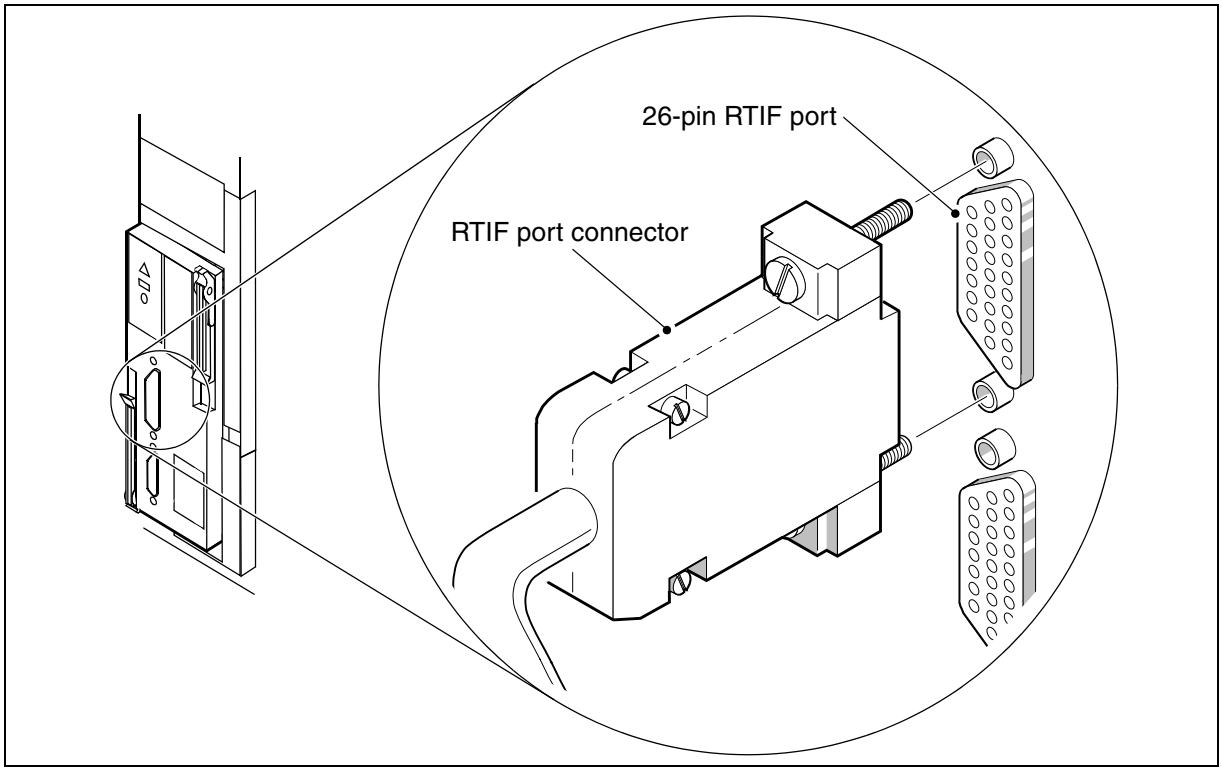
Note: If this command reduces redundancy and produces a major alarm, you must use the Force option.

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.

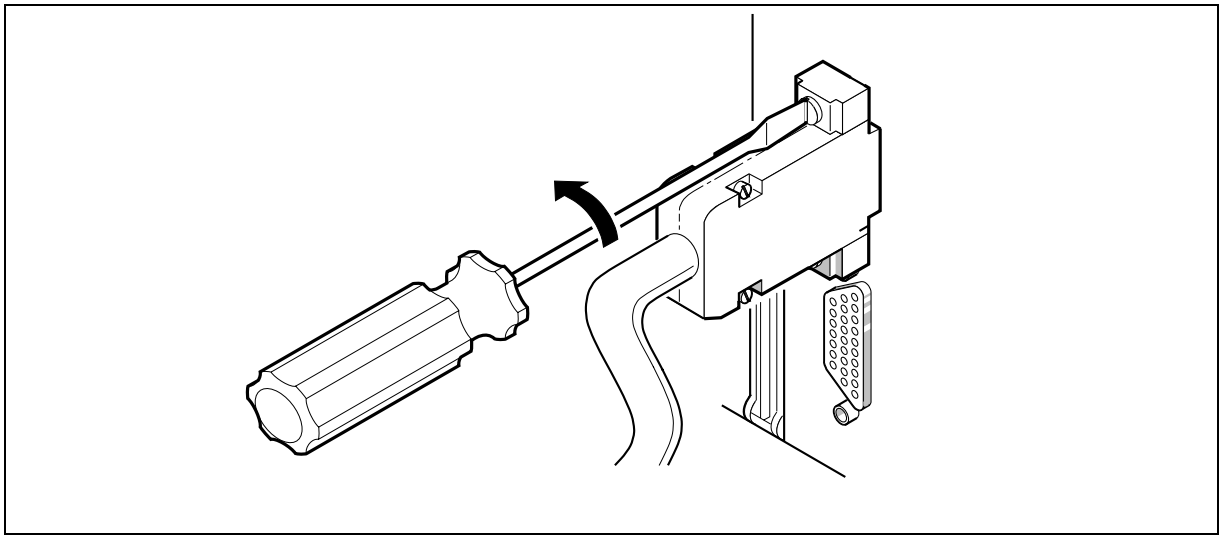
b Hold the connector by the body only.

c Carefully pull the connectors away from the port receptacles.

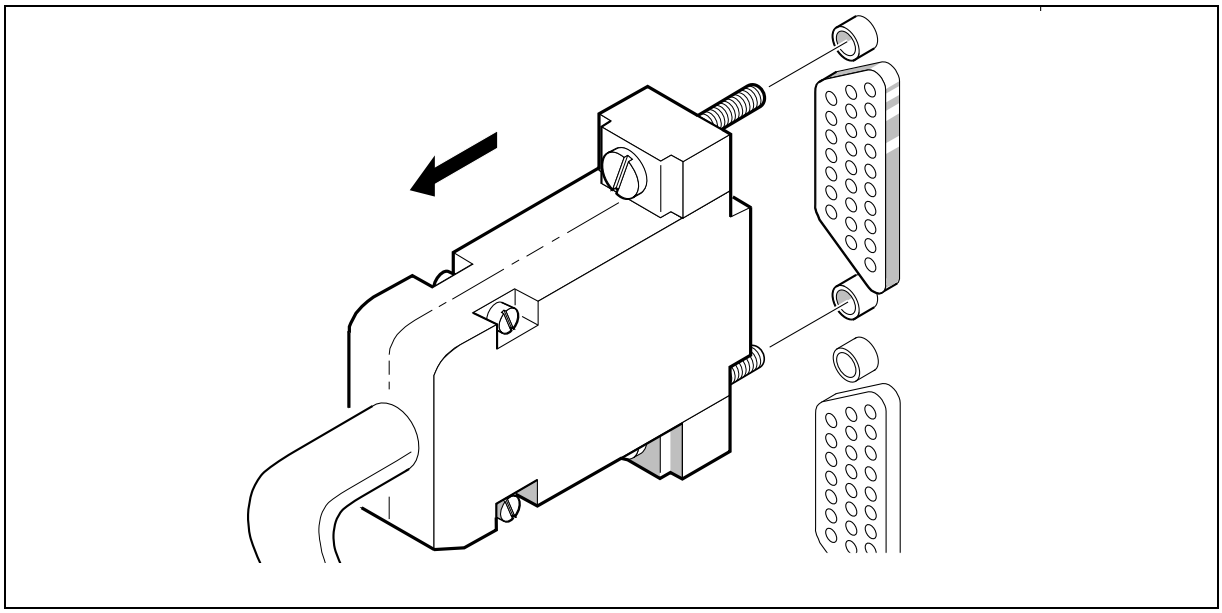
d Place the cables in a safe location away from the packlet.

NTLX08 RTIF packlet (continued)

Loosen the RTIF port connectors



Remove the RTIF port connectors



NTLX08 RTIF packlet (continued)

13 Remove the RTIF packlet from the IOP CP. Perform the following steps:

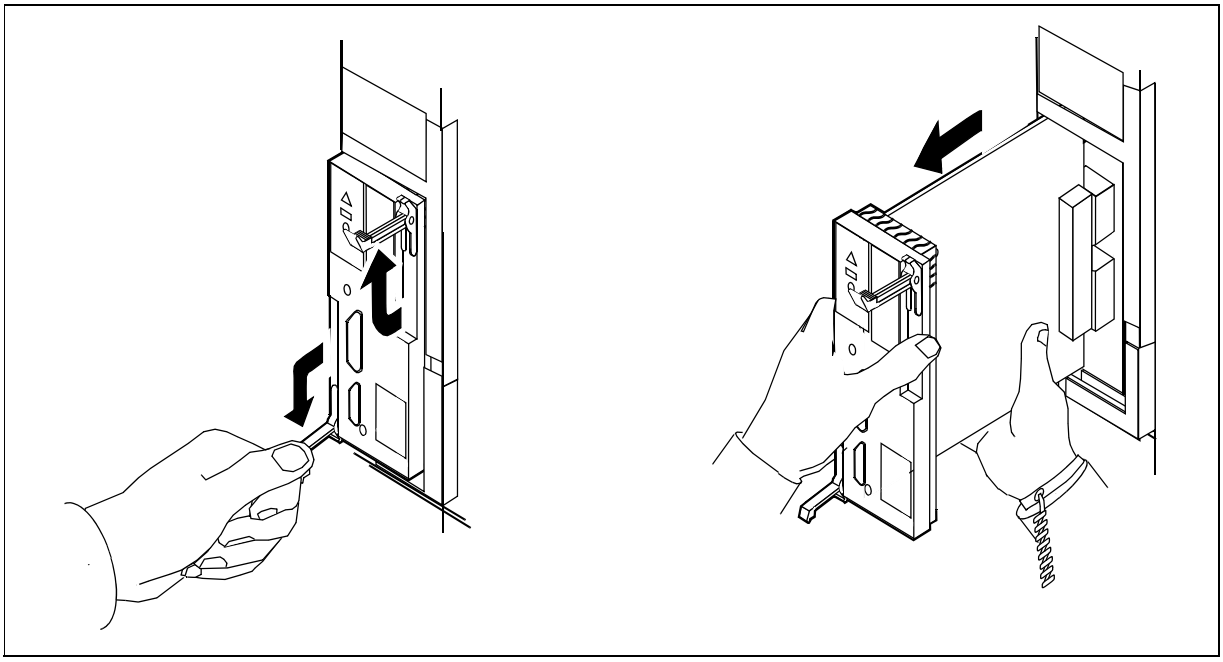
a Open the locking levers on the RTIF packlet.

b Carefully pull the packlet toward you by the locking levers until it extends half way from the shelf opening.

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.

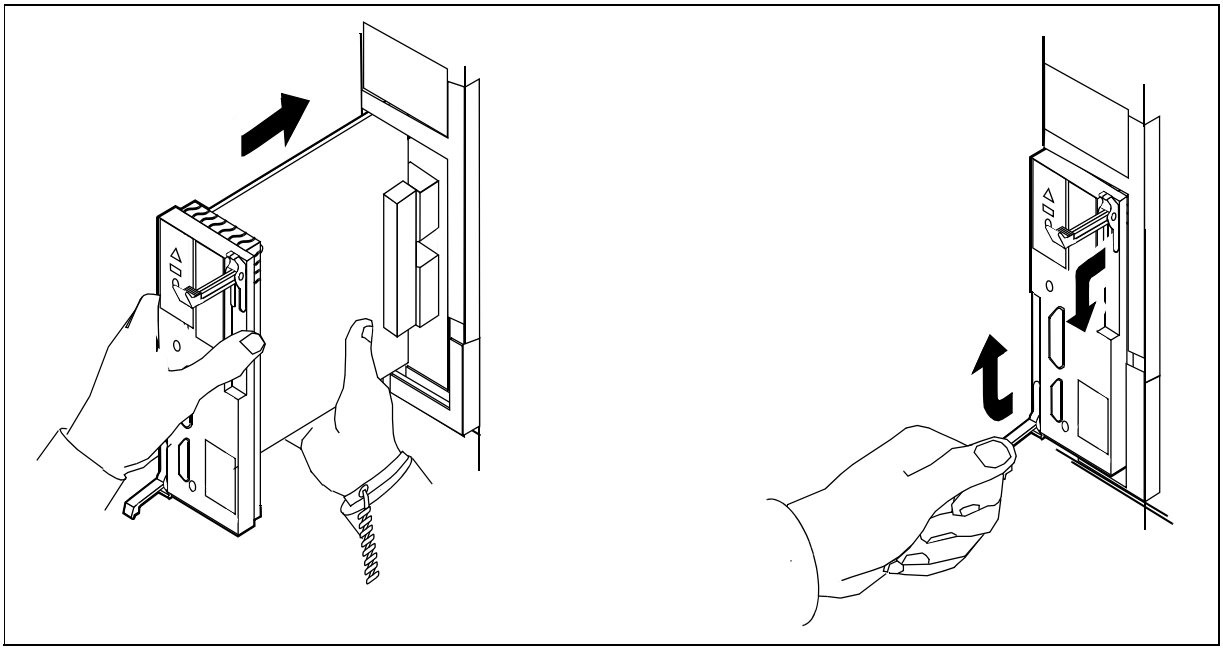
d Align the packlet with the upper IOP CP slot and carefully slide the packlet into the slot. Do not force the packlet into the slot.

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 (continued)

Insert the RTIF packlet into the IOP CP

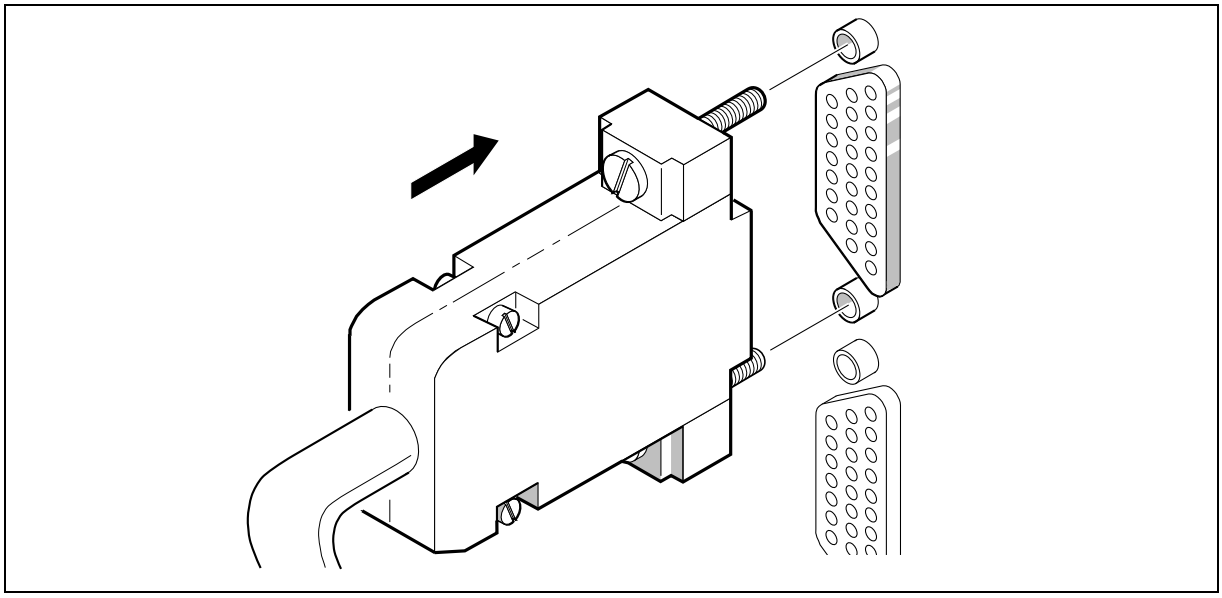


15 Connect the local and remote cables to the RTIF packlet.

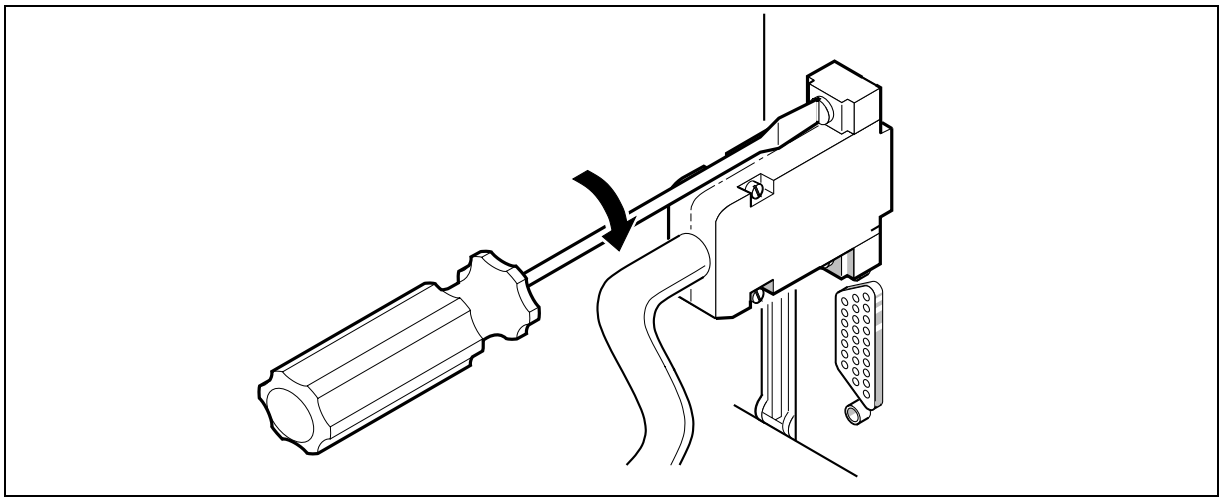
- **a** Hold the connector by the receptacle body only.
- **b** Align the connector to the correct RTIF port receptacle.
- **c** Push the connector into the receptacle.
- **d** Tighten the connector retaining screws.

NTLX08 RTIF packlet (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 (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 - 1 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 - 1 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
in service	step 19
not in service	step 20

19 Return the RTIF packlet 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 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 - 1 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:

```
RTS 4 rear upper completed
```

If the RTIF packlet 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.

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NTLX09 Ethernet packlet in a SuperNode and SuperNode SE XA-Core

NTLX09 Ethernet packlet

Application

This section contains the procedure for replacing an NTLX09AA Ethernet packlet. The packlet installs in a single-width IOP circuit pack (CP).

Use this procedure

- to replace a defective packlet
- to replace a packlet that does not meet the baseline requirements

If you are replacing a defective packlet, the replacement that you install should have the same product engineering code and version as the packlet that you remove.

If you are replacing a packlet that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

The following lists the valid Ethernet packlets.

Table 2-15 Valid Ethernet packlets

PEC	Suffix	Card name
NTLX09	AA	Ethernet packlet

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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

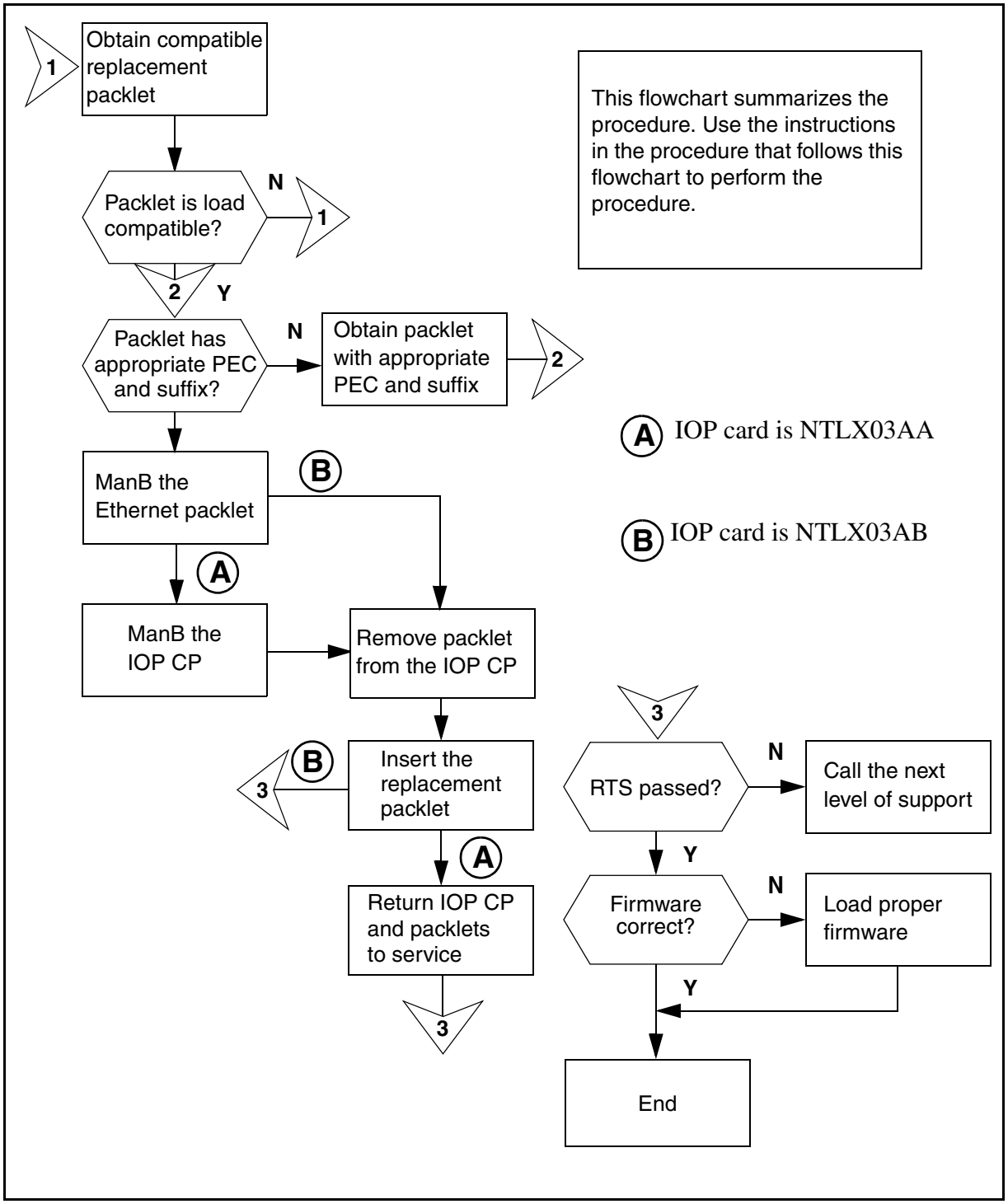
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's status. Refer to Introduction to card replacement procedures for an explanation of the LED system.

Action

The following flowchart is only a summary of this procedure. To replace the packlet, use the instructions in the step-action procedure that follows the flowchart.

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (continued)

Figure 2-27 Summary of NTLX09 Ethernet packlet replacement procedure



NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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. If you are replacing a packlet that does not meet baseline hardware requirements, make sure that the replacement packlet meets those requirements. If you are replacing a defective packlet, make sure that the replacement packlet has 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 packlet
NTLX09 Ethernet packlet (continued)

3 Examine the ETHR MAP level. Record the location and status of the ethernet packlet that you need to replace. Make sure that redundant components are InSv before removing the ethernet packlet 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:   111111111  Rear: 111111     SM    PE    IO     PKLT
 0 Quit         123456789012345678  456789012345     .     .     .      ETHR M
 2              Sta:  . ..-..-..-.- ..  ....-----...  0     0     0      1
 3              Dep:                     FF      FF
 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 redundant IOP and Ethernet packlet are	Do
in a ManB state	step 4
in an InSv state	step 5
in a SysB state	step 19

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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 - 1 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 Ethernet packlet are	Do
in service	step 5
not in service	step 19

5 Place the Ethernet packlet 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 - 1 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

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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
```

If	Do
the packlet is in a ManB state	step 8
the packlet does not go into the ManB state	step 6

6

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 packlet failed to go into the ManB state for any other reason	step 19

7 Use the “force” option to place the Ethernet packlet 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 - 1 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 force

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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 packlet is	Do
in a ManB state	step 8
not in a ManB state	step 19

8 Indicate the ManB Ethernet packlet. 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 - 1 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
```

9

If the IOP card is	Do
NTLX03AA	step 10
NTLX03AB	step 11

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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 - 1 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
NTLX09 Ethernet packlet (continued)

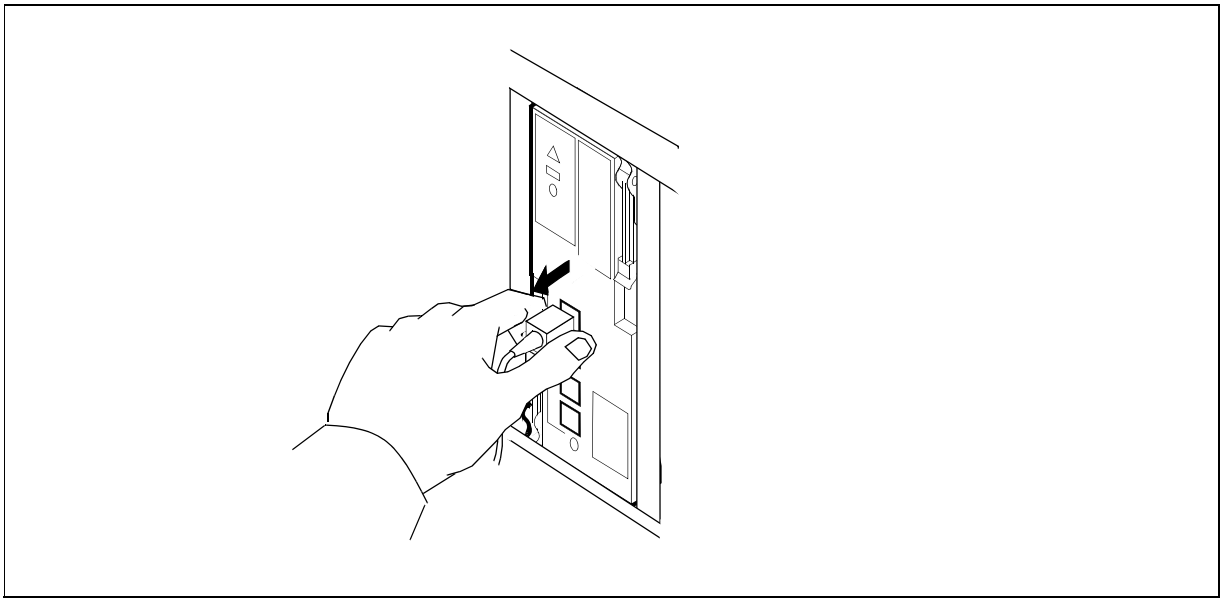
At the XA-Core physical shelf

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 packlet
NTLX09 Ethernet packlet (continued)

13

WARNING
Do not hold circuit packlet by levers only
Holding a circuit packlet by the levers can result in lever breakage.

Remove the Ethernet packlet from the IOP CP. Perform the following steps:

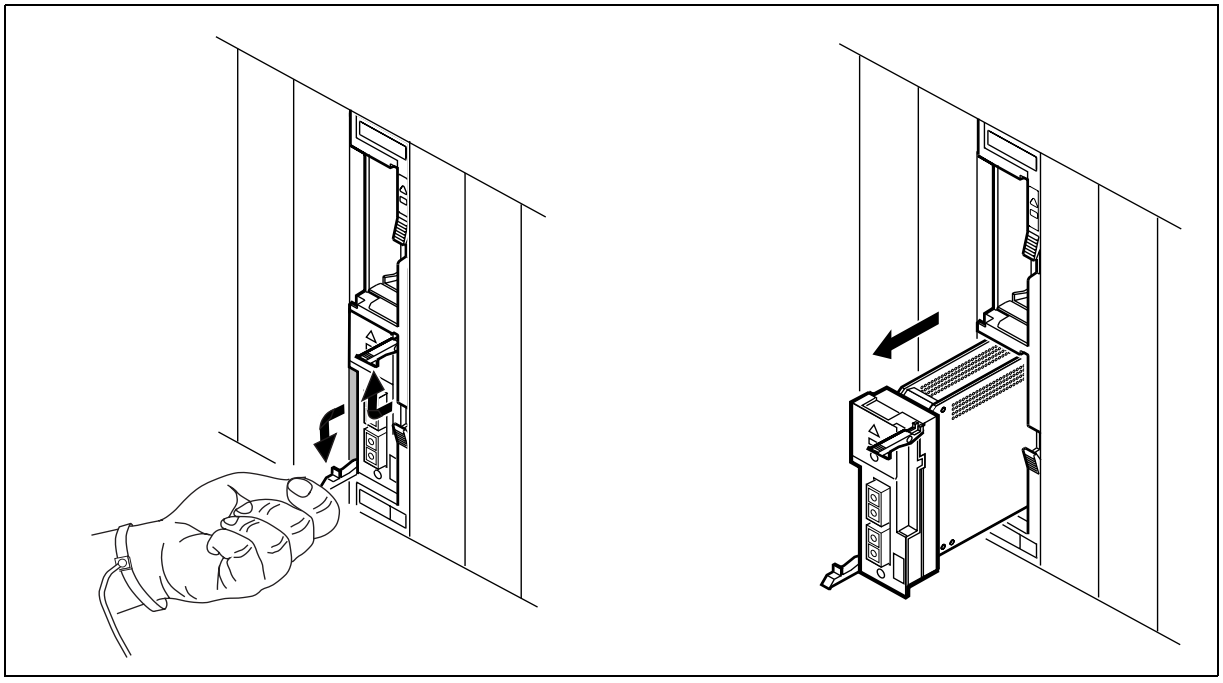
a Open the upper and lower locking levers on the packlet.

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.

Remove the Ethernet packlet from the IOP CP



NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (continued)

14

WARNING
Do not hold circuit packlet by levers only
Holding a circuit packlet by the levers can result in lever breakage.

Insert the replacement Ethernet packlet in the upper or lower IOP CP slot.

a Remove the replacement Ethernet packlet from the ESD protective packaging.

b Open the upper and lower locking levers on the packlet.

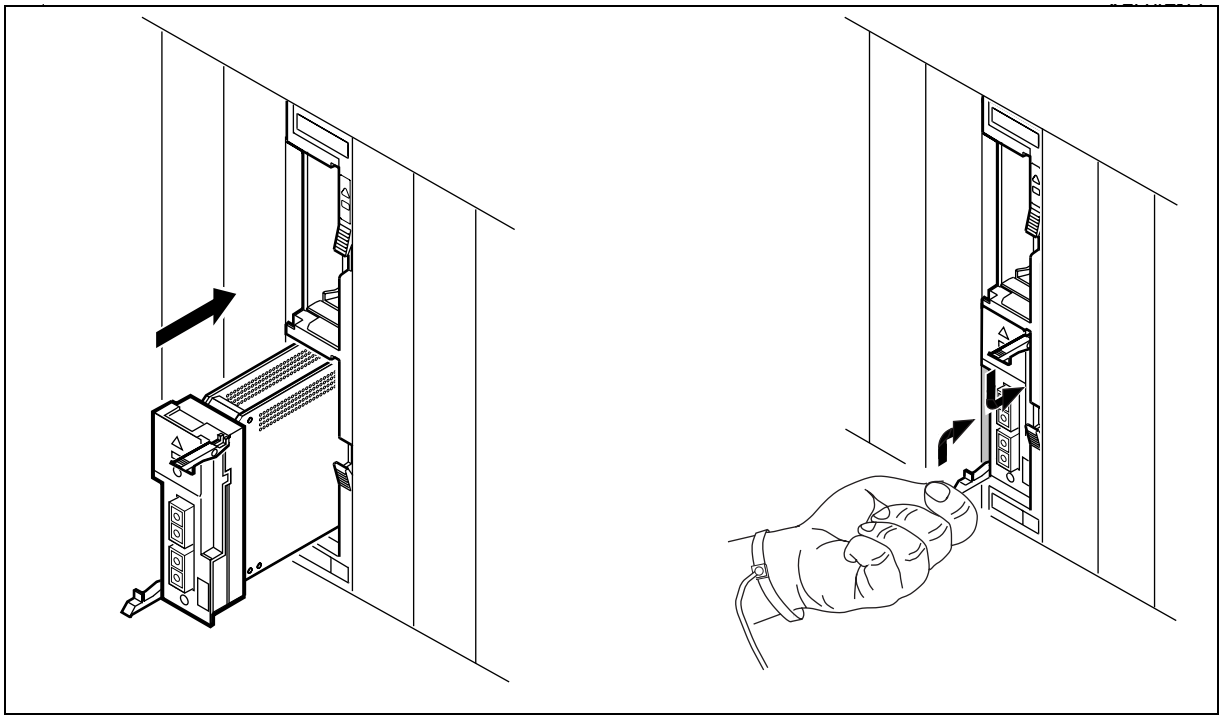
c Hold the packlet by the faceplate with one hand and support the bottom edge with the other.

d Align the packlet with the upper or 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 Ethernet packlet into the IOP CP



NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (continued)

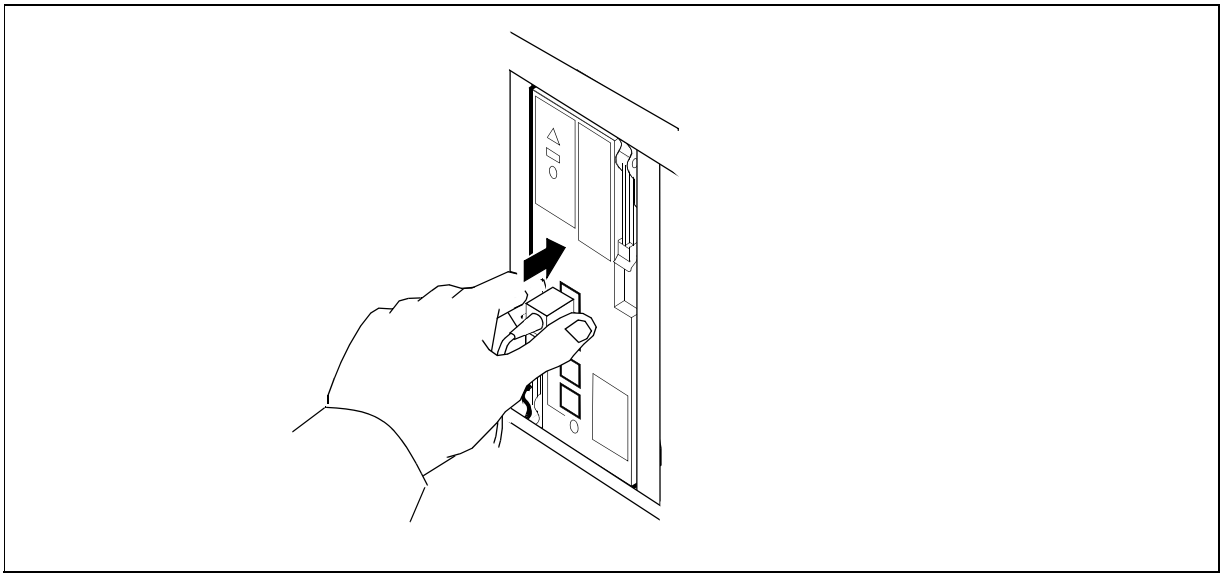
15 Connect the replacement or original cable to the correct interface ports.

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	step 17
NTLX03AB	step 18

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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 - 1 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 19

NTLX09 Ethernet packlet
NTLX09 Ethernet packlet (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 - 1 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 packlet
NTLX09 Ethernet packlet (end)

20 Check that the Ethernet packlet 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 - 1 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:

>QUERY card 4 r l

Example of system response:

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline OK
--- ---- ---- -- --- -- -- ------------- -------- -------- --
                                          <vers>   <blv>   <ok>
```

where

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware version	Do
is the proper version	step 22
is not the proper version	step 21

21 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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

NTLX12 SIM circuit pack

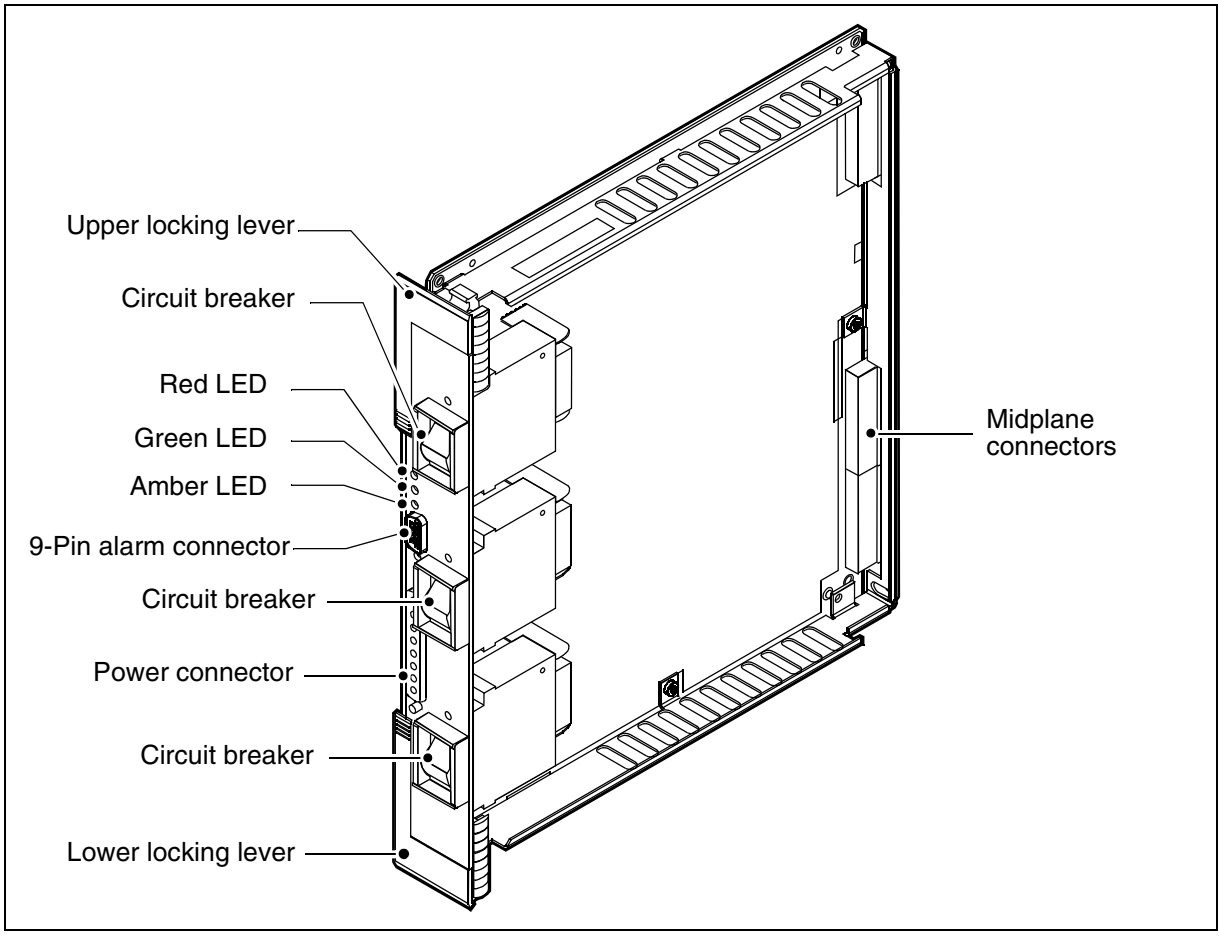
Application

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.

Table 2-16 Valid SIM dircuit packs

PEC	Suffix	Circuit pack name
NTLX12	AA	SIM circuit pack

Figure 2-28 NTLX12 shelf interface module circuit pack front and side views



NTLX12 SIM circuit pack (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

The faceplate of all CPs and packlets have built-in LED visual indicators.

Description

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.

Table 2-17 SIM LED explanation

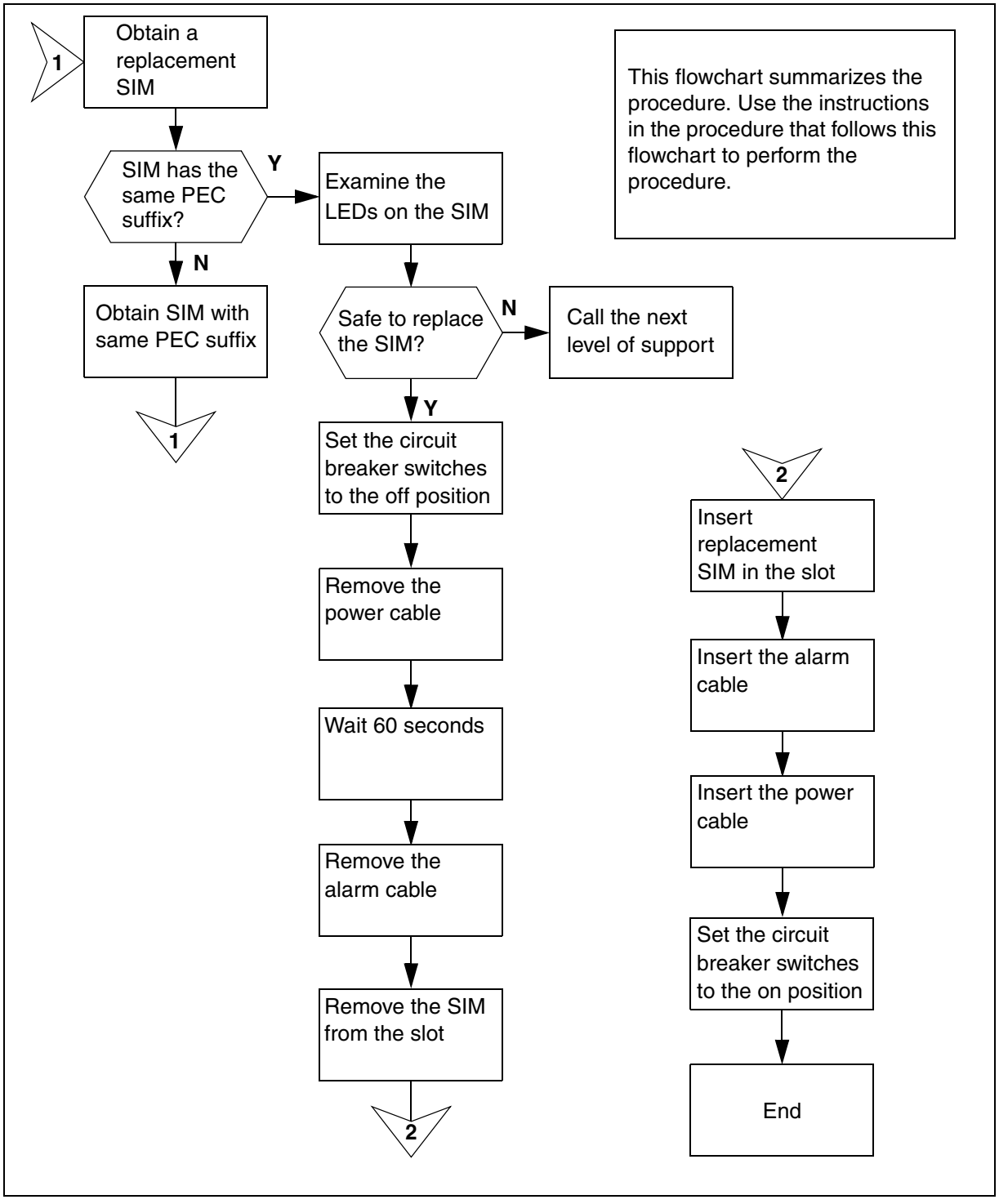
Green	Amber	Red	SIM state
On	Off	Off	The SIM is in a normal working state. Do not remove.
Off	Off	Off	The SIM does not have power or there is an LED control circuit failure. You can remove the SIM from the shelf if you are sure there is no power.
On	On	Off	Alarm State. There is a SIM failure, the input 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 (continued)

Figure 2-29 Summary of NTLX12 replacement procedure in an XA-Core



NTLX12 SIM circuit pack (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 (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

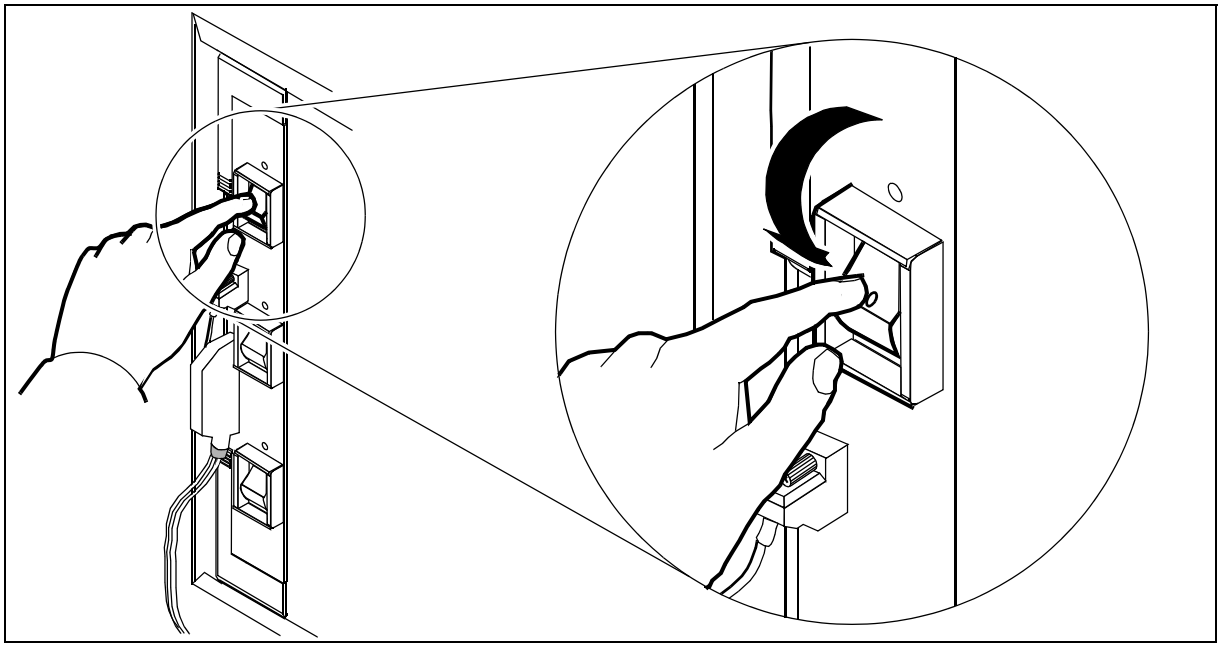


WARNING
Risk of equipment damage
Switch circuit breakers to 0 before removing the power connector. Allow 60 seconds discharge time after front power cable disconnection before removing the alarm connector or module.

Set all circuit breakers to the off (0) position. Press down on each circuit breaker switch until it clicks and remains in place.

NTLX12 SIM circuit pack (continued)

Set the circuit breakers on the SIM to the off (0) position



4 Remove the power cable from the SIM CP faceplate.

a Turn the power connector fasteners in a counter-clockwise direction.

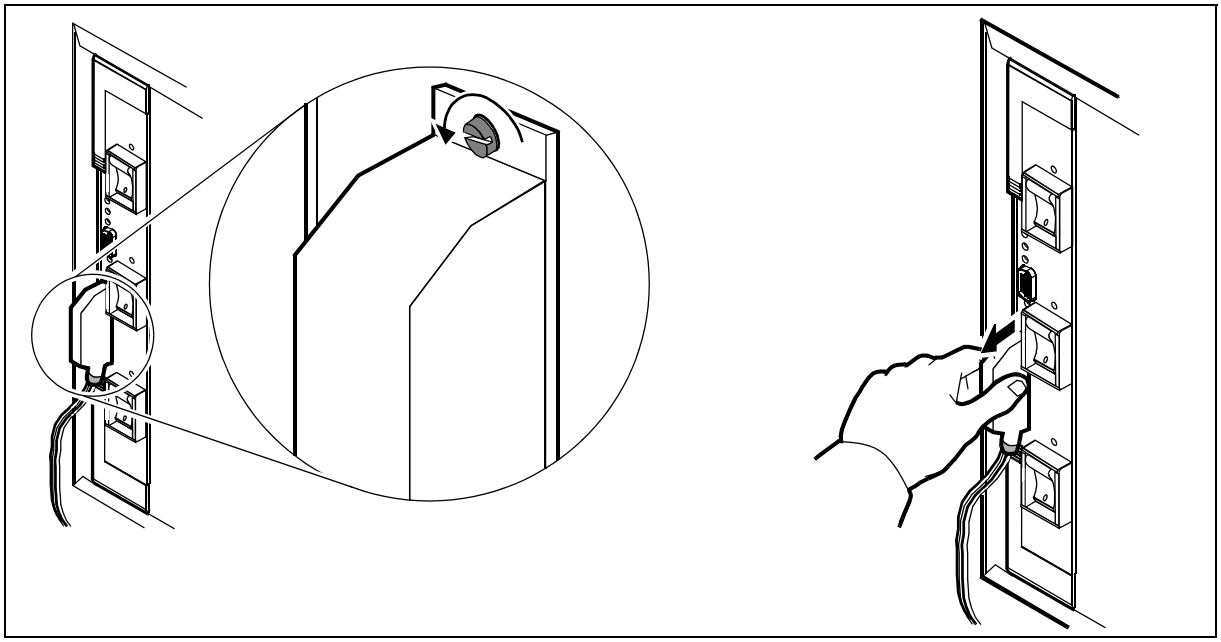
b Carefully pull the power cable connector from the faceplate receptacle.

c Place the cable in a safe location away from the XA-Core shelf.

d Wait 60 seconds before continuing with the next step.

NTLX12 SIM circuit pack (continued)

Remove the SIM power connector



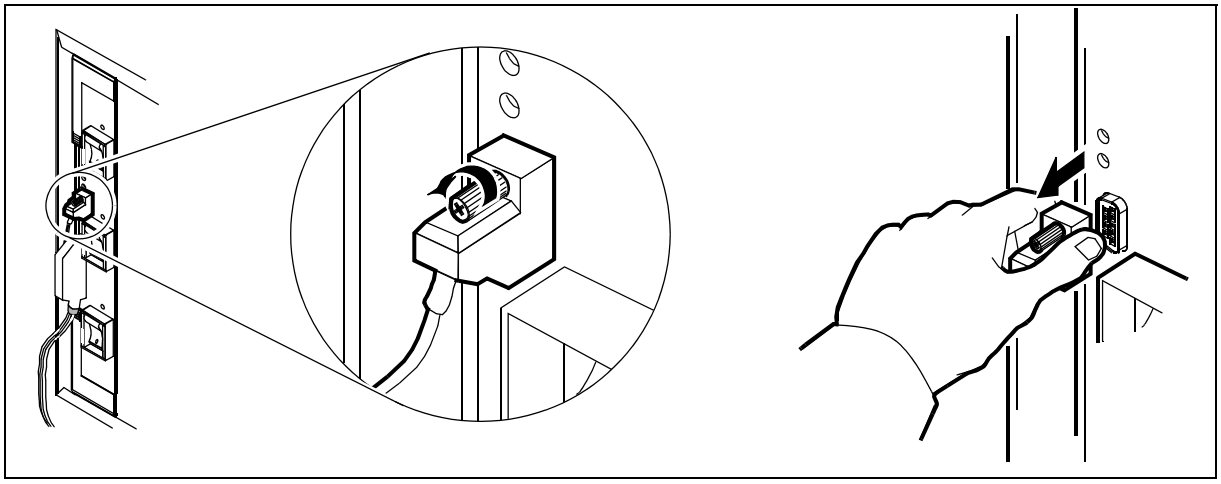
5 Remove the alarm cable from the SIM CP faceplate.

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 (continued)

6 Remove the SIM CP from the physical shelf.

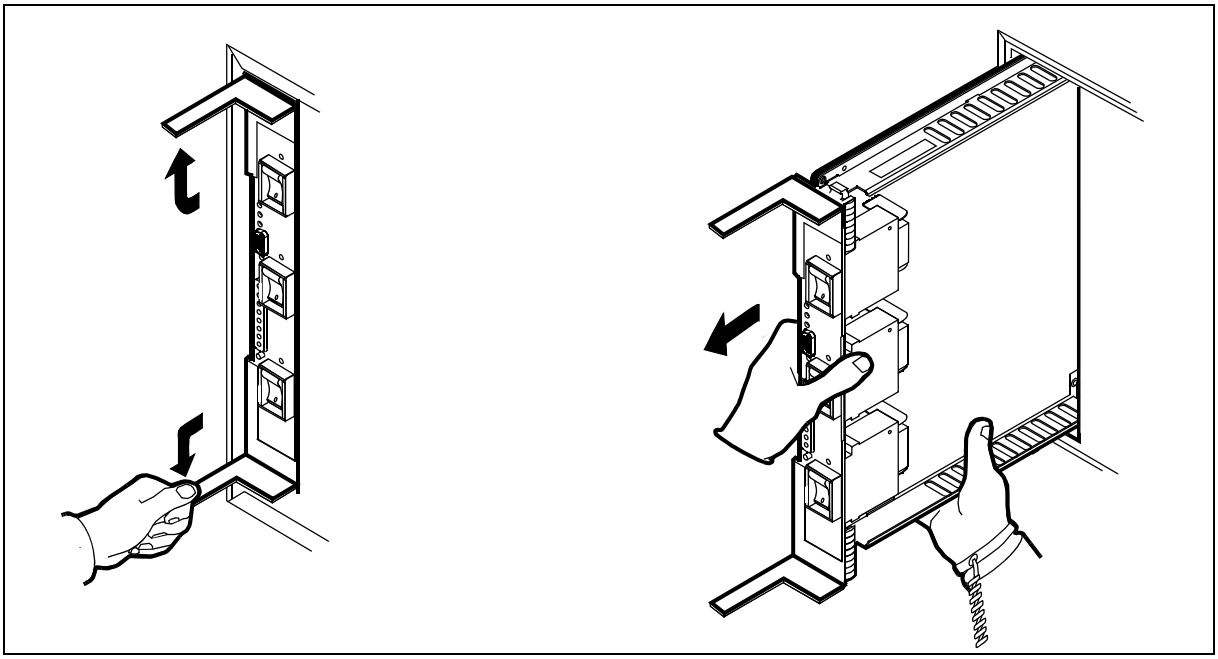
a Open the locking levers on the CP.

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.

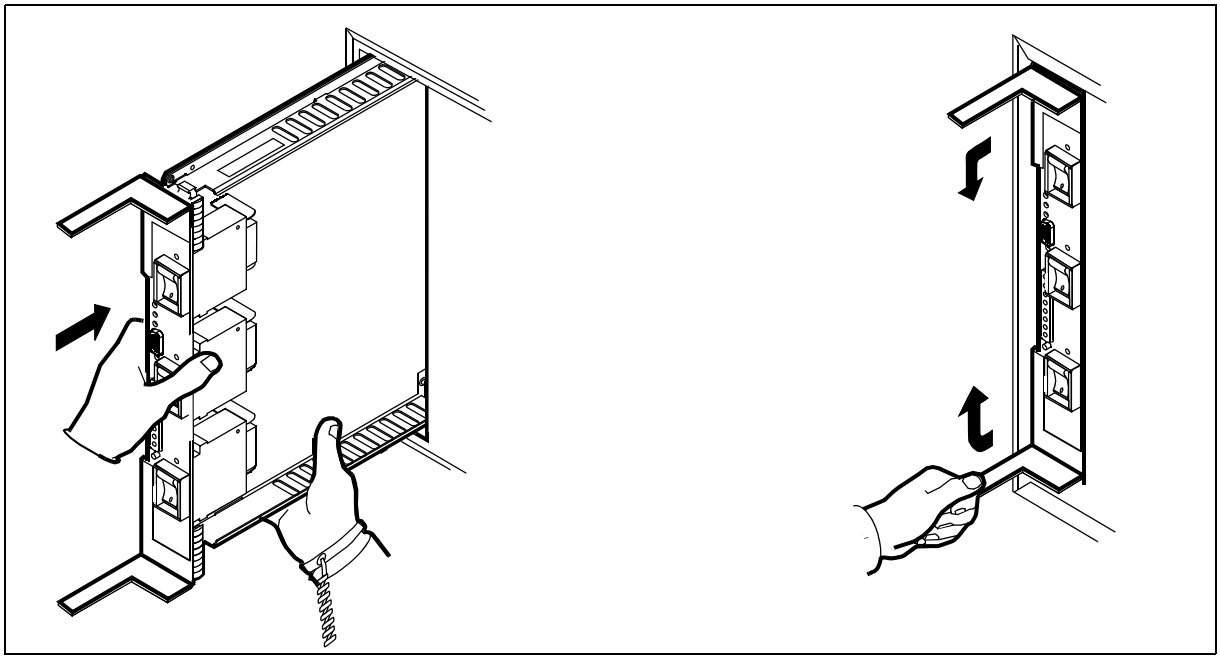
If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

NTLX12 SIM circuit pack (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

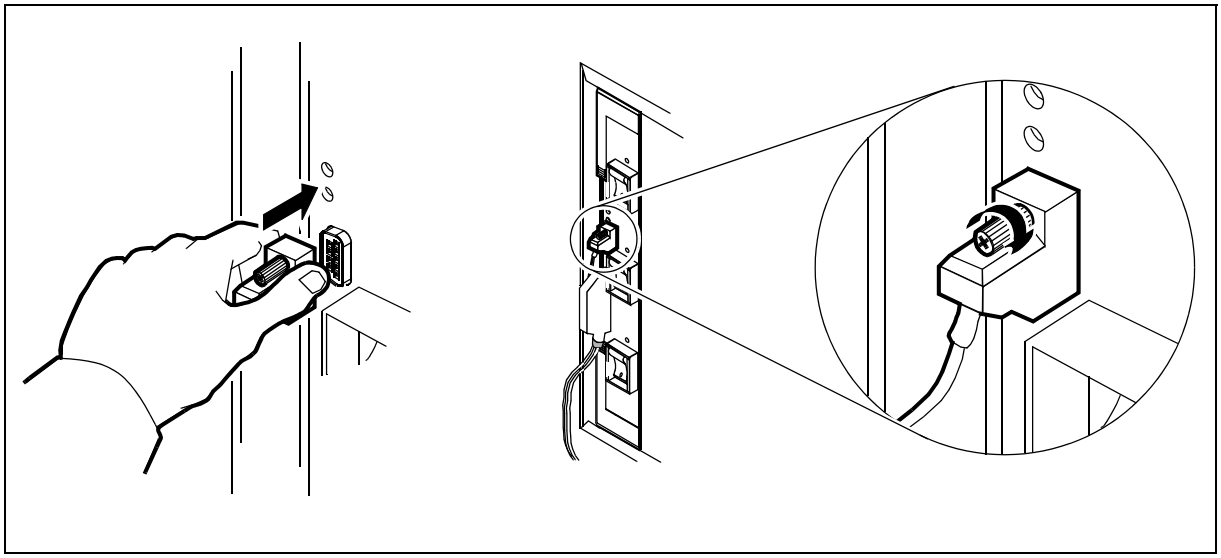


9 Connect the alarm cable to the SIM alarm receptacle.

- **a** Carefully insert the alarm connector into the SIM alarm receptacle.
- **b** Turn the alarm connector fastener in a clockwise direction.

NTLX12 SIM circuit pack (continued)

Insert the SIM alarm connector

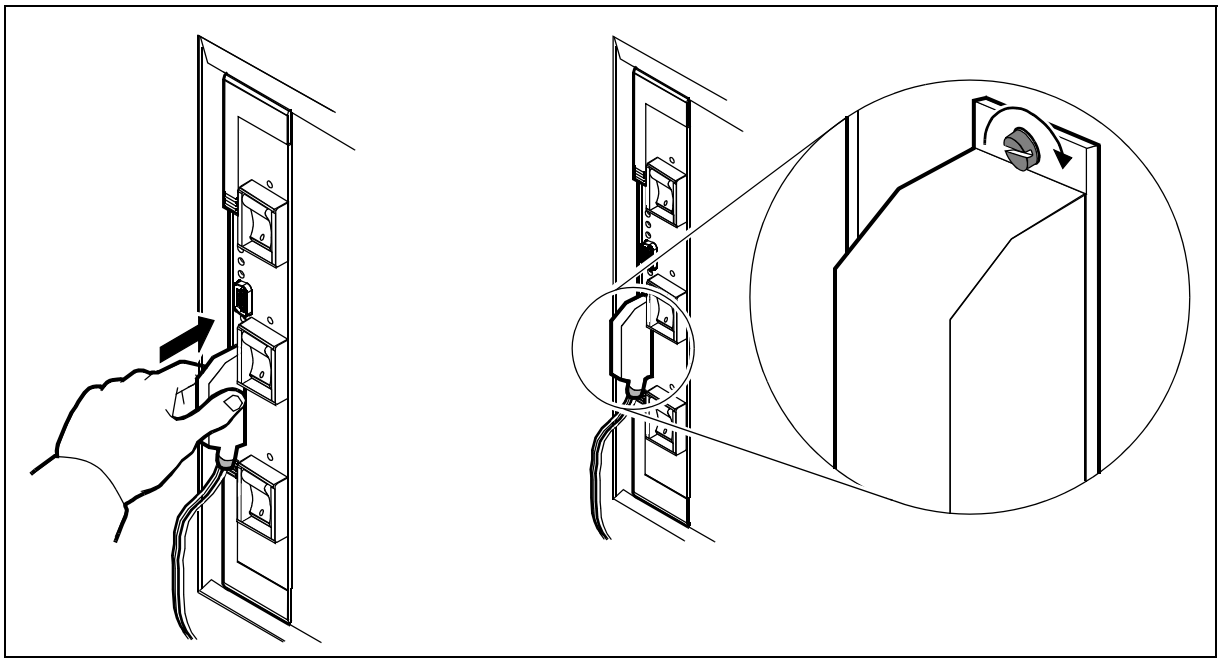


10 Connect the power cable to the SIM power receptacle.

a Carefully insert the power cable connector into the faceplate receptacle.

b Turn the power connector fasteners in a clockwise direction.

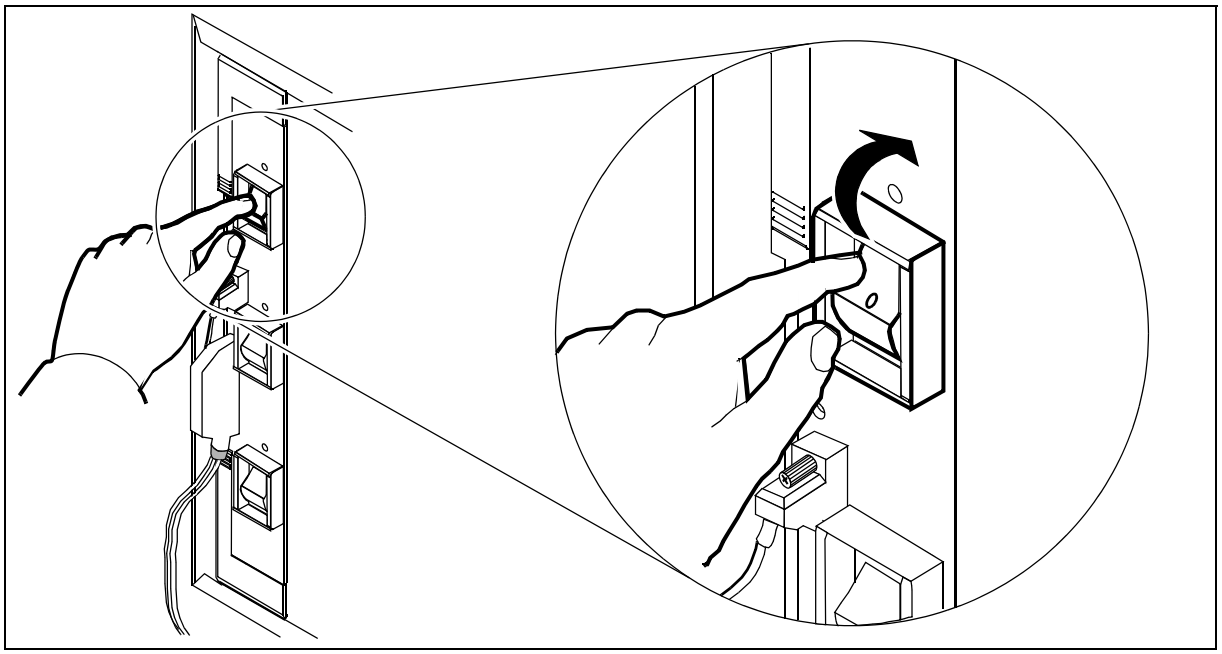
Insert the SIM power connector



NTLX12 SIM circuit pack (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

NTLX12 SIM circuit pack (continued)

At the MAP terminal

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

>MAPCI;MTC;XAC

and press the Enter key.

The following is a sample MAP display.

XAC MAP level

```
 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 (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 the procedure titled “How to return XA-Core circuit packs, packlets, or assemblies to Nortel (Canada)” in this document. 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.

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NTLX14 shared memory circuit pack in a SuperNode and SuperNode SE XA-Core

NTLX14 shared memory circuit pack

Application

This section contains the procedure for replacing an NTLX14 shared memory (SM) circuit pack (CP).

Use this procedure

- to replace a defective circuit pack
- to replace a circuit pack that does not meet the baseline requirements

If you are replacing a defective circuit pack, make sure that the replacement circuit pack has the same product engineering code and version as the circuit pack that you are removing.

If you are replacing a circuit pack that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

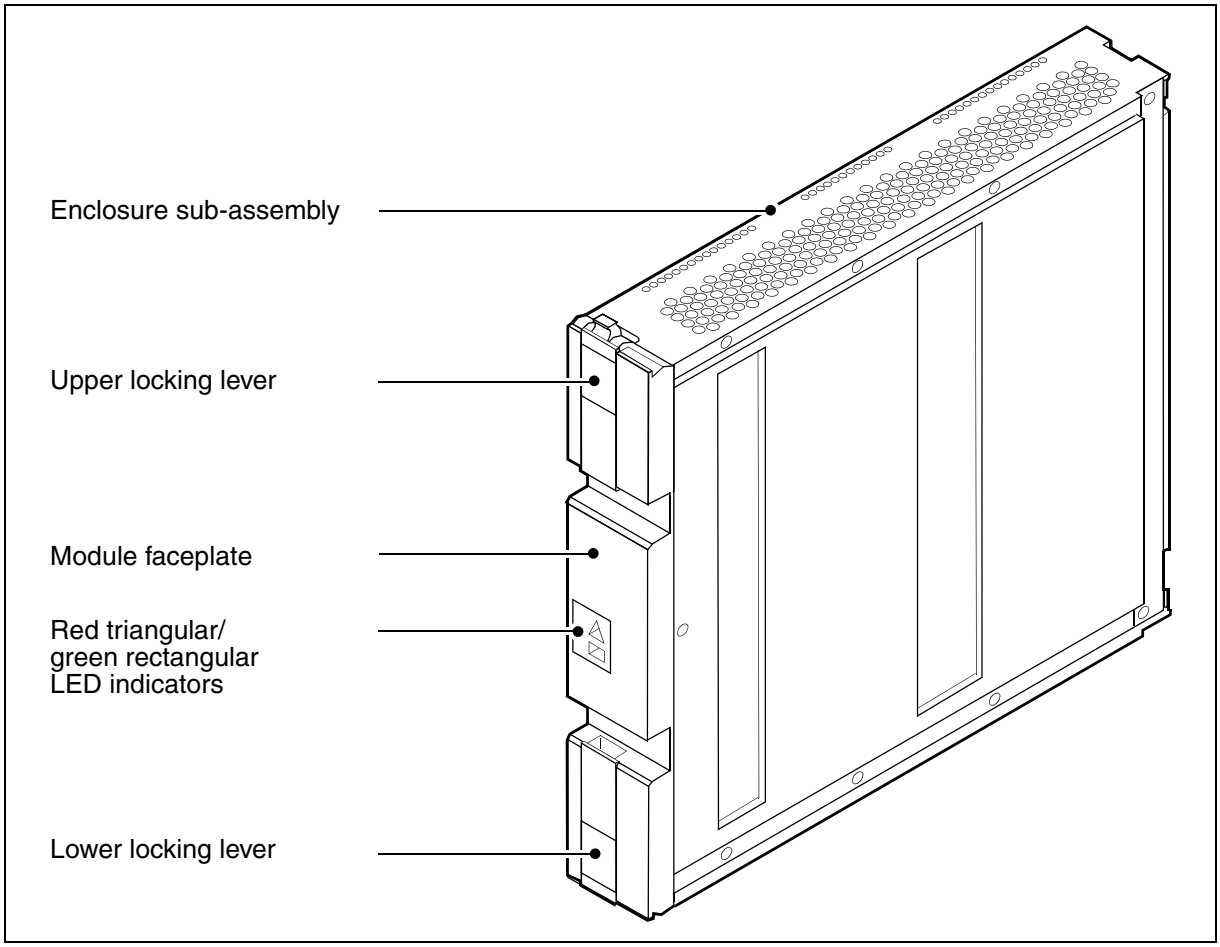
The following table lists the correct SM CP versions.

Table 2-18 Valid SM circuit packs

PEC	Suffix	Circuit pack name
NTLX14	CA	384 MByte SM circuit pack

NTLX14 shared memory circuit pack (continued)

Figure 2-30 NTLX14 shared memory circuit pack front and side views



NTLX14 shared memory circuit pack (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

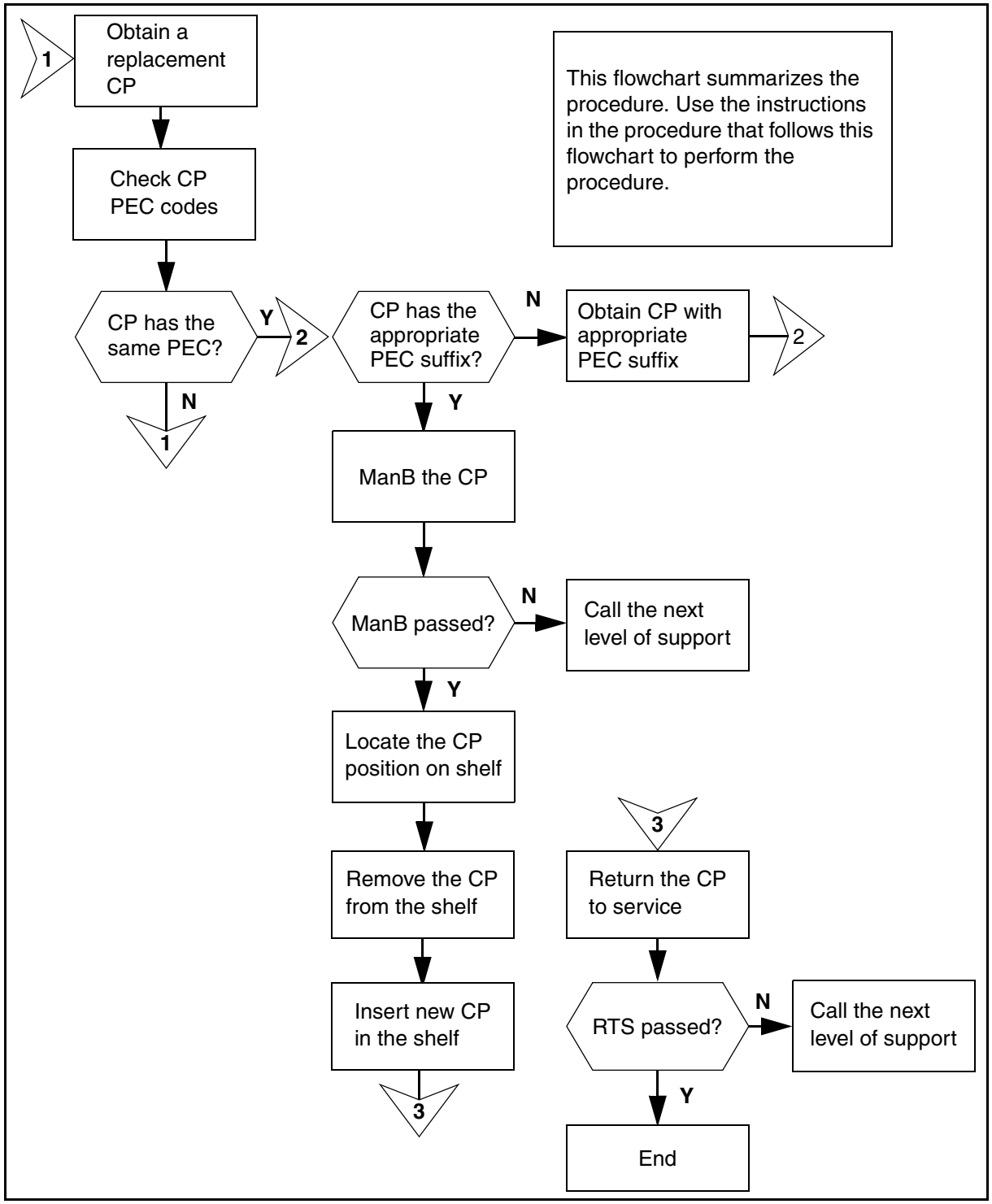
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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 (continued)

Figure 2-31 Summary of NTLX14 replacement procedure in an XA-Core



NTLX14 shared memory circuit pack (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.

At your current location

1 Get a replacement CP. If you are replacing a CP that does not meet baseline hardware requirements, make sure that the replacement CP meets those requirements. If you are replacing a defective CP, make sure that the

NTLX14 shared memory circuit pack (continued)

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

SM
 0 Quit          Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
                 123456789012345678  456789012345   SM M   .       .       .
 2          Sta: -.----..-.---.-..-  .--M-------.   1      0       0       0
 3          Dep:
 4          Typ:        ** **           *
 5            Physical: 1920         Useable: 1920        Available: 960
 6 Tst_       SYNC State: duplex
 7 Bsy_      SM:
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15
16 Trnsl_
17 Indicat_
18 Query_

  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 (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 - 1 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 12

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 - 1 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 (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.

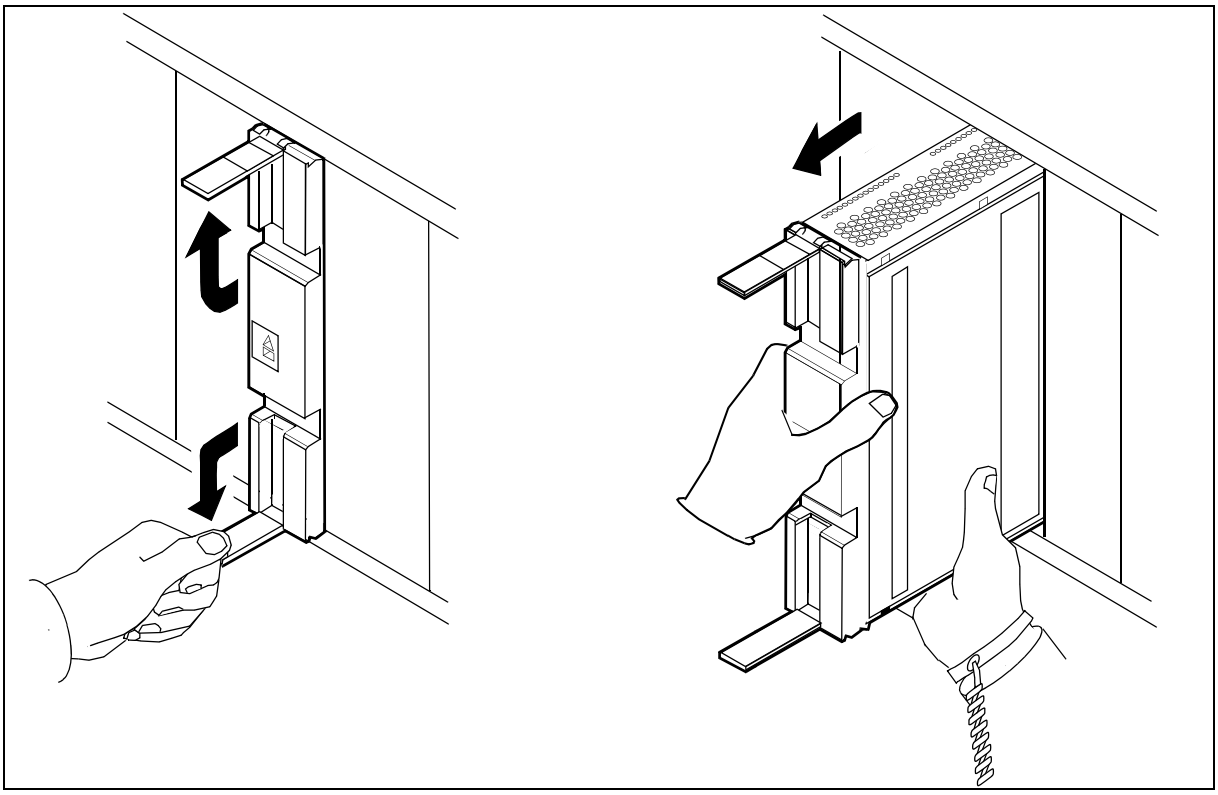
a Open the locking levers on the CP.

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



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

NTLX14 shared memory circuit pack (continued)

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 Verify that 60 seconds or more have elapsed since you removed the CP from the shelf. Then proceed to the next step.

10 Insert the replacement SM CP into the physical shelf slot.

a Open the locking levers on the replacement SM CP.

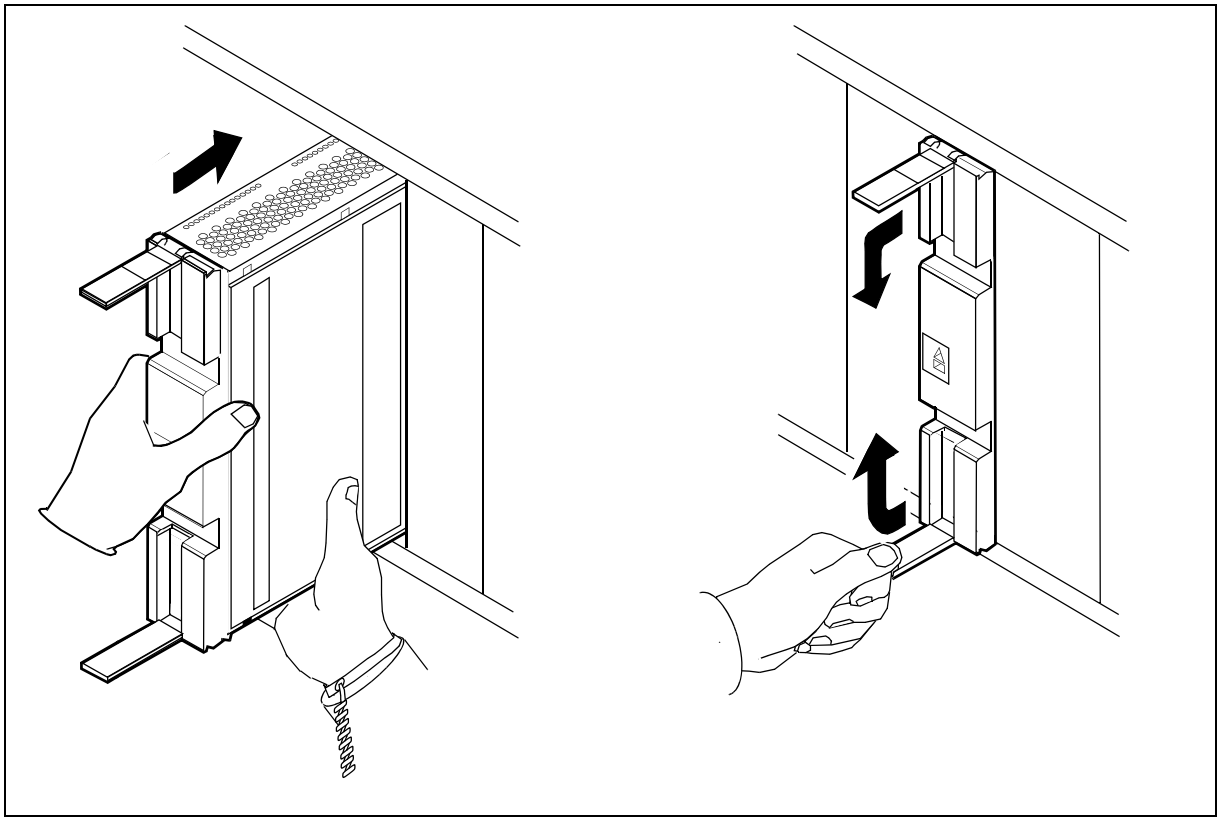
b Hold the CP by the faceplate with one hand and support the bottom edge with the other.

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 NTLX14 SM CP in the XA-Core shelf



NTLX14 shared memory circuit pack (continued)

At the MAP terminal

11 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 - 1 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

NTLX14 shared memory circuit pack (end)

Example of system response:

```
RTS 7 rear passed.
```

If replacement SM CP is	Do
not returned to service	step 12
returned to service	step 13

12 Call the next level of support.

13 Refer to theprocedure titled “How to return XA-Core circuit packs, packlets, or assemblies to Nortel (Canada)”. The procedure is in this document. Return to this point when complete.

14 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue as instructed.

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NTLX17 high performance CMIC circuit pack in a SuperNode and SuperNode SE XA-Core

NTLX17 high performance CMIC circuit pack

Application

This section contains the procedure for replacing an NTLX17AA high performance CMIC (HCMIC) circuit pack (CP).

Use this procedure

- to replace a defective circuit pack
- to replace a circuit pack that does not meet the baseline requirements

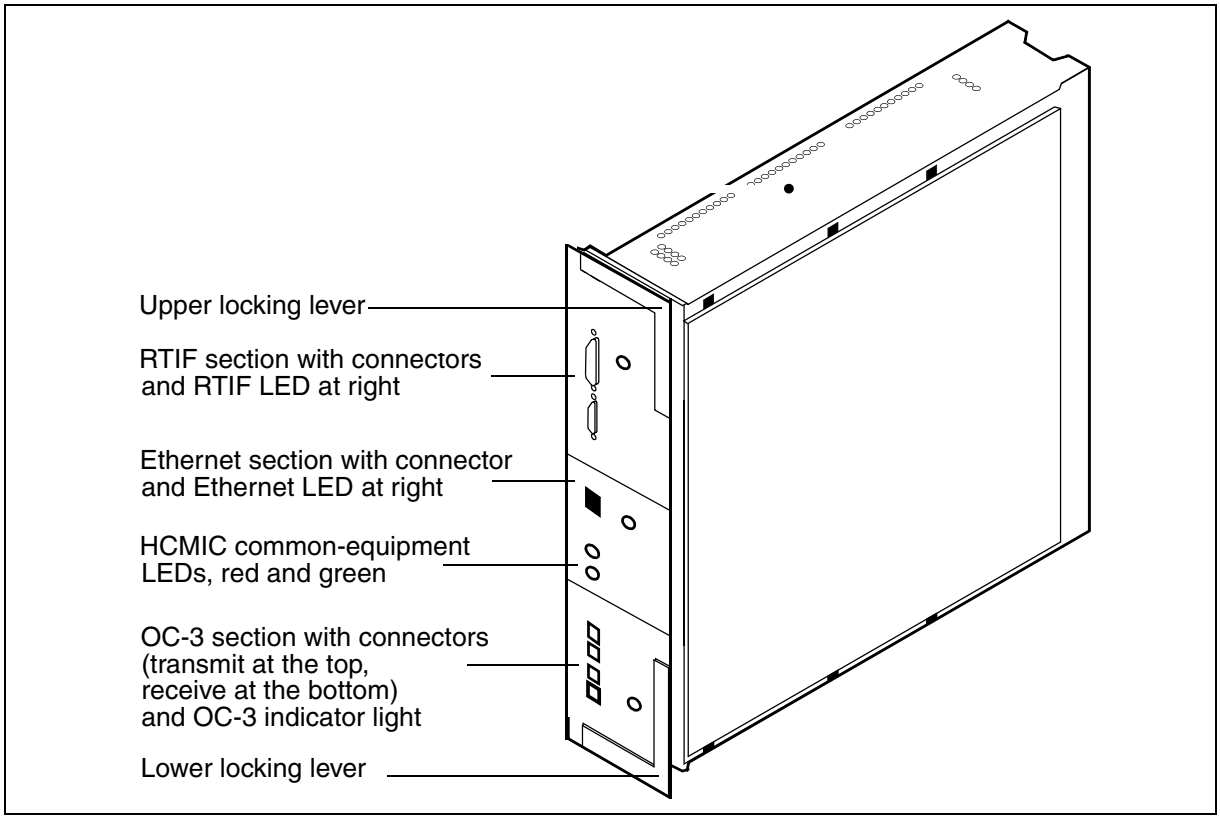
If you are replacing a defective circuit pack, make sure that the replacement circuit pack has the same product engineering code and version as the circuit pack that you are removing.

If you are replacing a circuit pack that does not meet the baseline requirements, the replacement that you install should meet those requirements. That means it must be at or above the hardware baseline, and it must not be specified as an exception. Table PECINV lists the hardware baselines for all field-replaceable units, and also lists any exceptions. For information on table PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Note: This procedure is intended to cover only those baseline problems that occur during day-to-day operations. This procedure is not intended to cover upgrades required to meet new baseline requirements when the system is upgraded from one software release to another.

NTLX17 high performance CMIC circuit pack (continued)

Figure 2-32 NTLX17AA high performance CMIC circuit pack front and side views



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

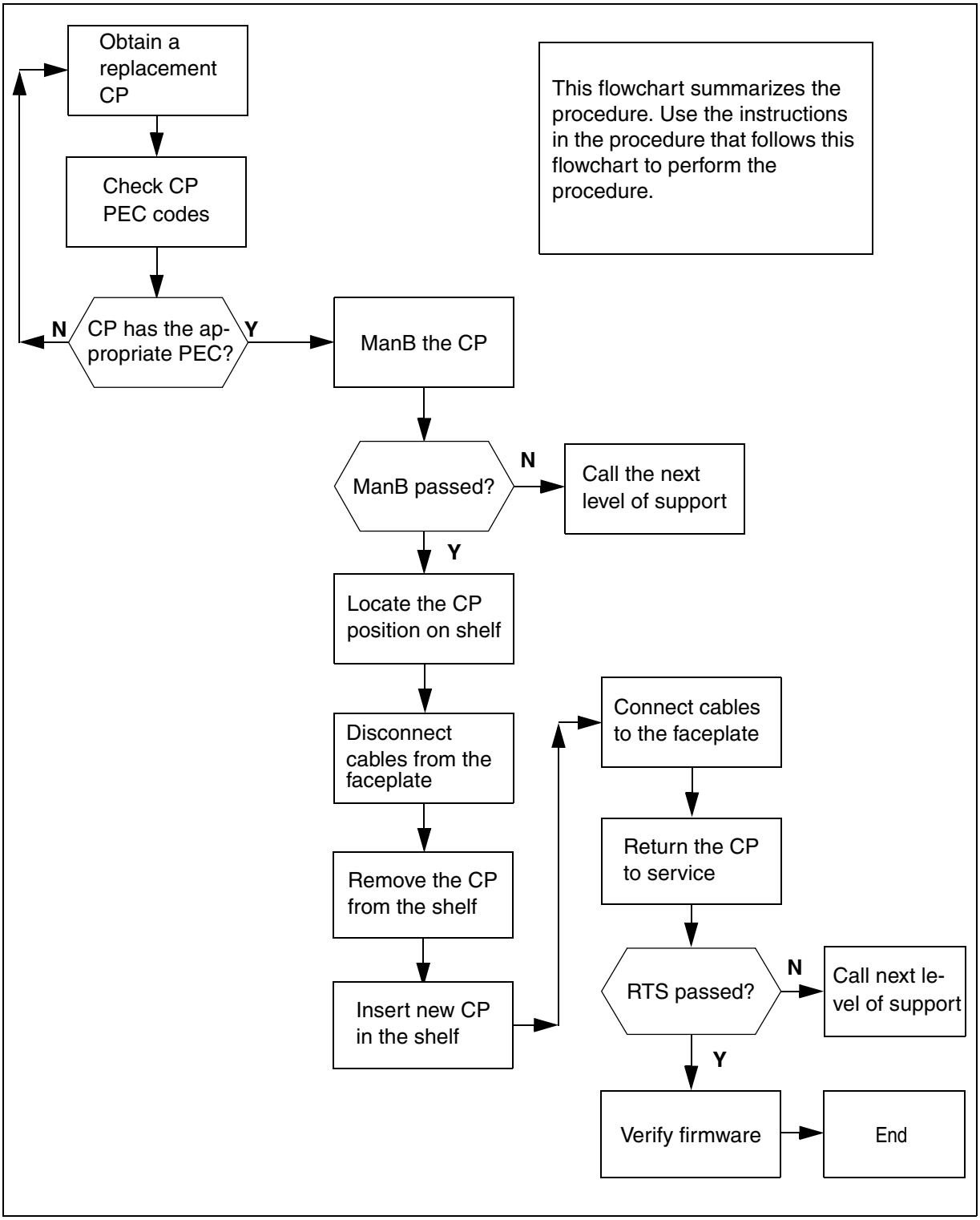
The faceplate of all CPs and packlets have built-in LED visual indicators. The visual indicators allow you to determine the working status of the CPs and identify damaged or inactive CPs. The relationship between lit and not lit LEDs indicate the CP's working status. Refer to Introduction to card replacement 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.

NTLX17 high performance CMIC circuit pack (continued)

Figure 2-33 Summary of NTLX17 replacement procedure in an XA-Core



NTLX17 high performance CMIC circuit pack (continued)

How to replace an NTLX17 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.

NTLX17 high performance CMIC circuit pack (continued)

At your current location

1 Get a replacement CP. If you are replacing a CP that does not meet baseline hardware requirements, make sure that the replacement CP meets those requirements. If you are replacing a defective 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 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:   111111111  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      .              RTIF .                 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 HCMIC CPs. Determine the location of the HCMIC CP that you need to replace. Record the HCMIC CP location on the physical shelf, side and slot.

4 ManB the HCMIC 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> FORCE

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

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

Example of command use:

NTLX17 high performance CMIC circuit pack (continued)

>BSY 4 r

Example of system response:

```
Bsy 4 rear complete.
```

If the HCMIC CP is	Do
in a ManB state	step 5
not in a ManB state	step 13

5 Indicate the ManB HCMIC 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 - 1 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 4r

Example of system response:

```
Indicate 4 rear passed.
```

At the XA-Core physical shelf

6 Locate the HCMIC 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 HCMIC 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.

NTLX17 high performance CMIC circuit pack (continued)

Remove the HCMIC CP from the physical shelf.

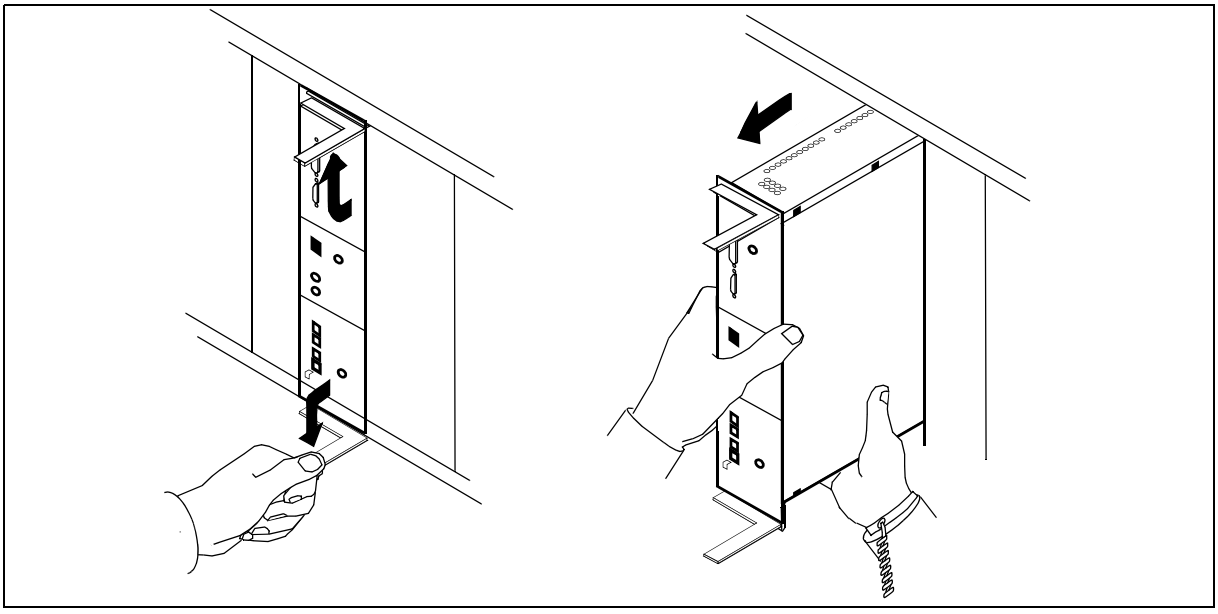
a Open the locking levers on the CP.

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 NTLX17 HCMIC CP from the XA-Core shelf



NTLX17 high performance CMIC circuit pack (continued)

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.

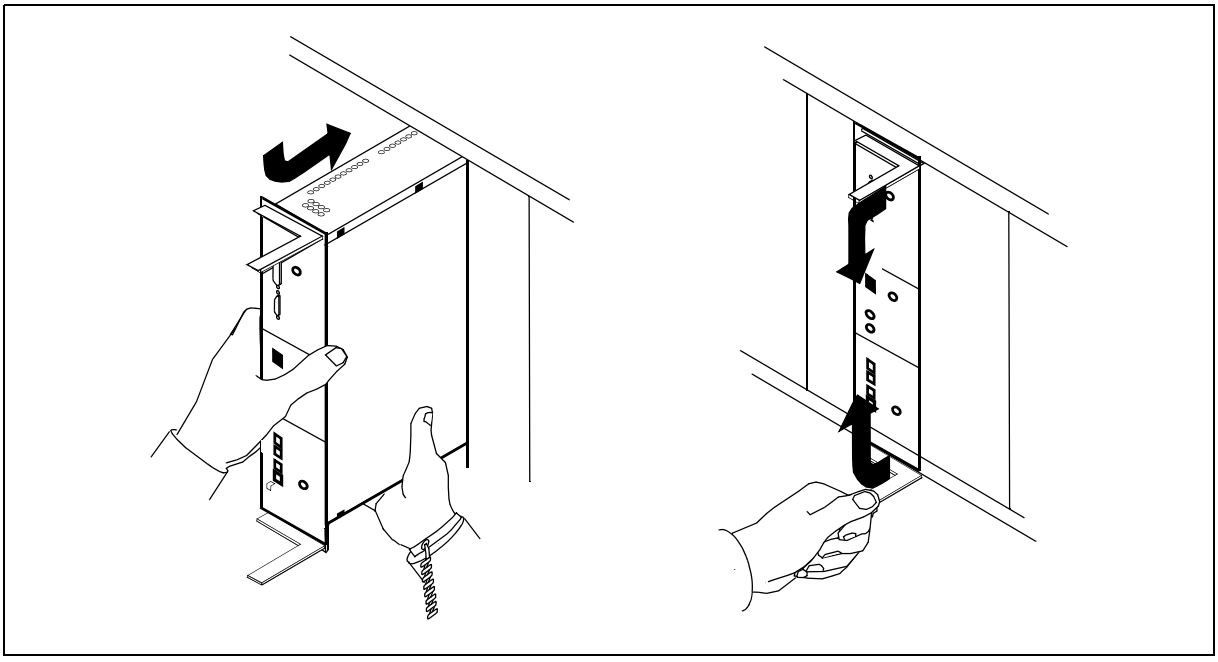
If no bent backplane pins are found, inspect the backplane connector on the rear of the circuit pack being installed in this slot. Look for physical damage or abnormalities.

If you encounter significant resistance when inserting this circuit pack, investigate the cause before continuing.

10 Insert the replacement HCMIC CP into the physical shelf slot.

- **a** Open the locking levers on the replacement HCMIC 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 NTLX17 HCMIC CP in the XA-Core shelf



NTLX17 high performance CMIC circuit pack (continued)

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.

At the MAP terminal

12 Return the HCMIC 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 - 1 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 4 r

Example of system response:

```
RTS 4 rear passed.
```

If replacement HCMIC CP is	Do
not returned to service	step 13
returned to service	step 14

13 Call the next level of support.

NTLX17 high performance CMIC circuit pack (end)

14 Check that the newly installed circuit pack contains the proper firmware loads. 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 - 1 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 r

The system displays several items of information, including the firmware versions.

Example of system response

```
Command Submitted.
.
.
.
Pos Type PEC+ HW Rel BL OK Serial Number FW Vers. Baseline OK
--- ---- ---- -- --- -- -- ------------- -------- -------- --
                                          <vers>   <blv>   <ok>
```

where

<vers> identifies the firmware load that is in the circuit pack

<blv> identifies the baseline firmware version

<ok> indicates whether the current firmware load is compatible with the baseline and exception information specified in table FWINV. For information on the baseline and exception specifications, see the description of table FWINV in the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

If the firmware versions	Do
are the proper versions	step 16
are not the proper versions	step 15

15 Perform the procedure titled “Loading current firmware in a new XA-Core component”. The procedure is in this document, in the chapter titled “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.

NTLX20 filler circuit pack in a Super Node and Super Node SE XA-Core

NTLX20 filler circuit pack

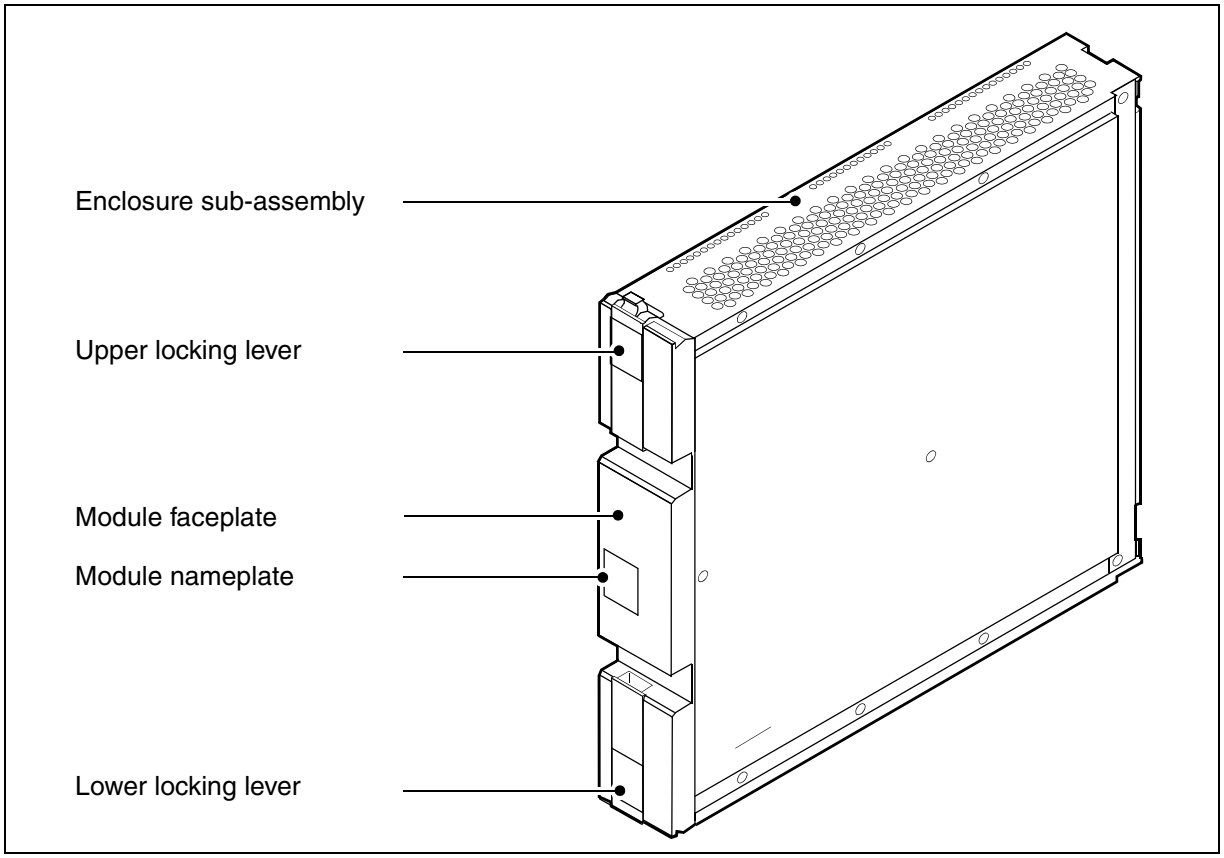
Application

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.

Table 2-19 Valid XA-Core filler circuit packs

PEC	Suffix	Circuit pack name
NTLX20	AA	Filler

Figure 2-34 NTLX20 filler CP front and side views



Common procedures

There are no common procedures.

NTLX20 filler circuit pack NTLX20 filler circuit pack (continued)

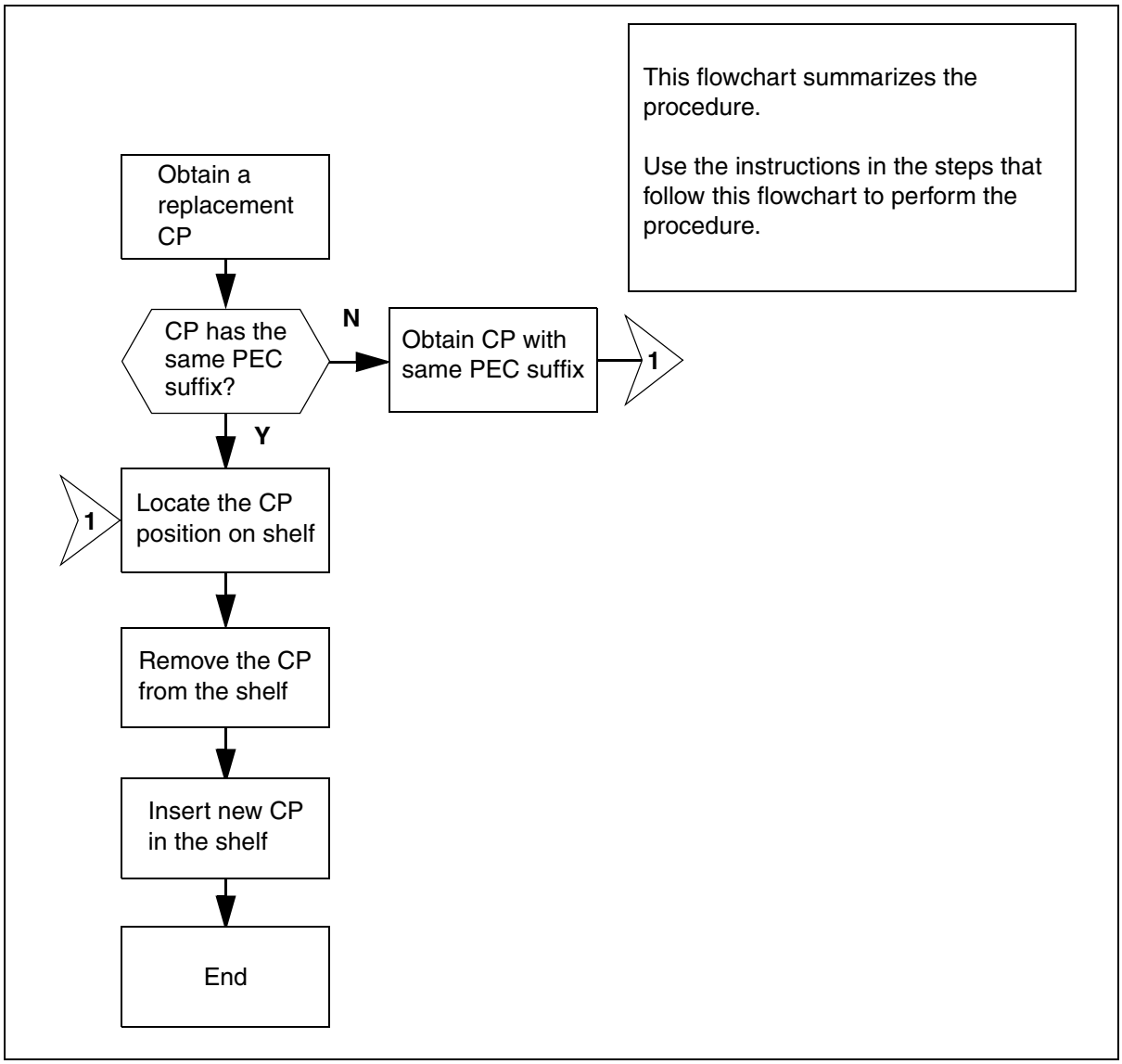
Light emitting diode (LED) visual indicators

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.

Figure 2-35 Summary of NTLX20 filler CP replacement procedure



NTLX20 filler circuit pack NTLX20 filler circuit pack (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

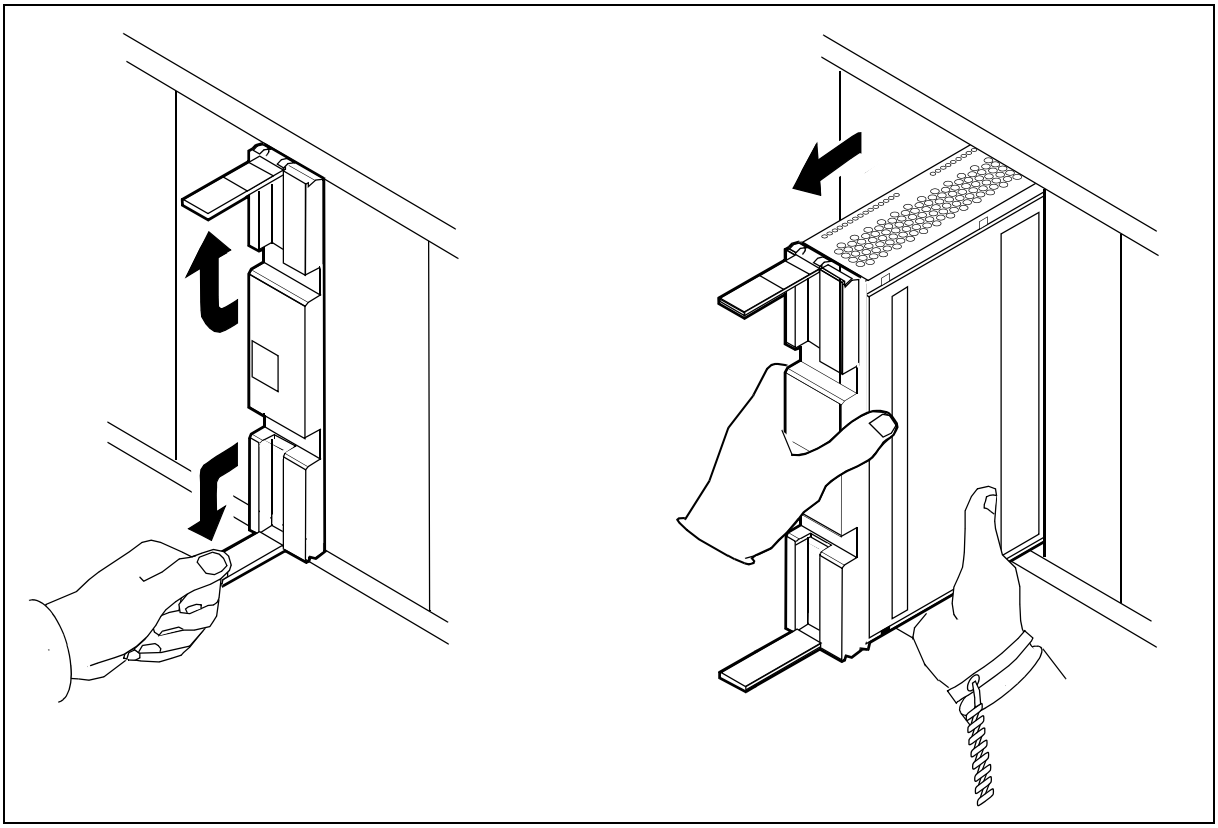
2 Locate the filler CP on the XA-Core physical shelf.

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 NTLX20 filler circuit pack (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.

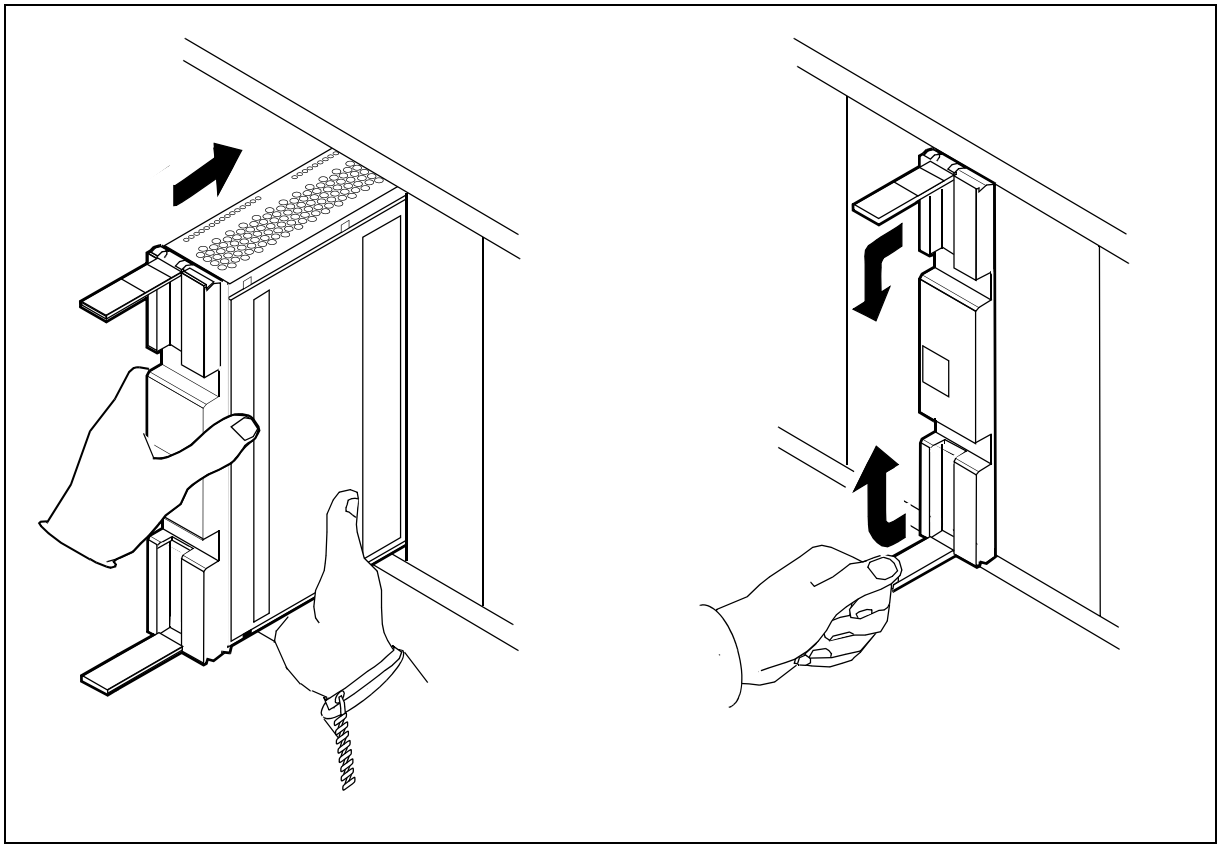
c Align the CP with the physical shelf slot. Slide the CP into the physical slot. Do not force the CP into the physical slot.

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 NTLX20 filler circuit pack (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.

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NTLX20 terminating filler circuit pack in a SuperNode and SuperNode SE XA-Core

NTLX20 terminating filler circuit pack

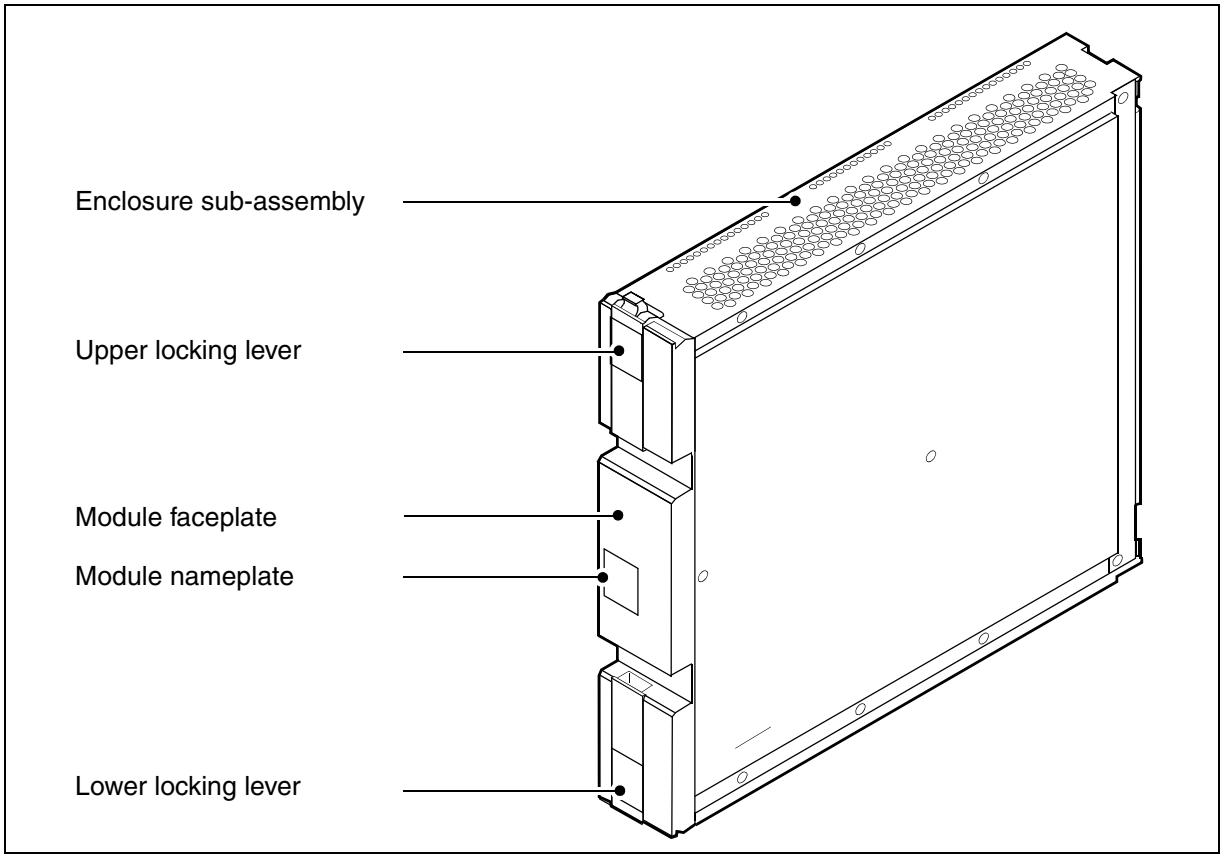
Application

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.

Table 2-20 Valid XA-Core Slot terminator circuit packs

PEC	Suffix	Circuit pack name
NTLX20	BA	Terminating filler

Figure 2-36 NTLX20 Terminating filler CP front and side views



Common procedures

There are no common procedures.

NTLX20 terminating filler circuit pack (continued)

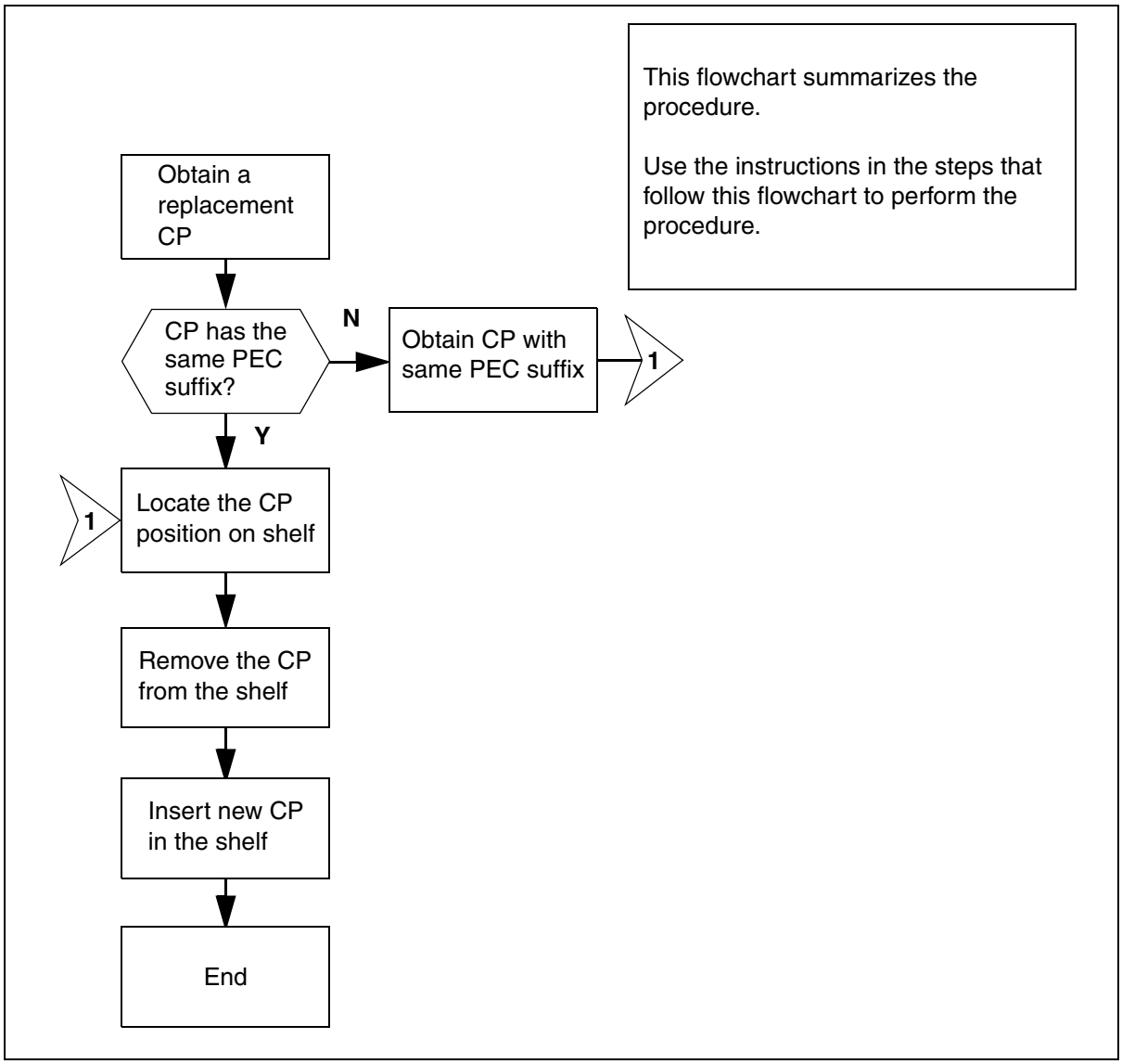
Light emitting diode (LED) visual indicators

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.

Figure 2-37 Summary of NTLX20 Terminating filler CP replacement procedure



NTLX20 terminating filler circuit pack (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.

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.

NTLX20 terminating filler circuit pack (continued)

At the XA-Core physical shelf

2 Locate the Terminating filler CP on the XA-Core physical shelf.

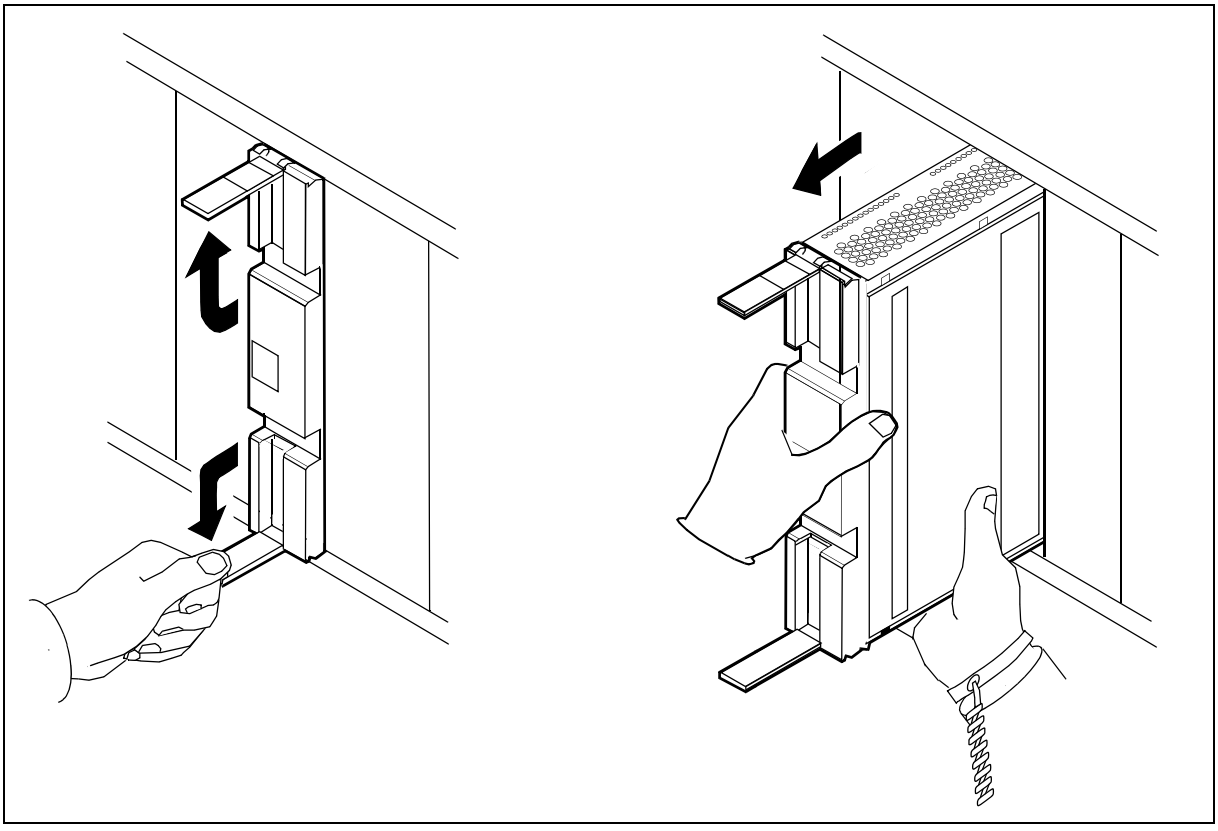
3 Remove the Terminating filler CP from the physical shelf. Use the diagrams shown in this step.

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.

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.

NTLX20 terminating filler circuit pack (end)

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.

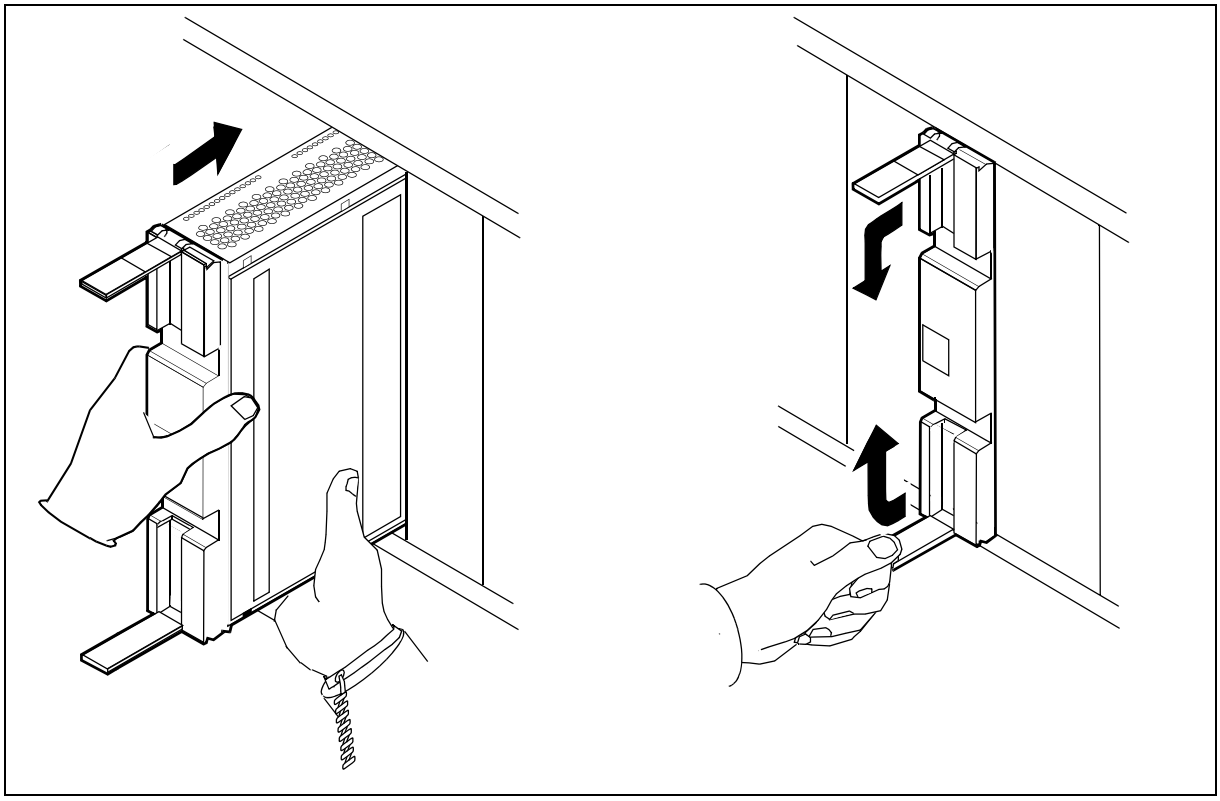
b Hold the CP by the faceplate with one hand and support the bottom edge with the other.

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.

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3 Introduction to recovery procedures

This chapter describes how to perform recovery maintenance procedures on the DMS SuperNode (SN) and DMS SuperNode SE (SNSE) XA-Core (XAC).

Chapter summary

Recovery maintenance procedures on the DMS SuperNode and DMS SuperNode SE XA-Core (XAC)contain 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.

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How to boot an XA-Core in a DMS switch

Use this procedure to boot a DMS SuperNode or DMS SuperNode SE switch that has an eXtended Architecture Core (XA-Core).

Introduction

This procedure boots a switch from a reset terminal display.

Application

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

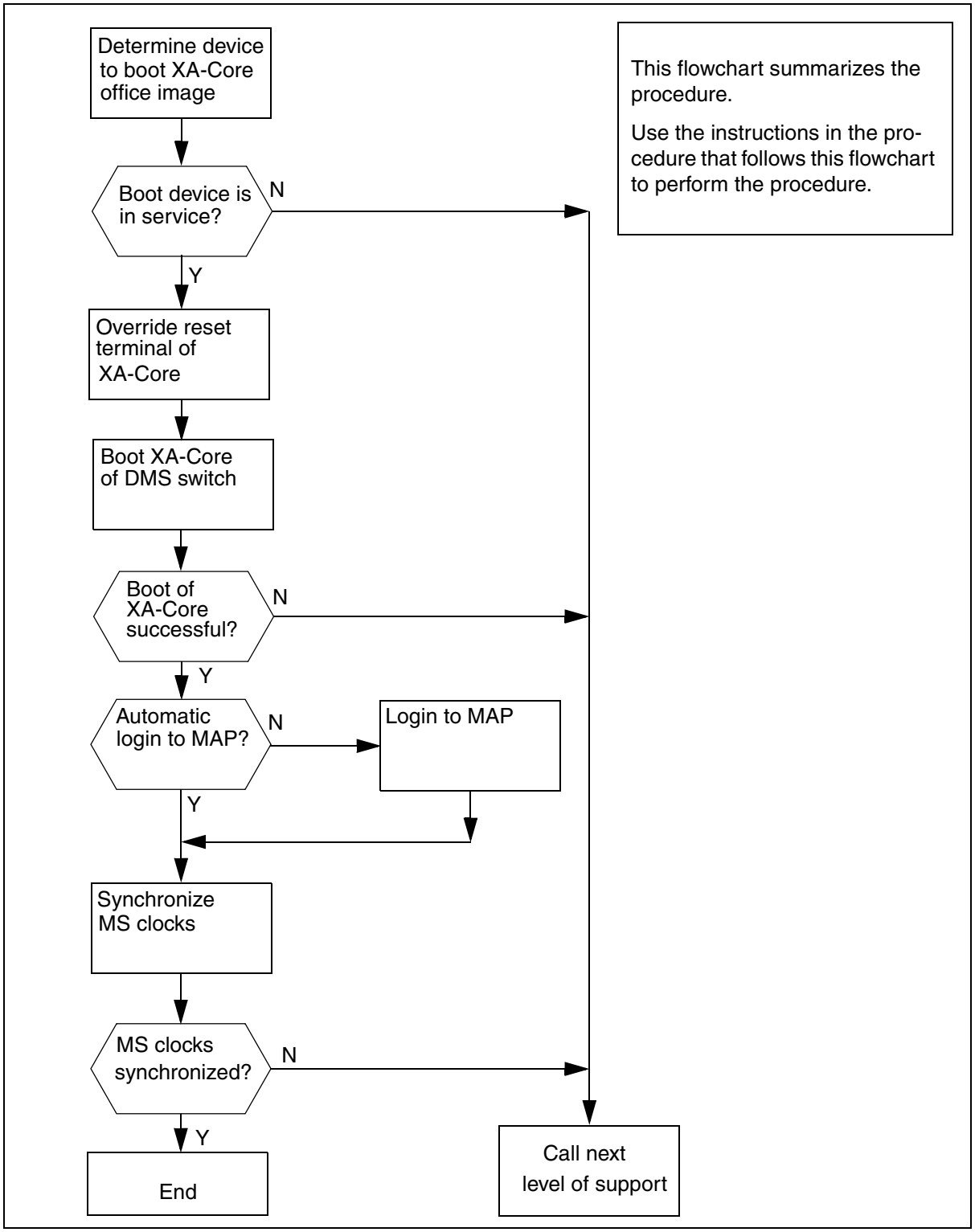
There are no common procedures.

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)

Figure 3-1 How to boot an XA-Core in a DMS switch



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
```

How to boot an XA-Core in a DMS switch (continued)

4 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 packlet with the last image file. The packlet 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 packlet with the last image file. The packlet 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 packlet with the last image file. The packlet 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

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
```

How to boot an XA-Core in a DMS switch (end)

11 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

```
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.

Emergency power conservation restoration

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.

Introduction

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.

Application

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 an 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

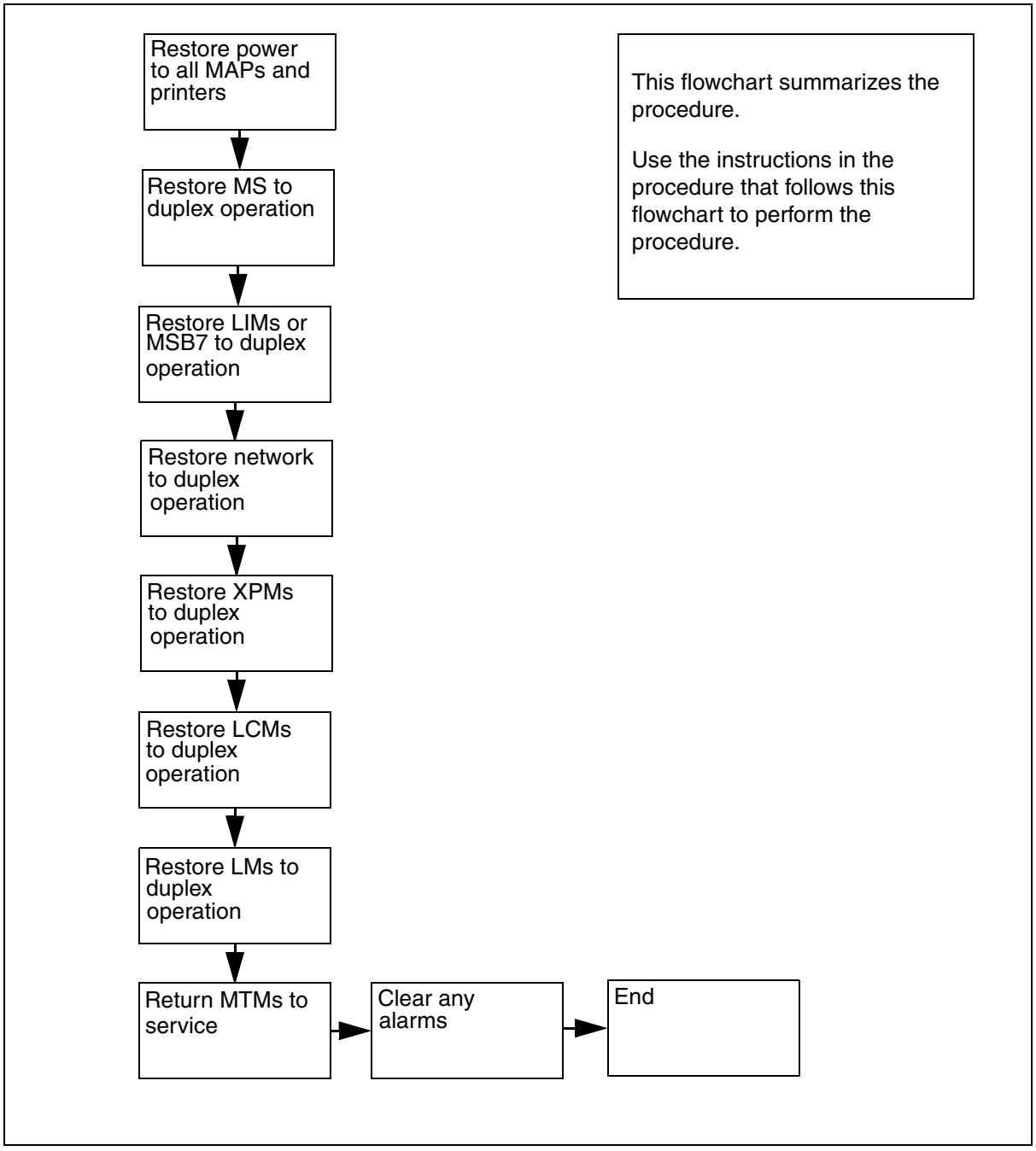
There are no common procedures.

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.

Figure 3-2 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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

7 If you removed power from one or more network frames, restore power to the changed frames at the power distribution center (PDC).

Emergency power conservation restoration (end)

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 procedure "Restoring the junctored network to duplex operation" in *Recovery Procedures,* 297-8001-545 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-543 (International market).

15 You have completed this procedure.

Emergency power conservation shutdown

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.

Introduction

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.

Application

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

Emergency power conservation shutdown (continued)

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.

Interval

Use this procedure to maintain emergency backup power without loss of subscriber service, during an extended commercial power outage.

Common procedures

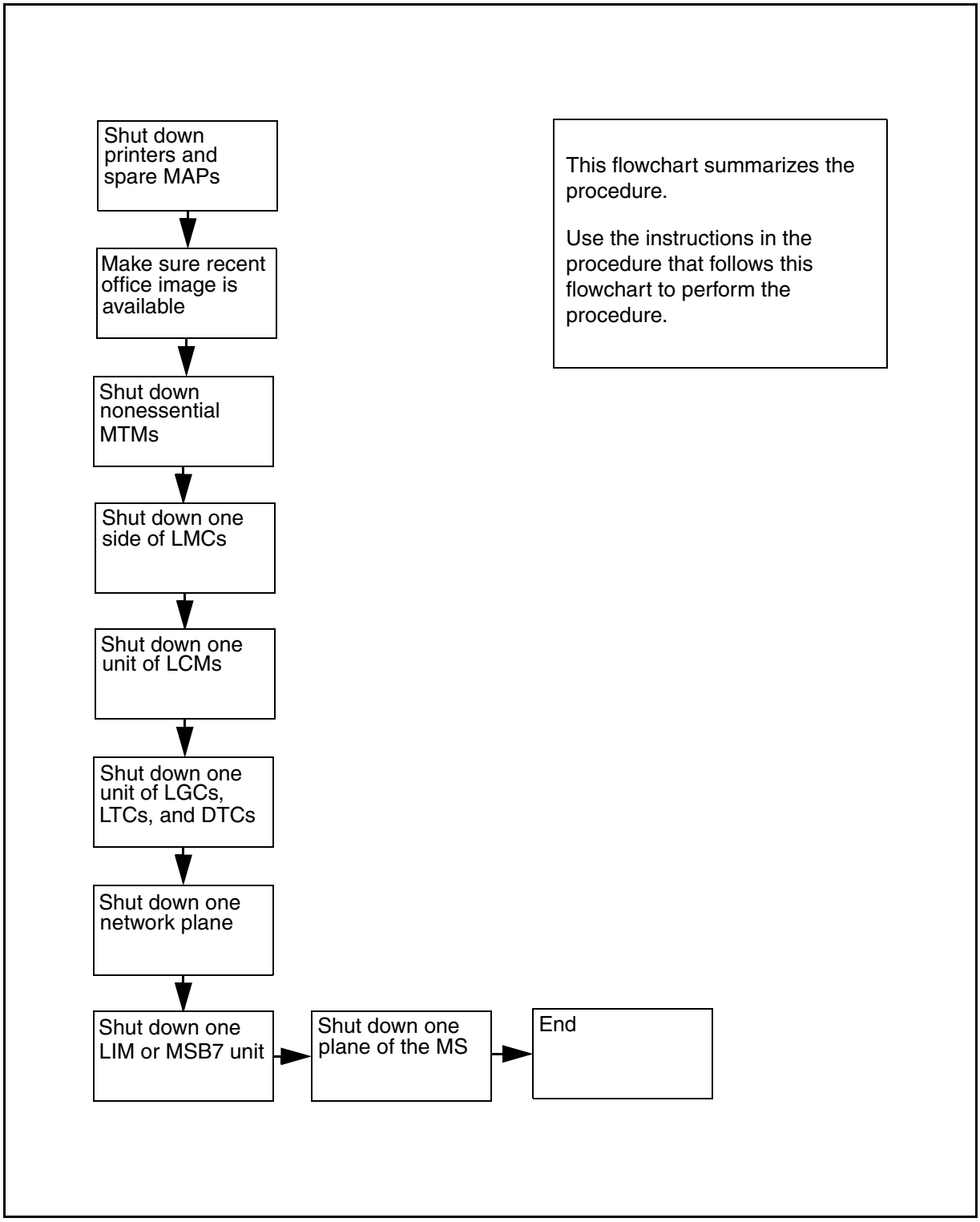
There are no common procedures.

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)

Figure 3-3 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_XA
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.
Next image to be dumped on F02LIMAGE.
```

If an office image is	Do
available	step 5
not available	step 4

Emergency power conservation shutdown (continued)

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).
- for JNET, perform the procedure, “Emergency shutdown of one junctored network plane” in *Recovery Procedures*, 297-8001-545 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

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 (North American market) or 297-9051-545 (International market).

Emergency power conservation shutdown (end)

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 step 13. To busy the clock, perform the procedure, “Emergency shutdown of one remote oscillator shelf plane” in *Recovery Procedures*, 297-8001-545 (North American market) or 297-9051-545 (International market).

15 You have completed this procedure.

Emergency shutdown of the switch

Use this procedure to perform an emergency shutdown of a DMS switch.

Introduction

Use this procedure to power down a DMS switch as follows:

- in the event of an emergency, for example, flooding or fire
- to protect equipment if the available functioning voltage at the power distribution center (PDC) falls below -43.75 V dc
- when instructed by the next level of support

Application

Do not use this procedure to conserve emergency backup power. To conserve emergency backup power, perform the procedure titled “Emergency power conservation shutdown”, located in this chapter. That procedure powers down elements of the switch that you do not require.

Interval

Not applicable.

Common procedures

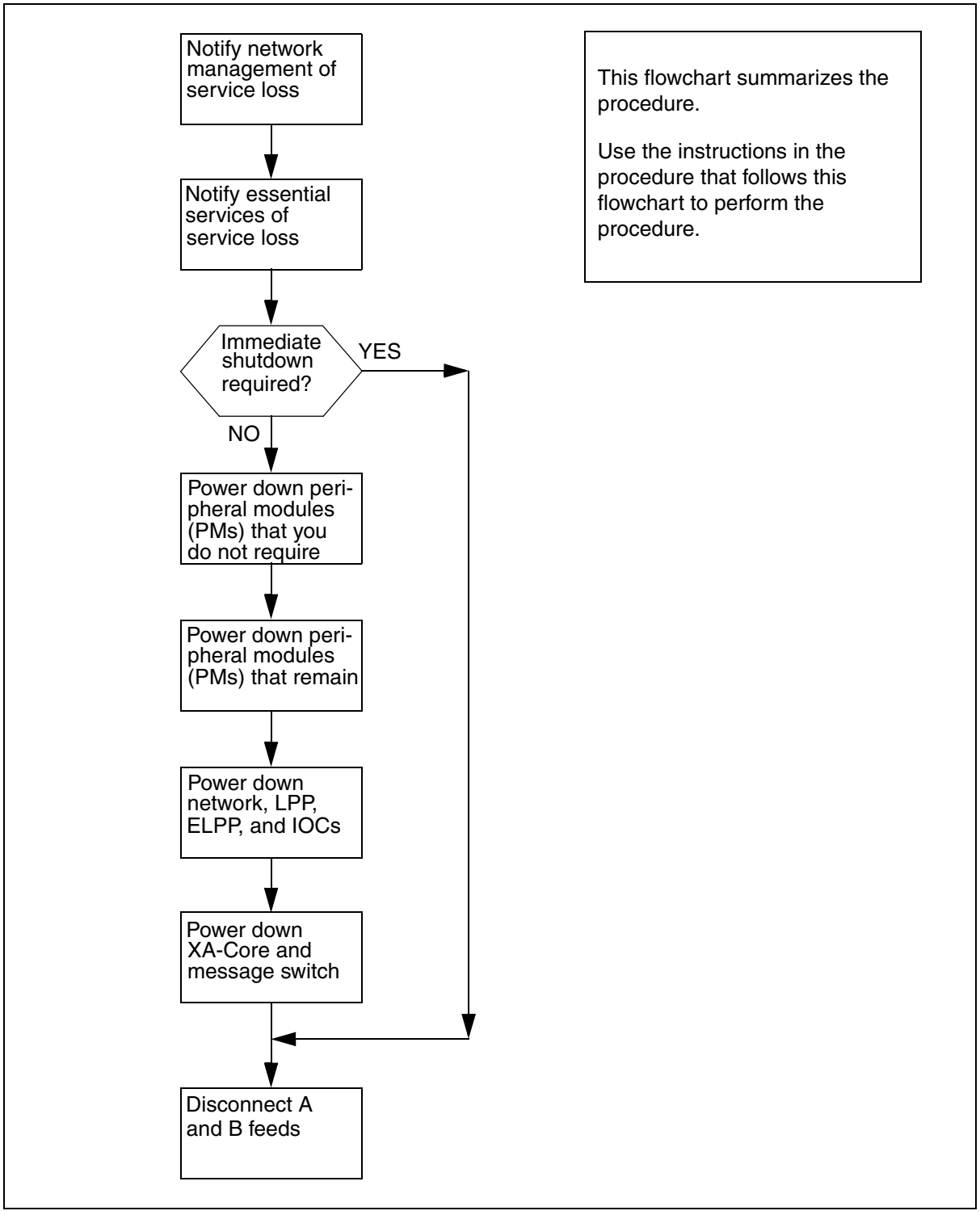
There are no common procedures.

Action

The following flowchart is a summary of the procedure. To perform the power shutdown, use the instructions in the step-action procedure that follows the flowchart.

Emergency shutdown of the switch (continued)

Figure 3-4 Emergency shutdown of the switch



Emergency shutdown of the switch (continued)

Emergency shutdown of the switch



CAUTION
This procedure results in a complete loss of subscriber service.
Nortel Networks recommends that before you perform this procedure, you should contact emergency Technical Assistance Services (ETAS) of Nortel Networks or contact your next level of support.

At your current location

1 Notify network management personnel of the impending service interruption.

2 Notify emergency services (police, fire, ambulance) of the impending service interruption.

At the switch

3 Select the next step as follows:

If	Do
the switch must be shut down immediately due to dangerous environmental conditions	step 4
there is time (one half hour or more) to shut down the switch in an orderly fashion	step 6

4 Turn off the power to the power distribution centers (PDCs) by disconnecting the power feeds at the power room.

Note: Turning off the switch in this manner should be done only if absolutely necessary, as current arcing may occur.

5 Go to step 19.

6 Using office records, identify the peripheral modules that host emergency services (such as fire, police, and ambulance), so that these peripherals can be shut off last.

7 Turn off the power converter for each maintenance trunk module shelf, except those identified in step 6 as essential for emergency service lines.

Note: Older peripheral modules, such as line modules and digital carrier modules, use universal tone receivers resident in maintenance trunk modules.

8 Turn off the inverters for all MAPs and printers, except the operator MAP and one printer.

9 Turn off the power converters on all digital trunk controllers and trunk modules, except those identified in step 6 as essential for emergency service communications.

10 Turn off the power converters on each line module shelf, except those identified in step 6 as hosting emergency service lines.

Emergency shutdown of the switch (end)

11 Turn off the power converters on all line concentrating modules, except those identified in step 6 as hosting emergency service lines.

12 Turn off the power converters on all line group controllers and line trunk controllers, except those identified in step 6 as essential for emergency service communications.

13 Turn off the power on all remaining peripheral modules, leaving essential service peripheral modules until last.

14 Turn off the power for the network modules, link peripheral processor, and input/output controllers (IOCs).

Note: To power down the ENET and the LPP, unseat and then reseat the power converters.

15 Turn off the power for all remaining devices, including the inverter that supplies the operator MAP, and any external printers, tape drives, or disk drives.

16 Turn off the power for the XA-Core. Power down both SIM cards in the XA-Core. In each SIM card you must turn off three breakers.

17 Turn off the power for the message switch. Power down one plane by turning off the power converters. Power down the second plane by unseating and then reseating the power converters.

18 Turn off the power to the power distribution centers (PDCs) by discontinuing the A and B feeds at the power room.

19 You have completed this procedure.

How to perform a cold restart in an XA-Core

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.

Introduction

A cold restart is more serious than a warm restart but less serious than a reload restart.

Application

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

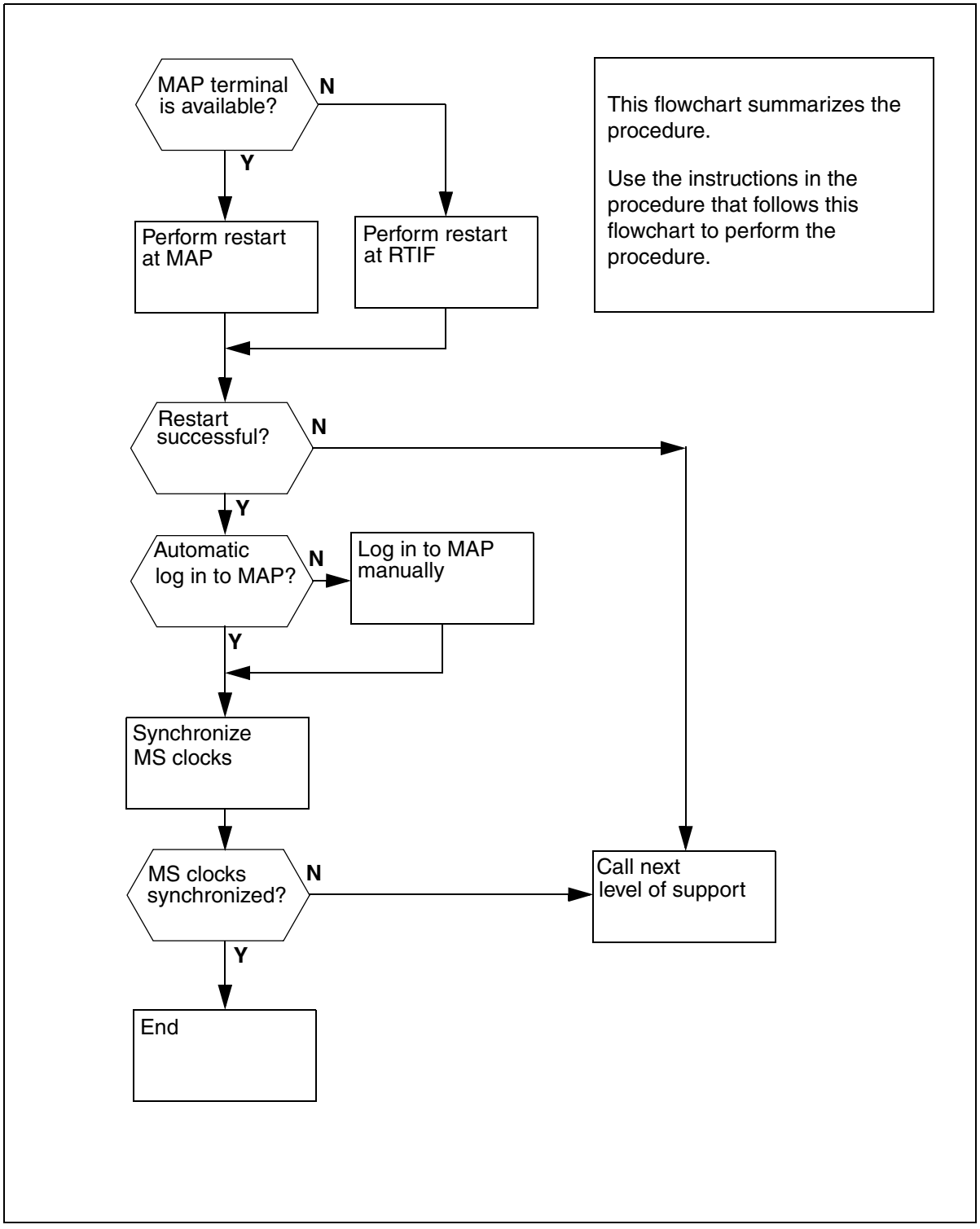
There are no common procedures.

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 an XA-Core (continued)

Figure 3-5 How to perform a cold restart in an XA-Core



How to perform a cold restart in an XA-Core (continued)

How to perform a cold restart in an 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 7

At the MAP terminal

2 To access the CI level of the MAP, type:

>QUIT ALL

and press the enter key.

Example of system response:

```
CI:
>
```

How to perform a cold restart in an XA-Core (continued)

3 To go into service-affecting mode, type

>\OVERRIDE

and press the Enter key.

Example of system response:

```
NOW IN SERVICE AFFECTING MODE
```

4 To restart the switch, type:

>RESTART COLD ACTIVE

and press the Enter key.

Example of system response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Use MTCSWACT. Consult NORESTARTSWACT/MTCSWACT Users Guide
NTP.
Please confirm ("YES", "Y", "NO", or "N"):
```

5 To confirm the command, type:

>YES

and press the enter key.

Example of system response:

```
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

6 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 10
no restart completion after approximately 5 min	step 17

At the RTIF terminal

7 To restart the switch, type:

>\RESTART COLD ACTIVE

and press the enter key.

Example of system response:

```
 Please confirm: (YES/NO)
```

How to perform a cold restart in an XA-Core (continued)

8 To confirm the command, type:

>\YES

and press the enter key.

Example of system response:

```
RESTART DONE
```

9 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 10
no A1 after approximately 5 min	step 17

At the MAP terminal

10



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 system response:

```
Please Login.
```

IfIf the log in is	Do
manual	step 11
automatic	step 15

11 Press the break key.

Example of system response:

```
?
```

How to perform a cold restart in an XA-Core (end)

12 To log in to the MAP terminal, type:

>**LOGIN**

and press the Enter key.

Example of system response:

```
Enter User Name
```

13 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 system response:

```
Enter Password
```

14 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 system response:

```
SuperNode_1 Logged in on 1997/01/15 at 20:37:17
```

15 To access the message switch (MS) Clock level of the MAP display, type:

>**MAPCI;MTC;MS;CLOCK**

and press the enter key.

16 To synchronize the clocks, type:

>SYNC

and press the enter key.

If the MAP response to the SYNC command is	Do
successful	step 18
failed	step 17

17 For additional help, call the personnel responsible for the next level of support.

18 You have completed this procedure.

How to perform a reload restart in an XA-Core

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.

Introduction

A reload restart is more serious than a cold restart.

Application

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

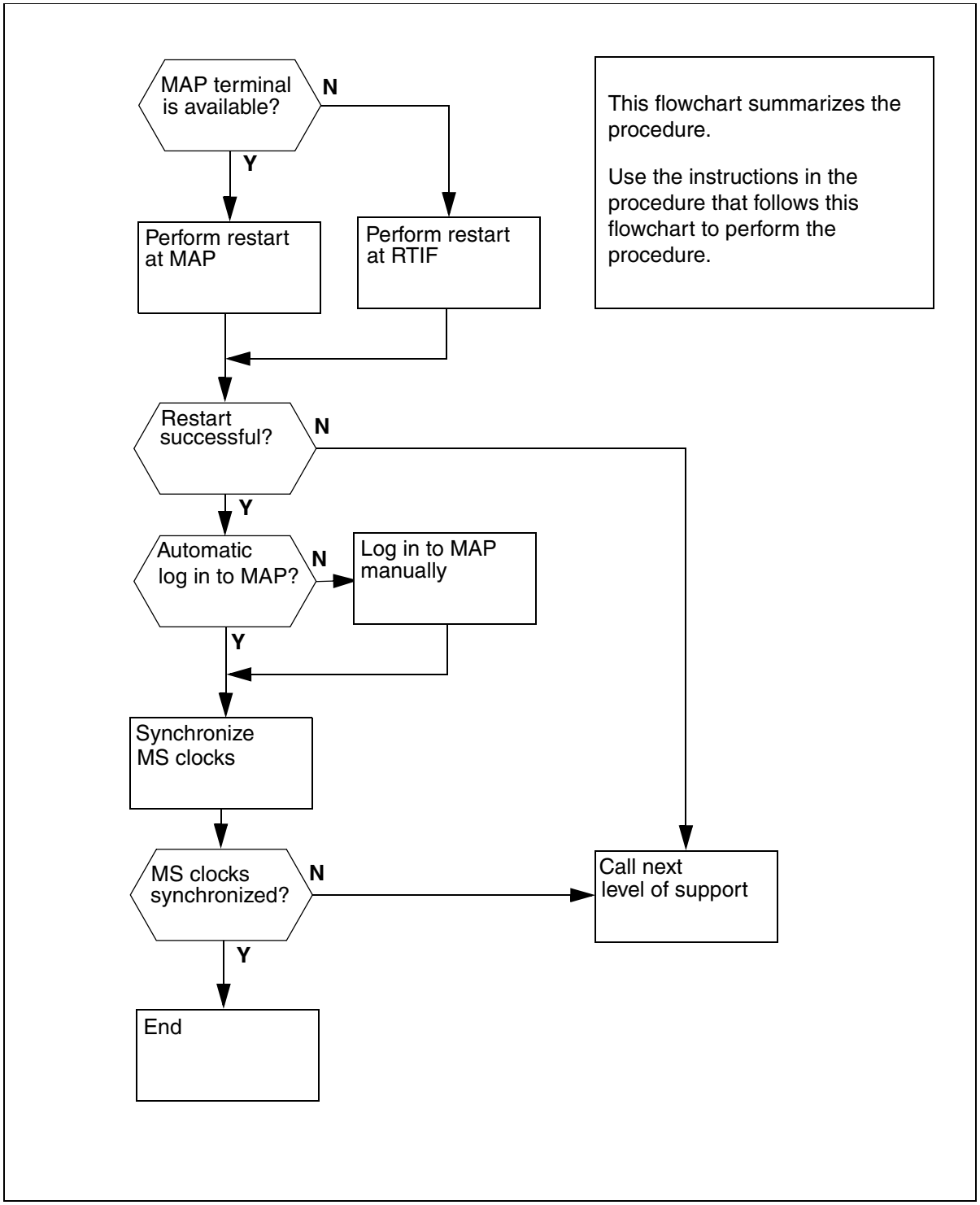
There are no common procedures.

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)

Figure 3-6 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 7

At the MAP terminal

2 To access the CI level of the MAP, type:

>**QUIT ALL**

and press the enter key.

Example of system response:

```
CI:
>
```

How to perform a reload restart in an XA-Core (continued)

3 To go into service-affecting mode, type

>\OVERRIDE

and press the Enter key.

Example of system response:

```
NOW IN SERVICE AFFECTING MODE
```

4 To restart the switch, type:

>**RESTART RELOAD ACTIVE**

and press the enter key.

Example of system response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Please confirm ("YES", "Y", "NO", "N"):
```

5 To confirm the command, type:

>**YES**

and press the enter key.

At the RTIF terminal

6 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 10
no restart completion after approximately 5 min	step 17

At the RTIF terminal

7 To restart the switch, type:

>**\RESTART RELOAD**

and press the enter key.

Example of system response:

```
Please confirm: (YES/NO)
```

8 To confirm the command, type:

>**\YES**

and press the enter key.

Example of system response:

```
RESTART DONE
```

How to perform a reload restart in an XA-Core (continued)

9 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 10
no A1 after approximately 5 min	step 17

At the MAP terminal

10



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 system response:

```
Please Login.
```

If your log in is	Do
not automatic	step 11
automatic	step 15

11 Press the break key.

Example of system response:

```
?
```

12 To log in to the MAP terminal, type:

LOGIN

and press the enter key.

Example of system response:

```
Enter User Name
```

How to perform a reload restart in an XA-Core (end)

13 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 system response:

```
Enter Password
```

14 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 system response:

```
SuperNode1 Logged in on 1997/01/15 at 20:37:17
```

15 To access the message switch (MS) Clock level of the MAP display, type:

>**MAPCI;MTC;MS;CLOCK**

and press the enter key.

16 To synchronize the clocks, type:

>SYNC

and press the enter key.

If the SYNC command is	Do
successful	step 18
not successful	step 17

17 For additional help, call the personnel responsible for the next level of support.

18 You have completed this procedure.

How to perform a warm restart in an XA-Core

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.

Introduction

A warm restart is the least serious type of restart.

Application

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

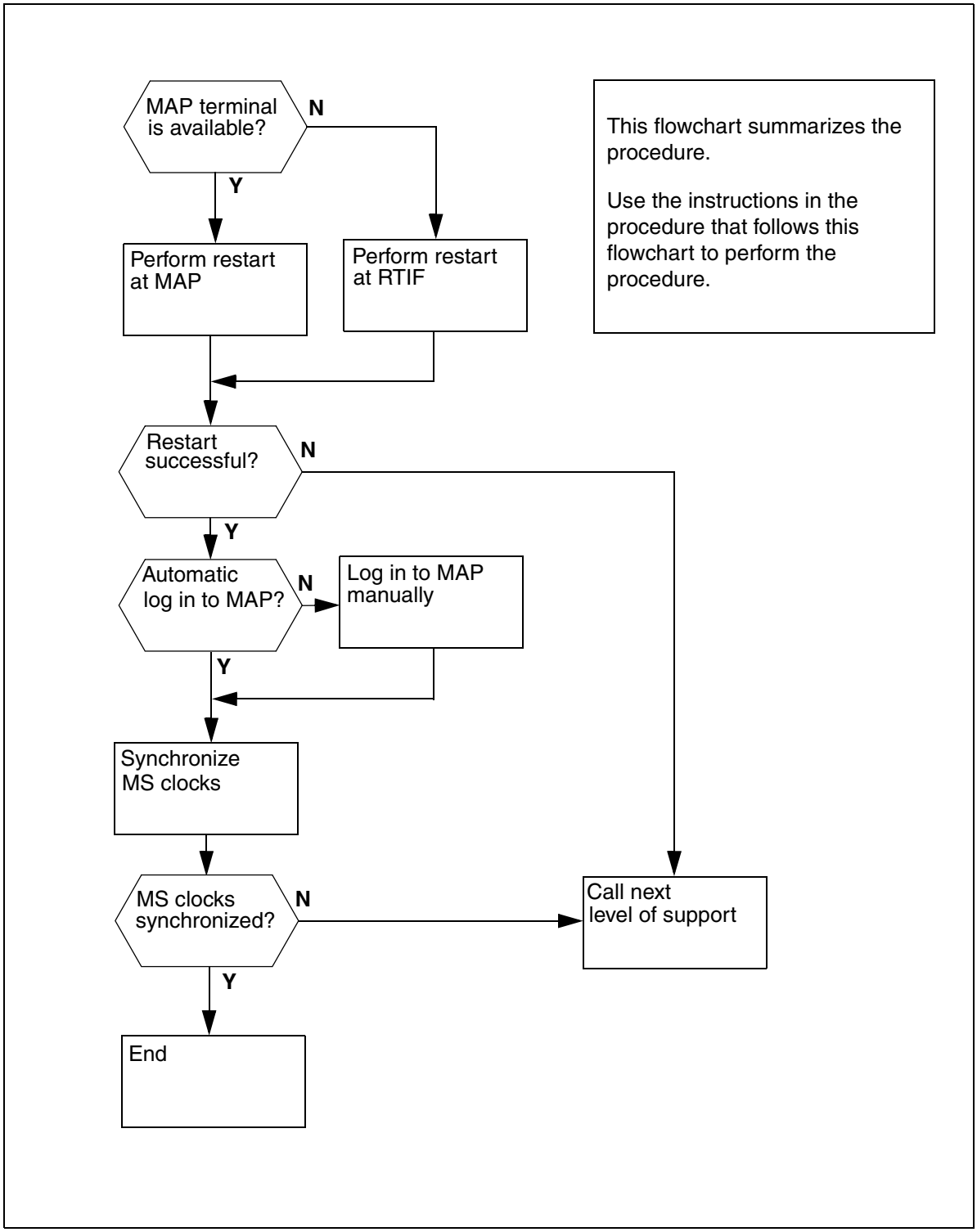
There are no common procedures.

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 an XA-Core (continued)

Figure 3-7 How to perform a warm restart in an XA-Core



How to perform a warm restart in an XA-Core (continued)

How to perform a warm restart in an 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
Loss of service at the USP
If the XA-Core is connected to a USP, then during a warm restart of the XA-Core, connectivity to the USP will be lost.



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 7

How to perform a warm restart in an XA-Core (continued)

At the MAP terminal

2 To access the CI level of the MAP, type:

>QUIT ALL

and press the enter key.

Example of system response:

```
CI:
>
```

3 To go into service-affecting mode, type

>\OVERRIDE

and press the Enter key.

Example of system response:

```
NOW IN SERVICE AFFECTING MODE
```

4 To restart the switch, type:

>RESTART WARM ACTIVE

and press the enter key.

Example of system response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Use MTCSWACT. Consult NORESTARTSWACT/MTCSWACT Users Guide
NTP.
Please confirm ("YES", "Y", "NO", or "N"):
```

5 To confirm the command, type:

>**YES**

and press the enter key.

Example of system response:

```
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.
```

How to perform a warm restart in an XA-Core (continued)

At the RTIF terminal

6 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 10
no restart completion after approximately 5 min	step 17

At the RTIF terminal

7 To restart the switch, type:

>**\RESTART WARM**

and press the enter key.

Example of system response:

```
Please confirm: (YES/NO)
```

8 To confirm the command, type:

>\YES

and press the enter key.

Example of system response:

```
RESTART DONE
```

9 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 10
no A1 after approximately 5 min	step 17

How to perform a warm restart in an XA-Core (continued)

At the MAP terminal

10



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 system response:

```
Please Login.
```

If If your log in is	Do
not automatic	step 11
automatic	step 15

11 Press the break key.

Example of system response:

```
?
```

12 To log in to the MAP terminal, type:

>**LOGIN**

and press the enter key.

Example of system response:

```
Enter User Name
```

13 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 system response:

```
Enter Password
```

How to perform a warm restart in an XA-Core (end)

14 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 system response:

```
SuperNode1 Logged in on 1997/01/15 at 20:37:17
```

15 To access the message switch (MS) Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

16 To synchronize the clocks, type:

>**SYNC**

and press the enter key.

If the MAP response to the SYNC command is	Do
successful	step 18
failed	step 17

17 For additional help, call the personnel responsible for the next level of support.

18 You have completed this procedure.

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How to recover a dead XA-Core DMS Switch

Introduction

Use this procedure to recover a dead switch that has an eXtended Architecture Core (XA-Core).

Application

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

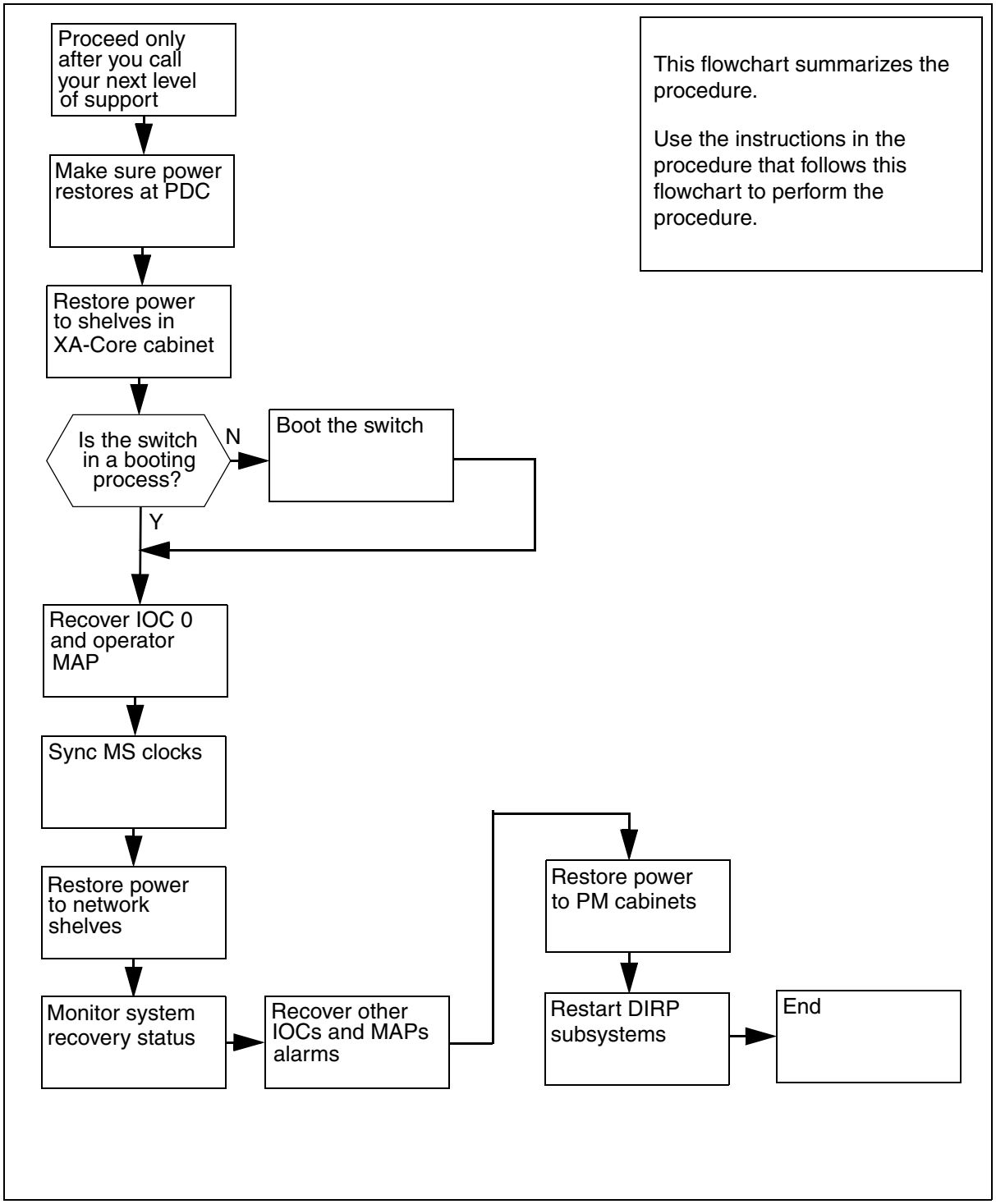
This procedure refers to the procedure “How to check and adjust the XA-Core TOD”, found in this document.

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)

Figure 3-8 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 87 through 122 of this procedure. While the second person restores power, you recover the core and network by completion of steps 15 through 74. 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 whether all the power converters have power. You know that all the power converters have power when all the Converter Off lights go off.

If	Do
all the power converters have power	step 34
all the power converters do not have power	step 32

32 To power up the frame perform the procedure titled “Clearing an Ext FSP DPCC cabinet major alarm” in the document titled *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market).

When you have 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 packlet with the last image file. The packlet 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 packlet with the last image file. The packlet 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 packlet with the last image file. The packlet is for a disk drive or a DAT drive.

Example of a RTIF response

```
BOOT 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.

If the response has	Do
an A1	step 39
no A1 after approximately 15 min	step 165

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



CAUTION
All customers must follow the sequence of steps set out in this procedure.
Do not interrupt this procedure at this point to clear an alarm. If a TOD critical alarm appears under the APPL level in the alarm banner, and if the system uses Network Time Protocol (NTP), you must complete all steps in the sequence shown. You will clear the TOD critical alarm by completing step 51. (For information on NTP, see step 51.)

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.

How to recover a dead XA-Core DMS Switch (continued)

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)

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 52
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

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")
```

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 If the system uses Network Time Protocol (NTP) as the timing reference, and if a TOD critical alarm is displayed under the APPL level in the alarm banner, perform the procedure titled "How to check and adjust the XA-Core TOD", found in this document, in the chapter titled "Introduction to routine maintenance procedures". By performing that procedure, you will clear the TOD critical alarm. Return to this point when finished.

Note: In the German market only, switches can use Network Time Protocol (NTP) as the timing reference for the time-of-day clock. The system uses Network Time Protocol if the value of the SNTP_CLIENT office parameter 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*, 297-8991-810.

52 To access the SRSTATUS level of the MAP, 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)

53 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 165
either MS continues to have pending recovery	step 54
another status different from failed or pending recovery	step 55

54 Wait until both MSs are either in recovery development or have completed recovery.

When neither MS continues to have pending recovery, go to step 53

55 To access the MS Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

56 To synchronize the clocks, type:

>SYNC

and press the enter key.

If the SYNC command is	Do
successful	step 58
failed	step 57

57 Record the reason for synchronization failure, as shown in the MAP response. Continue this procedure at step 58 to recover networks and peripheral modules (PM). Repeat the try to synchronize the MS clocks later, after networks and PMs are in service.

At the ENET frames

58 Locate the NT9X31 power converters in slots 1F and 33F on the ENET shelves.

59 To turn on the NT9X31 power converters lift and release the power switches located on the faceplates of the converters.

60 Locate the NT9X30 power converters in slots 4F and 36F on the ENET shelves.

61 Turn on the NT9X30 power converters lift and release the power switches located on the faceplates of the converters.

How to recover a dead XA-Core DMS Switch (continued)

62 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 65
not power	step 63

63 To power up the ENET frame perform the procedure titled “Clearing an Ext FSP DPCC cabinet major alarm” in the document titled *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market)

When you complete the procedure, return to this point.

64 Go to step 58

At the MAP terminal

65 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:
```

66 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 69
pending	step 67
another status	step 71

67 Continue when there are no network elements that continue to be pending recovery.

How to recover a dead XA-Core DMS Switch (continued)

68 Go to step 66.

69 To manually recover the ENET perform the procedure, “Recovering the Enhanced Network” in *Recovery Procedures*, 297-8001-545 (North American market) or 297-9051-545 (International market).

When you complete the procedure, return to this point.

70 Go to step 65.

At the MAP terminal

71 To access the NET level of the MAP display, type:

>NET

and press the enter key.

Example of a MAP response

```
NET
                          11111   11111   22222   22222   33
Plane  01234   56789   01234   56789   01234   56789   01
  0  0000
  1  0000
ENET
```

72 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)

73 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)

pair_no is the network plane pair number (0 to 31)

74 Repeat steps 72 through 73 for each ENET shelf.

When all ENET shelves have recovered, continue this procedure at step 75.

75 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 76
complete	step 87

76 Restore power to all remaining power inverters in the office.

How to recover a dead XA-Core DMS Switch (continued)

At the IOC

77 Locate the IOC for recovery.

If recovery is for	Do
an IOC	step 78
an IOM	step 82

78 Turn on the power converters on the IOC.

Note: The version of IOC determines if the IOC has one or two power converters.

79 While you press the reset button on one of the IOC power converters, lift the related circuit breaker to turn on the FSP.

80 Release the reset button.

81 Repeat steps 77 through 80 for each IOC for recovery, then continue this procedure at step 82.

82 To access the input output device (IOD) level of the MAP display, type:

>IOD

and press the enter key.

83 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

84 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

85 Repeat steps 83 through 84 for each IOC or IOM for recovery, then continue this procedure at step 86.

86 Log in to additional MAP terminals as required.

Note: Steps 40 through 43 describe how to log in to the MAP terminal.

87 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 88
does not have LPPs or FLIS	step 107

How to recover a dead XA-Core DMS Switch (continued)

88 Determine if PDC has power restored to the LPP(s).

If PDC has	Do
power restored to the LPPs	step 92
not power restored to the LPPs	step 89

89 Check the PDC fuses that supply the LPP.

If there are	Do
blown fuses	step 90
no blown fuses visible	step 91

90 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 92.

91 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 92.

92 Locate the LPPs for recovery.

At the LPP cabinet

93



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.

94 To unseat each NT9X74 card, release the locking levers and carefully pull the card towards you about 25 mm (1 in.).

95 Locate the NT9X30 power converters in slots 4F and 36F of the link interface module (LIM) unit shelf.

96 To turn on the power converters of the LIM unit shelf, toggle the switch each NT9X30 card.

How to recover a dead XA-Core DMS Switch (continued)

97 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.

98 To turn on the LIS power converters, toggle the switch on each NT9X30 or NTDX16 card.

99 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 102
not off	step 100

100 To power up the frame, perform the procedure, “Clearing an Ext FSP LPP cabinet major alarm” in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market).

When you complete the procedure, return to this point.

101 Go to step 95.

102 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.

103 Repeat steps 92 through 102 for each LPP in your office.

When power restores to all LPPs, continue this procedure at step 104.

104 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:
```

How to recover a dead XA-Core DMS Switch (continued)

105 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 107
not zero	step 106

106 To manually recover the PMs, perform the procedure, "Recovering Link Peripheral Processors, in *Recovery Procedures*, 297-8001-545 (North American market) or 297-9051-545 (International market).

When you complete the procedure, return to this point.

107 Steps 108 through 122 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 123
not correctly	step 108

108 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

109



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.

110 Remove the capacitor charging tool and immediately insert again the correct fuse holder into the slot.

How to recover a dead XA-Core DMS Switch (continued)

111 Repeat steps 109 and 110 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.

112 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 113
not blown	step 123

113 Locate a fuse holder with a blown alarm-indicating fuse.

Note: You can replace blown fuses in any order.

114 The cartridge fuse in the fuse holder has blown. Remove the fuse holder from the PDC.

115 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.

116 Remove the blown alarm-indicating fuse from the front of the fuse holder.

117 Insert again the fuse holder, with the alarm-indicating fuse removed, into the PDC.

118 Get a replacement alarm-indicating fuse.

119 Insert the replacement alarm-indicating fuse into the fuse holder.

120 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 165
not blown	step 121

121 Determine if you replaced all the blown alarm-indicating fuses.

If you have	Do
replaced all the blown alarm-indicating fuses	step 122
not replaced all the blown alarm-indicating fuses	step 113

How to recover a dead XA-Core DMS Switch (continued)

122 Determine if the fuse alarm indicator lamp lit.

If the fuse alarm indicator lamp lit	Do
yes	step 165
no	step 123

At the PM frames

123 Select a peripheral module (PM) frame to power up.

Note: The PM frames can power up in any order.

124 Locate the frame supervisory panel (FSP) and the power converters on the frame.

125 Determine if the FSP for the frame has fuses or circuit breakers.

If the FSP has	Do
fuses	step 126
circuit breakers	step 131

126 Determine if the power converters have Power Reset buttons or Power Reset switches.

If the power converters have	Do
Power Reset buttons	step 127
Power Reset switches	step 129

127 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.

128 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 133
not off	step 134

129 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.

How to recover a dead XA-Core DMS Switch (continued)

130 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 133
not off	step 134

131 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.

132 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 133
not off	step 134

133 Determine if all PM frames turn on.

If all the PM frames turn on	Do
yes	step 138
no	step 134

134 Determine if a try made to power up the remaining PM frames.

If power up has	Do
not tried	step 135
tried and failed	step 137

135 Power up the next PM frame.

136 Go to step 124.

137 To power up the remaining PM frames perform the correct procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market).

How to recover a dead XA-Core DMS Switch (continued)

At the MAP terminal

138 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      0       37      0
9
10         MTC:
11         STATUS:
```

139 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 142
not zero	step 140

140 Determine from office records or other office personnel which PMs to manually recover first.

141 To manually recover the PMs in the required order, perform the correct alarm clearing procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market).

How to recover a dead XA-Core DMS Switch (continued)

142



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.

143 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

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 145
any volume is IN ERROR, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 144
all volumes are READY, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 146

How to recover a dead XA-Core DMS Switch (continued)

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.

144 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 146
failed	step 165

145 Perform the procedure, “Allocating recording volumes in the DIRP utility” in *Routine Maintenance Procedures*, 297-8001-546 (North American market) or 297-9051-546 (International market). When you complete the procedure, return to this point.

146 To determine the state of the DLOG recording volumes, type:

>**QUERY DLOG ALL**

and press the enter key.

How to recover a dead XA-Core DMS Switch (continued)

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 148
any volume is IN ERROR, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 147
all volumes are READY, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 149

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)

147 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 149
failed	step 165

148 Perform the procedure, "Allocating recording volumes in the DIRP utility" in *Routine Maintenance Procedures*, 297-8001-546 (North American market) or 297-9051-546 (International market). When you complete the procedure, return to this point.

149 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 150
no	step 153

150 Perform the correct procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market). When you complete the procedures, return to this point.

151 To determine if DIRP logs generated, type:

>**LOGUTIL;OPEN DIRP**

and press the enter key.

If DIRP log generated	Do
yes	step 152
no	step 153

152 Refer to the *Log Report Reference Manual*, 297-8001-840 (North American market) or 297-9051-840 (International market), and take the correct action.

When you complete the log report activities, return to this point.

153 Determine if the try to synchronize the clocks in step 56 was successful.

If synchronization	Do
was successful	step 156
failed	step 154

How to recover a dead XA-Core DMS Switch (continued)

154 To access the MS Clock level of the MAP display, type:

>MAPCI;MTC;MS;CLOCK

and press the enter key.

155 To synchronize the clocks, type:

>**SYNC**

and press the enter key.

If the SYNC command was	Do
a successful completion	step 156
a failure	step 165

156 To turn off priority, type:

>**PRIORITY OFF**

and press the enter key.

157 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)

158 Determine the status of the switch recovery.

If the status of the switch recovery is	Do
any Series III PMs that failed recovery	step 159
any Series I or II PMs that failed recovery	step 161
any IODs or other devices and services that failed recovery	step 164
that the system has completely recovered	step 166

159 To manually recover the PMs, perform the procedure, “Recovering Link Peripheral Processors” in *Recovery Procedures*, 297-8001-545 (North American market) or 297-9051-545 (International market).

When you complete the procedure, return to this point.

160 Go to step 157.

161 Determine from office records or other office personnel which PMs you can recover first.

162 To manually recover the PMs in the required order perform the correct alarm clearing procedures in *Alarm Clearing and Performance Monitoring Procedures*, 297-8001-543 (North American market) or 297-9051-543 (International market).

When you complete the procedure, return to this point.

163 Go to step 157.

164 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.

165 For additional help, call the personnel responsible for the next level of support.

166 You have completed this procedure.

4 Introduction to routine maintenance procedures

This chapter describes how to perform routine maintenance procedures on the DMS SuperNode (SN) and DMS SuperNode SE (SNSE) XA-Core (XAC).

Chapter summary

In addition to the introduction, routine maintenance procedures on the DMS SuperNode and DMS SuperNode SE XA-Core (XAC)contain 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

This section provides a an overview of the tasks and commands associated with XA-Core storage devices.



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.

The following tables summarize 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	

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 from tape to disk		SCANF XXXX COPY	
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	ITOCCI: 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)

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).

Table 4-11 Routine maintenance procedures

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)

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Upgrading firmware on the occasion of a software upgrade

Use this procedure on the occasion of a release-to-release software upgrade, to upgrade the firmware in the downloadable components in the XA-Core.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Introduction

This procedure sends you to separate component-specific procedures for the downloadable components. Each component-specific procedure directs you to update the information about the component's firmware found in the XAFWLOAD data schema table, and to load the new firmware into each instance of the component in the XA-Core

If a new software release requires the use of new firmware loads, those loads are on the PM load tape.

Application

Nortel Networks will send the PM load tape to your site. The PM load tape will arrive at your site before the scheduled date of the one-night process (ONP). (The ONP is the process by which you perform the release-to-release software upgrade.) You will find instructions for loading the PM load tape in the related Peripheral Module Software Release Document.

Note: New firmware loads are provided on an as-required basis. If the PM load tape does not contain a new firmware load for a given downloadable component, then you do not need to download new firmware into that component.

The Peripheral Module Software Release Document contains the following information:

- instructions for loading the PM load tape
- the baseline firmware loads for downloadable components

If there are new firmware loads, then you must upgrade the firmware as explained in the component-specific procedures. You upgrade the firmware after the unsplitting of the XA-Core on completion of the one-night process (ONP).

Upgrading firmware on the occasion of a software upgrade (continued)

Structure of the component-specific procedures

In each of the component-specific procedures, you do the following things in the sequence shown:

- edit table XAFWLOAD to point to the new firmware
- load the new firmware into all instances of the component
- edit table XAFWLOAD again to mark the new firmware as current

First edit of table XAFWLOAD

The data schema table XAFWLOAD identifies “new”, and “current”, and “old” firmware loads for the downloadable components. After you have loaded the PM load tape, the new firmware loads will be in the file system on the disk in the XA-Core, but table XAFWLOAD will not yet point to those new loads.

If there is new firmware load of loadtype FW for a component, you must ensure that table XAFWLOAD contains a tuple that points to that load, and identifies the load as “new”. For each downloadable component, table XAFWLOAD can contain only one entry that points to the “new” FW load.

If there is a new firmware loads of loadtype DLL for a component, you must ensure that table XAFWLOAD contains a tuple that points to that load, and identifies the load as “current”. For each downloadable component that takes a DLL load, table XAFWLOAD can contain only one entry that points to the “current” DLL load.

Loading the firmware

When you have edited table XAFWLOAD so that it contains the required entries, you can download the new firmware into the affected components. To load FW firmware into a component, you use a command that tells the system to load the FW firmware that is designated as “new”. To load DLL firmware into a component, you just return the component to service, which causes the system to load the DLL load that is designated as “current”.

Second edit of XAFWLOAD

After downloading the new FW firmware load into the instances of the component, you do further editing in table XAFWLOAD. You must change the status of the new FW firmware load from “new” to “current”. You will be able to make that change only if the table does not already contain a tuple that identifies a now superseded load as the “current” FW load for the component. Therefore, you must first edit tuple that points to the now superseded load, changing the status from “current” to “old”. Then you edit the tuple that points to the new firmware load, changing the status from “new” to “current”.

Upgrading firmware on the occasion of a software upgrade (continued)

Sequence of upgrades

If the PM load tape contains new firmware loads for multiple downloadable components, you must upgrade the components in a certain sequence. This procedure follows the follows that sequence. The sequence is as follows:

- PE circuit packs
- IOP circuit packs
- HIOP circuit packs
- HCMIC circuit packs
- CMIC packlets
- AMDI packlets
- ETHR packlets

Interval

Perform this procedure on the occasion of a release-to-release software upgrade. Perform this procedure after you have unsplit the XA-Core after the completion of the one-night process.

All firmware should be upgraded immediately following the ONP if possible. If the ONP maintenance window does not allow time for the firmware upgrades, they should be scheduled for the next maintenance window. If you are upgrading the firmware in a group of items, for example, a group of PE circuit packs, you do not need to wait between upgrading the items in the group. After upgrading the firmware in one of the items, you can proceed immediately to upgrade the firmware in the next item.

Note 1: An abort to a previous software load is not supported after the completion of this procedure. Do not perform this procedure until after you have unsplit the XA-Core after the completion of the one-night process.

Note 2: If you want to undo a firmware upgrade following the completion of this procedure, you can do so by loading the old firmware that you prefer, which we will refer to as the preferred firmware. However, you can load the preferred FW firmware only if it is designated as “new” or “current” in table XAFWLOAD, and the preferred DLL firmware loads only if it is designated as “current”. Therefore, you must perform the following actions in the following sequence. (1) If you need to undo an upgrade to the FW firmware for a component, edit the current FW firmware’s tuple in table XAFWLOAD. Change the status from “current” to “old”. If you need to undo an upgrade to the DLL firmware for a component, edit the current DLL firmware’s tuple in table XAFWLOAD. Change the status from “current” to “old”. For an example showing how to change the status, look in any one of the procedures listed in the“Common procedures” section. (2) If you need

Upgrading firmware on the occasion of a software upgrade (continued)

to undo an upgrade to the FW firmware for a component, edit the preferred firmware's tuple in table XAFWLOAD. Change the status from "old" to "current". If you need to undo an upgrade to the DLL firmware for a component, edit the preferred DLL firmware's tuple in table XAFWLOAD. Change the status from "current" to "old". For an example showing how to change the status, look in any one of the procedures listed in the"Common procedures" section. (3) If you intend to downgrade the firmware in IOPs, remember that when you downgrade an IOP, table XAFWLOAD must indicate that the preferred firmware is in a volume on a disk in an IOP other than the one to be downgraded. Therefore, before downgrading that last double-width IOP, you must edit table XAFWLOAD so that the tuple listing IOP firmware points to a file in a volume on a disk packlet in the other double-width IOP. For an example, see step 42 in the procedure titled "Upgrading IOP firmware following a software upgrade".(4) When you reload the preferred FW firmware, use the LOADFW command, as shown in any one of the procedures listed in the"Common procedures" section, but when entering the LOADFW command, remember to use the FILE CURRENT parameter, not the FILE NEW parameter. (5) If you downgraded the IOP firmware, then you edited table XAFWLOAD to point to a disk volume on a different IOP, and you must reverse that change. For an example, see step 63 in the procedure titled "Upgrading IOP firmware following a software upgrade".

Common procedures

This procedure refers to the following common procedures:

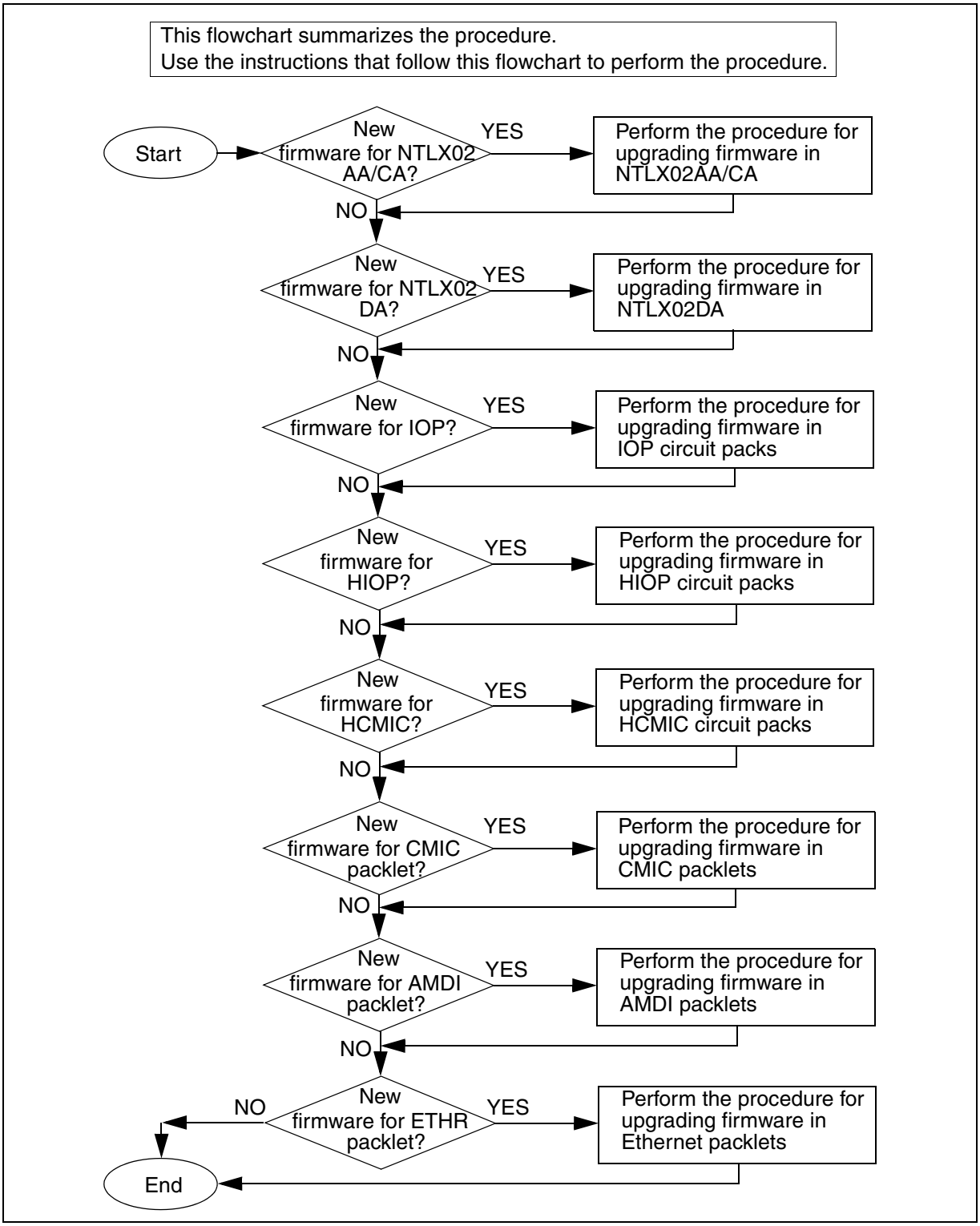
- "Upgrading NTLX02CA firmware following a software upgrade"
- "Upgrading NTLX02DA firmware on the following a software upgrade"
- "Upgrading IOP firmware following a software upgrade"
- "Upgrading HIOP firmware following a software upgrade"
- "Upgrading HCMIC firmware following a software upgrade"
- "Upgrading CMIC-packlet firmware following a software upgrade"
- "Upgrading AMDI-packlet firmware following a software upgrade"
- "Upgrading ETHR-packlet firmware following a software upgrade"

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.

Upgrading firmware on the occasion of a software upgrade (continued)

Figure 4-1 Summary of upgrading firmware on the occasion of a software upgrade



Upgrading firmware on the occasion of a software upgrade (continued)

Upgrading firmware on the occasion of a software upgrade

At the MAP terminal

1 If the PM load tape includes a new firmware load of loadtype FW for the NTLX02AA and NTLX02CA versions of the PE circuit pack, perform the procedure titled “Upgrading NTLX02CA firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the NTLX02AA and NTLX02CA versions of the PE circuit pack, continue to the next step of this procedure.

2 If the PM load tape includes new firmware for the NTLX02DA version of the PE circuit pack (a load of loadtype FW and/or a load of loadtypeDLL), perform the procedure titled “Upgrading NTLX02DA firmware on the following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the NTLX02DA version of the PE circuit pack, continue to the next step of this procedure.

3 If the PM load tape includes a new firmware load of loadtype FW for the IOP circuit pack, perform the procedure titled “Upgrading IOP firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the IOP circuit pack, continue to the next step of this procedure.

4 If the PM load tape includes new firmware for the HIOP circuit pack (a load of loadtype FW and/or a load of loadtypeDLL), perform the procedure titled “Upgrading HIOP firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the HIOP circuit pack, continue to the next step of this procedure.

5 If the PM load tape includes a new firmware load of loadtype FW for the HCMIC circuit pack, perform the procedure titled “Upgrading HCMIC firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the HCMIC circuit pack, continue to the next step of this procedure.

6 If the PM load tape includes include a new firmware load of loadtype FW for the NTLX05AB version of the CMIC packlet, perform the procedure titled “Upgrading CMIC-packlet firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the NTLX05AB version of the CMIC packlet, continue to the next step of this procedure.

Upgrading firmware on the occasion of a software upgrade (end)

7 If the PM load tape includes include a new firmware load of loadtype FW for the AMDI packlet, perform the procedure titled “Upgrading AMDI-packlet firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the AMDI packlet, continue to the next step of this procedure.

8 If the PM load tape includes include a new firmware load of loadtype FW for the Ethernet packlet, perform the procedure titled “Upgrading ETHR-packlet firmware following a software upgrade”, found in this document. When you have finished that procedure, resume this procedure at the next step.

If the PM load tape does not include any new firmware for the Ethernet packlet, continue to the next step of this procedure.

9 You have completed this procedure.

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Upgrading NTLX02CA firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to upgrade the firmware in all NTLX02CA PE circuit packs in the XA-Core shelf.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Here are answers to frequently asked questions.

- The sequence of steps in the procedure directs you to upgrade the firmware in one PE circuit pack at a time. That is the proper sequence. Do not try to upgrade two or more PE circuit packs in parallel.
- In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

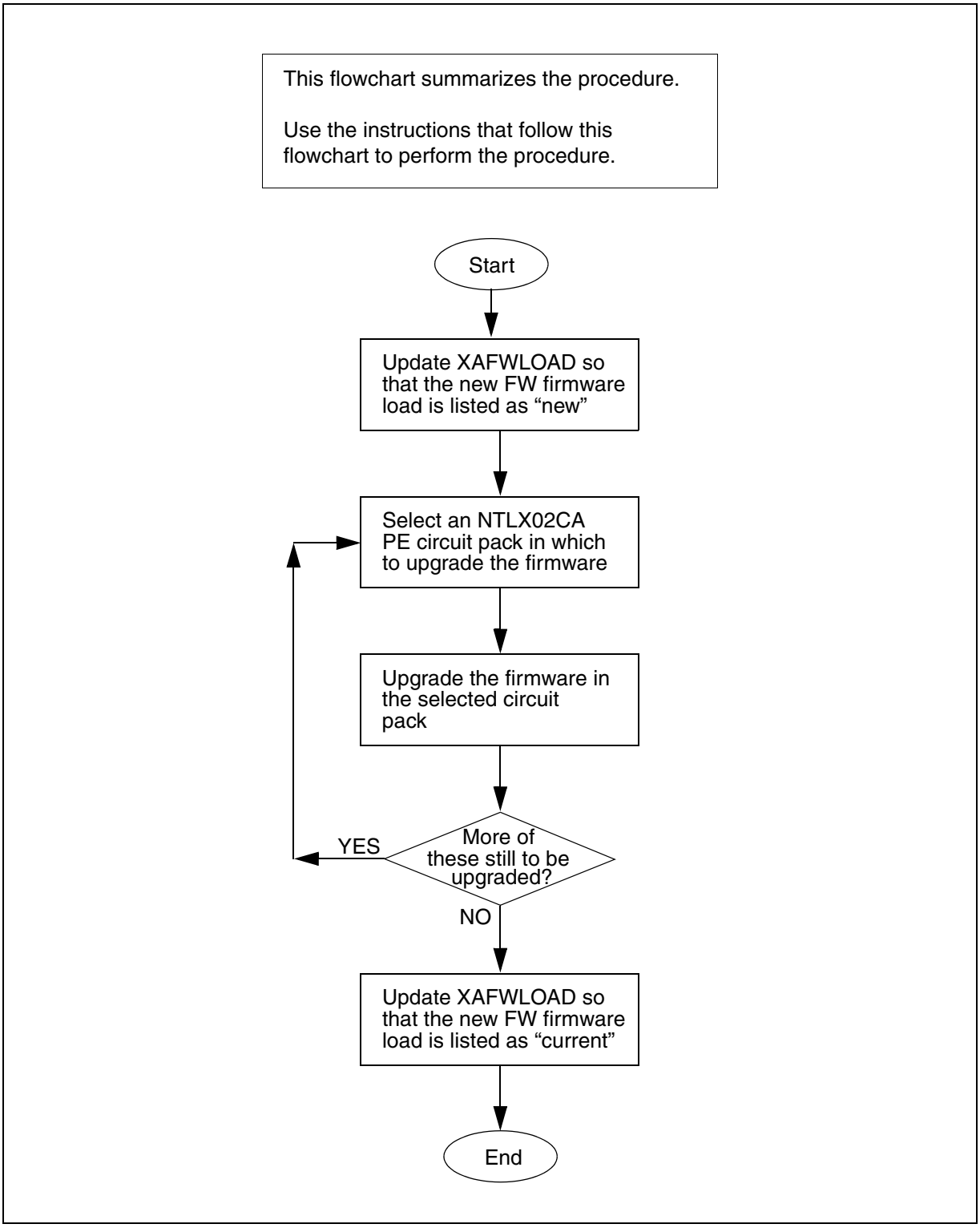
This procedure does not refer to any common procedures.

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.

Upgrading NTLX02CA firmware following a software upgrade

Figure 4-2 Summary of upgrading NTLX02CA firmware on the occasion of a software upgrade



Upgrading NTLX02CA firmware following a software upgrade

Upgrading NTLX02CA firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1   PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2   PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3   IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4   HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5   HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6   HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7   CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8   AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9   ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading NTLX02CA firmware following a software upgrade

3 Look for tuples listing the new and current firmware loads of loadtype FW for PE circuit packs of model NTLX02CA. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a "new" load, write down the contents of the tuple. If you find a tuple listing the "current" load, write down the contents of the tuple.

Note: If you do not find a "new" tuple or a "current" tuple for loadtype FW for PE circuit packs of model NTLX02CA, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for PE circuit packs of model NTLX02CA	step 5
NOT a tuple listing a new firmware load of loadtype FW for PE circuit packs of model NTLX02CA	step 10

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for PE circuit packs of model NTLX02CA. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for PE circuit packs of model NTLX02CA. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: PE
>
PEC: NTLX02CA
>
VERSION: XAPE01MA
>XAPE01MB
VOLUME: F02LFWLOADS
>
FILE: PEFW421
>PEFW626
LOADTYPE: FW
```

Upgrading NTLX02CA firmware following a software upgrade

```
>
STATUS: new
>
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
13 PE NTLX02CA XDPE01MB F02LFWLOADS PEFW626 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

9 You found and updated a tuple listing a new firmware load of type FW for PE circuit packs of model NTLX02CA. Therefore, you do not need to add such a tuple. Go to step 12.

10 You are going to add a tuple listing the newly delivered FW firmware load for PE circuit packs of model NTLX02CA. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**PE**
PEC:
>**NTLX02CA**
VERSION:
>**XAPE01MB**
VOLUME:
>**F02LFWLOADS**
FILE:
>**PEFW626**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**48**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

Upgrading NTLX02CA firmware following a software upgrade

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 PE NTLX02CA XAPE01MB F02LFWLOADS PEFW626 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

12 Exit from the table editor. Type

>QUIT

and press the Enter key.

13 Go to the MAP level for the PE circuit pack. Type

>MAPCI;MTC;XAC;PE

and press the Enter key.

14 Select a PE circuit pack of model NTLX02CA whose firmware needs to be upgraded.

15 Find out which FW firmware load is currently in the PE circuit pack that you selected in step 14. 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 containing the circuit pack or packlet - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

Upgrading NTLX02CA firmware following a software upgrade

16



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the PE circuit pack. Type

>BSY <nn> <s> FORCE

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 - 1 to 18

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

For example, to busy the PE circuit pack in slot 4, front, type

>BSY 4 F FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

17 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 18
failed	step 21

Upgrading NTLX02CA firmware following a software upgrade

18 Load the new FW firmware version. Type

>LOADFW <nn> <s> FILE NEW

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 - 1 to 18

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

For example, to load new firmware into the PE circuit pack at slot 4, front, type

>LOADFW 4 F FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

19 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 4 Front fw copied to SM
LoadFW 4 Front bank 1 erased

LoadFW 4 Front bank 1 programmed

LoadFW 4 Front bank 1 loaded and tested

LoadFW 4 Front bank 0 erased
LoadFW 4 Front bank 0 programmed

LoadFW 4 Front bank 0 loaded and tested
LoadFW 4 Front completed
```

If the response indicates that the LOADFW command	Do
completed	step 20
failed	step 21

Upgrading NTLX02CA firmware following a software upgrade

20 Return the PE circuit pack to service. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

If the response indicates that the RTS command	Do
passed	step 22
failed	step 21

21 For additional help, call the next level of support.

22 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 23.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 35.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

23 Check that the new firmware load is now in the PE circuit pack. 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 containing the circuit pack or packlet - 1 to 18

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

Upgrading NTLX02CA firmware following a software upgrade

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

24 Select the next step as follows:

If	Do
you have upgraded the firmware in all the PE circuit packs of model NTLX02CA in the XA-Core shelf	step 25
you have not yet upgraded the firmware in all the PE circuit packs of model NTLX02CA in the XA-Core shelf	step 14

25 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

26 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 PE    NTLX02CA XAPE01MB F02LFWLOADS PEFW626  FW     new      48
.
.
```

Upgrading NTLX02CA firmware following a software upgrade

27 Look for tuples listing the current and new FW firmware loads for PE circuit packs of model NTLX02CA. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

28 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 29
NOT a tuple listing a current FW firmware load for the component	step 33

29 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading NTLX02CA firmware following a software upgrade

31 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: PE
>
PEC: NTLX02CA
>
VERSION: XAPE01MA
>
VOLUME: F02LFWLOADS
>
FILE: PEFW421
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
1 PE NTLX02CA XAPE01MA F02LFWLOADS PEFW421 FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

33 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

34 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading NTLX02CA firmware following a software upgrade (end)

35 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: PE
>
PEC: NTLX02CA
>
VERSION: XAPE01MB
>
VOLUME: F02LFWLOADS
>
FILE: PEFW626
>
LOADTYPE: FW
>
STATUS: new
>**current**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 PE NTLX02CA XAPE01MB F02LFWLOADS PEFW626 FW current 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

37 Exit from the table editor. Type

>QUIT

and press the Enter key.

38 You have completed the procedure.

This page is intentionally left blank.

Upgrading NTLX02DA firmware on the following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to upgrade the firmware in all instances of the NTLX02DA PE circuit pack in the XA-Core shelf.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Here are answers to frequently asked questions.

- The sequence of steps in the procedure directs you to upgrade the firmware in one NTLX02DA PE circuit pack at a time. That is the proper sequence. Do not try to upgrade two or more NTLX02DA PE circuit packs in parallel.
- In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

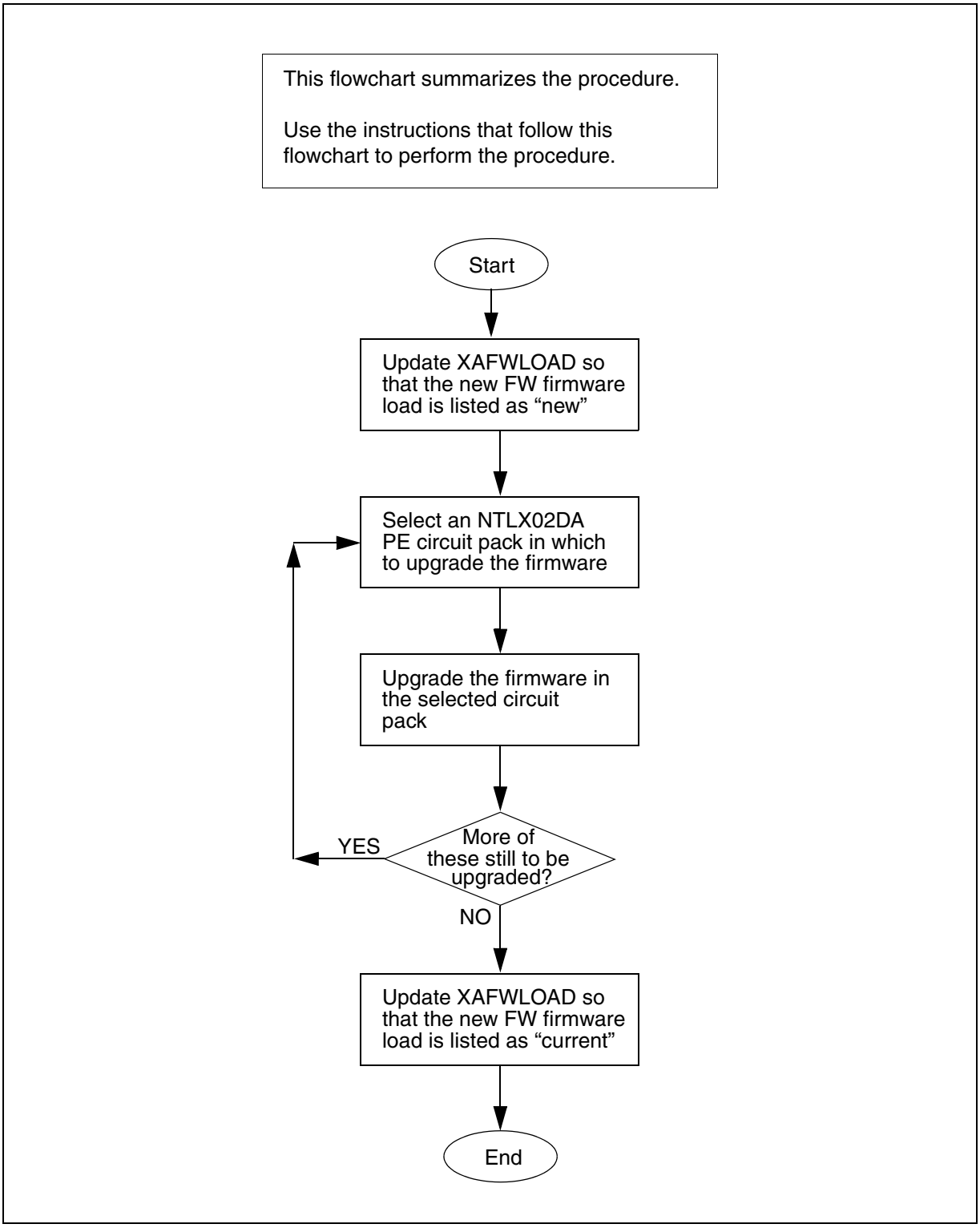
This procedure does not refer to any common procedures.

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.

Upgrading NTLX02DA firmware on the following a software upgrade

Figure 4-3 Summary of upgrading NTLX02DA firmware on the occasion of a software upgrade



Upgrading NTLX02DA firmware on the following a software upgrade

Upgrading NTLX02DA firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1   PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2   PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3   IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4   HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5   HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6   HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7   CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8   AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9   ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading NTLX02DA firmware on the following a software upgrade

3 Look for tuples listing the new and current firmware loads of loadtype FW for NTLX02DA PE circuit packs. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a “new” load, write down the contents of the tuple. If you find a tuple listing the “current” load, write down the contents of the tuple.

Note: If you do not find a “new” tuple or a “current” tuple for loadtype FW for NTLX02DA PE circuit packs, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for NTLX02DA PE circuit packs	step 5
NOT a tuple listing a new firmware load of loadtype FW for NTLX02DA PE circuit packs	step 10

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for NTLX02DA PE circuit packs. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for NTLX02DA PE circuit packs. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: PE
>
PEC: NTLX02DA
>
VERSION: XAPE01N
>XAPE01NB
VOLUME: F02LFWLOADS
>
FILE: PEFW958
>PEFW959
LOADTYPE: FW
```

Upgrading NTLX02DA firmware on the following a software upgrade

>
STATUS: new
>
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
19 PE NTLX02DA XAPE01NB F02LFWLOADS PEFW959 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

9 You found and updated a tuple listing a new firmware load of type FW for NTLX02DA PE circuit packs. Therefore, you do not need to add such a tuple. Go to step 12.

10 You are going to add a tuple listing the newly delivered FW firmware load for NTLX02DA PE circuit packs. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**PE**
PEC:
>**NTLX02DA**
VERSION:
>**XAPE01NB**
VOLUME:
>**F02LFWLOADS**
FILE:
>**PEFW959**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**48**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

After obtaining the field values, the system responds as follows.

Upgrading NTLX02DA firmware on the following a software upgrade

Map response

```
TUPLE TO BE ADDED:
10 PE NTLX02DA XAPE21AG F02LFWLOADS PEFW959 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

12 Exit from the table editor. Type

>QUIT

and press the Enter key.

13 Go to the MAP level for the PE circuit pack. Type

>MAPCI;MTC;XAC;PE

and press the Enter key.

14 Select an NTLX02DA PE circuit pack whose firmware needs to be upgraded.

15 Find out which FW firmware load is currently in the NTLX02DA PE circuit pack that you selected in step 14. 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 containing the circuit pack or packlet - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

Upgrading NTLX02DA firmware on the following a software upgrade

16



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the NTLX02DA PE circuit pack. Type

>BSY <nn> <s> FORCE

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 - 1 to 18

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

For example, to busy the PE circuit pack in slot 4, front, type

>BSY 4 F FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

17 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 18
failed	step 21

Upgrading NTLX02DA firmware on the following a software upgrade

18 Load the new FW firmware version. Type

>LOADFW <nn> <s> FILE NEW

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 - 1 to 18

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

For example, to load new firmware into the PE circuit pack at slot 4, front, type

>LOADFW 4 F FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

19 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 4 Front fw copied to SM
LoadFW 4 Front bank 1 erased

LoadFW 4 Front bank 1 programmed

LoadFW 4 Front bank 1 loaded and tested

LoadFW 4 Front bank 0 erased
LoadFW 4 Front bank 0 programmed

LoadFW 4 Front bank 0 loaded and tested
LoadFW 4 Front completed
```

If the response indicates that the LOADFW command	Do
completed	step 20
failed	step 21

Upgrading NTLX02DA firmware on the following a software upgrade

20 Return the NTLX02DA PE circuit pack to service. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

If the response indicates that the RTS command	Do
passed	step 22
failed	step 21

21 For additional help, call the next level of support.

22 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 23.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 35.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

23 Check that the new firmware load is now in the NTLX02DA PE circuit pack. 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 containing the circuit pack or packlet - 1 to 18

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

Upgrading NTLX02DA firmware on the following a software upgrade

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

24 Select the next step as follows:

If	Do
you have upgraded the firmware in all the NTLX02DA PE circuit packs in the XA-Core shelf	step 25
you have not yet upgraded the firmware in all the NTLX02DA PE circuit packs in the XA-Core shelf	step 14

25 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

26 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 PE    NTLX02DA XAPE01NB F02LFWLOADS PEFW959  FW     new      48
.
.
```

Upgrading NTLX02DA firmware on the following a software upgrade

27 Look for tuples listing the current and new FW firmware loads for NTLX02DA PE circuit packs. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

28 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 29
NOT a tuple listing a current FW firmware load for the component	step 33

29 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading NTLX02DA firmware on the following a software upgrade

31 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: PE
>
PEC: NTLX02DA
>
VERSION: XAPE01NA
>
VOLUME: F02LFWLOADS
>
FILE: PEFW958
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
25 PE NTLX02DA XAPE01NA F02LFWLOADS PEFW958 FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 523
```

33 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

34 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading NTLX02DA firmware on the following a software upgrade

35 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: PE
>
PEC: NTLX02DA
>
VERSION: XAPE01NB
>
VOLUME: F02LFWLOADS
>
FILE: PEFW959
>
LOADTYPE: FW
>
STATUS: new
>**current**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 PE NTLX02DA XAPE01NB F02LFWLOADS PEFW959 FW
current 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 524
```

37 Exit from the table editor. Type

>QUIT

and press the Enter key.

38 You have completed the procedure.

This page is intentionally left blank.

Upgrading IOP firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to upgrade the firmware in all instances of the NTLX03 input-output processor (IOP) circuit pack in the XA-Core shelf.

> ***Note:*** If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Here are answers to frequently asked questions.

- The sequence of steps in the procedure directs you to upgrade the firmware in one IOP circuit pack at a time. That is the proper sequence. Do not try to upgrade two or more IOP circuit packs in parallel.
- In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Prerequisite

On each of the disk packlets in the XA-Core shelf, there must be a copy of the disk volume containing the files that contain the newly delivered firmware for the IOP circuit pack.

If the new IOP firmware does not exist on both disk packlets, do not try to upgrade the firmware in the IOP circuit packs. Call the next level of support

Common procedures

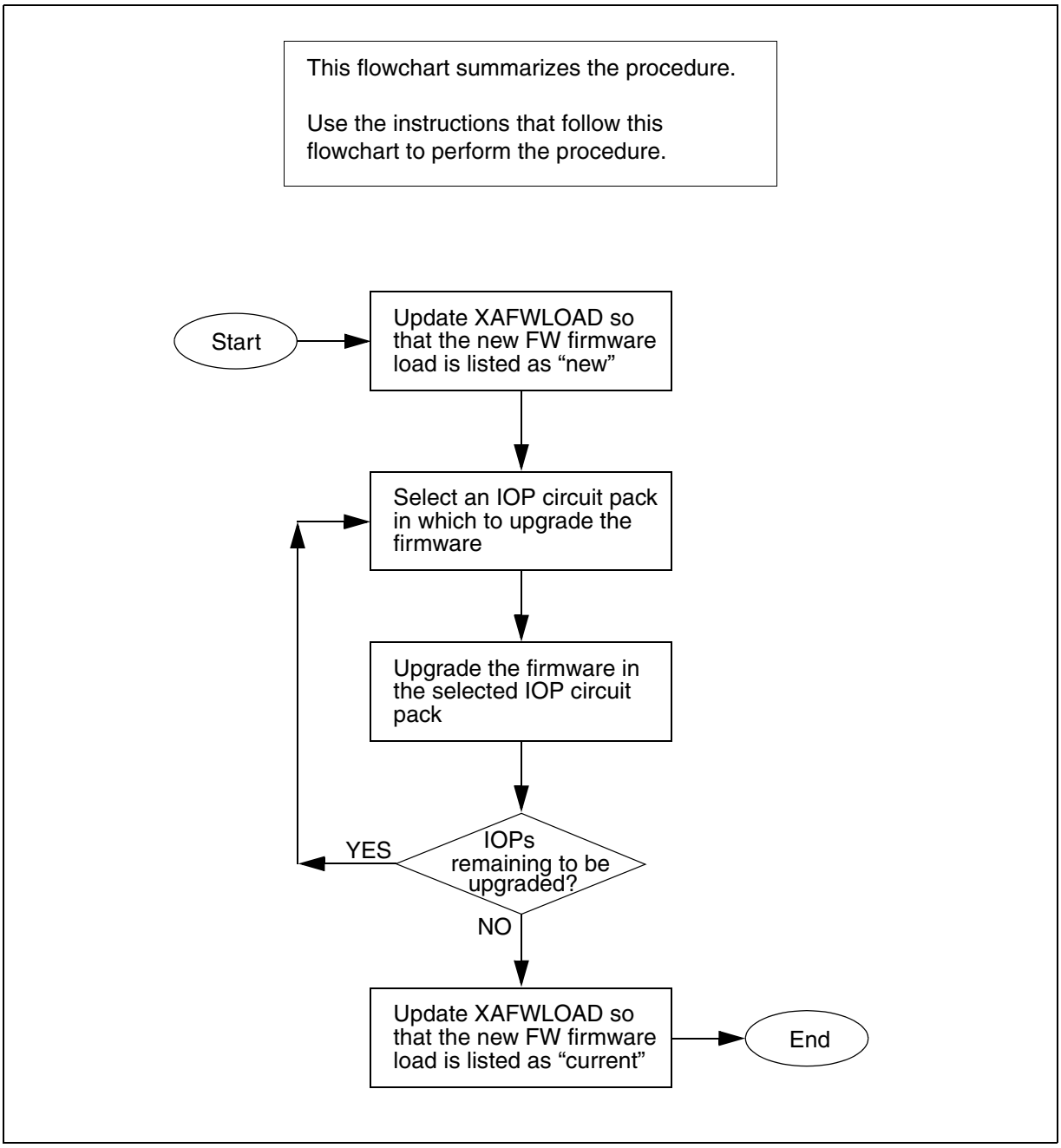
This procedure does not refer to any common procedures.

Upgrading IOP firmware following a software upgrade (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 perform the routine maintenance procedure.

Figure 4-4 Summary of upgrading IOP firmware on the occasion of a software upgrade



Upgrading IOP firmware following a software upgrade (continued)

Upgrading IOP firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1   PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2   PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3   IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4   HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5   HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6   HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7   CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8   AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9   ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading IOP firmware following a software upgrade (continued)

3 Look for tuples listing the new and current firmware loads of loadtype FW for the IOP circuit pack. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a "new" load, write down the contents of the tuple. If you find a tuple listing the "current" load, write down the contents of the tuple.

Note: If you do not find a "new" tuple or a "current" tuple for loadtype FW for the IOP circuit pack, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for the IOP circuit pack	step 5
NOT a tuple listing a new firmware load of loadtype FW for the IOP circuit pack	step 11

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for the IOP circuit pack. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for the IOP circuit pack. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: IOP
>
PEC: NTLX03AA
>
VERSION: XAIO01PA
>XAIO01PB
VOLUME: F02LFWLOADS
>
FILE: IOPFW588
>IOPFW672
LOADTYPE: FW
>
STATUS: new
```

Upgrading IOP firmware following a software upgrade (continued)

```
>
SOAK: 0
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
23 IOP NTLX03AA XAIO01PB F02LFWLOADS IOPFW672 FW new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Make note of the following information items: the index value of the tuple that refers to the firmware load for the IOP circuit pack (the first value in the tuple, 23 in the example), and the location of the IOP that contains the firmware load. The location is shown by the first, second, and third characters in the volume number. In the example, the volume name is F02LFWLOADS. The first three characters indicate front, slot 02. Write these values down and save them. You will use this information in subsequent steps.

9 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

10 You found and updated a tuple listing a new firmware load of type FW for the IOP circuit pack. Therefore, you do not need to add such a tuple. Go to step 14.

11 You are going to add a tuple listing the newly delivered FW firmware load for the IOP circuit pack. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU:
>IOP
PEC:
>NTLX03AA
VERSION:
>XAIO01PB
VOLUME:
>F02LFWLOADS
FILE:
>IOPFW672
LOADTYPE:
>FW
STATUS:
>new
SOAK:
>0
```

Upgrading IOP firmware following a software upgrade (continued)

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 IOP NTLX03AA XAIO01PB F02LFWLOADS IOPFW672 FW new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

12 Make note of the following information items: the index value of the tuple that refers to the firmware load for the IOP circuit pack (the first value in the tuple, 10 in the example), and the location of the IOP that contains the firmware load. The location is shown by the first, second, and third characters in the volume number. In the example, the volume name is F02LFWLOADS. The first three characters indicate front, slot 02. Write these values down and save them. You will use this information in subsequent steps.

13 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

14 Exit from the table editor. Type

>QUIT

and press the Enter key.

15 Go to the MAP level for the IOP circuit pack. Type

>MAPCI;MTC;XAC;<chosen-level>

and press the Enter key.

16 Decide on the sequence in which you will upgrade the IOP circuit packs. The LAST ONE must be the IOP that is pointed to by the tuples in table XAFWLOAD. (You recorded the slot number that IOP circuit pack in step 8 or in step 12.) As for the IOPs that come before the LAST ONE, you can put them in any sequence.

17 Select an IOP circuit pack whose firmware needs to be upgraded. Select the next IOP in the sequence you made up in step 16.

18 In the IOP MAP level, take note of the packlets that occupy the upper and lower positions in the IOP circuit pack that you selected in step 17.

19 Select the next step as follows:

If the selected IOP is	Do
the LAST ONE	step 42
not the LAST ONE	step 20

Upgrading IOP firmware following a software upgrade (continued)

20 Move to the MAP level for the packlet that occupies the upper position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)
- AMDI if the packlet is an AMDI packlet (NTLX05BA)
- CMIC is the packlet is a CMIC packlet (NTLX05AA or NTLX05AB)
- ETHR is the packlet is an ethernet packlet (NTLX09AA)
- RTIF if the packlet is an RTIF packlet (NTLX08AA)

In response, the system displays to the specified MAP level.

21 Manually busy the packlet. Type

>BSY <nn> <s> U FORCE

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to busy the packlet in slot 4, rear, upper, type

>BSY 4 R U FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

22 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 23
failed	step 33

Upgrading IOP firmware following a software upgrade (continued)

23 Move to the MAP level for the packlet that occupies the lower position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)
- AMDI if the packlet is an AMDI packlet (NTLX05BA)
- CMIC is the packlet is a CMIC packlet (NTLX05AA or NTLX05AB)
- ETHR is the packlet is an ethernet packlet (NTLX09AA)
- RTIF if the packlet is an RTIF packlet (NTLX08AA)

In response, the system displays the specified MAP level.

24 Manually busy the packlet. Type

>BSY <nn> <s> L FORCE

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to busy the packlet in slot 4, rear, lower, type

>BSY 4 R L FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

25 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 26
failed	step 33

Upgrading IOP firmware following a software upgrade (continued)

26 Move to the IOP MAP level. Type

>IOP

and press the Enter key.

In response, the system displays the IOP MAP level.

27 Find out which FW firmware load is currently in the IOP circuit pack that you selected in step 17. 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 containing the circuit pack or packlet - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

28



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the IOP circuit pack. Type

>BSY <nn> <s> FORCE

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to busy the IOP circuit pack in slot 17, front, type

>BSY 17 F FORCE

and press the Enter key.

Upgrading IOP firmware following a software upgrade (continued)

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

29 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 30
failed	step 33

30 Load the new FW firmware version. Type

>LOADFW <nn> <s> FILE NEW

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 - 1 to 18

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

For example, to load new firmware into the IOP circuit pack at slot 17, front, type

>LOADFW 17 F FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

31 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 17 Front fw copied to SM
LoadFW 17 Front bank 1 erased

LoadFW 17 Front bank 1 programmed

LoadFW 17 Front bank 1 loaded and tested

LoadFW 17 Front bank 0 erased
LoadFW 17 Front bank 0 programmed
```

Upgrading IOP firmware following a software upgrade (continued)

```
LoadFW 17 Front bank 0 loaded and tested
LoadFW 17 Front completed
```

If the response indicates that the LOADFW command	Do
completed	step 32
failed	step 33

32 Return the IOP circuit pack to service. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

If the response indicates that the RTS command	Do
passed	step 34
failed	step 33

33 For additional help, call the next level of support.

34 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 35.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 73.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

35 Check that the new firmware load is now in the IOP circuit pack. 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 containing the circuit pack or packlet - 1 to 18

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

Upgrading IOP firmware following a software upgrade (continued)

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

36 Move to the MAP level for the packlet that occupies the upper position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)
- AMDI if the packlet is an AMDI packlet (NTLX05BA)
- CMIC is the packlet is a CMIC packlet (NTLX05AA or NTLX05AB)
- ETHR is the packlet is an ethernet packlet (NTLX09AA)
- RTIF if the packlet is an RTIF packlet (NTLX08AA)

In response, the system displays the specified MAP level.

37 Return the packlet to service. Type

>RTS <nn> <s> U

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to return to service the packlet in slot 4, rear, upper, type

>RTS 4 R U

and press the Enter key.

If the response indicates that the RTS command	Do
passed	step 38
failed	step 33

Upgrading IOP firmware following a software upgrade (continued)

38 Move to the MAP level for the packlet that occupies the lower position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)
- AMDI if the packlet is an AMDI packlet (NTLX05BA)
- CMIC is the packlet is a CMIC packlet (NTLX05AA or NTLX05AB)
- ETHR is the packlet is an ethernet packlet (NTLX09AA)
- RTIF if the packlet is an RTIF packlet (NTLX08AA)

In response, the system displays the specified MAP level.

39 Return the packlet to service. Type

>RTS <nn> <s> L

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to return to service the packlet in slot 4, rear, lower, type

>RTS 4 R L

and press the Enter key.

If the response indicates that the RTS command	Do
passed	step 40
failed	step 33

40 Move to the IOP MAP level. Type

>IOP

and press the Enter key.

In response, the system displays the IOP MAP level.

41 Go to step 17 to select the next IOP circuit pack to upgrade.

Upgrading IOP firmware following a software upgrade (continued)

42 Edit table XAFWLOAD to indicate that the new IOP firmware is in a volume on the disk in the other IOP circuit pack (that is the IOP circuit pack other than the LAST ONE). Proceed as follows.

a Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response:

```
TABLE: XAFWLOAD
```

b Use the POS command to move to the tuple listing the new FW firmware load for the IOP circuit pack. Type

POS <key-value>

and press the Enter key

where

<key-value> is the index value that you recorded in step 8 or in step 12

c Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

d Update the VOLUME field. Change the second and third characters in the field, to point to the volume on the disk packlet in the other IOP circuit pack.

Note: There are two possibilities here. If the volume name begins F02, change it so it begins F17. If the volume name begins F17, change it so it begins F02.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: IOP
>
PEC: NTLX03AA
>
VERSION: XAIO01PB
>
VOLUME: F02LFWLOADS
>**F17LFWLOADS**
FILE: IOPFW672
>
LOADTYPE: FW
>
STATUS: new
>
SOAK: 0
>

Upgrading IOP firmware following a software upgrade (continued)

After obtaining the edited field values, the system responds as follows:

```
TUPLE TO BE CHANGED:
10 IOP NTLX03AA XAIO01PB F17LFWLOADS IOPFW672 FW new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

e Confirm the change. Type

>Y

and press the Enter key.

Map response:

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

f Exit from the table editor. Type

>QUIT

and press the Enter key.

43 Move to the MAP level for the packlet that occupies the upper position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)

In response, the system displays to the specified MAP level.

44 Manually busy the packlet. Type

>BSY <nn> <s> U FORCE

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to busy the packlet in slot 2, front, upper, type

>BSY 2 F U FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

Upgrading IOP firmware following a software upgrade (continued)

45 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 46
failed	step 33

46 Move to the MAP level for the packlet that occupies the lower position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)

In response, the system displays the specified MAP level.

47 Manually busy the packlet. Type

>BSY <nn> <s> L FORCE

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to busy the packlet in slot 2, front, lower, type

>BSY 2 F L FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

Upgrading IOP firmware following a software upgrade (continued)

48 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 49
failed	step 33

49 Move to the IOP MAP level. Type

>IOP

and press the Enter key.

In response, the system displays the IOP MAP level.

50 Find out which FW firmware load is currently in the IOP circuit pack that you selected in step 17. 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 containing the circuit pack or packlet - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

Upgrading IOP firmware following a software upgrade (continued)

51



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the IOP circuit pack. Type

>BSY <nn> <s> FORCE

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 - 1 to 18

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

For example, to busy the IOP circuit pack in slot 2, front, type

>BSY 2 F FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

52 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 53
failed	step 33

53 Load the new FW firmware version. Type

>LOADFW <nn> <s> FILE NEW

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 - 1 to 18

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

Upgrading IOP firmware following a software upgrade (continued)

For example, to load new firmware into the IOP circuit pack at slot 2, front, type

>LOADFW 2 F FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

54 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 2 Front fw copied to SM
LoadFW 2 Front bank 1 erased

LoadFW 2 Front bank 1 programmed

LoadFW 2 Front bank 1 loaded and tested

LoadFW 2 Front bank 0 erased
LoadFW 2 Front bank 0 programmed

LoadFW 2 Front bank 0 loaded and tested
LoadFW 2 Front completed
```

If the response indicates that the LOADFW command	Do
completed	step 55
failed	step 33

55 Return the IOP circuit pack to service. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

If the response indicates that the RTS command	Do
passed	step 56
failed	step 33

56 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 57.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been

Upgrading IOP firmware following a software upgrade (continued)

upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 73.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

57 Check that the new firmware load is now in the IOP circuit pack. 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 containing the circuit pack or packlet - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ---------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

58 Move to the MAP level for the packlet that occupies the upper position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)
- AMDI if the packlet is an AMDI packlet (NTLX05BA)
- CMIC is the packlet is a CMIC packlet (NTLX05AA or NTLX05AB)
- ETHR is the packlet is an ethernet packlet (NTLX09AA)
- RTIF if the packlet is an RTIF packlet (NTLX08AA)

In response, the system displays the specified MAP level.

59 Return the packlet to service. Type

>RTS <nn> <s> U

and press the Enter key.

where

Upgrading IOP firmware following a software upgrade (continued)

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

For example, to return to service the packlet in slot 2, front, upper, type

>RTS 2 F U

and press the Enter key.

If the response indicates that the RTS command	Do
passed	step 60
failed	step 33

60 Move to the MAP level for the packlet that occupies the lower position in the IOP circuit pack, as identified in step 18. Type

<level>

and press the Enter key

where

<level> is

- Disk if the packlet is a disk packlet (NTLX06)
- Tape if the packlet is a tape packlet (NTLX07)
- AMDI if the packlet is an AMDI packlet (NTLX05BA)
- CMIC is the packlet is a CMIC packlet (NTLX05AA or NTLX05AB)
- ETHR is the packlet is an ethernet packlet (NTLX09AA)
- RTIF if the packlet is an RTIF packlet (NTLX08AA)

In response, the system displays the specified MAP level.

61 Return the packlet to service. Type

>RTS <nn> <s> L

and press the Enter key.

where

<nn> is the slot number parameter value to indicate the number of the physical shelf slot containing the packlet - 1 to 18

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

Upgrading IOP firmware following a software upgrade (continued)

For example, to return to service the packlet in slot 4, rear, lower, type

>RTS 4 R L

and press the Enter key.

If the response indicates that the RTS command	Do
passed	step 40
failed	step 33

62 Move to the IOP MAP level. Type

>IOP

and press the Enter key.

In response, the system displays the IOP MAP level.

63 Edit table XAFWLOAD to reverse what you did in step 42. Proceed as follows.

a Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response:

```
TABLE: XAFWLOAD
```

b Use the POS command to move to the tuple listing the new firmware load for the IOP circuit pack. Type

POS <key-value>

and press the Enter key

where

<key-value> is the index value that you recorded in step 8 or in step 12

c Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading IOP firmware following a software upgrade (continued)

d Update the VOLUME field. Change the second and third characters in the field, to reverse the change you made in step 42d.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: IOP
>
PEC: NTLX03AA
>
VERSION: XAIO01PB
>
VOLUME: F17LFWLOADS
>**F02LFWLOADS**
FILE: IOPFW672
>
LOADTYPE: FW
>
STATUS: new
>
SOAK: 0
>

After obtaining the edited field values, the system responds as follows:

```
TUPLE TO BE CHANGED:
10 IOP NTLX03AA XAIO01PB F02LFWLOADS IOPFW672 FW
new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

e Confirm the change. Type

>Y

and press the Enter key.

Map response:

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 521
```

Upgrading IOP firmware following a software upgrade (continued)

64 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 IOP   NTLX03AA XAIO01PB F02LFWLOADS IOPFW672 FW     new      48
.
.
```

65 Look for tuples listing the current FW firmware load for the IOP circuit pack. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index value of the tuple.

Note: If you do not find a “current” tuple, that is not a problem.

66 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 67
NOT a tuple listing a current FW firmware load for the component	step 71

67 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

68 You are going to change the status from “current” to “old”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading IOP firmware following a software upgrade (continued)

69 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: IOP
>
PEC: NTLX03AA
>
VERSION: XAIO01PA
>
VOLUME: F02LFWLOADS
>
FILE: IOPFW588
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
3 IOP NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW old 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

70 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

71 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value that you recorded in step 8 or in step 12

72 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading IOP firmware following a software upgrade (end)

73 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: IOP
>
PEC: NTLX03AA
>
VERSION: XAIO01PB
>
VOLUME: F02LFWLOADS
>
FILE: IOPFW672
>
LOADTYPE: FW
>
STATUS: new
>**current**
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 IOP NTLX03AA XAIO01PB F02LFWLOADS IOPFW672 FW
current 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

74 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 522
```

75 Exit from the table editor. Type

>QUIT

and press the Enter key.

76 You have completed the procedure.

Upgrading HIOP firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Introduction

Use this procedure to upgrade the firmware in all instances of the NTLX04 HIOP circuit pack in the XA-Core shelf.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Application

HIOP circuit packs have two firmware loads: the FW load, also referred to as ROM, and the DLL load, also referred to as RAM. You may need to upgrade only one of the loads, or both of the loads. This procedure covers all the possibilities: FW only, DLL only, both FW and DLL.

Here are answers to frequently asked questions.

- The sequence of steps in the procedure directs you to upgrade the firmware in one HIOP circuit pack at a time. That is the proper sequence. Do not try to upgrade two or more HIOP circuit packs in parallel.
- In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

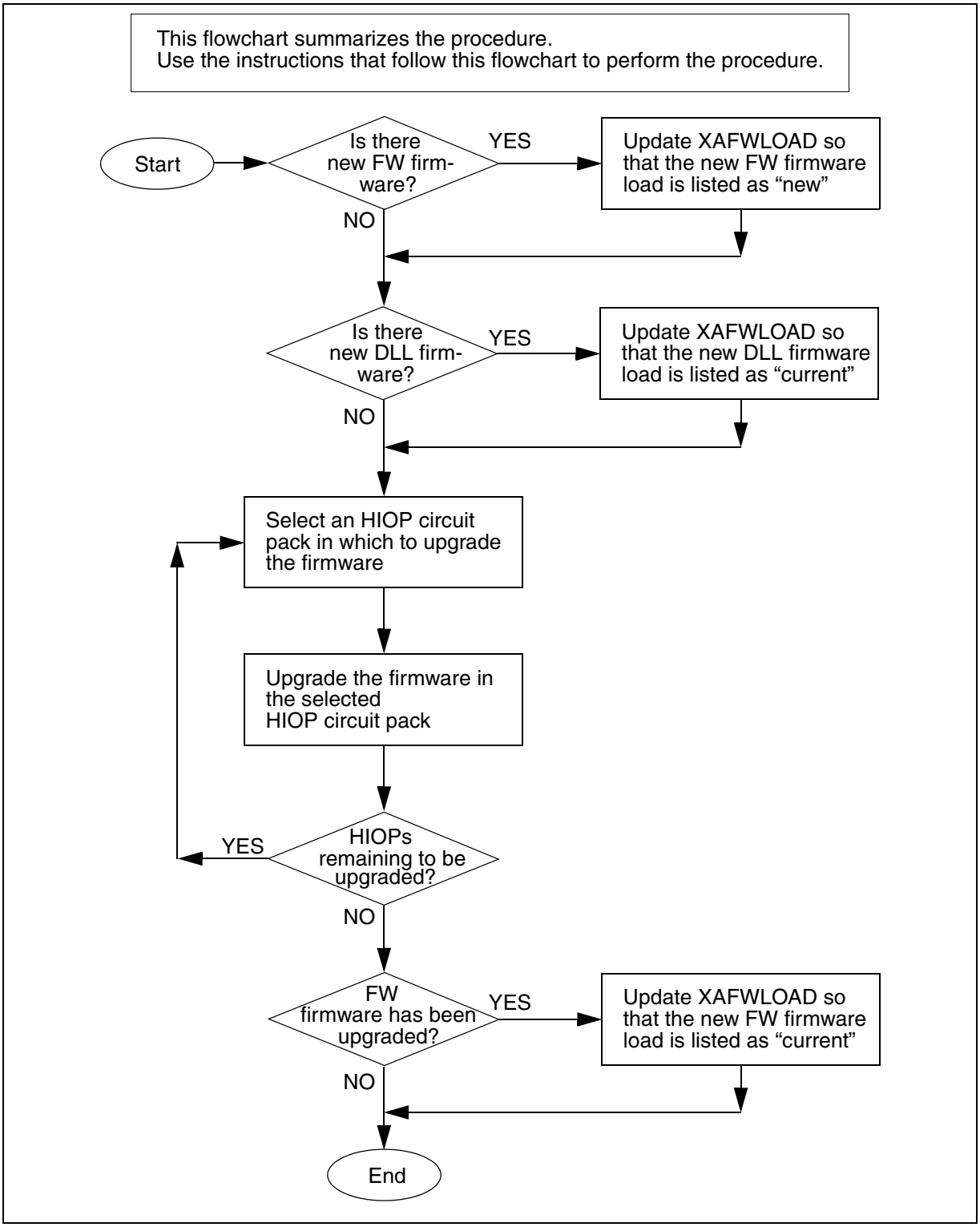
This procedure does not refer to any common procedures.

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.

Upgrading HIOP firmware following a software upgrade (continued)

Figure 4-5 Summary of upgrading the HIOP firmware on the occasion of a software upgrade



Upgrading HIOP firmware following a software upgrade (continued)

Upgrading the HIOP firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 Select the next step as follows:

If the PM load tape	Do
contained a new firmware load of loadtype FW for HIOP circuit packs	step 3
did not contain a new firmware load of loadtype FW for HIOP circuit packs	step 13

3 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Upgrading HIOP firmware following a software upgrade (continued)

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

4 Look for tuples listing the new and current firmware loads of loadtype FW for HIOP circuit packs. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a “new” load, write down the contents of the tuple. If you find a tuple listing the “current” load, write down the contents of the tuple.

Note: If you do not find a “new” tuple or a “current” tuple for loadtype FW for HIOP circuit packs, that is not a problem.

5 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for HIOP circuit packs	step 6
NOT a tuple listing a new firmware load of loadtype FW for HIOP circuit packs	step 11

6 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

7 You are going to change the tuple to point to the newly delivered FW load for HIOP circuit packs. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading HIOP firmware following a software upgrade (continued)

8 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for HIOP circuit packs. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX04BA
>
VERSION: XHIO03RA
>**XHIO03RC**
VOLUME: F02LFWLOADS
>
FILE: XAIO01XC
>**XAIO01XR**
LOADTYPE: FW
>
STATUS: new
>
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
21 HIOP NTLX04BA XHIO03RC F02LFWLOADS XAIO01XR FW new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

9 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

10 You found and updated a tuple listing a new firmware load of type FW for the HIOP circuit pack. Therefore, you do not need to add such a tuple. Go to step 13.

11 You are going to add a tuple listing the newly delivered FW firmware load for the HIOP circuit pack. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

Upgrading HIOP firmware following a software upgrade (continued)

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**HIOP**
PEC:
>**NTLX04BA**
VERSION:
>**XHIO03RC**
VOLUME:
>**F02LFWLOADS**
FILE:
>**XAIO01XR**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**0**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 HIOP NTLX04BA XHIO03RC F02LFWLOADS XAIO01XR FW new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

12 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

13 Select the next step as follows:

If the PM load tape	Do
contained a new firmware load of loadtype DLL for HIOP circuit packs	step 14
did not contain a new firmware load of loadtype DLL for HIOP circuit packs	step 33

14 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Upgrading HIOP firmware following a software upgrade (continued)

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 HIOP  NTLX04BA XAIO03RC F02LFWLOADS XHIO01YR FW     NEW      0
.
.
```

15 Look for tuples listing the new and current firmware loads of loadtype DLL for HIOP circuit packs. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a “new” load, write down the contents of the tuple. If you find a tuple listing the “current” load, write down the contents of the tuple.

Note: If you do not find a “new” tuple or a “current” tuple for loadtype DLL for HIOP circuit packs, that is not a problem.

16 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype DLL for HIOP circuit packs	step 17
NOT a tuple listing a new firmware load of loadtype DLL for HIOP circuit packs	step 22

17 Use the POS command to move to the tuple listing the new firmware load of loadtype DLL. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

18 You are going to change the tuple to point to the newly delivered DLL load for HIOP circuit packs. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

19 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered DLL firmware load for HIOP circuit packs. For the other fields, just press the Enter key to retain the existing values.

Upgrading HIOP firmware following a software upgrade (continued)

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX04BA
>
VERSION: XHIO03RB
>**XHIO03RD**
VOLUME: F02LFWLOADS
>
FILE: XAIO01XD
>**XAIO01XS**
LOADTYPE: FW
>
STATUS: new
>
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
21 HIOP NTLX04BA XHIO03RD F02LFWLOADS XAIO01XS FW new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

20 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

21 You found and updated a tuple listing a new firmware load of type DLL for HIOP circuit packs. Therefore, you do not need to add such a tuple. Go to step 24.

Upgrading HIOP firmware following a software upgrade (continued)

22 You are going to add a tuple listing the newly delivered DLL firmware load for the HIOP circuit pack. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**HIOP**
PEC:
>**NTLX04BA**
VERSION:
>**XHIO03RD**
VOLUME:
>**F02LFWLOADS**
FILE:
>**XAIO01XS**
LOADTYPE:
>**DLL**
STATUS:
>**new**
SOAK:
>**0**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
11 HIOP NTLX04BA XHIO03RD F02LFWLOADS XAIO01XS DLL new 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

23 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 598
```

Note: There will be a delay of up to one minute before the MAP response and prompt return.

24 Select the next step as follows:

If, for the DLL firmware for HIOP circuit packs	Do
table XAFWLOAD already contains a “current” tuple	step 25
table XAFWLOAD does not contain a “current” tuple	step 29

Upgrading HIOP firmware following a software upgrade (continued)

25 Use the POS command to move to the tuple listing the current DLL firmware load for HIOP circuit packs. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

26 You are going to change the status from “current” to “old”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

27 Update the STATUS field to specify that this is an old DLL load. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX04BA
>
VERSION: XHIO03RB
>
VOLUME: F02LFWLOADS
>
FILE: XHIO01XD
>
LOADTYPE: DLL
>
STATUS: current
>**old**
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
5 HIOP NTLX04BA XHIO03RB F02LFWLOADS XHIO01XD DLL old 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

28 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 599
```

Upgrading HIOP firmware following a software upgrade (continued)

29 Use the POS command to move to the tuple listing the newly delivered DLL firmware load. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

31 Update the STATUS field to specify that this is the current DLL load. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX04BA
>
VERSION: XHIO03RD
>
VOLUME: F02LFWLOADS
>
FILE: XHIO01XS
>
LOADTYPE: DLL
>
STATUS: current
>**current**
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
11 HIOP NTLX04BA XHIO03RD F02LFWLOADS XHIO01XS DLL
current 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 600
```

Upgrading HIOP firmware following a software upgrade (continued)

33 Exit from the table editor. Type

>QUIT

and press the Enter key.

34 Go to the MAP level for the HIOP circuit pack. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

35 Select an HIOP circuit pack whose firmware needs to be upgraded.

36 Select the next step as follows:

If	Do
there is a new FW load but not a new DLL load	step 39
there is a new FW load and a new DLL load	step 39
there is a new DLL load but not a new FW load	step 37

37



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the HIOP circuit pack. Type

>BSY <nn> <s> FORCE

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 that is to be upgraded - 1 to 18

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

For example, to busy the HIOP circuit pack in slot 5, rear, type

>BSY 5 R FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

38 Go to step 44.

Upgrading HIOP firmware following a software upgrade (continued)

39 Find out which FW firmware load is currently in the HIOP circuit pack that you selected in step 35. 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 containing the circuit pack - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ---------- -- -- ------------ --------
                                          <FW_version>
                                          <DLL_version>
```

where

<FW_version> identifies the FW firmware load currently in the circuit pack

<DLL_version> identifies the DLL firmware load currently in the circuit pack

40



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the HIOP circuit pack. Type

>BSY <nn> <s> FORCE

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 that is to be upgraded - 1 to 18

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

For example, to busy the HIOP circuit pack in slot 5, rear, type

>BSY 5 R FORCE

and press the Enter key.

Upgrading HIOP firmware following a software upgrade (continued)

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

41 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 42
failed	step 45

42 Load the new FW firmware version. Type

>LOADFW <nn> <s> FILE NEW

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 that is to be upgraded - 1 to 18

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

For example, to load new firmware into the HIOP circuit pack at slot 5, rear, type

>LOADFW 5 R FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

43 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 5 Rear fw copied to SM
LoadFW 5 Rear bank 1 erased

LoadFW 5 Rear bank 1 programmed

LoadFW 5 Rear bank 1 loaded and tested

LoadFW 5 Rear bank 0 erased
LoadFW 5 Rear 0 programmed

LoadFW 5 Rear bank 0 loaded and tested
LoadFW 5 Rear completed
```

Upgrading HIOP firmware following a software upgrade (continued)

If the response indicates that the LOADFW command	Do
completed	step 44
failed	step 45

44 Return the HIOP circuit pack to service. (During the return to service, the system automatically loads the DLL firmware whose status is “current”.) 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 containing the circuit pack that is to be upgraded - 1 to 18

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

If the response indicates that the RTS command	Do
passed	step 46
failed	step 45

45 For additional help, call the next level of support.

46 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 47.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 60.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack is returned to service, and clears the alarm when the soak time expires.

47 Check that the new firmware load is now in the HIOP circuit pack. 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 containing the circuit pack - 1 to 18

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

Upgrading HIOP firmware following a software upgrade (continued)

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <FW_version>
                                           <DLL_version>
```

where

<FW_version> identifies the FW firmware load currently in the circuit pack

<DLL_version> identifies the DLL firmware load currently in the circuit pack

48 Select the next step as follows:

If	Do
you have upgraded the firmware in all the HIOP circuit packs in the XA-Core shelf	step 49
you have not yet upgraded the firmware in all the HIOP circuit packs in the XA-Core shelf	step 35

49 Select the next step as follows:

If you have upgraded	Do
only the DLL firmware for HIOP circuit packs	step 63
only the FW firmware for HIOP circuit packs	step 50
both the FW firmware and the DLL firmware for HIOP circuit packs	step 50

50 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

51 List all the tuples. Type

>LIST ALL

and press the Enter key.

Upgrading HIOP firmware following a software upgrade (continued)

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 HIOP  NTLX04BA XAIO03RC F02LFWLOADS XCIO01XR FW     new      0
11 HIOP  NTLX04BA XAIO03RD F02LFWLOADS XCIO01XS FW     current  0
.
.
```

52 Look for tuples listing the current and new FW firmware loads for HIOP circuit packs. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

53 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 54
NOT a tuple listing a current FW firmware load for the component	step 58

54 Use the POS command to move to the tuple listing the current FW firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

55 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading HIOP firmware following a software upgrade (continued)

56 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX04BA
>
VERSION: XAIO03RA
>
VOLUME: F02LFWLOADS
>
FILE: XHIO01XC
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
4 HIOP NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

57 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

58 Use the POS command to move to the tuple listing the new FW firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

59 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading HIOP firmware following a software upgrade (end)

60 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX04BA
>
VERSION: XAIO03RC
>
VOLUME: F02LFWLOADS
>
FILE: XHIO01YR
>
LOADTYPE: FW
>
STATUS: new
>**current**
SOAK: 0
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 HIOP NTLX04BA XXIO03RC F02LFWLOADS XHIO01YR FW
current 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

61 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 605
```

62 Exit from the table editor. Type

>QUIT

and press the Enter key.

63 You have completed the procedure.

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Upgrading HCMIC firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Introduction

Use this procedure to upgrade the firmware in all instances of the NTLX17 HCMIC circuit pack in the XA-Core shelf.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Application

The sequence of steps in the procedure directs you to upgrade the firmware in one HCMIC circuit pack at a time. That is the proper sequence. Do not try to upgrade two or more HCMIC circuit packs in parallel.

In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

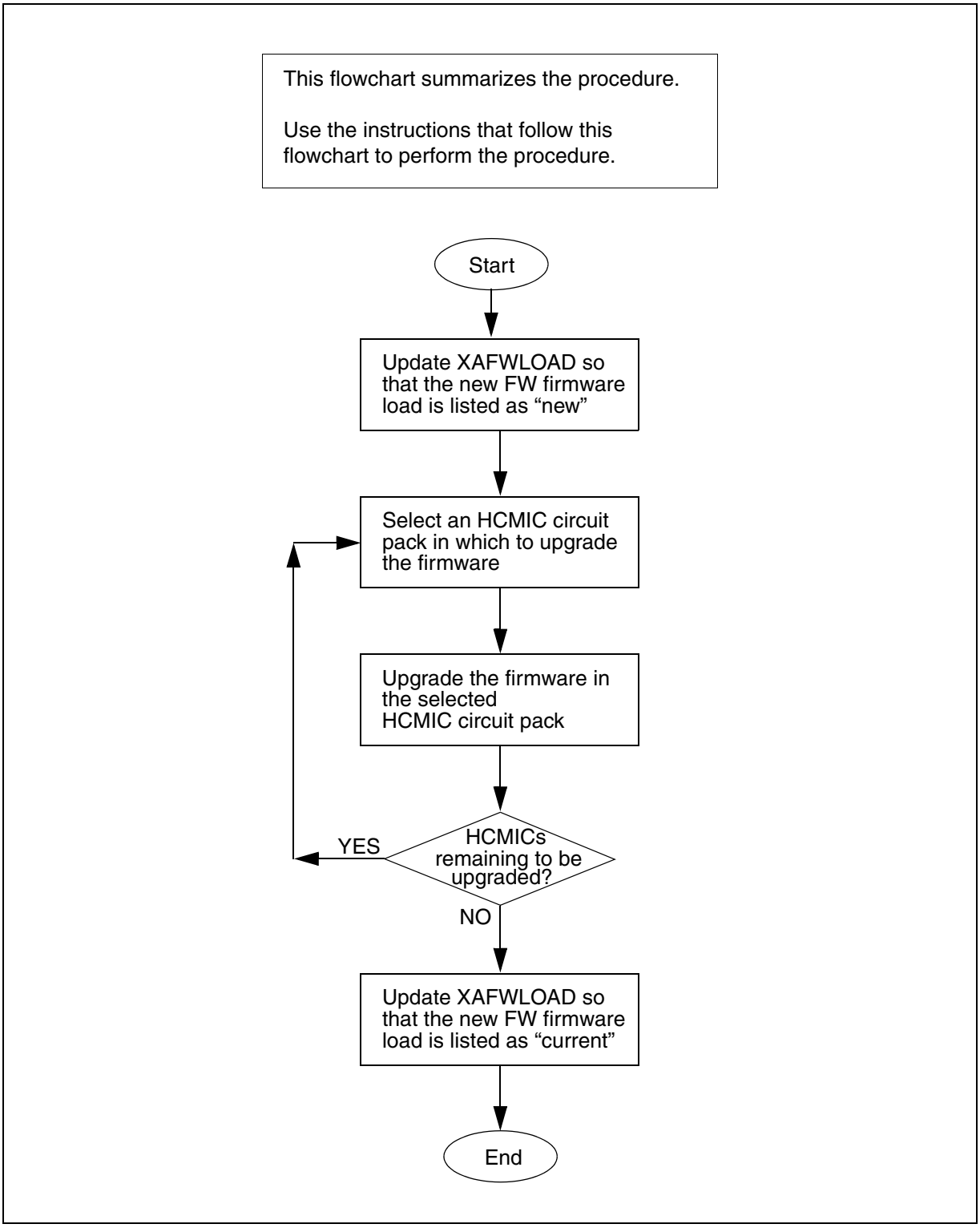
This procedure does not refer to any common procedures.

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.

Upgrading HCMIC firmware following a software upgrade (continued)

Figure 4-6 Summary of upgrading the HCMIC firmware on the occasion of a software upgrade



Upgrading HCMIC firmware following a software upgrade (continued)

Upgrading the HCMIC firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading HCMIC firmware following a software upgrade (continued)

3 Look for tuples listing the new and current firmware loads of loadtype FW for the HCMIC circuit pack. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a "new" load, write down the contents of the tuple. If you find a tuple listing the "current" load, write down the contents of the tuple.

Note: If you do not find a "new" tuple or a "current" tuple for loadtype FW for the HCMIC circuit pack, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for the HCMIC circuit pack	step 5
NOT a tuple listing a new firmware load of loadtype FW for the HCMIC circuit pack	step 10

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for the HCMIC circuit pack. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for the HCMIC circuit pack. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: HIOP
>
PEC: NTLX17AA
>
VERSION: XHIO03XA
>XHIO03XB
VOLUME: F02LFWLOADS
>
FILE: XCIO01GG
>XCIO01GK5
LOADTYPE: FW
>
STATUS: new
```

Upgrading HCMIC firmware following a software upgrade (continued)

```
>
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
18 HIOP NTLX17AA XHIO03XB F02LFWLOADS XCIO01GK FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

9 You found and updated a tuple listing a new firmware load of type FW for the HCMIC circuit pack. Therefore, you do not need to add such a tuple. Go to step 12.

10 You are going to add a tuple listing the newly delivered FW firmware load for the HCMIC circuit pack. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**HIOPI**
PEC:
>**NTLX17AA**
VERSION:
>**XHIO03XB**
VOLUME:
>**F02LFWLOADS**
FILE:
>**XCIO01GK**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**48**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

Upgrading HCMIC firmware following a software upgrade (continued)

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 HIOP NTLX17AA XHIO03XB F02LFWLOADS XCIO01GK FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

12 Exit from the table editor. Type

>QUIT

and press the Enter key.

13 Go to the MAP level for the HCMIC circuit pack. Type

>MAPCI;MTC;XAC;IO

and press the Enter key.

14 Select an HCMIC circuit pack whose firmware needs to be upgraded.

15 Find out which FW firmware load is currently in the HCMIC circuit pack that you selected in step 14. 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 containing the circuit pack - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the circuit pack

Upgrading HCMIC firmware following a software upgrade (continued)

16



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the HCMIC circuit pack. Type

>BSY <nn> <s> FORCE

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 that is to be upgraded - 1 to 18

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

For example, to busy the HCMIC circuit pack in slot 4, rear, type

>BSY 4 R FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

17 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 18
failed	step 21

18 Load the new FW firmware version. Type

>LOADFW <nn> <s> FILE NEW

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 that is to be upgraded - 1 to 18

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

Upgrading HCMIC firmware following a software upgrade (continued)

For example, to load new firmware into the HCMIC circuit pack at slot 4, rear, type

>LOADFW 4 R FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

19 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 4 Rear fw copied to SM
LoadFW 4 Rear bank 1 erased

LoadFW 4 Rear bank 1 programmed

LoadFW 4 Rear bank 1 loaded and tested

LoadFW 4 Rear bank 0 erased
LoadFW 4 Rear 0 programmed

LoadFW 4 Rear bank 0 loaded and tested
LoadFW 4 Rear completed
```

If the response indicates that the LOADFW command	Do
completed	step 20
failed	step 21

20 Return the HCMIC circuit pack to service. 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 containing the circuit pack that is to be upgraded - 1 to 18

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

If the response indicates that the RTS command	Do
passed	step 22
failed	step 21

21 For additional help, call the next level of support.

Upgrading HCMIC firmware following a software upgrade (continued)

22 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 23.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 35.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack is returned to service, and clears the alarm when the soak time expires.

23 Check that the new firmware load is now in the HCMIC circuit pack. 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 containing the circuit pack - 1 to 18

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

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                            <version>
```

where

<version> identifies the firmware load currently in the circuit pack

24 Select the next step as follows:

If	Do
you have upgraded the firmware in all the HCMIC circuit packs in the XA-Core shelf	step 25
you have not yet upgraded the firmware in all the HCMIC circuit packs in the XA-Core shelf	step 14

25 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

Upgrading HCMIC firmware following a software upgrade (continued)

26 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 HIOP  NTLX17AA XHIO03XB F02LFWLOADS XCIO01GK  FW     new      48
.
.
```

27 Look for tuples listing the current and new FW firmware loads for the HCMIC circuit pack. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

28 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 29
NOT a tuple listing a current FW firmware load for the component	step 33

29 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading HCMIC firmware following a software upgrade (continued)

31 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX17AA
>
VERSION: XHIO03XA
>
VOLUME: F02LFWLOADS
>
FILE: XCIO01GG
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
6 HIOP NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

33 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

34 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading HCMIC firmware following a software upgrade (end)

35 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: HIOP
>
PEC: NTLX17AA
>
VERSION: XHIO03XB
>
VOLUME: F02LFWLOADS
>
FILE: XCIO01GK
>
LOADTYPE: FW
>
STATUS: new
>**current**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 HIOP NTLX17AA XHIO03XB F02LFWLOADS XCIO01GK FW
current 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

37 Exit from the table editor. Type

>QUIT

and press the Enter key.

38 You have completed the procedure.

Upgrading CMIC-packlet firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Introduction

Use this procedure to upgrade the firmware in all instances of the NTLX05AB CMIC packlet in the XA-Core shelf.

Note 1: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Note 2: In the NTLX05AA CMIC packlet, the firmware is not upgradeable.

Application

The sequence of steps in the procedure directs you to upgrade the firmware in one NTLX05AB CMIC packlet at a time. That is the proper sequence. Do not try to upgrade two or more NTLX05AB CMIC packlets in parallel.

In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

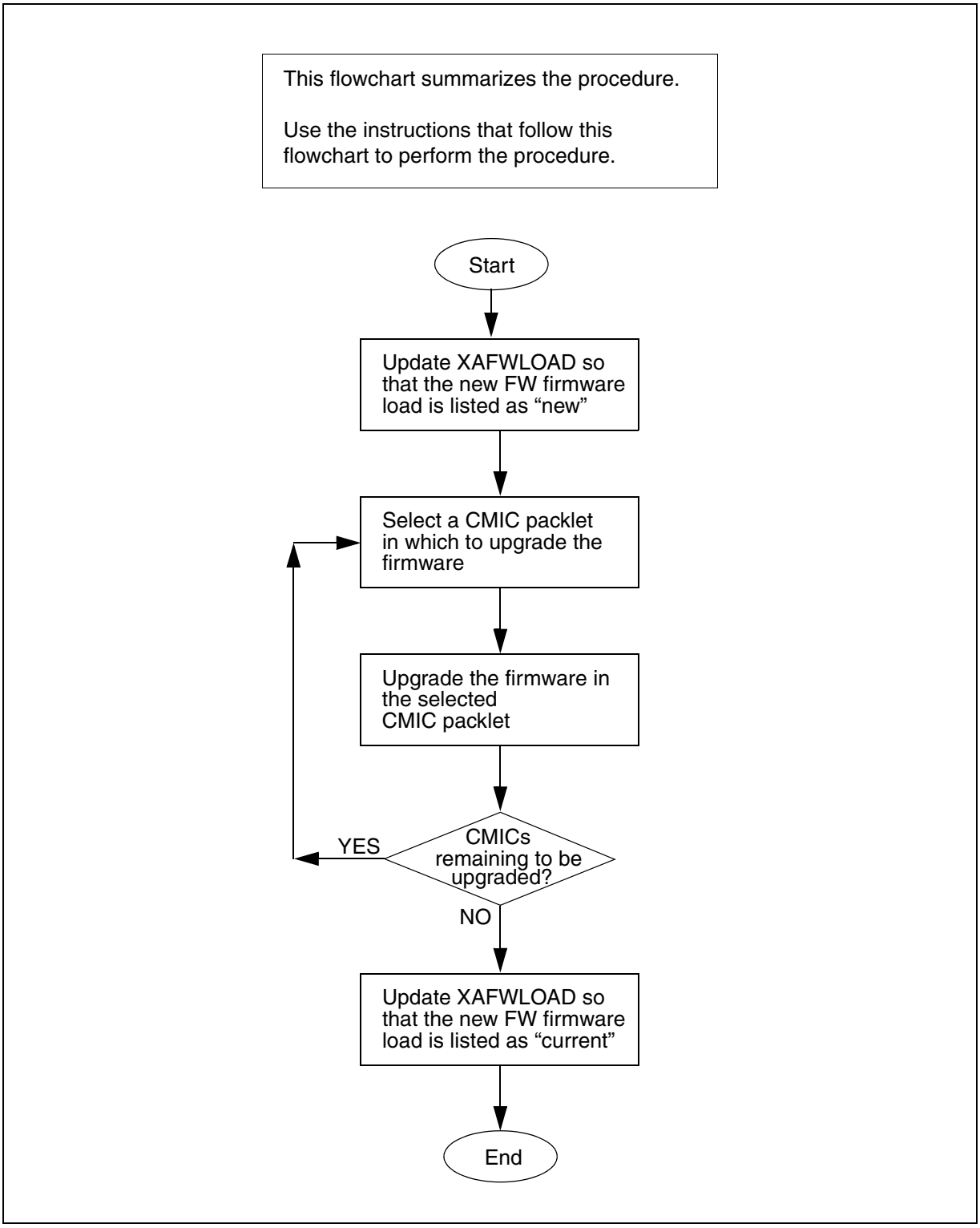
This procedure does not refer to any common procedures.

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.

Upgrading CMIC-packlet firmware following a software upgrade

Figure 4-7 Summary of upgrading the CMIC-packlet firmware following a software upgrade



Upgrading CMIC-packlet firmware following a software upgrade

Upgrading the CMIC-packlet firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading CMIC-packlet firmware following a software upgrade

3 Look for tuples listing the new and current firmware loads of loadtype FW for the NTLX05AB CMIC packlet. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a “new” load, write down the contents of the tuple. If you find a tuple listing the “current” load, write down the contents of the tuple.

Note: If you do not find a “new” tuple or a “current” tuple for loadtype FW for the NTLX05AB CMIC packlet, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for the NTLX05AB CMIC packlet	step 5
NOT a tuple listing a new firmware load of loadtype FW for the NTLX05AB CMIC packlet	step 10

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for the NTLX05AB CMIC packlet. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for the NTLX05AB CMIC packlet. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: CMIC
>
PEC: NTLX05AB
>
VERSION: PK12CE93
>PK12CE94
VOLUME: F02LFWLOADS
>
FILE: HCFW421
>HCFW425
LOADTYPE: FW
```

Upgrading CMIC-packlet firmware following a software upgrade

>
STATUS: new
>
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
16 CMIC NTLX05AB PK12CE94 F02LFWLOADS HCFW425 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

9 You found and updated a tuple listing a new firmware load of type FW for the NTLX05AB CMIC packlet. Therefore, you do not need to add such a tuple. Go to step 12.

10 You are going to add a tuple listing the newly delivered FW firmware load for the NTLX05AB CMIC packlet. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**CMIC**
PEC:
>**NTLX05AB**
VERSION:
>**PK12CE94**
VOLUME:
>**F02LFWLOADS**
FILE:
>**HCFW425**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**48**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

Upgrading CMIC-packlet firmware following a software upgrade

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 CMIC NTLX05AB PK12CE94 F02LFWLOADS HCFW425 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

12 Exit from the table editor. Type

>QUIT

and press the Enter key.

13 Go to the MAP level for the CMIC packlet. Type

>MAPCI;MTC;XAC;CMIC

and press the Enter key.

14 Select an NTLX05AB CMIC packlet whose firmware needs to be upgraded.

15 Find out which FW firmware load is currently in the NTLX05AB CMIC packlet that you selected in step 14. 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 containing the packlet - 1 to 18

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

<p>indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the packlet

Upgrading CMIC-packlet firmware following a software upgrade

16



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the CMIC packlet. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

For example, to busy the CMIC packlet in slot 5, rear, lower, type

>BSY 4 R L FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

17 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 18
failed	step 21

Upgrading CMIC-packlet firmware following a software upgrade

18 Load the new FW firmware version. Type

>LOADFW <nn> <s> <p> FILE NEW

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 - 1 to 18

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

<p>indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

For example, to load new firmware into the CMIC packlet at slot 4, rear, lower, type

>LOADFW 4 R L FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

19 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 4 Rear Lower fw copied to SM
LoadFW 4 Rear Lower bank 1 erased

LoadFW 4 Rear Lower bank 1 programmed

LoadFW 4 Rear Lower bank 1 loaded and tested

LoadFW 4 Rear Lower bank 0 erased
LoadFW 4 Rear Lower 0 programmed

LoadFW 4 Rear Lower bank 0 loaded and tested
LoadFW 4 Rear Lower completed
```

If the response indicates that the LOADFW command	Do
completed	step 20
failed	step 21

Upgrading CMIC-packlet firmware following a software upgrade

20 Return the CMIC 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 - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

If the response indicates that the RTS command	Do
passed	step 22
failed	step 21

21 For additional help, call the next level of support.

22 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 23.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 35.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

23 Check that the new firmware load is now in the CMIC packlet. 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 containing the packlet - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Upgrading CMIC-packlet firmware following a software upgrade

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the packlet

24 Select the next step as follows:

If	Do
you have upgraded the firmware in all the NTLX05AB CMIC packlets in the XA-Core shelf	step 25
you have not yet upgraded the firmware in all the NTLX05AB CMIC packlets in the XA-Core shelf	step 14

25 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

26 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 CMIC  NTLX05AB PK12CE94 F02LFWLOADS HCFW425  FW     new      48
.
.
```

Upgrading CMIC-packlet firmware following a software upgrade

27 Look for tuples listing the current and new FW firmware loads for the NTLX05AB CMIC packlet. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

28 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 29
NOT a tuple listing a current FW firmware load for the component	step 33

29 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading CMIC-packlet firmware following a software upgrade

31 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: CMIC
>
PEC: NTLX05AB
>
VERSION: PK12CE93
>
VOLUME: F02LFWLOADS
>
FILE: HCFW421
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
7 CMIC NTLX05AB PK12CE93 F02LFWLOADS HCFW421 FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

33 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

34 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading CMIC-packlet firmware following a software upgrade (end)

35 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: CMIC
>
PEC: NTLX05AB
>
VERSION: PK12CE94
>
VOLUME: F02LFWLOADS
>
FILE: HCFW425
>
LOADTYPE: FW
>
STATUS: new
>current
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 CMIC NTLX05AB PK12CE94 F02LFWLOADS HCFW425 FW
current 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

37 Exit from the table editor. Type

>QUIT

and press the Enter key.

38 You have completed the procedure.

This page is intentionally left blank.

Upgrading AMDI-packlet firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Introduction

Use this procedure to upgrade the firmware in all instances of the NTLX05BA AMDI packlet in the XA-Core shelf.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Application

The sequence of steps in the procedure directs you to upgrade the firmware in one NTLX05BA AMDI packlet at a time. That is the proper sequence. Do not try to upgrade two or more NTLX05BA AMDI packlets in parallel.

In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

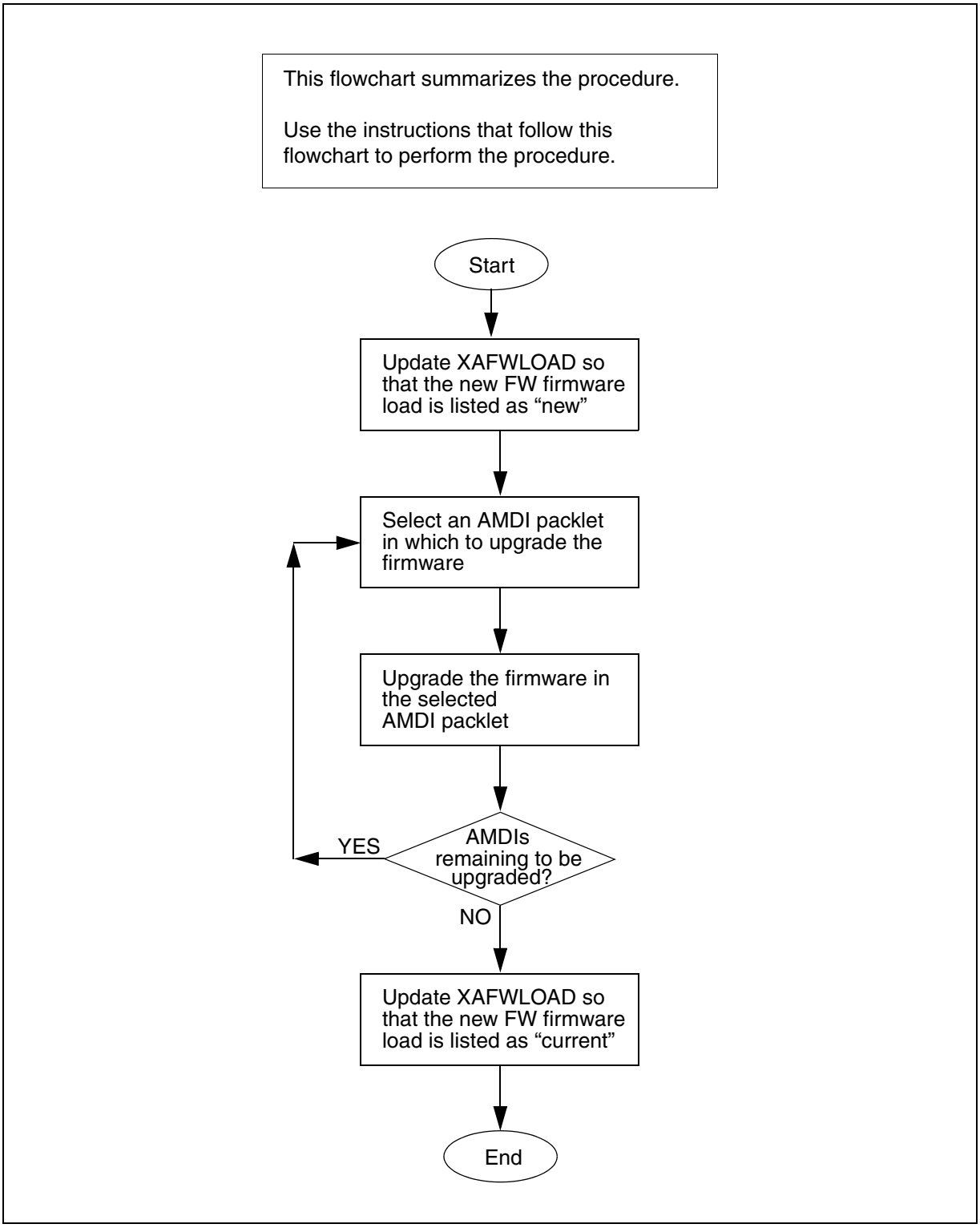
This procedure does not refer to any common procedures.

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.

Upgrading AMDI-packlet firmware following a software upgrade

Figure 4-8 Summary of upgrading the AMDI-packlet firmware following a software upgrade



Upgrading AMDI-packlet firmware following a software upgrade

Upgrading the AMDI-packlet firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading AMDI-packlet firmware following a software upgrade

3 Look for tuples listing the new and current firmware loads of loadtype FW for the NTLX05BA AMDI packlet. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a “new” load, write down the contents of the tuple. If you find a tuple listing the “current” load, write down the contents of the tuple.

Note: If you do not find a “new” tuple or a “current” tuple for loadtype FW for the NTLX05BA AMDI packlet, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for the NTLX05BA AMDI packlet	step 5
NOT a tuple listing a new firmware load of loadtype FW for the NTLX05BA AMDI packlet	step 10

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for the NTLX05BA AMDI packlet. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for the NTLX05BA AMDI packlet. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: AMDI
>
PEC: NTLX05BA
>
VERSION: PK12CE93
>PK12CE94
VOLUME: F02LFWLOADS
>
FILE: HCFW421
>HCFW425
LOADTYPE: FW
```

Upgrading AMDI-packlet firmware following a software upgrade

```
>
STATUS: new
>
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
15 AMDI NTLX05BA PK12CE94 F02LFWLOADS HCFW425 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

9 You found and updated a tuple listing a new firmware load of type FW for the NTLX05BA AMDI packlet. Therefore, you do not need to add such a tuple. Go to step 12.

10 You are going to add a tuple listing the newly delivered FW firmware load for the NTLX05BA AMDI packlet. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**AMDI**
PEC:
>**NTLX05BA**
VERSION:
>**PK12CE94**
VOLUME:
>**F02LFWLOADS**
FILE:
>**HCFW425**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**48**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

Upgrading AMDI-packlet firmware following a software upgrade

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 AMDI NTLX05BA PK12CE94 F02LFWLOADS HCFW425 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

12 Exit from the table editor. Type

>QUIT

and press the Enter key.

13 Go to the MAP level for the AMDI packlet. Type

>MAPCI;MTC;XAC;AMDI

and press the Enter key.

14 Select an AMDI packlet whose firmware needs to be upgraded.

15 Find out which FW firmware load is currently in the AMDI packlet that you selected in step 14. 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 containing the packlet - 1 to 18

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

<p>indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the packlet

Upgrading AMDI-packlet firmware following a software upgrade

16



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the AMDI packlet. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

For example, to busy the AMDI packlet in slot 5, rear, lower, type

>BSY 5 R L FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

17 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 18
failed	step 21

Upgrading AMDI-packlet firmware following a software upgrade

18 Load the new FW firmware version. Type

>LOADFW <nn> <s> <p> FILE NEW

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 - 1 to 18

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

<p>indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

For example, to load new firmware into the AMDI packlet at slot 5, rear, lower, type

>LOADFW 5 R L FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

19 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 5 Rear Lower fw copied to SM
LoadFW 5 Rear Lower bank 1 erased

LoadFW 5 Rear Lower bank 1 programmed

LoadFW 5 Rear Lower bank 1 loaded and tested

LoadFW 5 Rear Lower bank 0 erased
LoadFW 5 Rear Lower 0 programmed

LoadFW 5 Rear Lower bank 0 loaded and tested
LoadFW 5 Rear Lower completed
```

If the response indicates that the LOADFW command	Do
completed	step 20
failed	step 21

Upgrading AMDI-packlet firmware following a software upgrade

20 Return the AMDI 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 - 1 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)

If the response indicates that the RTS command	Do
passed	step 22
failed	step 21

21 For additional help, call the next level of support.

22 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 23.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 35.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

23 Check that the new firmware load is now in the AMDI packlet. 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 containing the packlet - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Upgrading AMDI-packlet firmware following a software upgrade

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                            <version>
```

where

<version> identifies the firmware load currently in the packlet

24 Select the next step as follows:

If	Do
you have upgraded the firmware in all the NTLX05BA AMDI packlets in the XA-Core shelf	step 25
you have not yet upgraded the firmware in all the NTLX05BA AMDI packlets in the XA-Core shelf	step 14

25 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

26 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 AMDI  NTLX05BA PK12CE94 F02LFWLOADS HCFW425  FW     new      48
.
.
```

Upgrading AMDI-packlet firmware following a software upgrade

27 Look for tuples listing the current and new FW firmware loads for the NTLX05BA AMDI packlet. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

28 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 29
NOT a tuple listing a current FW firmware load for the component	step 33

29 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading AMDI-packlet firmware following a software upgrade

31 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: AMDI
>
PEC: NTLX05BA
>
VERSION: PK12CE93
>
VOLUME: F02LFWLOADS
>
FILE: HCFW421
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
8 AMDI NTLX05BA PK12CE93 F02LFWLOADS HCFW421 FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

33 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

34 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading AMDI-packlet firmware following a software upgrade (end)

35 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: AMDI
>
PEC: NTLX05BA
>
VERSION: PK12CE94
>
VOLUME: F02LFWLOADS
>
FILE: HCFW425
>
LOADTYPE: FW
>
STATUS: new
>current
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 AMDI NTLX05BA PK12CE94 F02LFWLOADS HCFW425 FW
current 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

37 Exit from the table editor. Type

>QUIT

and press the Enter key.

38 You have completed the procedure.

This page is intentionally left blank.

Upgrading ETHR-packlet firmware following a software upgrade

Use this procedure only when directed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not use this procedure on any other occasion.

Introduction

Use this procedure to upgrade the firmware in all instances of the NTLX09 Ethernet packlet in the XA-Core shelf.

Note: If you replace a downloadable component in the XA-Core and want to load the current firmware into that component, follow the instructions in the procedure titled "Loading current firmware in a new XA-Core component".

Application

The sequence of steps in the procedure directs you to upgrade the firmware in one Ethernet packlet at a time. That is the proper sequence. Do not try to upgrade two or more Ethernet packlets in parallel.

In all cases in which a soak is necessary, the system performs the soak automatically. You do not need to take any action regarding soak.

Interval

Perform this procedure only when instructed to do so by procedure "Upgrading firmware on the occasion of a software upgrade" in this document. Do not perform this procedure on any other occasion.

For information about when to upgrade firmware, see the "Interval" section of procedure "Upgrading firmware on the occasion of a software upgrade".

Common procedures

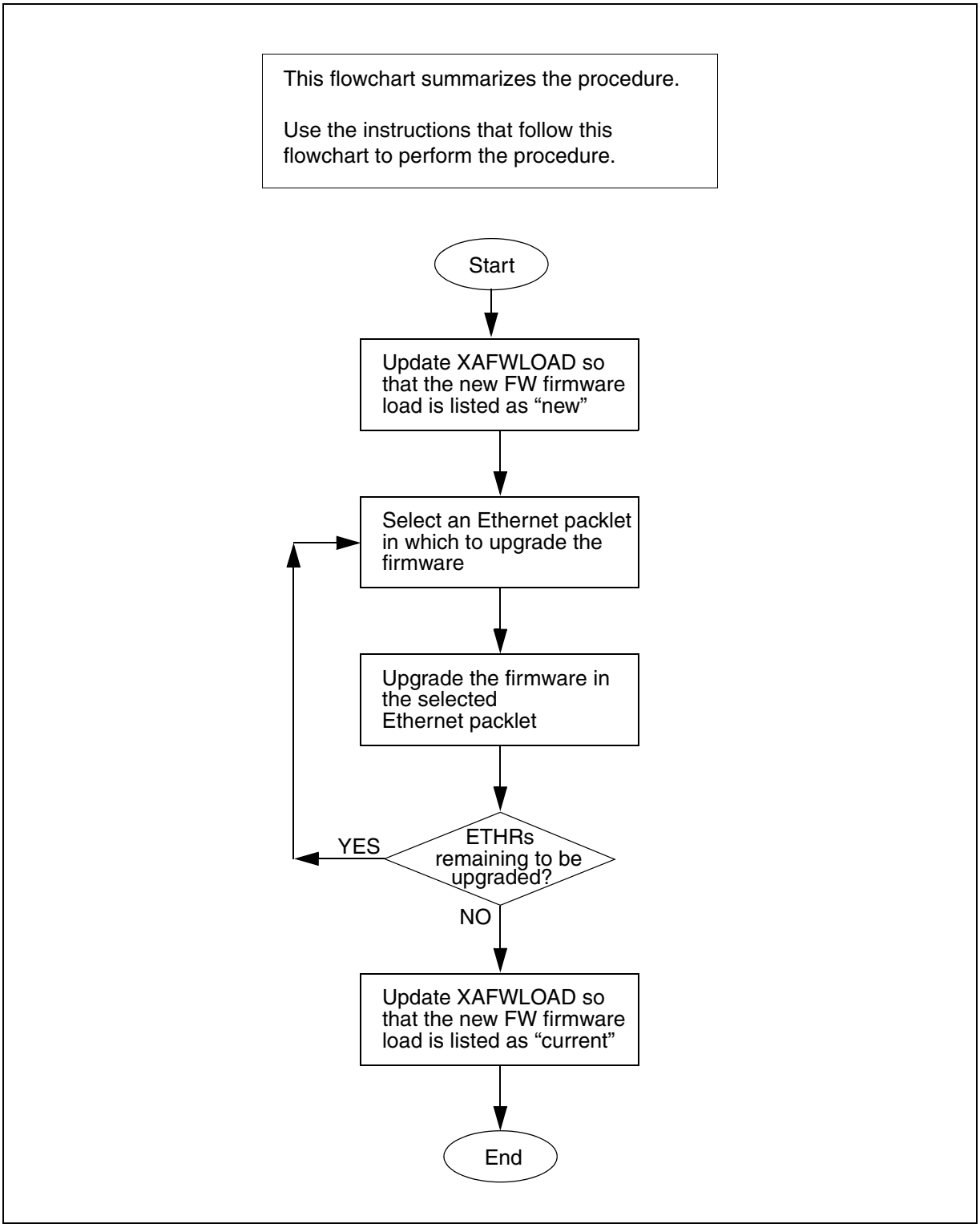
This procedure does not refer to any common procedures.

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.

Upgrading ETHR-packlet firmware following a software upgrade

Figure 4-9 Summary of upgrading ETHR-packlet firmware following a software upgrade



Upgrading ETHR-packlet firmware following a software upgrade

Upgrading ETHR-packlet firmware on the occasion of a software upgrade



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.



CAUTION
File/volume/version names
The file names, volume names, and version names used in this procedure are only examples. For the correct names to use, refer to the Peripheral Module Software Release Document and refer to table XAFWLOAD.

At the MAP terminal

1 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE: XAFWLOAD
```

2 List all the tuples in table XAFWLOAD. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
.
.
```

Note: The firmware load names shown throughout this procedure are fictitious and are for illustrative purposes only. For information on the actual firmware loads, see the Peripheral Module Software Release Document.

Upgrading ETHR-packlet firmware following a software upgrade

3 Look for tuples listing the new and current firmware loads of loadtype FW for the NTLX09 Ethernet packlet. (The FRU and PEC fields identify the component; the STATUS field indicates new or current.) If you find a tuple listing a “new” load, write down the contents of the tuple. If you find a tuple listing the “current” load, write down the contents of the tuple.

Note: If you do not find a “new” tuple or a “current” tuple for loadtype FW for the NTLX09 Ethernet packlet, that is not a problem.

4 Select the next step as follows:

If there is	Do
a tuple listing a new firmware load of loadtype FW for the NTLX09 Ethernet packlet	step 5
NOT a tuple listing a new firmware load of loadtype FW for the NTLX09 Ethernet packlet	step 10

5 Use the POS command to move to the tuple listing the new firmware load of loadtype FW. Type

>POS <key-value>

and press the Enter key

where

<key-value> is the index value identifying the tuple

6 You are going to change the tuple to point to the newly delivered FW load for the NTLX09 Ethernet packlet. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

7 Update the VERSION, VOLUME, and FILE fields to specify the name and location of the newly delivered FW firmware load for the NTLX09 Ethernet packlet. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: ETHR
>
PEC: NTLX09AA
>
VERSION: EP14DO95
>EP14DO96
VOLUME: F02LFWLOADS
>
FILE: ETFW322
>ETFW329
LOADTYPE: FW
```

Upgrading ETHR-packlet firmware following a software upgrade

```
>
STATUS: new
>
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
17 ETHR NTLX09AA EP14DO96 F02LFWLOADS ETFW329 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 519
```

9 You found and updated a tuple listing a new firmware load of type FW for the NTLX09 Ethernet packlet. Therefore, you do not need to add such a tuple. Go to step 12.

10 You are going to add a tuple listing the newly delivered FW firmware load for the NTLX09 Ethernet packlet. Indicate that you intend to add a tuple. Type

>ADD

and press the Enter key.

In response, the system prompts you to specify the values for the fields that compose the tuple. The following example uses sample values to show how you might respond to the prompts:

Example

FRU:
>**ETHR**
PEC:
>**NTLX09AA**
VERSION:
>**EP14DO96**
VOLUME:
>**F02LFWLOADS**
FILE:
>**ETFW329**
LOADTYPE:
>**FW**
STATUS:
>**new**
SOAK:
>**48**

Note: If the table already contains a tuple listing the current firmware load for the component, use the same soak value as found in that tuple. Otherwise, call the next level of support for advice about the soak time.

Upgrading ETHR-packlet firmware following a software upgrade

After obtaining the field values, the system responds as follows.

Map response

```
TUPLE TO BE ADDED:
10 ETHR NTLX09AA EP14DO96 F02LFWLOADS ETFW329 FW new 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 Confirm the addition. Type

>Y

and press the Enter key.

Map response

```
TUPLE ADDED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 597
```

12 Exit from the table editor. Type

>QUIT

and press the Enter key.

13 Go to the MAP level for the Ethernet packlet. Type

>MAPCI;MTC;XAC;ETHR

and press the Enter key.

14 Select an Ethernet packlet whose firmware needs to be upgraded.

15 Find out which FW firmware load is currently in the Ethernet packlet that you selected in step 14. 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 containing the packlet - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the packlet

Upgrading ETHR-packlet firmware following a software upgrade

16



CAUTION
Possible service impact
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

Manually busy the Ethernet packlet. 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 containing the circuit pack or packlet that is to be upgraded - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

For example, to busy the Ethernet packlet in slot 5, rear, lower, type

>BSY 5 R L FORCE

and press the Enter key.

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ("YES", "Y", "NO", or "N"):
```

17 Confirm the action. Type

>Y

and press the Enter key.

If the response indicates that the Bsy Force command	Do
completed	step 18
failed	step 21

Upgrading ETHR-packlet firmware following a software upgrade

18 Load the new FW firmware version. Type

>LOADFW <nn> <s> <p> FILE NEW

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 - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

For example, to load new firmware into the Ethernet packlet at slot 5, rear, lower, type

>LOADFW 5 R L FILE NEW

and press the Enter key.

In response, the system asks you to confirm the LOADFW command.

19 Confirm the LOADFW command. Type

>Y

and press the Enter key.

Map response, assuming you entered the example command from the preceding step

```
Command submitted
LoadFW 5 Rear Lower fw copied to SM
LoadFW 5 Rear Lower bank 1 erased

LoadFW 5 Rear Lower bank 1 programmed

LoadFW 5 Rear Lower bank 1 loaded and tested

LoadFW 5 Rear Lower bank 0 erased
LoadFW 5 Rear Lower bank 0 programmed

LoadFW 5 Rear Lower bank 0 loaded and tested
LoadFW 5 Rear Lower completed
```

If the response indicates that the LOADFW command	Do
completed	step 20
failed	step 21

Upgrading ETHR-packlet firmware following a software upgrade

20 Return the Ethernet 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 - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

If the response indicates that the RTS command	Do
passed	step 22
failed	step 21

21 For additional help, call the next level of support.

22 If an alarm other than the FWVERS or FWSOAK alarm occurs, perform the appropriate alarm-clearing procedure and return to this point when finished. If no alarms other than FWVERS and FWSOAK occur, go to step 23.

Note 1: The FWVERS alarm will occur during this procedure. The alarm will clear only when (1) all items of a particular FRU and PEC have been upgraded and (2) you have updated table XAFWLOAD to change the status of the newly delivered FW firmware load from “new” to “current”. (You change the status to “current” in step 35.)

Note 2: The FWSOAK alarm will occur during this procedure if table XAFWLOAD lists a non-zero soak time for the newly delivered firmware load. If there is a non-zero soak value, the system raises the FWSOAK alarm when the circuit pack or packlet is returned to service, and clears the alarm when the soak time expires.

23 Check that the new firmware load is now in the Ethernet packlet. 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 containing the packlet - 1 to 18

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

<p> indicates the packlet location in an input/output processor (IOP) - upper (u) or lower (l)

Upgrading ETHR-packlet firmware following a software upgrade

Map response

```
Command submitted.
.
.
.
Pos   Type PEC+ HW Rel BL OK Serial Number FW Vers.
----- ---- ----------- -- -- ------------- --------
                                           <version>
```

where

<version> identifies the firmware load currently in the packlet

24 Select the next step as follows:

If	Do
you have upgraded the firmware in all the NTLX09 Ethernet packlets in the XA-Core shelf	step 25
you have not yet upgraded the firmware in all the NTLX09 Ethernet packlets in the XA-Core shelf	step 14

25 Access table XAFWLOAD. Type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
TABLE XAFWLOAD
```

26 List all the tuples. Type

>LIST ALL

and press the Enter key.

Map response

```
INDEX FRU PEC     VERSION  VOLUME      FILE    LOADTYPE STATUS  SOAK

1  PE    NTLX02CA XAPE01MA F02LFWLOADS PEFW421  FW     current  48
2  PE    NTLX02DA XAPE01NA F02LFWLOADS PEFW958  FW     current  48
3  IOP   NTLX03AA XAIO01PA F02LFWLOADS IOPFW588 FW     current  48
4  HIOP  NTLX04BA XAIO03RA F02LFWLOADS XHIO01XC FW     current  0
5  HIOP  NTLX04BA XAIO03RB F02LFWLOADS XHIO01XD DLL    current  0
6  HIOP  NTLX17AA XHIO03XA F02LFWLOADS XCIO01GG FW     current  72
7  CMIC  NTLX05AB PK12CE93 F02LFWLOADS HCFW421  FW     current  48
8  AMDI  NTLX05BA PK12CE93 F02LFWLOADS HCFW421  FW     current  48
9  ETHR  NTLX09AA EP14DO95 F02LFWLOADS ETFW322  FW     current  48
10 ETHR  NTLX09AA EP14DO96 F02LFWLOADS ETFW329  FW     new      48
.
.
```

Upgrading ETHR-packlet firmware following a software upgrade

27 Look for tuples listing the current and new FW firmware loads for the NTLX09 Ethernet packlet. (The FRU and PEC fields identify the component; the STATUS field indicates new, current, or old.) Write down the index values of the tuples.

Note: If you do not find a "current" tuple matching the component/loadtype combination, that is not a problem.

28 Select the next step as follows:

If there is	Do
a tuple listing a current FW firmware load for the component	step 29
NOT a tuple listing a current FW firmware load for the component	step 33

29 Use the POS command to move to the tuple listing the current firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

30 You are going to change the status from "current" to "old". Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading ETHR-packlet firmware following a software upgrade

31 Update the tuple by changing the value of the STATUS field from “current” to “old”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

FRU: ETHR
>
PEC: NTLX09AA
>
VERSION: EP14DO95
>
VOLUME: F02LFWLOADS
>
FILE: ETFW322
>
LOADTYPE: FW
>
STATUS: current
>**old**
SOAK: 48
>

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
9 ETHR NTLX09AA EP14DO95 F02LFWLOADS ETFW322 FW old 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

32 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 604
```

33 Use the POS command to move to the tuple listing the new firmware load. Type

>POS <key-value>

and press the Enter key.

where

<key-value> is the index value identifying the tuple

34 You are going to change the status from “new” to “current”. Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. For each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Upgrading ETHR-packlet firmware following a software upgrade (end)

35 Update the tuple by changing the value of the STATUS field from “new” to “current”. For the other fields, just press the Enter key to retain the existing values.

The following example uses sample values to show how you might respond to the prompts:

Example

```
FRU: ETHR
>
PEC: NTLX09AA
>
VERSION: EP14DO96
>
VOLUME: F02LFWLOADS
>
FILE: ETFW329
>
LOADTYPE: FW
>
STATUS: new
>current
SOAK: 48
>
```

After obtaining the edited field values, the system responds as follows.

Map response

```
TUPLE TO BE CHANGED:
10 ETHR NTLX09AA EP14DO96 F02LFWLOADS ETFW329 FW
Current 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the change. Type

>Y

and press the Enter key.

Map response

```
TUPLE CHANGED.
WRITTEN TO JOURNAL FILE AS JF NUMBER 520
```

37 Exit from the table editor. Type

>QUIT

and press the Enter key.

38 You have completed the procedure.

This page is intentionally left blank.

Loading current firmware in a new XA-Core component

After replacing a downloadable XA-Core component, use this procedure to load the current firmware onto that component.

Note: If you need to upgrade firmware on the occasion of a release-to-release software upgrade, follow the instructions in the procedure titled "Upgrading firmware on the occasion of a software upgrade".

Introduction

You can load current firmware into the following components:

- PE circuit packs
- IOP circuit packs
- HIOP circuit packs
- CMIC packlets
- AMDI packlets
- ETHR packlets
- HCMIC circuit packs

Application

This procedure is applicable only to offices equipped with CSP14 or higher based software releases.

Interval

Perform this procedure after replacing a downloadable component.

Common procedures

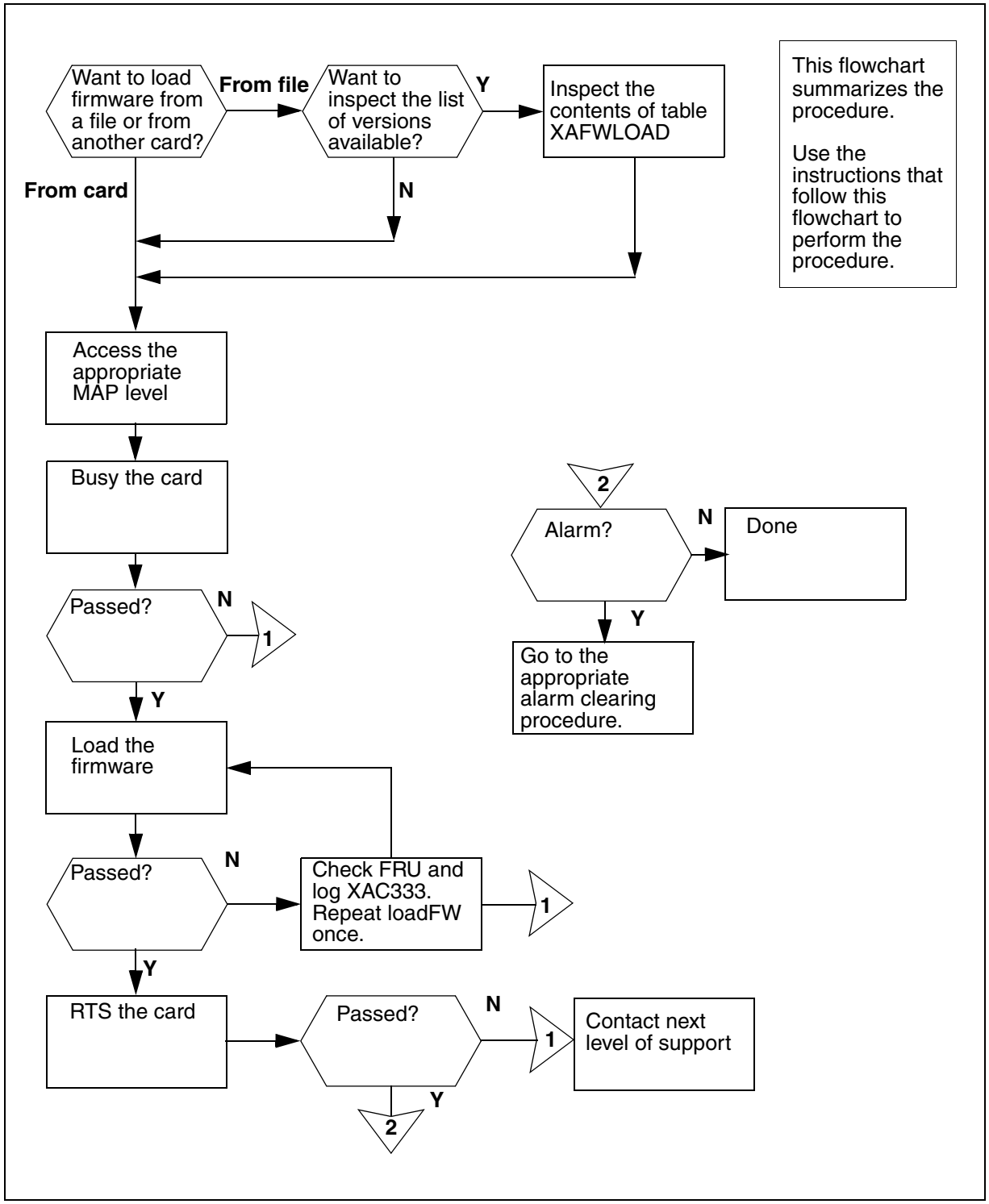
This procedure does not refer to any common procedures.

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.

Loading current firmware in a new XA-Core component (continued)

Figure 4-10 Summary of Upgrade firmware on an XA-Core component



Loading current firmware in a new 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	step 10
you know which version you want to load	step 2

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 or HCMIC 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 - 1 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.

Loading current firmware in a new XA-Core component (continued)

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 7

5 To load a firmware version, 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 packlet that is to be upgraded - 1 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)

<version> is CURRENT or NEW

If	Do
the response is Command Submitted. LoadFW 4 front completed	step 6
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 7.

6 To return the circuit pack or packlet to service, type

>RTS <nn> <s> <p>

and press the Enter key.

where

Loading current firmware in a new XA-Core component (continued)

<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 - 1 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)

If	Do
the response is Command Submitted. RTS 4 front passed	step 8
the response is Command Submitted. RTS 4 front failed	step 7

7 For additional help, call the next level of support.

8 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 9.

9 You have completed the procedure.

10 To access the table XAFWLOAD, type

>TABLE XAFWLOAD

and press the Enter key.

Map response
TABLE: XAFWLOAD

11 To find out the number of tuples in the table, type

>COUNT

and press the Enter key.

Map response
BOTTOM
SIZE = 40

Note: The size will be 40 tuples or fewer.

12 To move to the top of the table, type

>TOP

and press the Enter key.

Loading current firmware in a new XA-Core component (end)

13 To display the tuples, type

>LIST <size>

and press the Enter key.

where

<size> is the number of tuples, from step 11.

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 XAIO01AA F02LFWLOADS ISEFW41  FW     old      0
5   IOP  NTLX03AA XAIO01AC F02LFWLOADS ISEFW44  FW     current  0
6   CMIC NTLX05AA PK10CU10 F02LFWLOADS 0C3FW75  FW     current  72
7   HIOP NTLX04AA XHIO01YC F02LPMLOADS XHIO01YC FW     current  48
8   HIOP NTLX04AA XHIO01YD F02LPMLOADS XHIO01YD 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.

14 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.

15 To exit from the table editor, type

>QUIT

and press the Enter key.

16 Go to step step 1.

How to backup an XA-Core office image from disk to tape

Use this procedure to copy the office image files of an eXtended Architecture Core (XA-Core).

Application

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

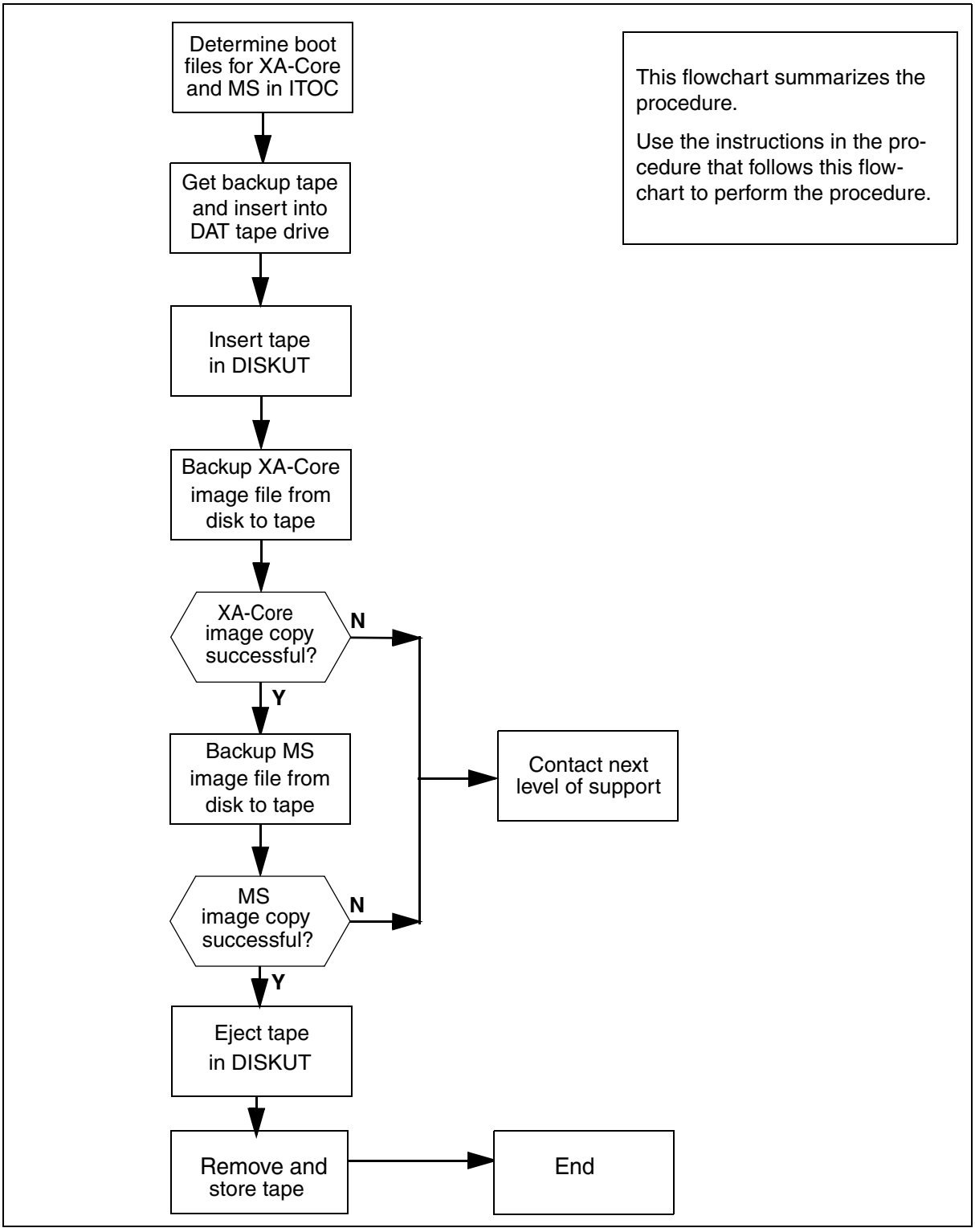
There are no common procedures.

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)

Figure 4-11 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:

>ITOCCI

and press the enter key.

Example of a MAP response:

```
ITOC User Interface is now active.
ITOCCI:
```

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_XA
```

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.*

How to backup an XA-Core office image from disk to tape (continued)

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
   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_XA. Image file IMG0517CY_XA is ALR. Image file IMG0517CY_XA 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”.

How to backup an XA-Core office image from disk to tape (continued)

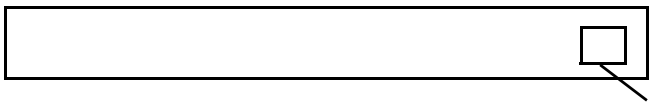
9

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).

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:
```

How to backup an XA-Core office image from disk to tape (continued)

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

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.

How to backup an XA-Core office image from disk to tape (continued)

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

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_XA                    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.

How to backup an XA-Core office image from disk to tape (continued)

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_XA F02UTAPE

Example of a MAP response:

```
FTFS file IMG0517CY_XA on disk volume F02LIMAGE on node
CM backed up as file IMG0517CY_XA on tape device F02UTAPE
on node CM .
```

If the command was	Do
successful	step 17
not successful	step 24

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

How to backup an XA-Core office image from disk to tape (continued)

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

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_XA
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) packlet position of the IOP that has the tape device.

Example
Example of MAP input:

>EJECTTAPE F02UTAPE

How to backup an XA-Core office image from disk to tape (end)

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:
```

At the shelf

21

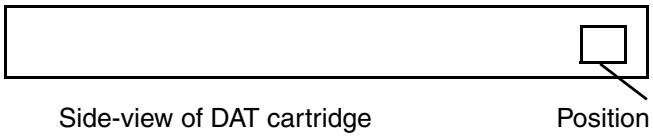


WARNING
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

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



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

Use this procedure to change the intensity of the system REx tests. System REx tests are also referred to as SREx tests. SREx tests are REx tests that the system runs automatically each day. The "intensity" of the SREx tests controls which class of REx tests the system runs. The classes are described below.

Note 1: For a full explanation of all REx commands, see the description of the XACMtc MAP level, in the chapter titled "XA-Core MAP levels and user interfaces", in the *XA-Core Reference Manual*, 297-8991-810.

Note 2: If you never change the REx test intensity, then SREx tests occur according to the default SREx schedule. For a description of that schedule, see the section titled "SREx" in the chapter titled "Preventive maintenance" in this document.

Application

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 packlets. The REx test is on a different IOP card and related packlets 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 packlets).
  - The BASE class also performs an image test.

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.

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

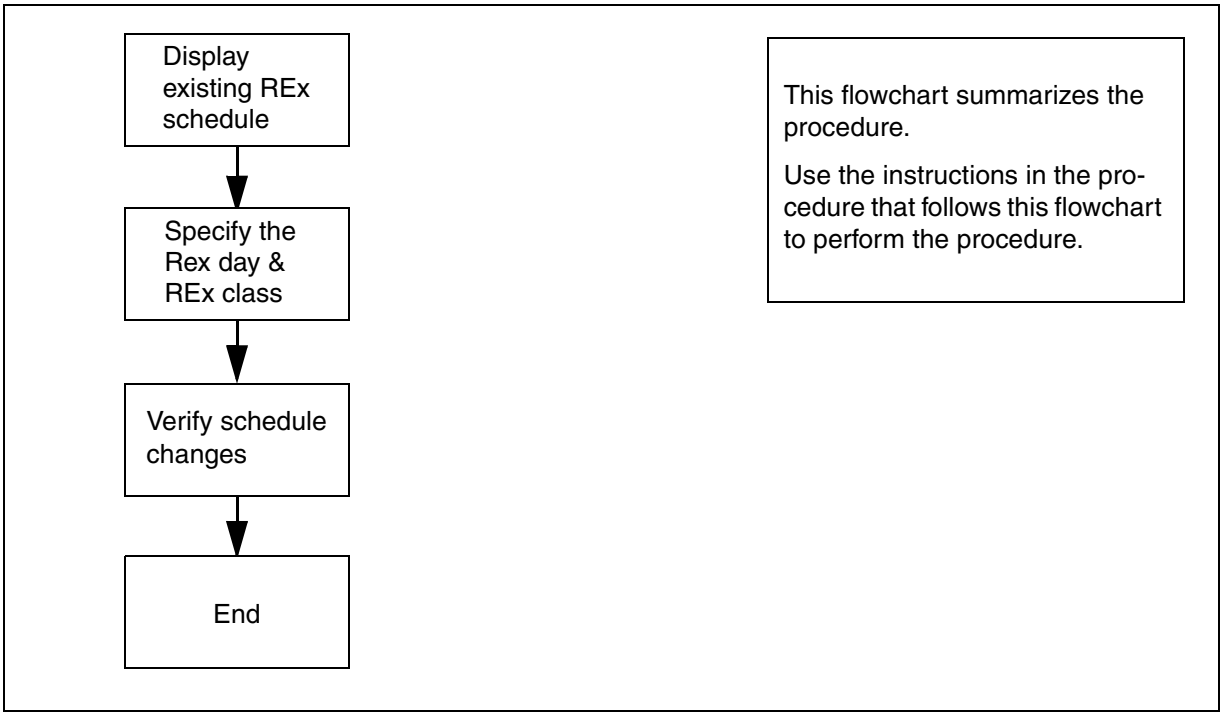
There are no common procedures.

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)

Figure 4-12 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          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    >
```

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      full       full      full       full       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       full       full      full       full       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.

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How to check and adjust the XA-Core TOD

Use this procedure to check and adjust the setting of the time-of-day (TOD) in the XA-Core.

Application

This procedure checks and adjusts the time-of-day setting in the XA-Core.

Interval

Perform this procedure daily.

Common procedures

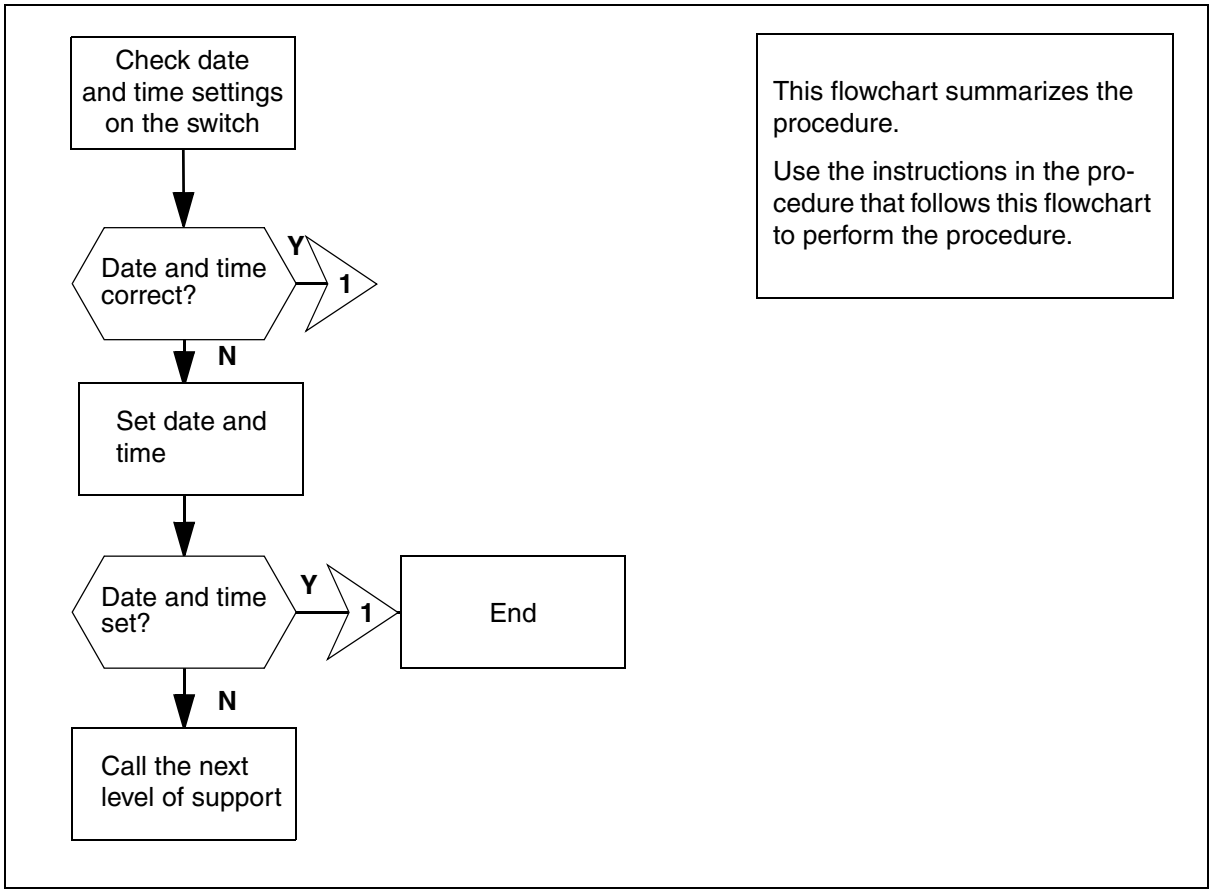
There are no common procedures.

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.

How to check and adjust the XA-Core TOD (continued)

Figure 4-13 Summary of How to check and adjust the XA-Core TOD



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.

How to check and adjust the XA-Core TOD (continued)



CAUTION

All customers must follow the sequence of steps set out in this procedure.

If the system uses the Network Time Protocol (NTP) as the timing reference, you must follow the sequence of steps as set out in this procedure. (For information on NTP, see step 6.)

At the MAP terminal

1 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:
```

2 Compare the time of day to the standard office time reference.

If the date is	Do
wrong	step 3
correct	step 4

3 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

Example of system response:

```
Date is WED. 30/JUN/1999 20:59:29
```

4 Determine if the time is correct. At the CI MAP prompt type

>TIME

and press the Enter key.

How to check and adjust the XA-Core TOD (continued)

Example of a MAP response:

```
Time is 20:59:29
```

If the time of day is	Do
not correct	step 5
correct	step 6

5 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 11
set	step 6

How to check and adjust the XA-Core TOD (end)

6 Determine the next step as follows:

If the timing reference used by the system is	Do
NTP	step 7
not NTP	step 12

Note: In the German market only, switches can use Network Time Protocol (NTP) as the timing reference for the time-of-day clock. The system uses Network Time Protocol if the value of the SNTP_CLIENT office parameter 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*, 297-8991-810.

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: 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.

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

Example of system response:

```
SNTP client started collecting samples from its NTP source
for given time zone value.
```

9 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.

10 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 11
set	step 12

11 Call the next level of support.

12 You have completed this procedure.

How to clean the XA-Core tape drive

Use this procedure to clean the recording heads in the digital audio tape (DAT) drive.

Application

This procedure cleans the recording heads in the digital audio tape 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

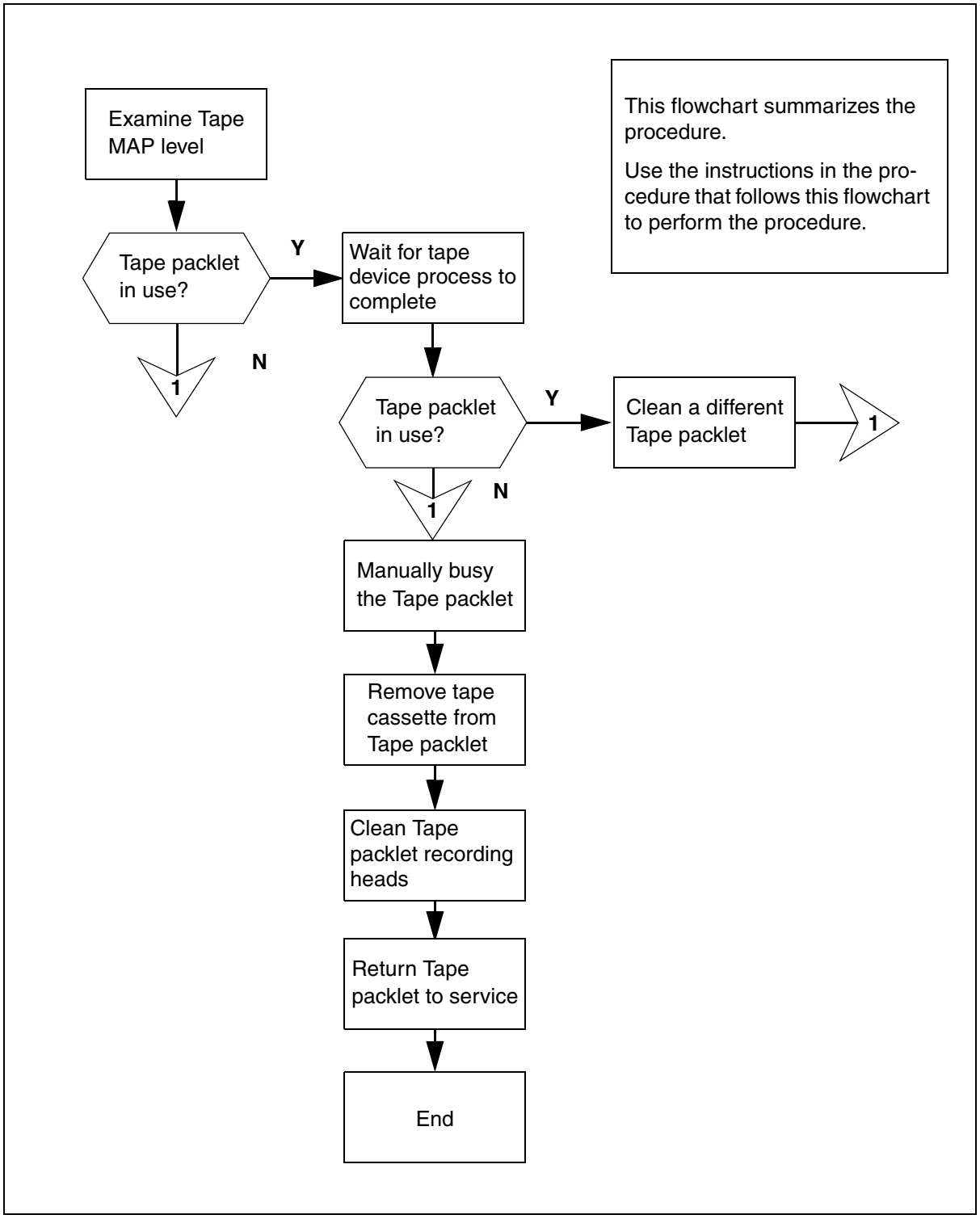
Refer to common procedure Selection of DAT tapes approved by Nortel Networks.

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)

Figure 4-14 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 packlet 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)

Tape MAP level

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

Tape            Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit         123456789012345678  456789012345   .      .       .       .
 2              Sta: -.-.--..-.---.-..-  .----------.   0      0       0       0
 3              Dep:
 4              Typ:  *              *
 5              Slot:   Side:    Packlet:   Status:    User Name:      Drive:
 6 Tst_            2    Front    Upper      .          User1           mounted
 7 Bsy_           17    Front    Upper      .                          Unmounted
 8 RTS_          TAPE:
 9
10
11
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

  XMAP0
Time  14:12    >
```

4 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 5
another user is using the tape device	step 6
you are the user of the tape device	step 9
there are no users	step 11

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 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 - 1 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

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 - 1 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 - 1 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 packlet. 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 - 1 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 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 packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

Locate the correct Tape packlet 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 packlet (see the diagrams in this step). Perform the following steps:

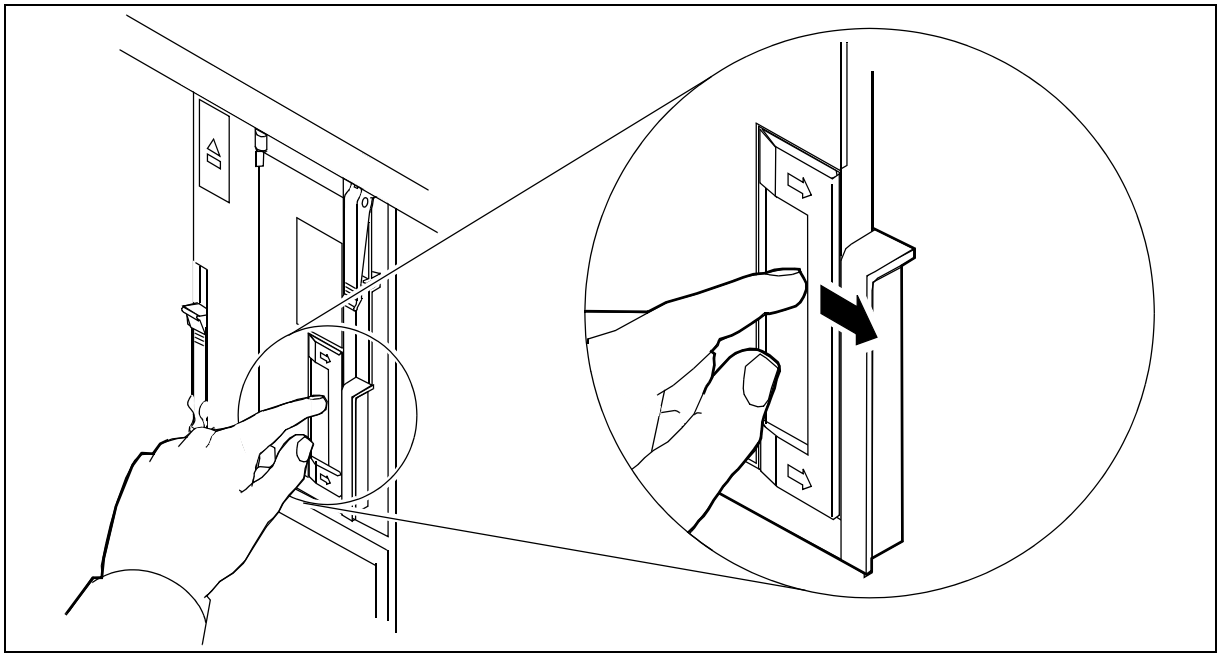
a Push the door lock in the direction of the arrow to unlock. The cassette door unlocks. Open the cassette door.

b Press the tape eject button. Wait for the tape cassette to partially eject for removal.

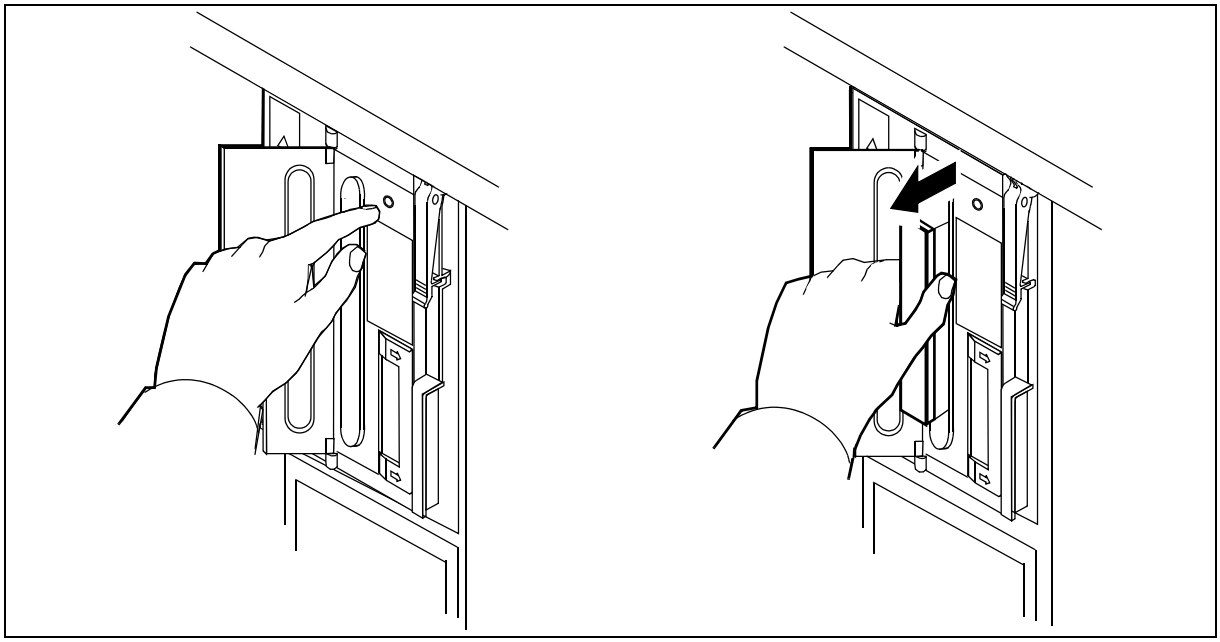
How to clean the XA-Core tape drive (continued)

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



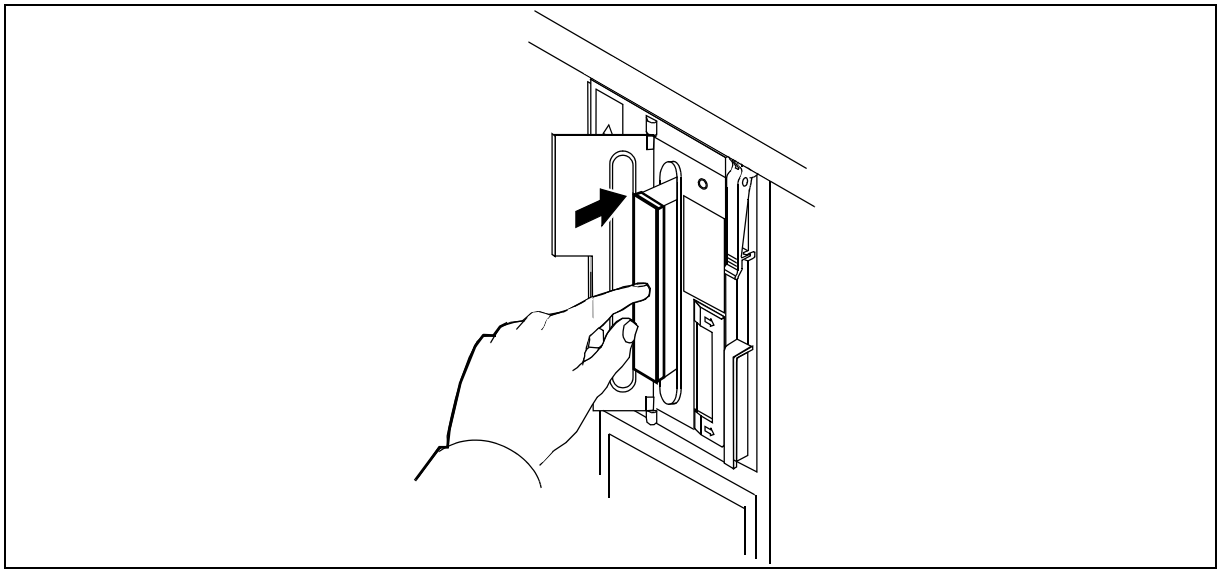
Eject and remove the tape cassette



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

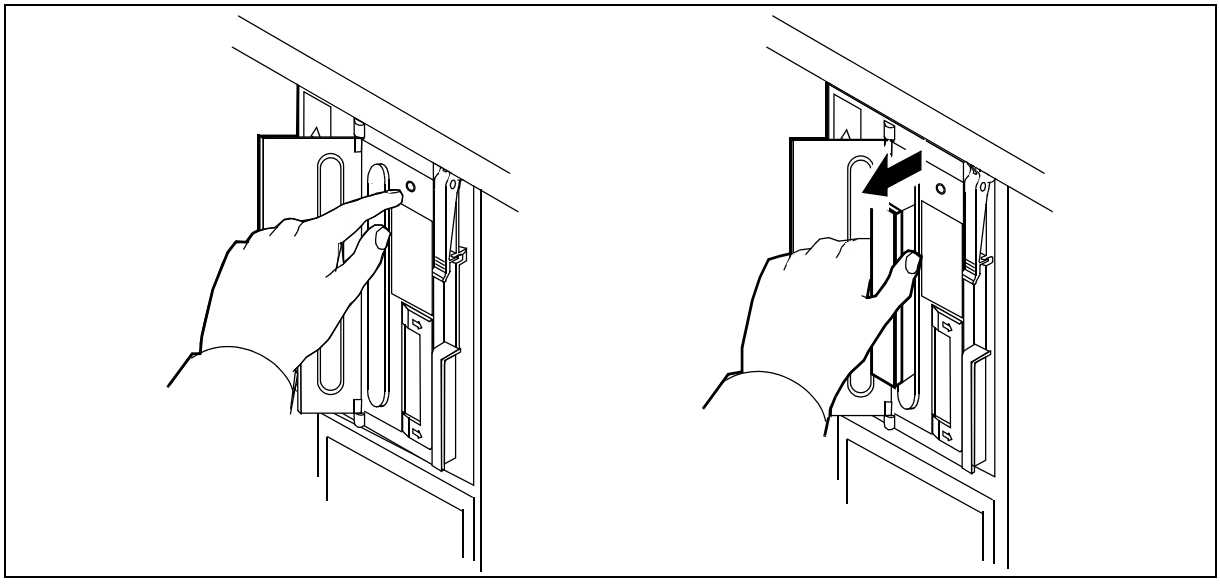


16 Wait until the tape cleaning cassette ejects from the tape slot. The tape cleaning process is automatic.

Note: If the tape cleaning cassette does not eject automatically, that indicates that the cleaning tape has wound all the way to the end, and the cassette is of no further use. Press and release the eject button on the tape packlet to eject the tape cleaning cassette, discard the cassette and start using a new tape cleaning cassette.

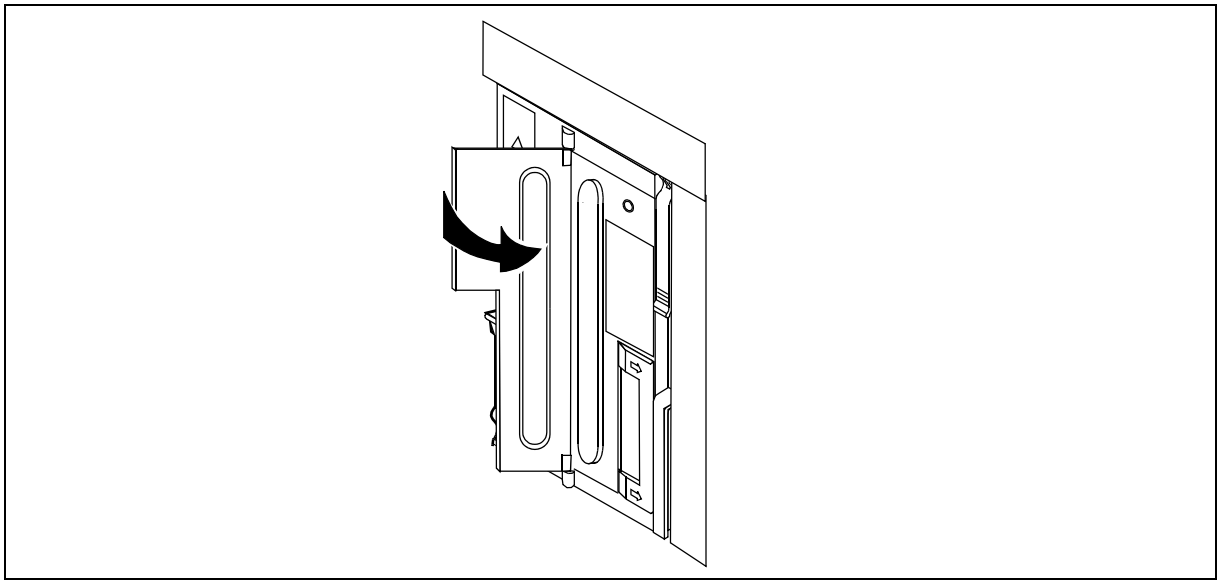
17 Remove the tape cleaning cassette from the tape slot. Close the tape cassette door. Place the tape cleaning cassette in the tape cleaning case.

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 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 - 1 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 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.

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How to copy all files of an XA-Core disk volume to tape

Use this procedure to copy all the files of a disk volume in an eXtended Architecture Core (XA-Core).

Application

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”.



CAUTION

Maximum one volume per tape

Copy no more than one volume onto a tape. To copy multiple volumes, use a separate tape for each volume.

Interval

Perform this procedure when required by your office.

Common procedures

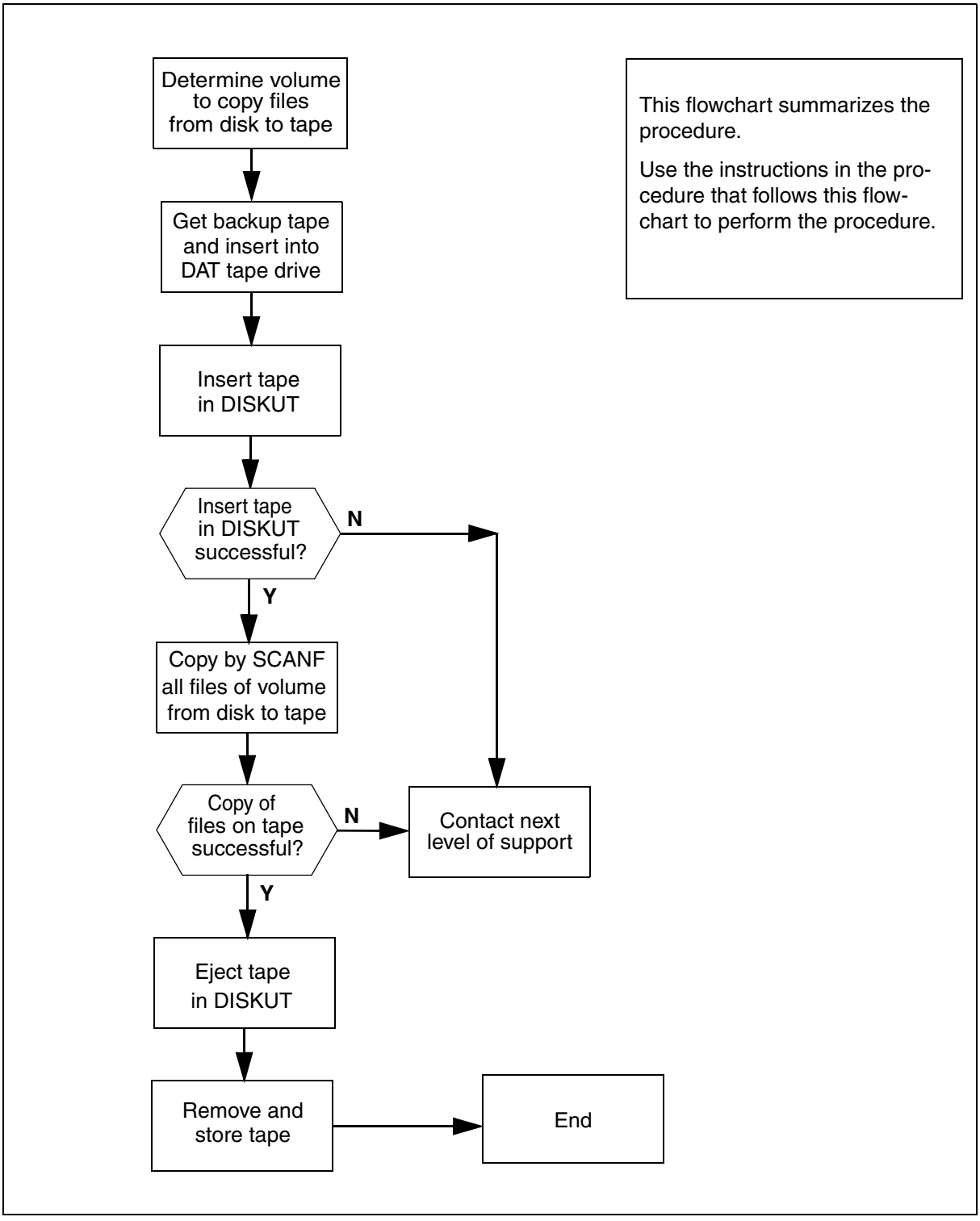
There are no common procedures.

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)

Figure 4-15 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”.



CAUTION
Maximum one volume per tape
Copy no more than one volume onto a tape. To copy multiple volumes, use a separate tape for each volume.

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.

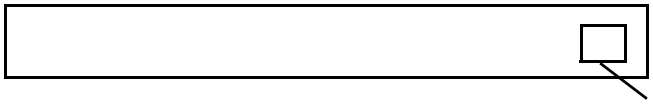
How to copy all files of an XA-Core disk volume to tape (continued)

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

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:
```

How to copy all files of an XA-Core disk volume to tape (continued)

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.

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.

How to copy all files of an XA-Core disk volume to tape (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
```

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.

How to copy all files of an XA-Core disk volume to tape (continued)

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.

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_XA
    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

How to copy all files of an XA-Core disk volume to tape (continued)

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.

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 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

How to copy all files of an XA-Core disk volume to tape (end)

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:
```

At the shelf

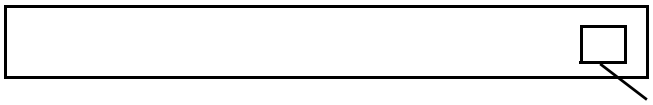
21



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.

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.

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How to create a test volume on XA-Core disks

Use this procedure to create a test volume on a disk of the eXtended Architecture Core (XA-Core).

Application

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

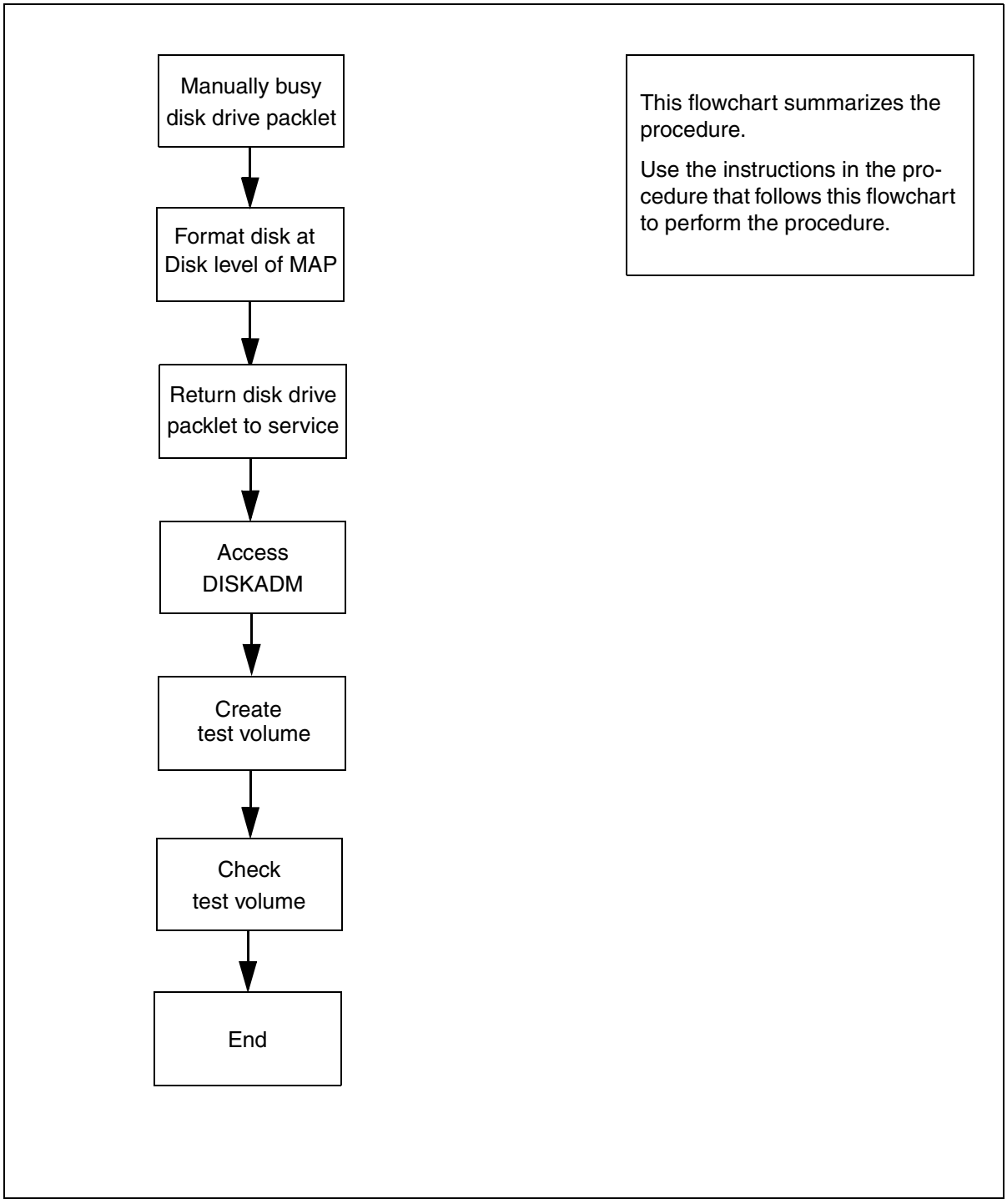
There are no common procedures.

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)

Figure 4-16 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            Front:   111111111  Rear: 111111   SM     PE      IO      PKLT
 0 Quit         123456789012345678  456789012345   .      .       .       .
 2              Sta: -.-.--..-..-----..-  .--.-------.   0      0       0       0
 3              Dep:
 4              Typ:  *              *
 5              Slot: Side:     Packlet:  Status:
 6 Tst_          2    Front     Lower     .
 7 Bsy_         17    Front     Lower     .
 8 RTS_
 9               DISK:
10
11 Format
12
13
14 Alarm_
15
16
17 Indicat_
18 Query_

 XMAP0
Time  14:12    >
```

2 To manually busy the disk drive packlet, 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 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:

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"):
```

How to create a test volume on XA-Core disks (continued)

3 To confirm the command from step 2, type:

>YES

and press the enter key

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"):
```

How to create a test volume on XA-Core disks (continued)

5 To confirm the format command from step , type:

>YES

and press the enter key

Example of a MAP response:

```
yes
Command Submitted.
Format  2 front  lower    checking data
Format  2 front  lower    formatting disk
Format  2 front  lower    initializating
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:
```

How to create a test volume on XA-Core disks (continued)

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

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.
```

How to create a test volume on XA-Core disks (continued)

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).

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.
```

How to create a test volume on XA-Core disks (end)

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
Name     Date     Date     Mega  Size   No. of No. of  Boot
Cache Cache
          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.

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How to create volumes on XA-Core disks

Use this procedure to create volumes on a disk of the eXtended Architecture Core (XA-Core).

Application

This procedure creates volumes on a disk of the eXtended Architecture 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

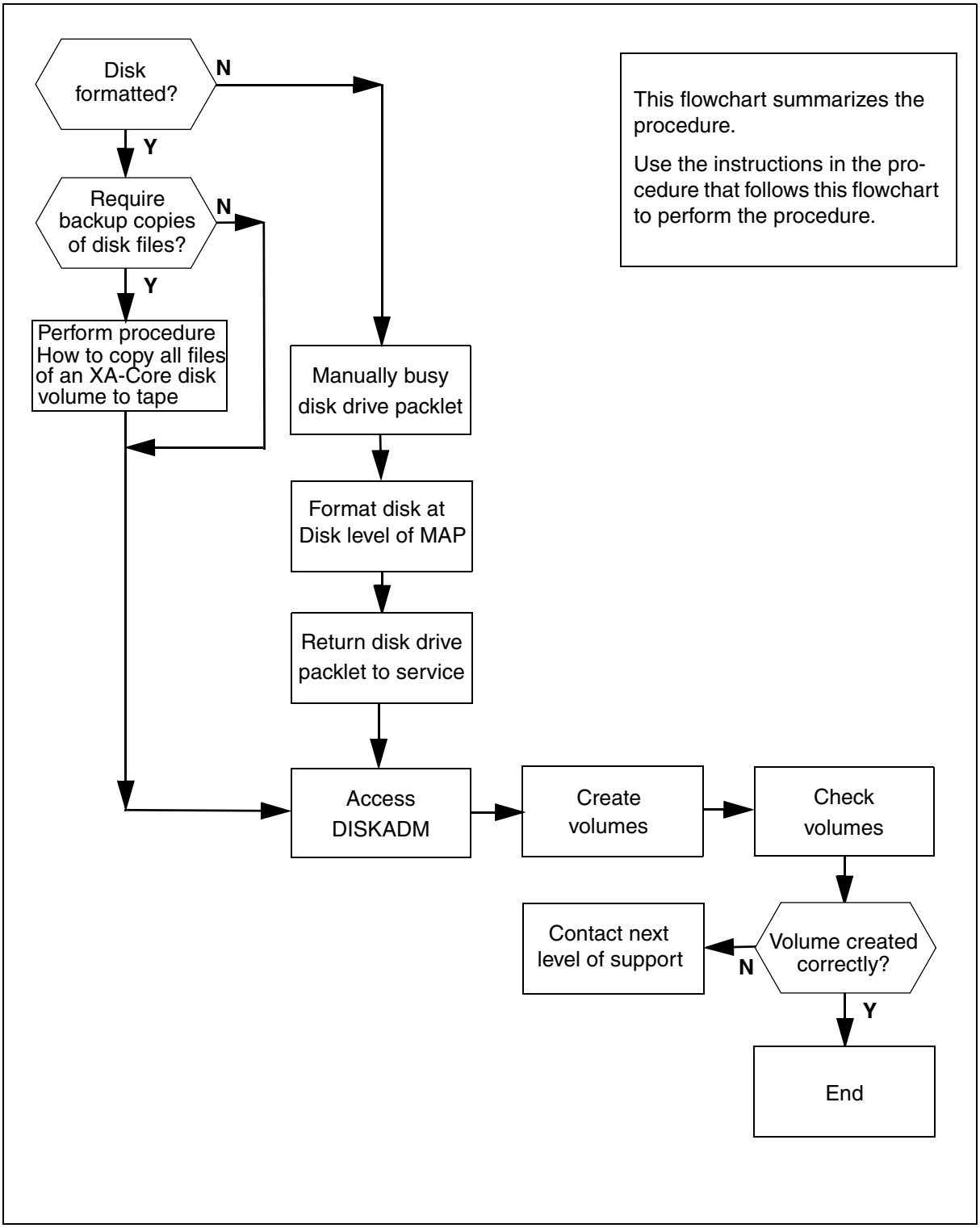
There are no commonon procedures.

Action

This procedure includes a flowchart that summarizesf the procedure. Follow the exact steps to perform this procedure.

How to create volumes on XA-Core disks (continued)

Figure 4-17 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:
```

How to create volumes on XA-Core disks (continued)

3 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
```

4 Determine if volumes are on the XA-Core disk.

If the disk has	Do
volumes	step 5
no volumes	step 6

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 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:
```

7 Go to step 15.

8 To access the XA-Core Disk MAP level, type:

>MAPCI;MTC;XAC;DISK

and press the enter key.

How to create volumes on XA-Core disks (continued)

The following is a sample MAP display.

Example of a DISK MAP display

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

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

 XMAP0
Time  14:12   >
```

9 To manually busy the disk drive packlet, 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 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:

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"):
```

How to create volumes on XA-Core disks (continued)

10 To confirm the command from step 9, type:

>YES

and press the enter key

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"):
```

How to create volumes on XA-Core disks (continued)

12 To confirm the format command from step , type:

>YES

and press the enter key

Example of a MAP response:

```
yes
Command Submitted.
Format  2 front  lower    checking data
Format  2 front  lower    formatting disk
Format  2 front  lower    initializating
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:
```

How to create volumes on XA-Core disks (continued)

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

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.
```

How to create volumes on XA-Core disks (continued)

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 of16 kbytes. A 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.
```

How to create volumes on XA-Core disks (end)

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
Name     Date     Date     Mega  Size   No. of No. of  Boot
Cache Cache
          Y/M/D    Y/M/D    Bytes kBytes Files  Segmnts
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 delete a volume on an XA-Core disk

Application

Use this procedure to delete a volume from a disk of the eXtended Architecture Core (XA-Core).

Interval

Perform this procedure as required.

Common procedures

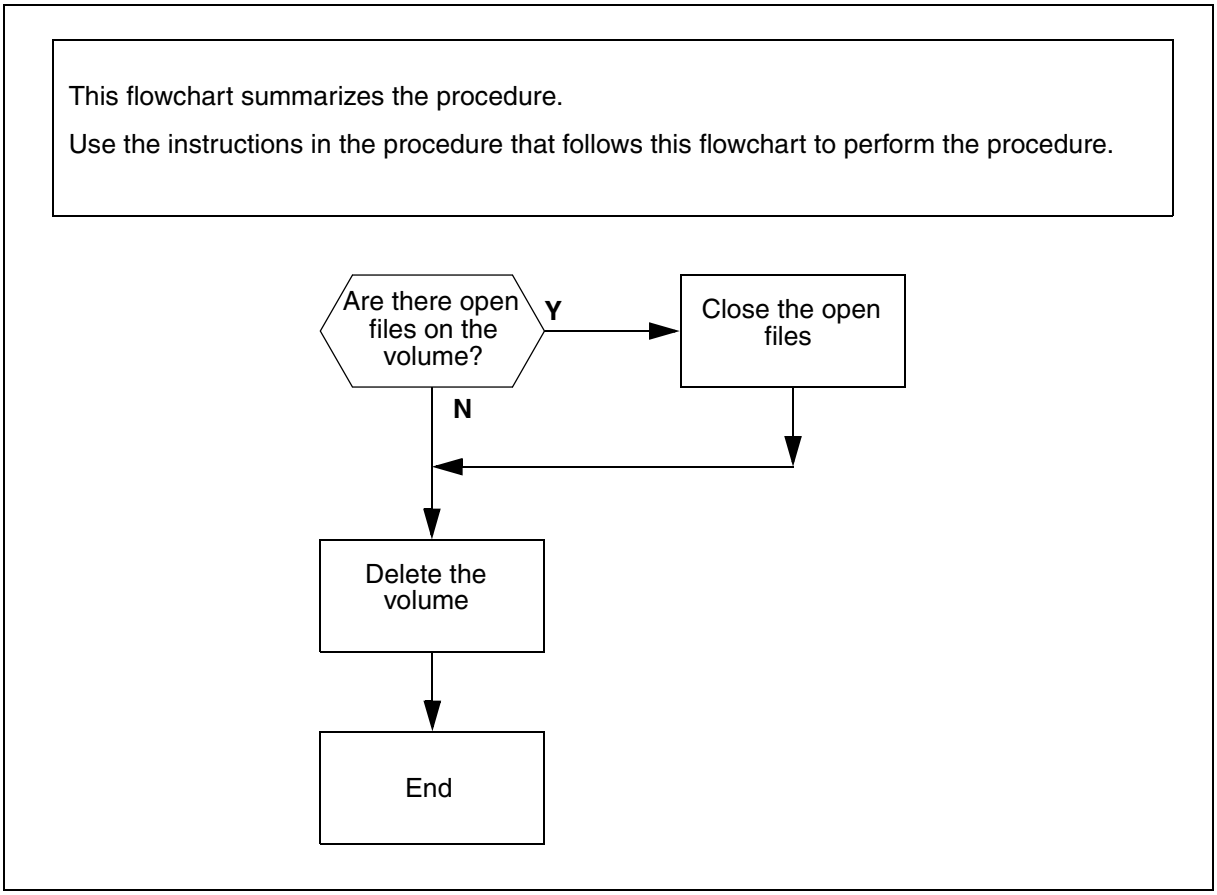
There are no common procedures.

Action

This procedure contains a summary flowchart as a summary of the procedure. Follow the exact steps to perform this procedure.

How to delete a volume on an XA-Core disk (continued)

Figure 4-18 How to delete a volume on an XA-Core disk



How to delete a volume on an XA-Core disk (continued)

How to delete a volume on an XA-Core disk



CAUTION

Some applications can open files automatically

Before deleting a volume, you must ensure that all files in the volume are closed. Step 2 in this procedure instructs you to close any open files. However, some applications (for example, DIRP) can open files automatically, and it is possible that such applications may open files between the time that the **lv** command reports zero open files and the time that you enter the **DELETEVOL** command. You can avoid such problems only if you understand the following things: what the volume is used for; which applications use the volume; how those applications work. If you do not feel confident that you understand these things, call the next level of support.



CAUTION

FIDB and F2DB volumes contain valuable information

Volumes whose names contain FIDB and F2DB hold information that the system stores as a record of its operation ("footprint and fault data"). If a problem occurs and you contact Nortel for assistance, the information in these volumes may help Nortel personnel to correct the problem. We advise you not to delete these volumes.

At the MAP terminal

1 Check the volume to find out whether it has any files that are currently open.

Proceed as follows.

a Initiate the MAP disk utility. Type

>DISKUT

and press the Enter key.

Example of MAP response:

```
Disk utility is now active.
DISKUT:
```

b Display the list of volumes. Type

>lv

and press the Enter key.

In response, the system displays a list of volumes.

How to delete a volume on an XA-Core disk (continued)

Example of MAP response:

```
Volumes found on node CM:
-------------------------

NAME          TYPE     TOTAL    FREE TOTAL   OPEN  ITOC   LARGEST
                      BLOCKS  BLOCKS FILES  FILES FILES FREE SEGMENT
-------------------------------------------------------------------
F17LIMAGE1    FTFS   3072000  570368    14     0     5     416768
F17LIMAGE2    FTFS   3072000  919136    13     0     4     615424
F17LPMLOADS   FTFS    512000  456376     7     0     0     456376
F17LPATCH     FTFS    204800  200160    29     0     0     200160
F17LAMA       FTFS    102400    2080    13     0     0       2080
F17LDLOG      FTFS    102400    1600   193     0     0        608
F17LPERM      FTFS    204800  188768    39     0     0     185824
F17LTEMP      FTFS    204800  156096    59     0     0     136640
F17LFIDB      FTFS    378880  177952     1     0     0     177952
F17LSPECTRUM  FTFS    409600  404832    20     0     0     404576
F17CUSTIMG    FTFS   2048000  104448    11     0     7      97280
F17LEUROPC    FTFS   3072000  705536     7     0     0     428032
F17LCMPATCH   FTFS    614400  396320   846     0     0     393312
F17LXPMPATCH  FTFS    409600  407904     2     0     0     407776
F17LSPMPATCH  FTFS    614400  575072     1     0     0     536672
F02LIMAGE1    FTFS   3072000  514048    13     0     3     349184
-------------------------------------------------------------------
Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
>Y
Volumes found on node CM:
-------------------------

NAME          TYPE     TOTAL    FREE TOTAL   OPEN  ITOC   LARGEST
                      BLOCKS  BLOCKS FILES  FILES FILES FREE SEGMENT
-------------------------------------------------------------------
F02LIMAGE2    FTFS   3072000  457312    15     0     8     270336
F02LPMLOADS   FTFS    512000  269280    30     0     0     169984
F02LPATCH     FTFS    204800  198112    38     0     0     198112
F02LAMA       FTFS    102400    2720    61     0     0       1024
F02LDLOG      FTFS    102400    1088   175     0     0       1056
F02LPERM      FTFS    204800  177760    81     0     0     177504
F02LTEMP      FTFS    204800  158432    46     0     0     158432
F02LF2DB      FTFS    368640  367712     0     0     0     367712
F02LSPECTRUM  FTFS    409600  360544     4     0     0     360544
F02LABCDE     FTFS    409600  408672     0     0     0     408672
F02CUSTIMG    FTFS   2048000 1201152     7     0     2     520192
F02LEUROPC    FTFS   3072000 1727328    11     0     0    1727328
F02LFIDB      FTFS    368640  132192     2     1     0     132192
F02LNODATIMG  FTFS    614400  614400     1     0     0     201824

Total number of volumes found on node CM : 30
```

Note: If the list is a long one, you will need to respond to the "Do you wish to continue?" prompt, as shown in the figure.

How to delete a volume on an XA-Core disk (continued)

c In the list of volumes, find the “OPEN FILES” value displayed for the volume that you intend to delete.

d Close the MAP disk utility. Type

>QUIT

and press the Enter key.

e Select the next step as follows.

If the “OPEN FILES” value that you found in step c above is …	Do
greater than 0 (zero)	step 2
equal to 0 (zero)	step 3

2 Close each open file from the application from which it was opened. After closing the files, proceed to step 3.

Note: If you have not already done so, read the caution that precedes these instructions.

3 Delete the volume.

Proceed as follows.

a Initiate DISKADM. Type

>DISKADM <s><nn><p>

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

<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

For example, to if you want to delete a volume from the disk packlet in the IOP circuit pack in slot 2, front, type

>DISKADM F02L

Example of 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
```

How to delete a volume on an XA-Core disk (end)

b Delete the volume. Type

>DELETEVOL <volume-name>

and press the Enter key

where

<volume-name> is the name of the volume

For example, to delete the volume named ABCDE, type

>DELETEVOL ABCDE

and press the Enter key.

Example of MAP response:

```
WARNING
Deleting volume ABCDE on F02L
will DESTROY the contents of the volume.
Please confirm ("YES", "Y", "NO", or "N"):
```

c Confirm the deletion. Type

>Y

and press the Enter key

Example of MAP response:

```
Volume ABCDE has been deleted on F02L.
```

d Quit the DISKADM utility. Type

>QUIT

and press the Enter key.

4 You have completed this procedure.

How to perform XA-Core LED maintenance

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.

Application

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

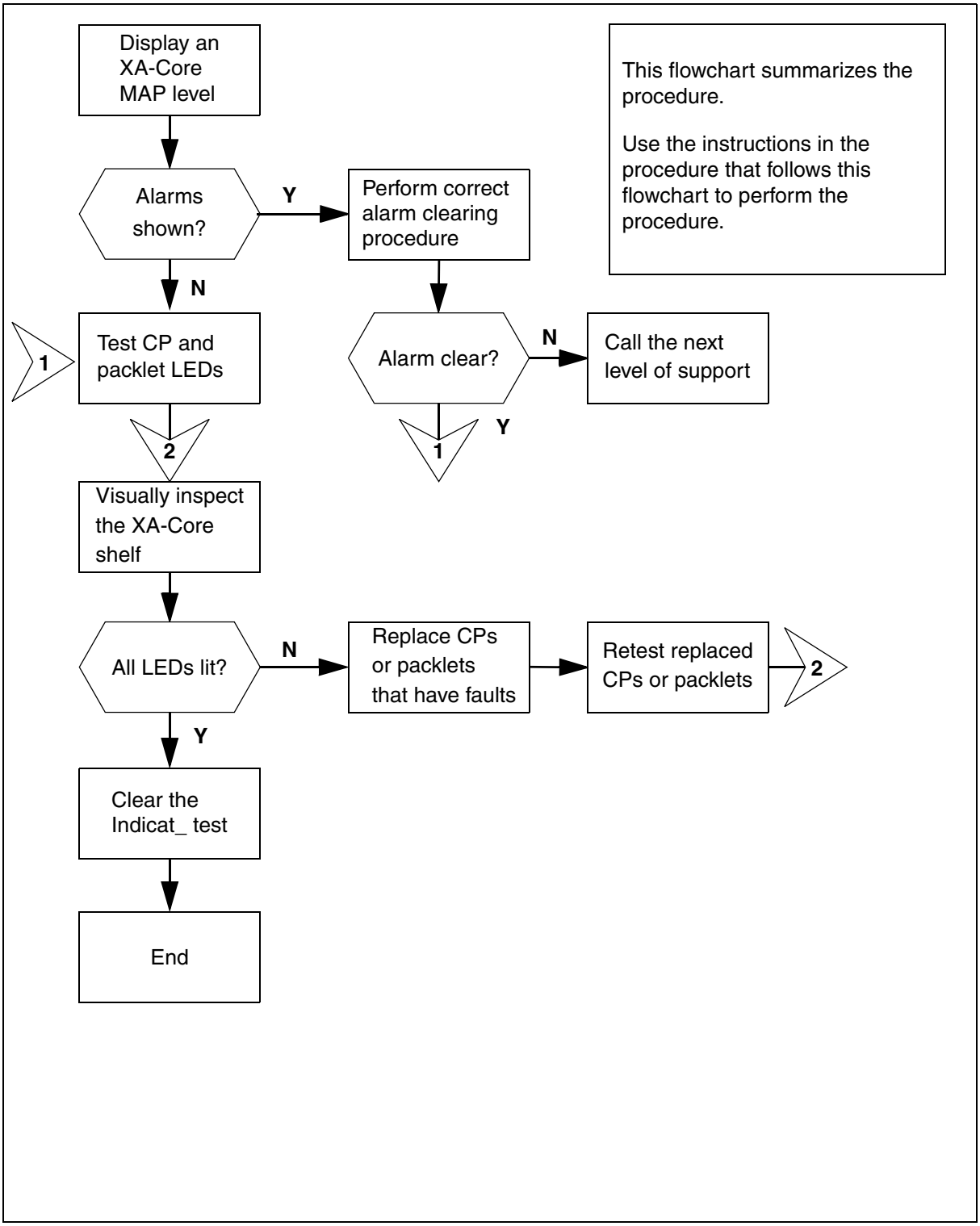
There are no common procedures.

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)

Figure 4-19 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:   111111111  Rear: 111111   SM     PE      IO      PKLT
                 123456789012345678  456789012345   .      .       .       .
 2          Sta: -.-.--..-..----..-  .--.-------.   0      0       0       0
 3          Dep:
 4
 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.

How to perform XA-Core LED maintenance (continued)

4 Test all CP and packlet LED indicators. At the MAP level type:

>INDICAT <testall> [timer]

and press the Enter key

where

<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.

If one or more LEDs are	Do
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, 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 - 1 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
```

How to perform XA-Core LED maintenance (end)

b Light all the LEDs on the replacement 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 <testa> 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). 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 - 1 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, 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
```

c Record the physical slot location of any replacement CP or packlet that does not have all LEDs lit.

If one or more LEDs are	Do
not lit	step 9
lit on all CPs and packlets	step 10

9 Call the next level of support.

10 You have completed this procedure.

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How to record an XA-Core office image on a disk

Use this procedure to record the office image files of an eXtended Architecture Core (XA-Core).

Application

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

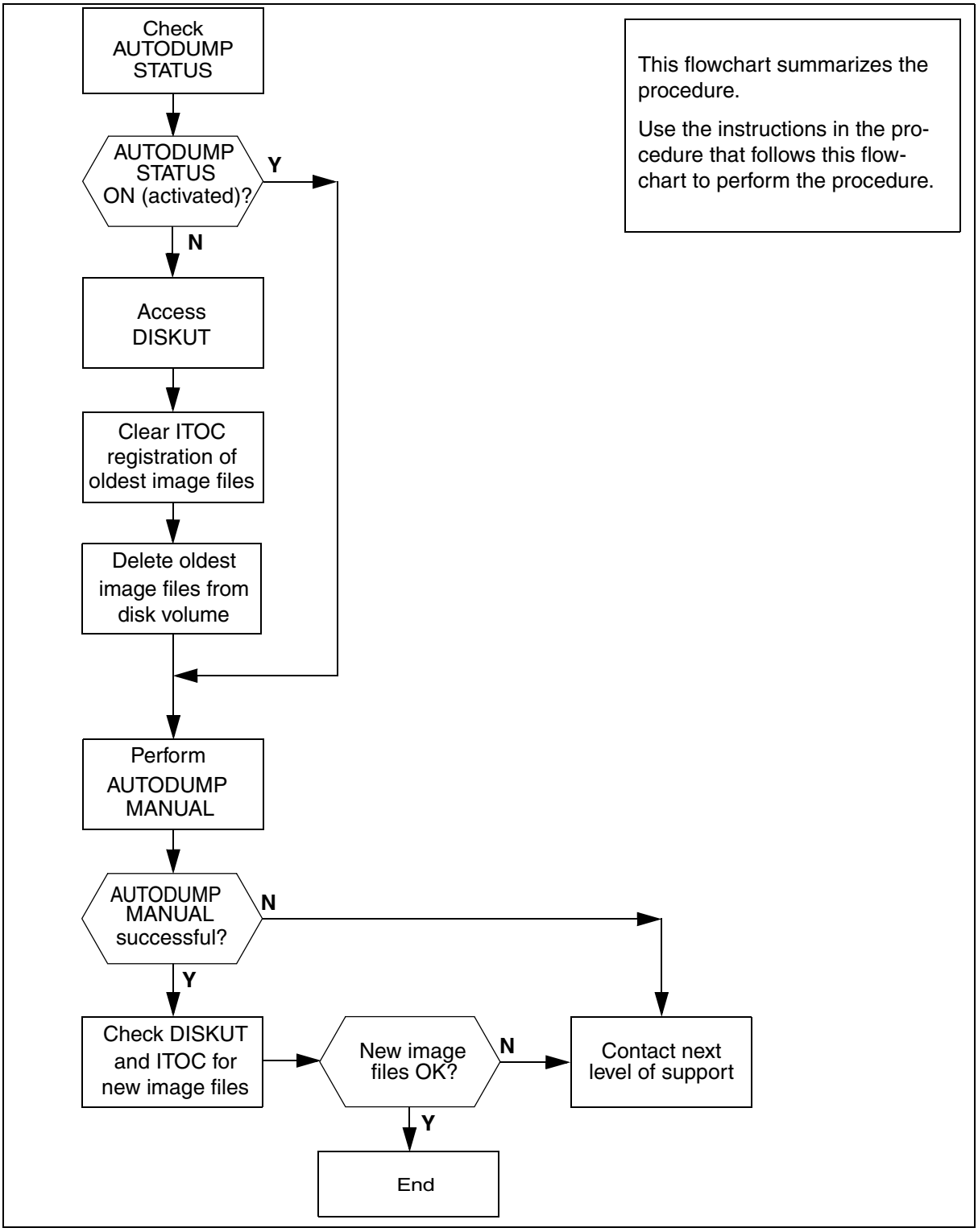
There are no common procedures.

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)

Figure 4-20 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_XA
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

How to record an XA-Core office image on a disk (continued)

4 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"):
```

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_XA
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 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_XA                      I F           0  1020
165180  329728 990506
IMG0504CX_MS                     I F          0  1020
7542   15360 990506
IMG0501CU_XA                      I F           0  1020
165180  329728 990501
IMG0501CU_MS                     I F          0  1020
7542   15360 990501
```

How to record an XA-Core office image on a disk (continued)

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_XA. 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.

IfIf 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:

>ITOCCI

and press the enter key.

Example of a MAP response:

```
ITOC User Interface is now active.
ITOCCI:
```

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_XA
 0   05/01/1999 19:21:19 F02LIMAGE
IMG0501CU_XA
```

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.

IfIf 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_XA

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          Generic Device       File
   L Date       Time                          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.

If more than one MS image file is	Do
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

How to record an XA-Core office image on a disk (continued)

where

<xacore_image_file> is the name of the XA-Core image file that you recorded in step 12.

Example of MAP input:

>DELETEFL IMG0501CU_XA

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.
```

How to record an XA-Core office image on a disk (continued)

```
If you cannot refrain from using dump unsafe commands use
the STOPDUMP command to abort AUTODUMP.
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_XA
Taken: 1999/06/18 03:52:20.150 FRI.
On Volume: F02LCUTOVER
Last Image: S990618035204_XA
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_XA
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:UnloadingmodulesthatareloadedasTEMPORARY...
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.

If image taking record completed	Do
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.
Sendingquery_image_sizemsgtodumpcontroller...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_XA...
Found image file: A990618035204_XA
Getting file information...  Done.
Attempting to clear ITOC entry...
Done.
Renaming file: A990618035204_XA TO: S990618035204_XA...
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_XA
 0   05/17/1999 19:26:29 F02LIMAGE
IMG0517CY_XA
```

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/If	Do
the XA-Core image file is in the ITOC correctly	step 35
the XA-Core image file is not in the ITOC correctly	step 40

How to record an XA-Core office image on a disk (end)

35 To list the image files for the MS in the ITOC, type:

>LISTBOOTFILE MS

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_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 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.

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How to replace XA-Core cooling unit air filters

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.

Application

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

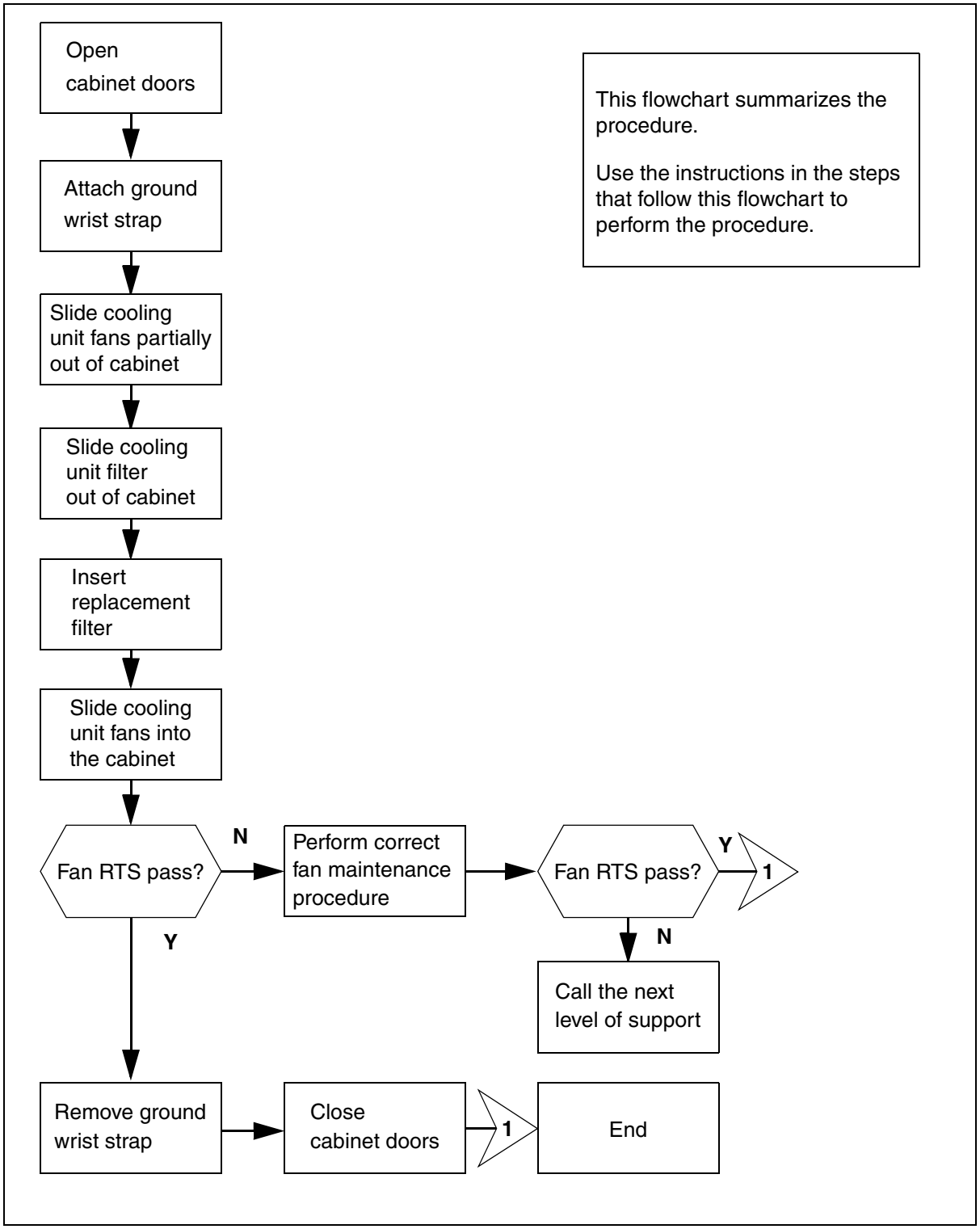
There are no common procedures.

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)

Figure 4-21 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.

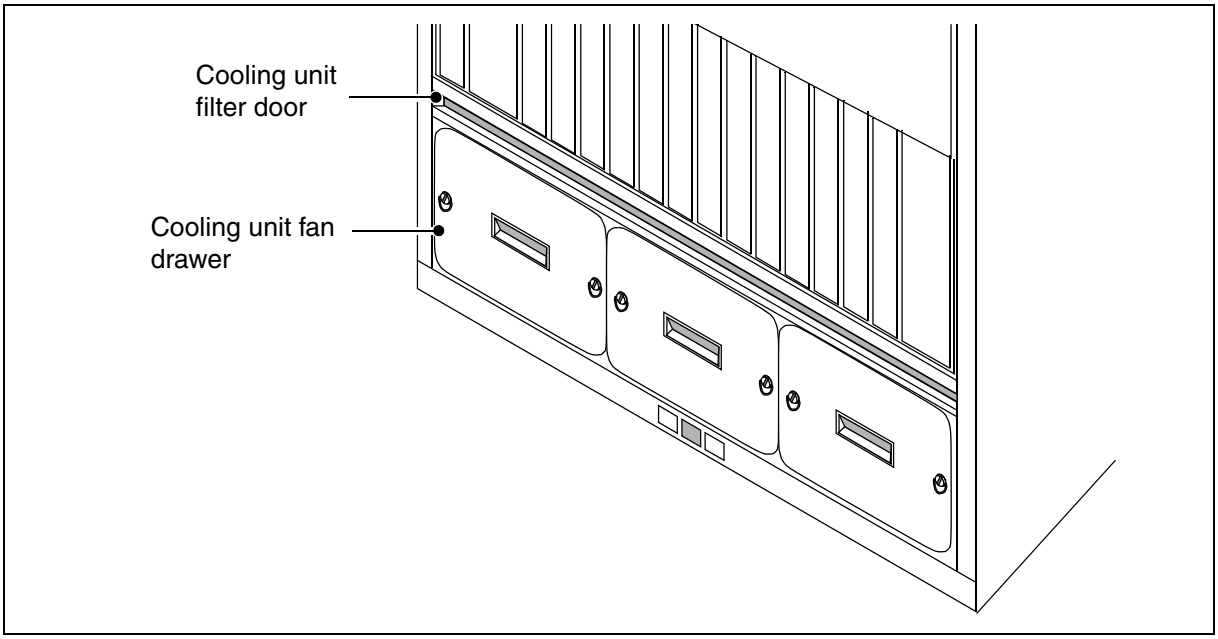
2 Open the front doors of the XA-Core cabinet completely.

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.

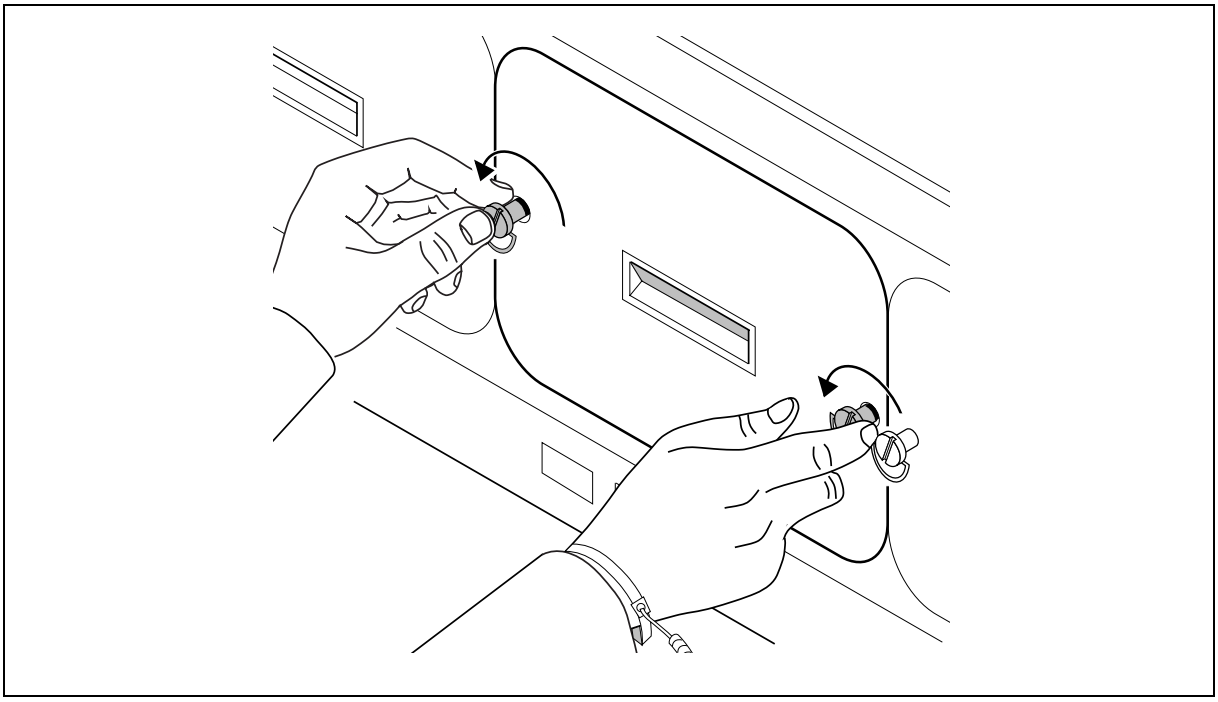
How to replace XA-Core cooling unit air filters (continued)

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

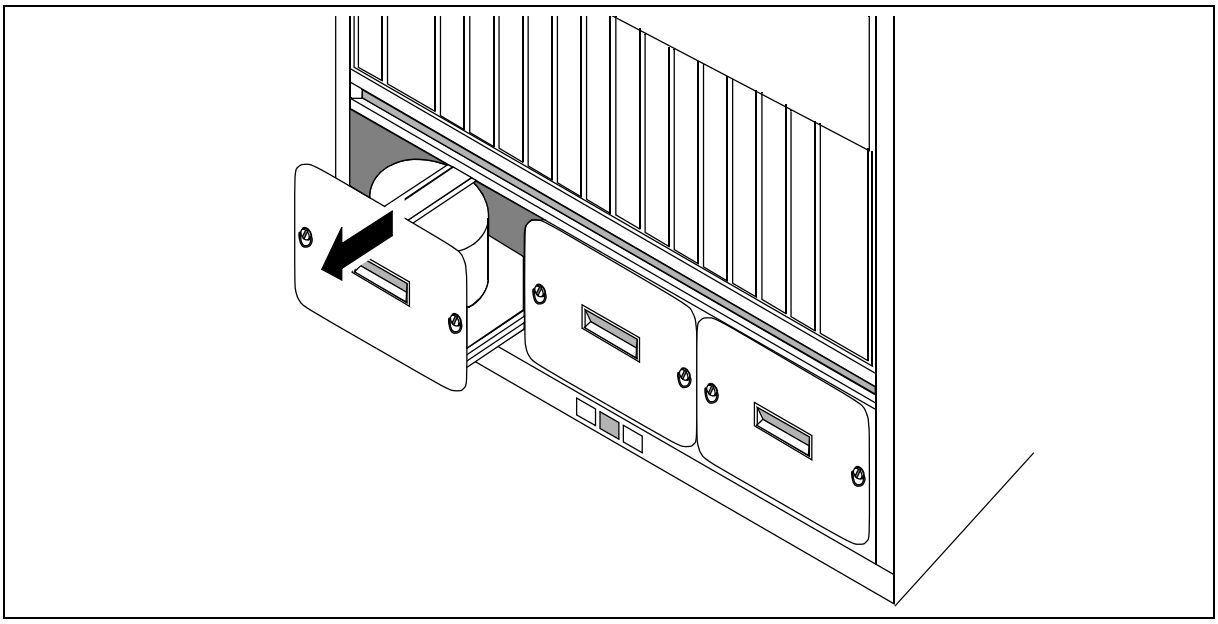


How to replace XA-Core cooling unit air filters (continued)

5 Pull all three fan drawers partially away from the cabinet. Wait 30 sec. to allow the cooling unit fans to spin down.

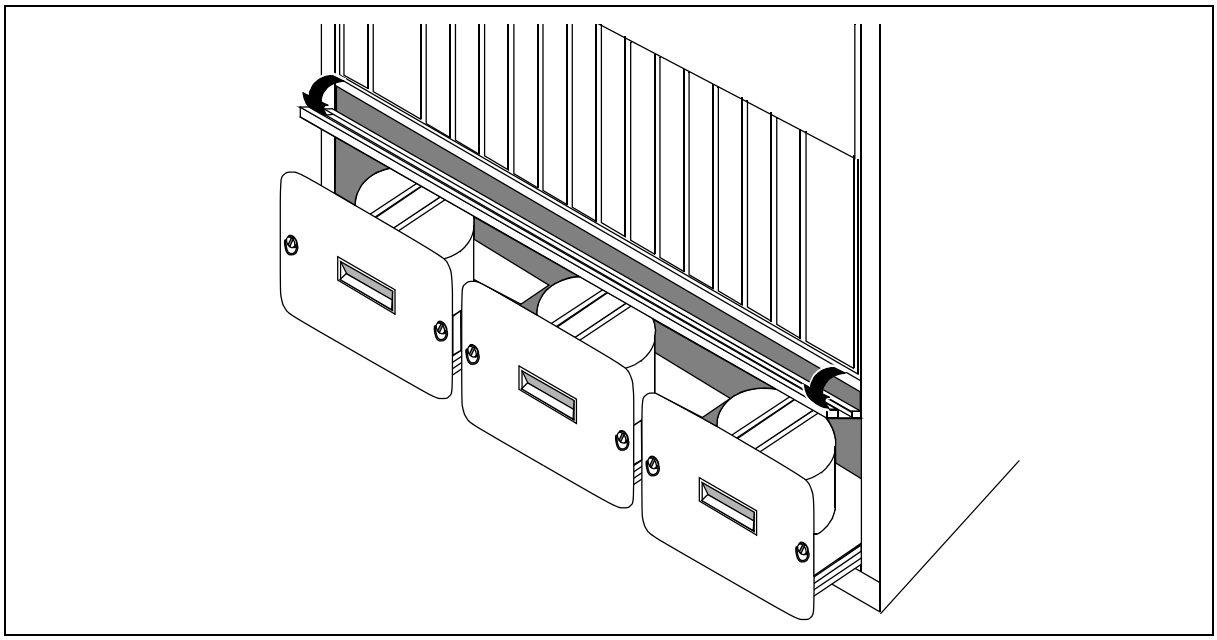
Note: The FSP blower LED will light. An FSP major alarm appears on the MAP level under the EXT alarm banner header.

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

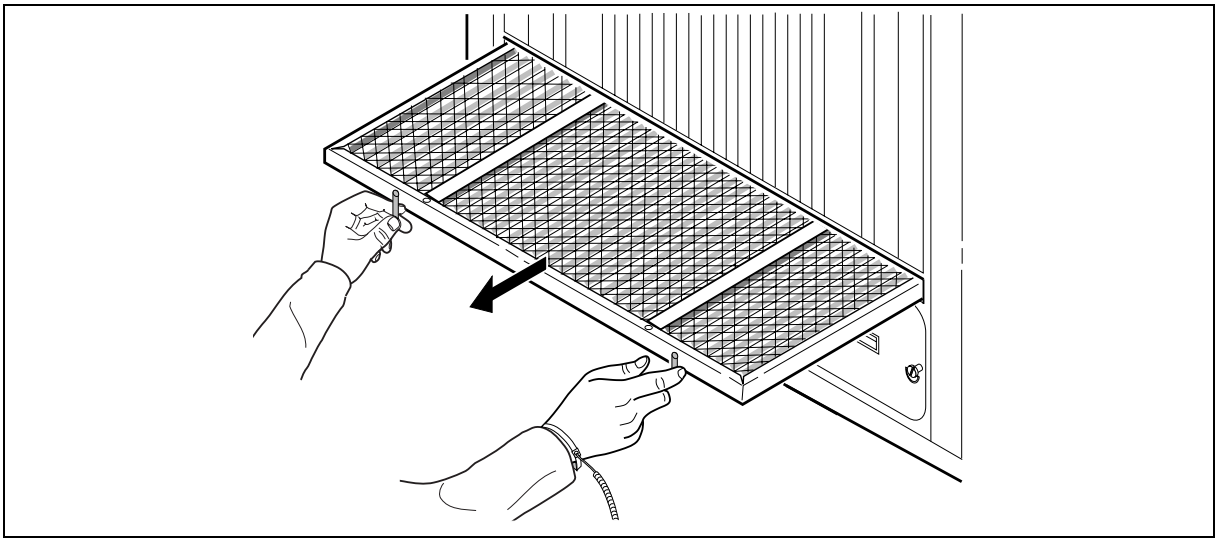


How to replace XA-Core cooling unit air filters (continued)

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.

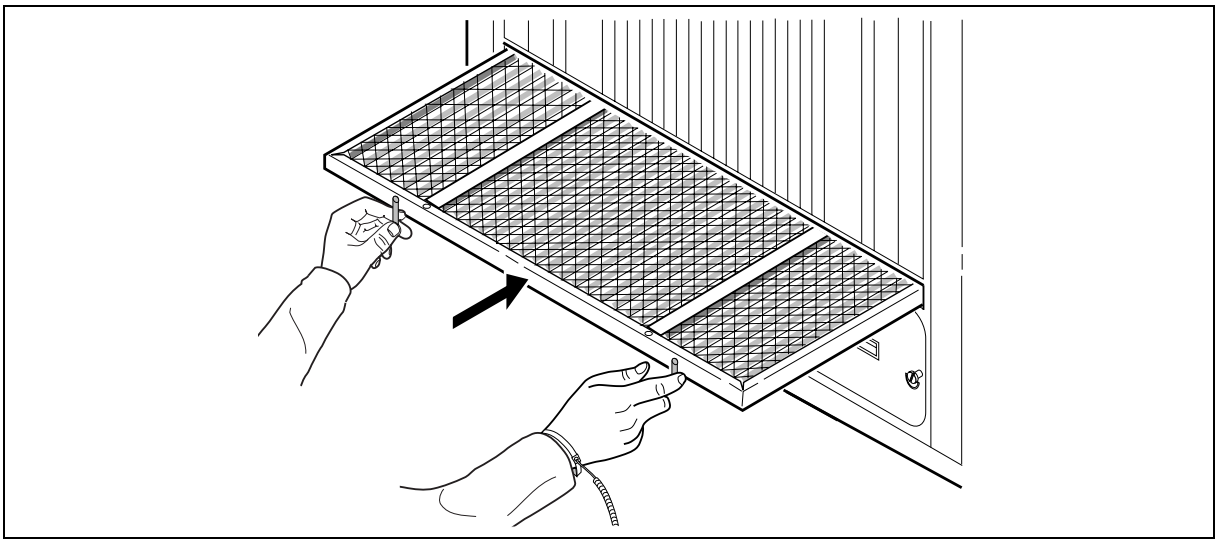
Note: Before you remove the cooling unit filter, note the position of the filter in the cabinet. Make sure that the wire mesh side of the replacement filter is face-up.

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.

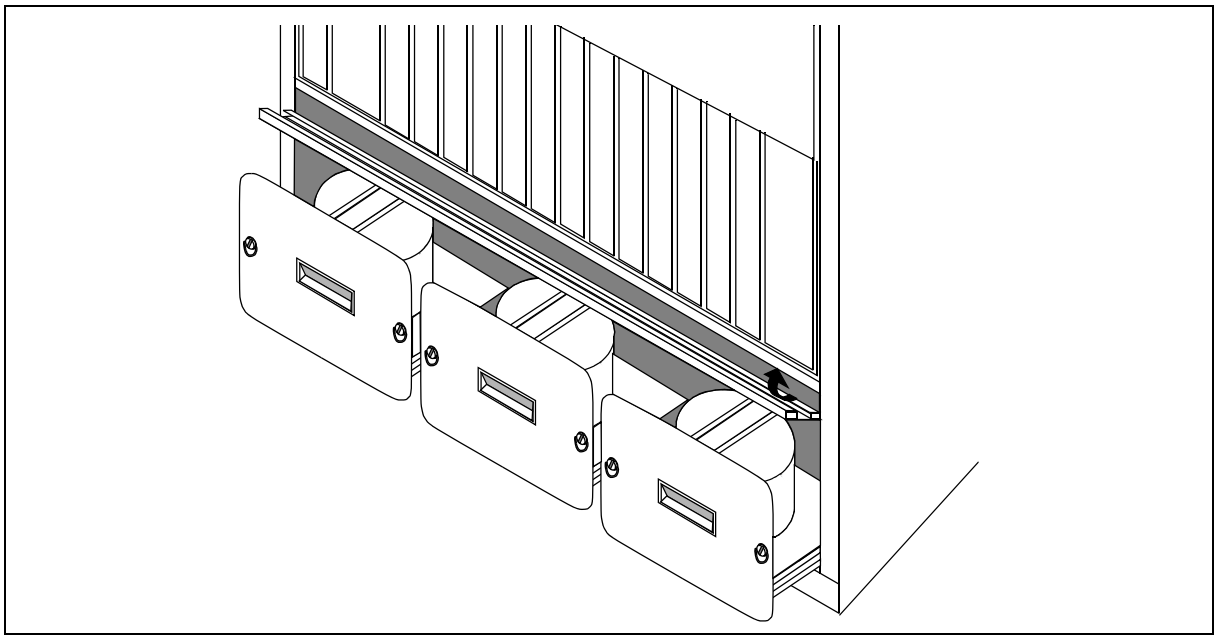
Insert the replacement cooling unit filter



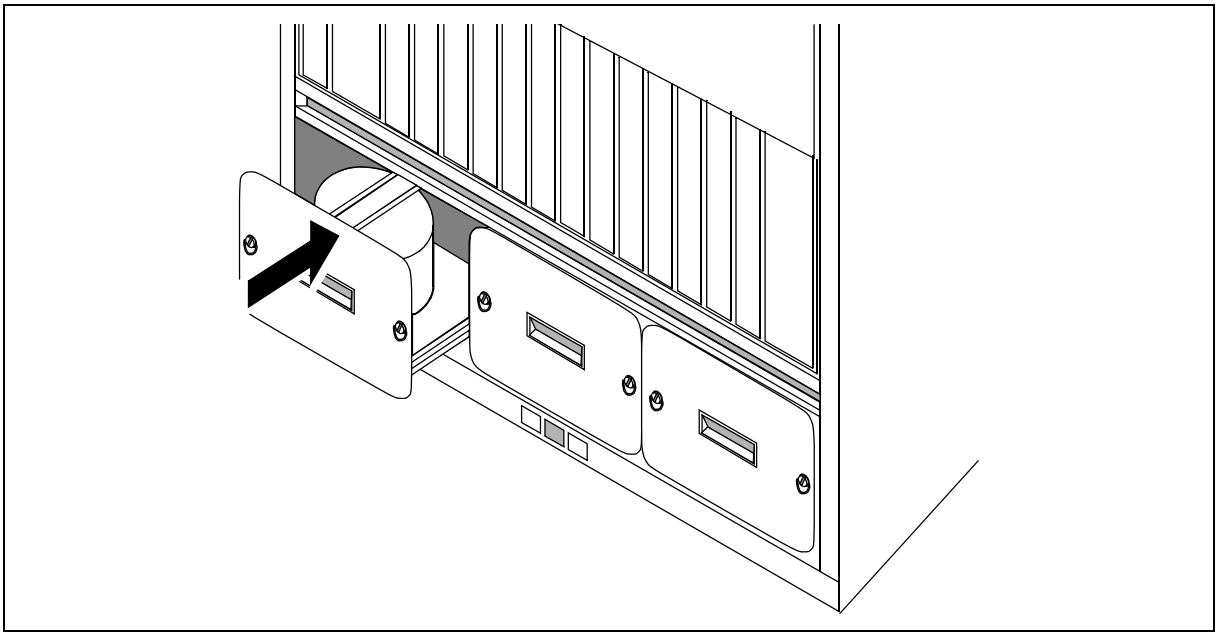
How to replace XA-Core cooling unit air filters (continued)

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)

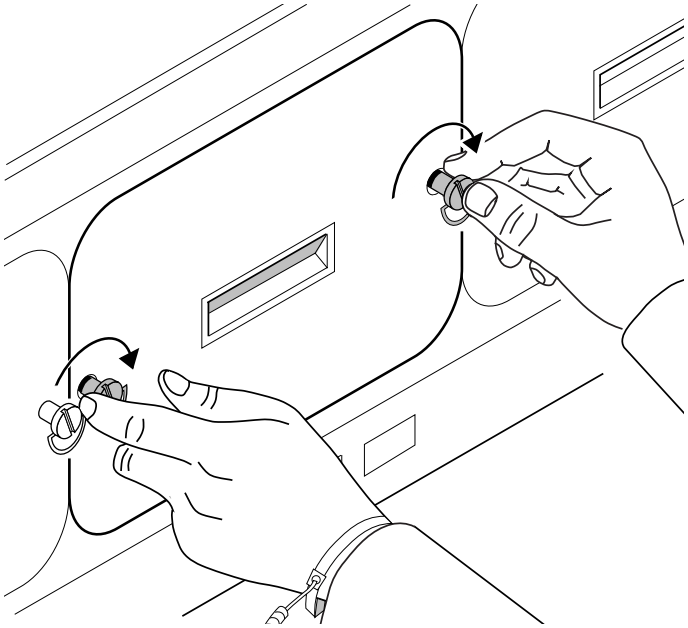
11 Make sure that the fans power up. Make sure that the green LEDs light on all fan drawers.

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

Use this procedure to copy the office image files of an eXtended Architecture Core (XA-Core).

Application

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

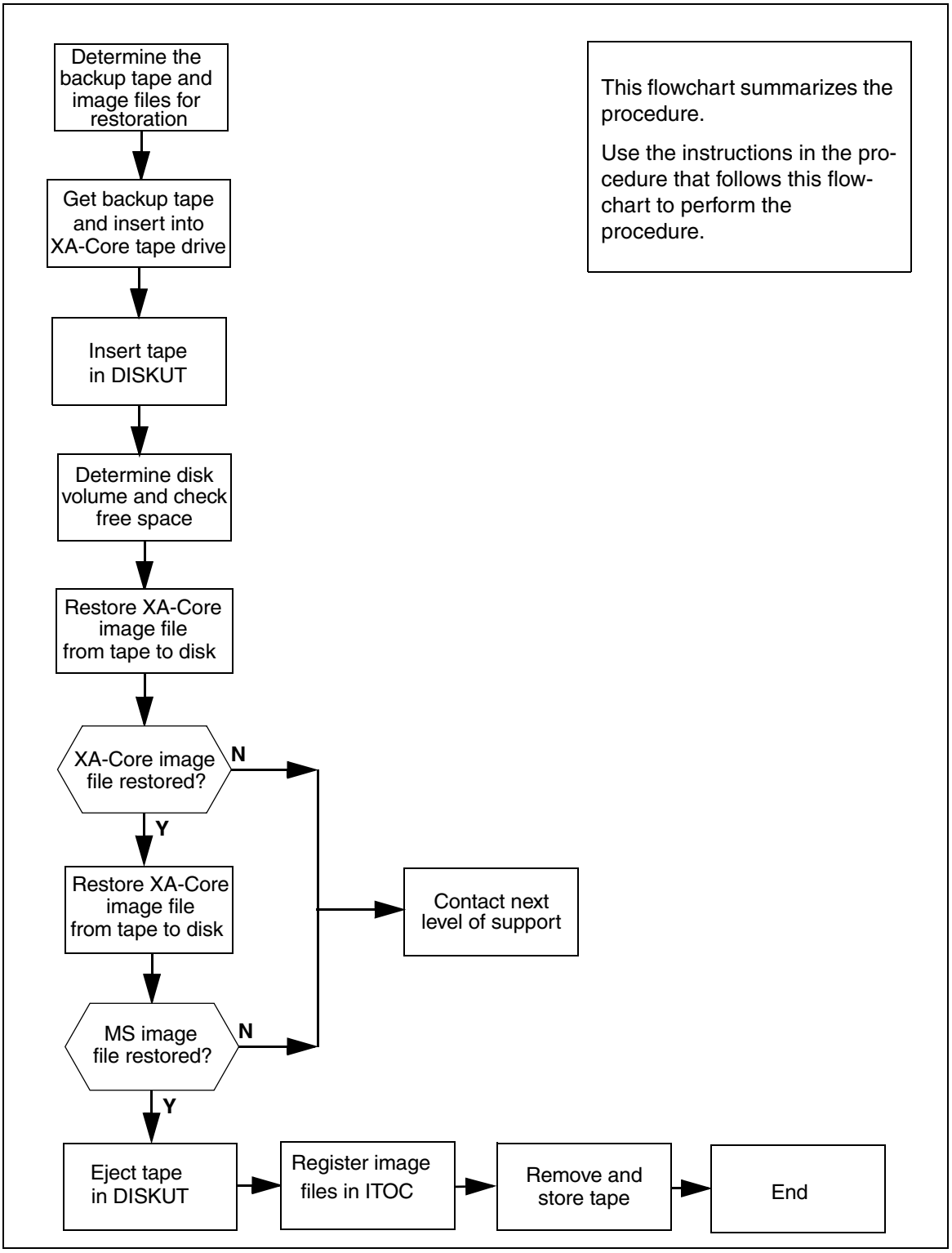
There are no common procedures.

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)

Figure 4-22 Summary of How to restore an XA-Core office image from tape to disk heads



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

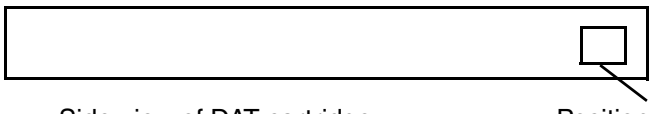


WARNING
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) when you handle the tape and packlet. The use of the wrist strap protects the packlets against damage caused by electrostatic discharge (ESD).

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.

How to restore an XA-Core office image from tape to disk (continued)

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 IMG0517CY_XA
990520 IMAG    0       15026       7542  1020 IMG0517CY_MS
```

Note 1: In the example of a MAP response, IMG0517CY_XA 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.

How to restore an XA-Core office image from tape to disk (continued)

Example of MAP input:

>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

How to restore an XA-Core office image from tape to disk (continued)

Example of MAP input:

>RESTORE FILE F02LIMAGE_2 F02UTAPE IMG0517CY_XA

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_XA                     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:

>ITOCCI

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 autoload 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_XA 0 ALR

Example of a MAP response:

```
IMG0517CY_XA 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_XA
 1   05/15/1999 11:19:41 F02LIMAGE_1         IMG0517CX_XA
```

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 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

How to restore an XA-Core office image from tape to disk (continued)

22 To register the restored image file for the MS to the ITOC type:

>SETBOOTFL MS ms_file_name entry_no alr_or_notalr

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

How to restore an XA-Core office image from tape to disk (end)

24 To quit the ITOCCI user interface, type:

>QUIT

and press the enter key.

Example of a MAP response:

```
CI:
```

At the shelf

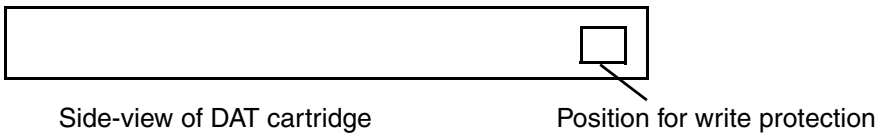
25



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



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.

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How to return XA-Core circuit packs, packlets, or assemblies to Nortel (Canada)

Use this procedure to return a circuit pack (CP), packlet, or assembly to Nortel Networks for repair or replacement in Canada.

Application

This procedure explains how to return a circuit pack, packlet, or assembly to Nortel Networks for repair or replacement in Canada.

Interval

Perform this procedure as required.

Common procedures

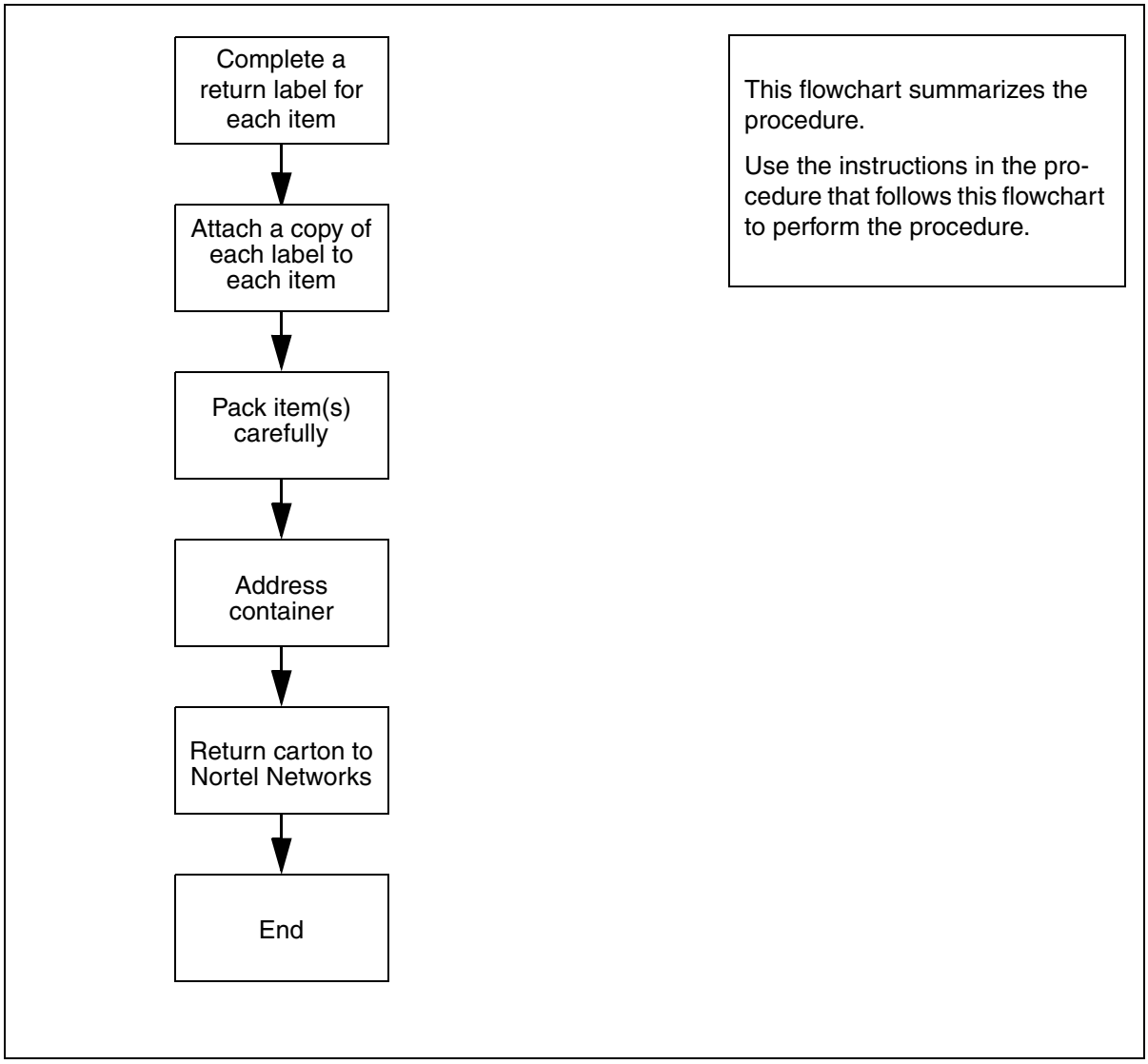
There are no common procedures.

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 XA-Core components to Nortel (Canada) (continued)

Figure 4-23 Summary of How to return XA-Core circuit packs, packlets, or assemblies to Nortel (Canada)



How to return XA-Core components to Nortel (Canada) (continued)

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.

How to return XA-Core components to Nortel (Canada) (continued)

Example repair/return tag (front and rear views)

In Service Return Tag

NT Code	Release	Ticket No. 123456
Serial Number		
Simplex	Duplex	PCL - CSP Load PCL - CSP
PM Load / PM		MTX - Base Load
Fault Identification codes		

Subscriber	Failure Freq.
1 No Dialtone	23 Intermittent
2 Noisy	24 Permanent
3 Cut off	Failure Located By
4 Pre trip	25 Logutil Report
5 Can't hear	26 System Check
6 Can't be heard	27 Extended Diagnostic Monitor
7 Transmission fades	28 Card - Shelf Alarm
Diagnostics	Failure Mode
8 BSY - RTS	A ALT - LTP Failure
9 Built in Test Failure	B Bad Audio Path
10 Automatic passes	C C/O relay
11 Automatic fails	D Drop Call
12 Manual passes	F Flux Cancel
13 Manual fails	I Fails to Load (Flash, etc)
Maintenance	K PLL Fault
14 Routine trouble-shooting	L Loop Detect
15 Change on spec	M No Communication
16 Dead on arrival	N Noise
29 Old Rel - Update	P Pad Test
30 Surplus	Q RAM-ROM Test
Card List	R Cannot Reset
18 No list	S RSSI / SINAD
19 1st pack on list	T Transhybrid loss
20 Other pack on list	U No Power Up
21 Not on list	O Other (Specify)

Log Message
Confirmed ALT / LTP test results
Failure Description
Return Authorization Number
R M A
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).

1. Provide description of pack and fault at time of failure.
2. Write down the Return Material Authorization (RMA) Number in the Box provided.
3. Check appropriate box in each category, and the log message number if applicable.
4. Obtain the PM Load name via the Query PM command at a map location.
5. 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.
6. Print the name and date (bottom line).
7. Attach original copy to circuit pack.
8. 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 XA-Core components to Nortel (Canada) (end)

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 sutiable 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.

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How to schedule automatic image taking for XA-Core

Use this procedure to enable and schedule the automatic image taking for the eXtended Architecture Core (XA-Core).

Application

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

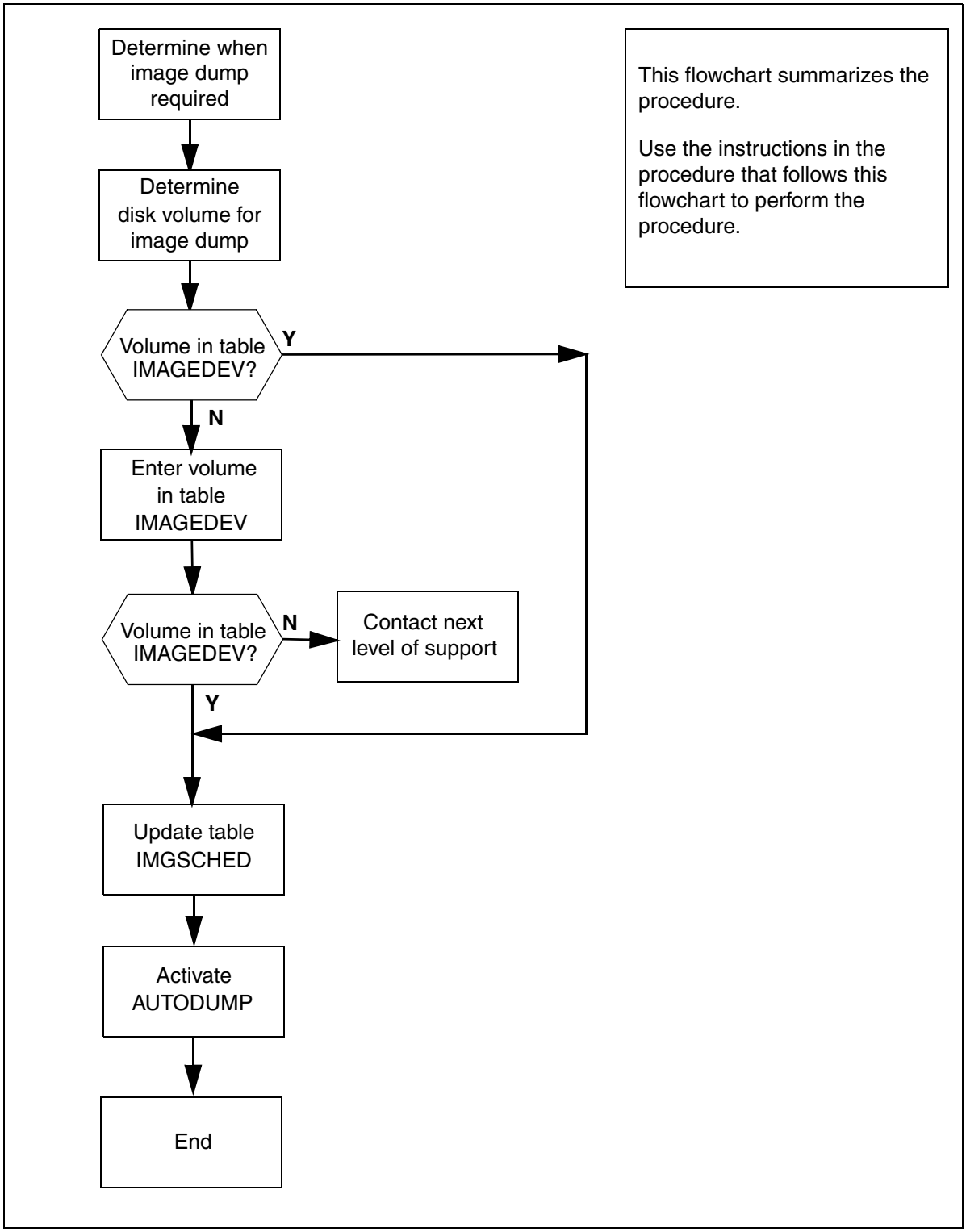
There are no common procedures.

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)

Figure 4-24 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 IMGSCHED, type

>TABLE IMGSCHED

and press the Enter key.

Example of MAP response:

```
Table:  IMGSCHED
```

How to schedule automatic image taking for XA-Core (continued)

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
       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.
```

How to schedule automatic image taking for XA-Core (continued)

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.

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
```

How to schedule automatic image taking for XA-Core (continued)

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
```

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.

How to schedule automatic image taking for XA-Core (continued)

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.

Example of a MAP response

```
Successful Image:  990215_XA
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

How to schedule automatic image taking for XA-Core (end)

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.
```

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_XA
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

Use the following procedure to schedule maintenance for the digital audio tape (DAT) drive.

Application

This procedure schedules maintenance for the digital audio tape (DAT) drive.

Interval

Perform this procedure approximately every 180 days (6 months).

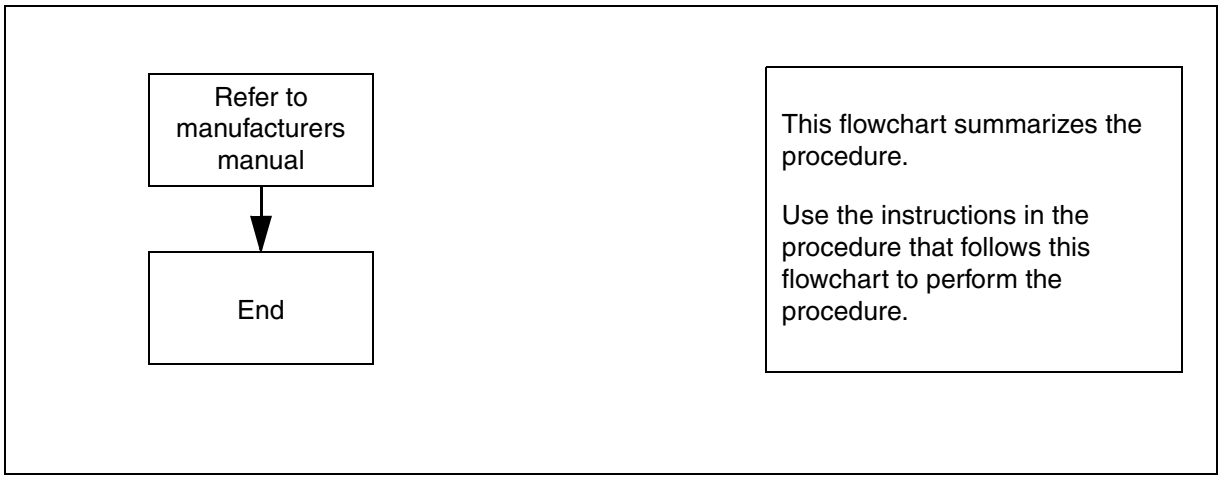
Common procedures

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.

Figure 4-25 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.

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How to test wrist-strap grounding cords in XA-Core

Use this procedure to test the resistance of wrist-strap grounding cords.

Application

Wrist-strap resistance must havethe following minimum and maximum values:

- 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

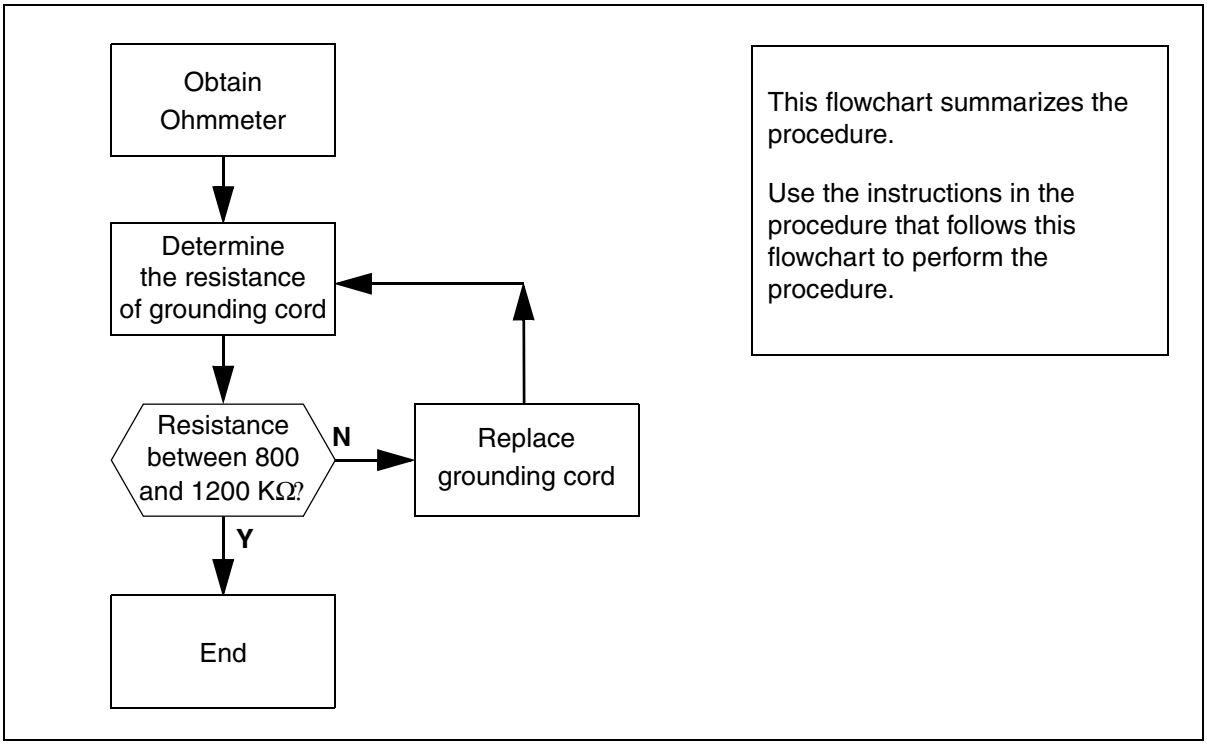
There are no common procedures.

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 (end)

Figure 4-26 How to test wrist-strap grounding cords in XA-Core



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.

IfIf the resistance is	Do
between 800 KW and 1200 KW	step 7
less than 800 KW or greater than 1200 KW	step 4

4 Discard the grounding cord that has faults.

5 Get a new grounding cord.

6 Test the new grounding cord.

IfIf the resistance is	Do
between 800 KW and 1200 KW	step 7
less than 800 KW or greater than 1200 KW	step 4

7 Connect again the wrist strap to the grounding cord.

8 You have completed this procedure.

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Selection of DAT tapes approved by Nortel Networks

Use this procedure to select digital audio tape (DAT) drive tapes approved by Nortel Networks.

Application

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 for use in the NTLX07AA tape packlet

The brands approved by Nortel Networks are:
Hewlett Packard (HP), Maxell, Verbatim, Imation

The tape lengths approved by Nortel Networks are:
60-meter (60M), 90-meter (90M), and 120-meter (120M) tapes from any of the manufacturers listed above.

Recommended tapes for use in the NTLX07BA tape packlet

The brands approved by Nortel Networks are:
Hewlett Packard (HP), Maxell, Verbatim, Imation

The tape lengths approved by Nortel Networks are:
90-meter (90M) tapes and 120-meter (120M) tapes from any of the manufacturers listed above.

Note: The NTLX07BA tape packlet does not support 60-meter (60M) tapes.

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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Adding, removing, or re-arranging ethernet links

Use this procedure to change the XA-Core's ethernet links on an occasion when you are neither adding nor removing circuit packs or packlets. The shelf equipment remains the same, but you make changes to the ethernet links.

Application

This procedure covers only those changes to ethernet links that you will need to perform without assistance from Nortel Networks. This procedure covers scenarios in which you must add links, remove links, or re-arrange links (that is, move the connections of existing links from one set of circuit packs to another set of circuit packs in the XA-Core shelf).

Note: If hardware is being added or removed from the XA-Core shelf, an installer does the work. As part of that work, the installer makes required changes to the ethernet links.

What this procedure does not cover

This procedure does not cover the following scenarios.

- Any changes to ethernet links that occur when an installer adds or removes hardware in the XA-Core.
- Any changes to ethernet links involving adding connections to ethernet packlets, or removing connections from ethernet packlets, or moving links between ethernet packlets and other types of hardware.
  - — Ethernet links to ethernet packlets are added only when the packlets are installed. Therefore, the installer does the work.
  - — Ethernet links to ethernet packlets are removed only when the packlets are removed. The packlets are removed when HIOP circuit packs and/or HCMIC circuit packs are installed. Therefore, the installer does the work.
  - — It will never be possible to move links from ethernet packlets to HIOP or HCMIC circuit packs, or from those circuit packs to ethernet packlets. The reason is that ethernet packlets are not allowed to co-exist with HIOP circuit packs and/or HCMIC circuit packs in an XA-Core.

Rules governing ethernet links

The following rules govern ethernet links.

- There can be a maximum of four ethernet links per XA-Core shelf.
- If ethernet packlets are used, all links must be on packlets, and the shelf cannot contain any HCMIC circuit packs.
- If the XA-Core shelf contains HIOP circuit packs, then it cannot contain any ethernet packlets.

Introduction to routine maintenance procedures (continued)

- If the XA-Core shelf contains HCMIC circuit packs, then it cannot contain any ethernet packlets.
- If the XA-Core shelf contains two HIOP circuit packs and two HCMIC circuit packs, and if four ethernet links are required, then each of the four circuit packs can support an ethernet link.
- If the XA-Core shelf contains four HIOP circuit packs, and if four ethernet links are required, then each HIOP circuit pack can support an ethernet link. If the shelf also contains two HCMIC circuit packs, the HCMICs cannot support ethernet links.

  Note: The XA-Core shelf can contain four HIOP circuit packs only if those circuit packs are NTLX04CA models.

Scenarios that you can perform

You can change the ethernet links in the following ways

- Addition. Go from zero links to two links. The two links connect to HIOP circuit packs if the XA-Core shelf contains HIOP circuit packs. The two links connect to HCMIC circuit packs only if the XA-Core shelf does not contain any HIOP circuit packs.
- Addition. Go from zero links to four links. If the XA-Core contains four HIOP circuit packs, then the four links connect to those circuit packs. If the XA-Core contains two HIOP circuit packs and two HCMIC circuit packs, then the four links connect to those circuit packs.
- Addition. Go from two links to four links. If the XA-Core contains four HIOP circuit packs, then the two new links connect to HIOP circuit packs. If the XA-Core contains two HIOP circuit packs and two HCMIC circuit packs, then the two new links connect to the HCMICs.
- Removal. Go from four links to zero links.
- Removal. Go from two links to zero links.
- Removal. Go from four links to two links. The two links that remain must connect to HIOP circuit packs.
- Re-arrangement. Note that we include re-arrangement scenarios in this list for the sake of completeness, but all possible re-arrangements are either pointless or prohibited. The possibilities are as follows.
  - — Move connections from one pair of HIOP circuit packs to another pair of HIOP circuit packs. This is possible, and does not violate the rules

Introduction to routine maintenance procedures (continued)

governing ethernet links. Such a re-arrangement would seem to be pointless.

— Move connections from a pair of HIOP circuit packs to a pair of HCMIC circuit packs. Such a re-arrangement would violate the rules governing ethernet links.

— Move connections from a pair of HCMIC circuit packs to a pair of HIOP circuit packs. This re-arrangement should be impossible because it assumes that you start with an arrangement that is prohibited. Ethernet links are connected to HCMIC circuit packs only if the XA-Core shelf does not contain enough HIOP circuit packs to support the required number of links, that is, if two links are required, but no HIOPs are present, or if four links are required, and only two HIOPs are present.

Prerequisites

Prerequisites are as follows.

- Obtain the Network Specification Book for your office. You will need to obtain information from this document if you add ethernet links or re-arrange ethernet links.
- Write down the following facts:
  - — the number of existing ethernet links: (0, 2, or 4)
  - — the names and slot numbers of the circuit packs that the existing ethernet links connect to
  - — the number of ethernet links you want to have after you change the links (0, 2, or 4)
  - — the names and slot numbers of the circuit packs that the ethernet links will connected to after you make the change
- Write down the answers to the following questions:
  - — Question 1. Do you plan a net increase in the number of ethernet links (0 to 2, or 0 to 4, or 2 to 4)?
  - — Question 2. Do you plan a net increase from 2 links to 4 links, and do you plan to change the connectivity of the two existing links?
  - — Question 3. Do you plan a net decrease in the number of ethernet links (4 to 0, or 2 to 0, or 4 to 2)?

Introduction to routine maintenance procedures (continued)

  - — Question 4. Do you plan a net decrease from 4 links to 2 links, and do you plan to change the connectivity of the two links that will remain?
  - — Question 5. Do you plan to keep the same number of ethernet links, but to change the connectivity of two of the links?
- Classify and write down the type of change that you are planning, according to the following rules:
  - — If you answered yes to question 1 but did not answer yes to question 2, you are planning a one-part change, an addition.
  - — If you answered yes to question 2, you are planning a two-part change, in which part 1 is re-arrangement and part 2 is an addition.
  - — If you answered yes to question 3 but did not answer yes to question 4, you are planning a one-part change, a removal.
  - — If you answered yes to question 4, you are planning a two-part change, on which part 1 is a re-arrangement and part 2 is a removal.
  - — If you answered yes to question 5, you are planning a one-part change, a re-arrangement.

Interval

Perform this procedure as required.

Common procedures

This procedure refers to the following common procedures:

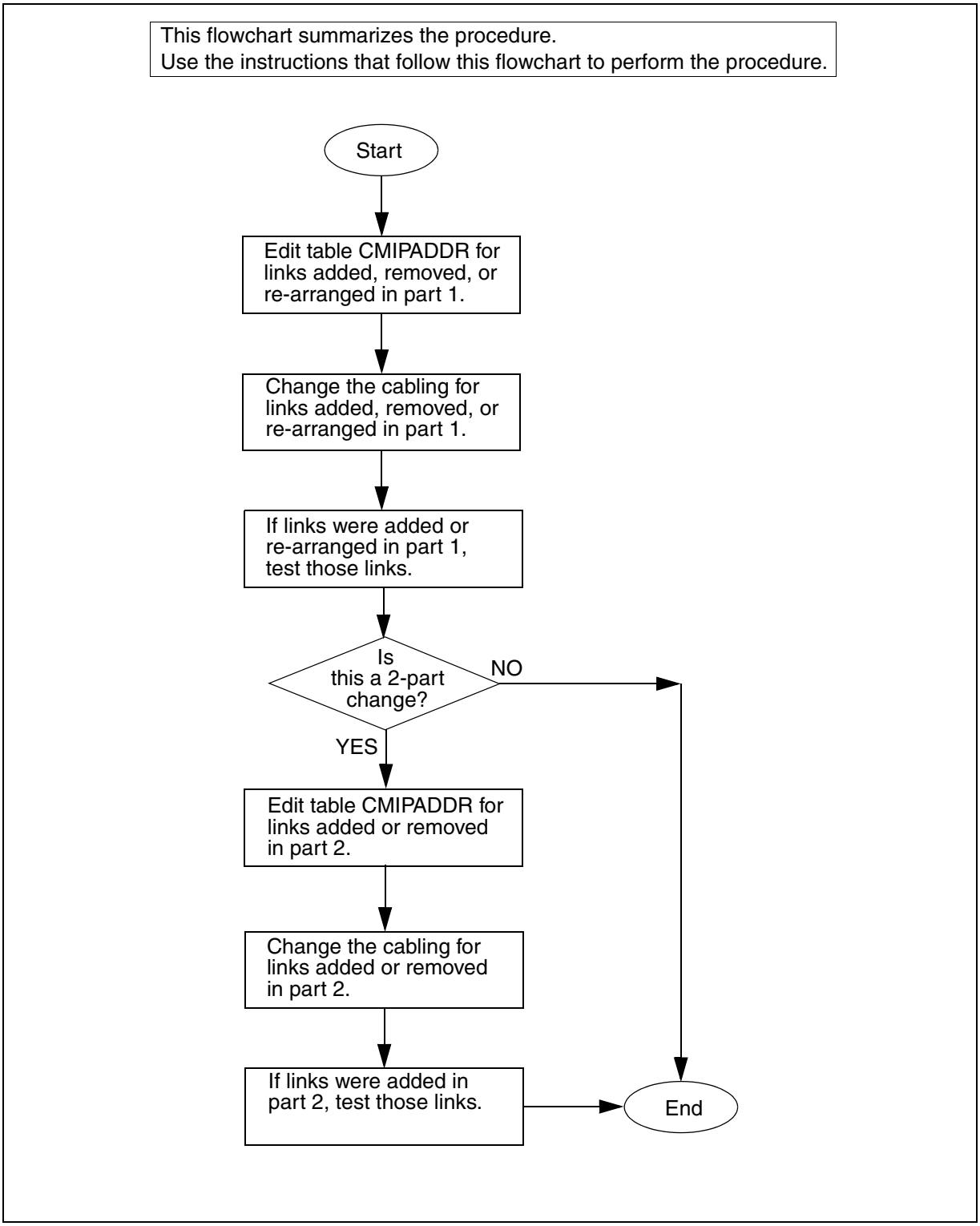
- “Adding tuples to table CMIPADDR”
- “Deleting tuples from table CMIPADDR”
- “Changing tuples in table CMIPADDR”
- “Establishing cable connections for new ethernet links”
- “Removing cable connections for ethernet links”
- “Moving the cable connections for existing ethernet links”
- “Testing ethernet links”

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.

Introduction to routine maintenance procedures (continued)

Figure 4-27 Adding, removing, or re-arranging ethernet links



Introduction to routine maintenance procedures (continued)

Adding, removing, or re-arranging ethernet links

At the MAP terminal

1 Select the next step as follows:

If you are doing	Do
a two-part change, in which part 1 is a re-arrangement	step 2
a one-part change, a re-arrangement	step 2
a one-part change, an add	step 4
a one-part change, a removal	step 6

2 For each ethernet link that you are re-arranging, perform the procedure titled "Changing tuples in table CMIPADDR".

3 Go to step 7.

4 For each ethernet link that you are adding, perform the procedure titled "Adding tuples to table CMIPADDR".

5 Go to step 7.

6 For each ethernet link that you are removing, perform the procedure titled "Deleting tuples from table CMIPADDR".

7 Select the next step as follows:

If you are doing	Do
a two-part change, in which part 1 is a re-arrangement	step 8
a one-part change, a re-arrangement	step 8
a one-part change, an add	step 10
a one-part change, a removal	step 12

8 For each ethernet link that you are re-arranging, perform the procedure titled "Moving the cable connections for existing ethernet links".

9 Go to step 13.

10 For each ethernet link that you are adding, perform the procedure titled "Establishing cable connections for new ethernet links".

11 Go to step 13.

12 For each ethernet link that you are removing, perform the procedure titled "Removing cable connections for ethernet links".

Introduction to routine maintenance procedures (continued)

13 Select the next step as follows:

If you are doing	Do
a two-part change, in which part 1 is a re-arrangement	step 14
a one-part change, a re-arrangement	step 14
a one-part change, an add	step 14
a one-part change, a removal	step 15

14 Test the ethernet links that you have added or re-arranged. Perform the procedure titled “Testing ethernet links”.

15 Select the next step as follows:

If you are doing	Do
a two-part change in which part 2 is an add	step 16
a two-part change in which part 2 is a removal	step 16
a one-part change of any kind	step 25

16 For each ethernet link that you are adding in part 2, perform the procedure titled “Adding tuples to table CMIPADDR”.

17 Go to step 19.

18 For each ethernet link that you are removing in part 2, perform the procedure titled “Deleting tuples from table CMIPADDR”.

19 Select the next step as follows:

If you are doing	Do
a two-part change in which part 2 is an add	step 20
a two-part change in which part 2 is a removal	step 22

20 For each ethernet link that you are adding, perform the procedure titled “Establishing cable connections for new ethernet links”.

21 Go to step 23.

22 For each ethernet link that you are removing, perform the procedure titled “Removing cable connections for ethernet links”.

Introduction to routine maintenance procedures (end)

23 Select the next step as follows

If you are doing	Do
a two-part change in which part 2 is an add	step 24
a two-part change in which part 2 is a removal	step 25

24 Test the ethernet links that you have added in part 2. Perform the procedure titled “Testing ethernet links”.

Note: If you tested links in step 14 of this procedure, you do not need to re-test those links.

25 You have completed this procedure.

Adding tuples to table CMIPADDR

Use this procedure only when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure when you are adding ethernet links. The procedure tells how to edit tuples in table CMIPADDR. The table must contain one tuple for each ethernet link. You must add the tuples for the links you are adding.

Note: For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Prerequisites

The prerequisites are listed in the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.

Interval

Perform this procedure when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.

Common procedures

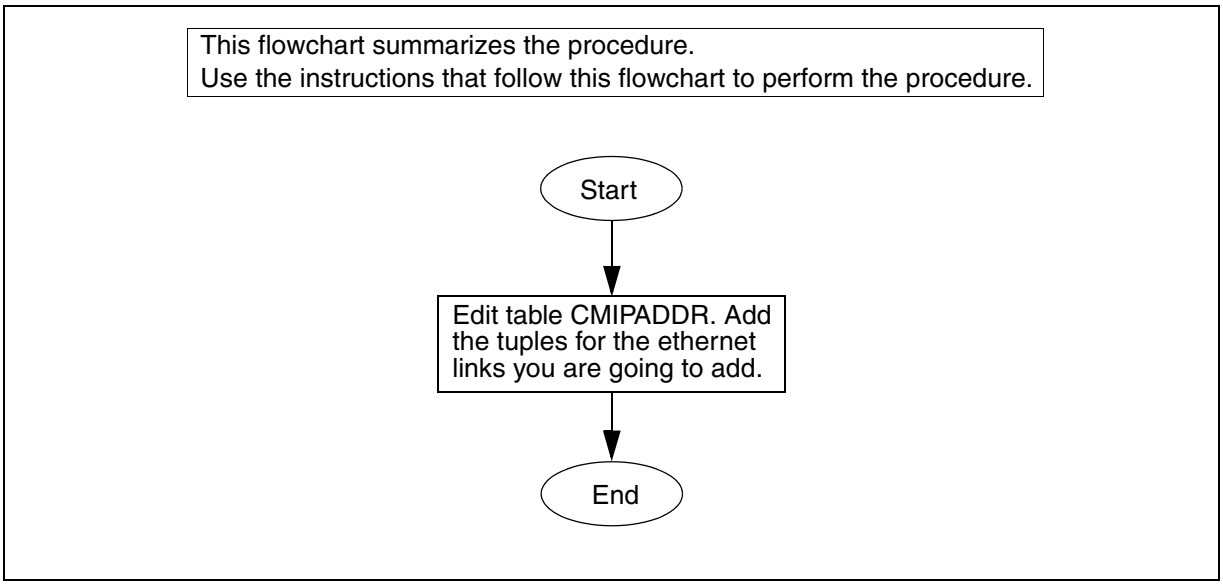
This procedure does not refer to any common procedures.

Introduction to routine maintenance procedures (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 perform the routine maintenance procedure.

Figure 4-28 Adding tuples to table CMIPADDR



Adding tuples to table CMIPADDR

At the MAP terminal

1 Start the table editor. At the user interface prompt on any MAP screen, type

>TABLE CMIPADDR

and press the Enter key.

Example of system response:

```
TABLE: CMIPADDR
```

Introduction to routine maintenance procedures (continued)

2 Indicate that you intend to add a tuple. Type

>ADD ETHRLNK <entry-number>

and press the Enter key

where

<entry-number> is the next unused entry number for ethernet links, 0, 1, 2, or 3

For example, if you are adding the first ethernet link, type

>ADD ETHRLNK 0

and press the Enter key.

In response, the system prompts you to supply a value for each field in the tuple, one field at a time.

Example of system response:

```
SELCLASS:
```

3 Specify the selection-class value. Type

>ETHR

and press the Enter key.

Example of system response:

```
SLOT:
```

4 Specify the slot value. Type

><slot-value>

where

<slot-value> is the number of the slot containing the HIOP circuit pack or HCMIC circuit pack to which the ethernet link will be connected. For HIOP circuit packs, the possible slot numbers are 5, 6, 13, and 14. For HCMIC circuit packs, the possible slot numbers are 4 and 15.

For example, if the ethernet link will connect to an HIOP circuit pack in slot 5, type

>5

and press the Enter key.

Example of system response:

```
LOCATION:
```

5 Specify the location value. Type

>REAR

and press the Enter key.

Example of system response:

```
PACKLET:
```

Introduction to routine maintenance procedures (continued)

6 Indicate that there is no packlet value. Type

>NONE

and press the Enter key.

Example of system response:

```
CARDIP:
```

7 Specify the card-IP value. Type

><card-IP>

and press the Enter key

where

<card-IP> is the card IP address of the circuit pack to which the ethernet link is going to be connected. This value is stated in the Network Specification Book for your office. To find the card IP address, look in the section of the book titled “Communication Server Components”.

For example, type

>10 40 14 100

and press the Enter key.

Example of system response:

```
CARDNETM:
```

8 Specify the card-netmask value. Type

<card-netmask>

and press the Enter key

where

<card-netmask> is an integer indicating the number of leading 1’s in the netmask. This value is stated in the Network Specification Book for your office. To find the card-netmask value, look in the section of the book titled “Communication Server Components”.

For example, type

>24

and press the Enter key.

Example of system response:

```
MTCIP:
```

Introduction to routine maintenance procedures (continued)

9 Specify the maintenance-IP value. Type

><maintenance-IP>

and press the Enter key

where

<maintenance-IP> is the card-maintenance IP address, of the circuit pack to which the ethernet link is going to be connected. This value is stated in the Network Specification Book for your office. To find the card-maintenance IP address, look in the section of the book titled “Communication Server Components”.

For example, type

>10 40 14 101

and press the Enter key.

Example of system response:

```
MTCNETM:
```

10 Specify the maintenance-netmask value. Type

<maintenance-netmask>

and press the Enter key

where

<maintenance-netmask> is an integer indicating the number of leading 1’s in the netmask. This value is stated in the Network Specification Book for your office. To find the maintenance-netmask value, look in the section of the book titled “Communication Server Components”.

For example, type

>24

and press the Enter key.

Example of system response:

```
EDGEIP:
```

11 Specify the edge-IP value, which is the IP address of the edge device. Type

><edge-IP>

and press the Enter key

where

<edge-IP> is the IP address of the edge device. This value is stated in the Network Specification Book for your office. To find the edge-device IP address, look in the section of the book titled “Communication Server Components”.

For example, type

>10 40 14 1

and press the Enter key.

Example of system response:

```
NETID:
```

Introduction to routine maintenance procedures (end)

12 Type

>0

and press the Enter key.

Note: Zero is the only valid value for NETID.

Example of system response:

```
TUPLE TO BE ADDED:
ETHRLNK 0 ETHR 5 REAR NONE (10 40 14 100) 24
(10 40 14 101) 24 (10 40 14 1) 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

13 Confirm the addition. Type

>Y

and press the Enter key.

Example of system response:

```
TUPLE ADDED.
```

14 Select the next step as follows:

If	Do
you need to add another tuple	step 2
you do not need to add any more tuples	step 15

15 Exit from the table editor. Type

>QUIT

and press the Enter key.

16 You have completed this procedure.

Deleting tuples from table CMIPADDR

Use this procedure only when directed to do so by one of the following procedures in this document:

- the procedure titled "Adding, removing, or re-arranging ethernet links"
- one of the procedures for clearing ETHR alarms

Do not use this procedure on any other occasion.

Application

The procedure tells how to delete tuples from table CMIPADDR. The table contains one tuple for each ethernet link.

> ***Note:*** For a description of table CMIPADDR, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Use this procedure when you are removing ethernet links. You must delete the tuples for the links you are removing. If you have been investigating an ETHR alarm and you have discovered that the table contains tuples specifying ethernet links that do not exist, you must delete those tuples.

Alternatively, use this procedure if you have been investigating an ETHR alarm and you have discovered that table CMIPADDR contains excess datafill, that is, if you have discovered that the table contains one or more tuples specifying ethernet links that do not exist. If you have discovered such tuples, you must delete them.

Prerequisites

Prerequisites are as follows.

- If you are removing ethernet links, the prerequisites are listed in the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.
- If you are deleting excess datafill, there are no prerequisites.

Interval

Perform this procedure when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document, or by one of the procedures for clearing ETHR alarms, also in this document.

Common procedures

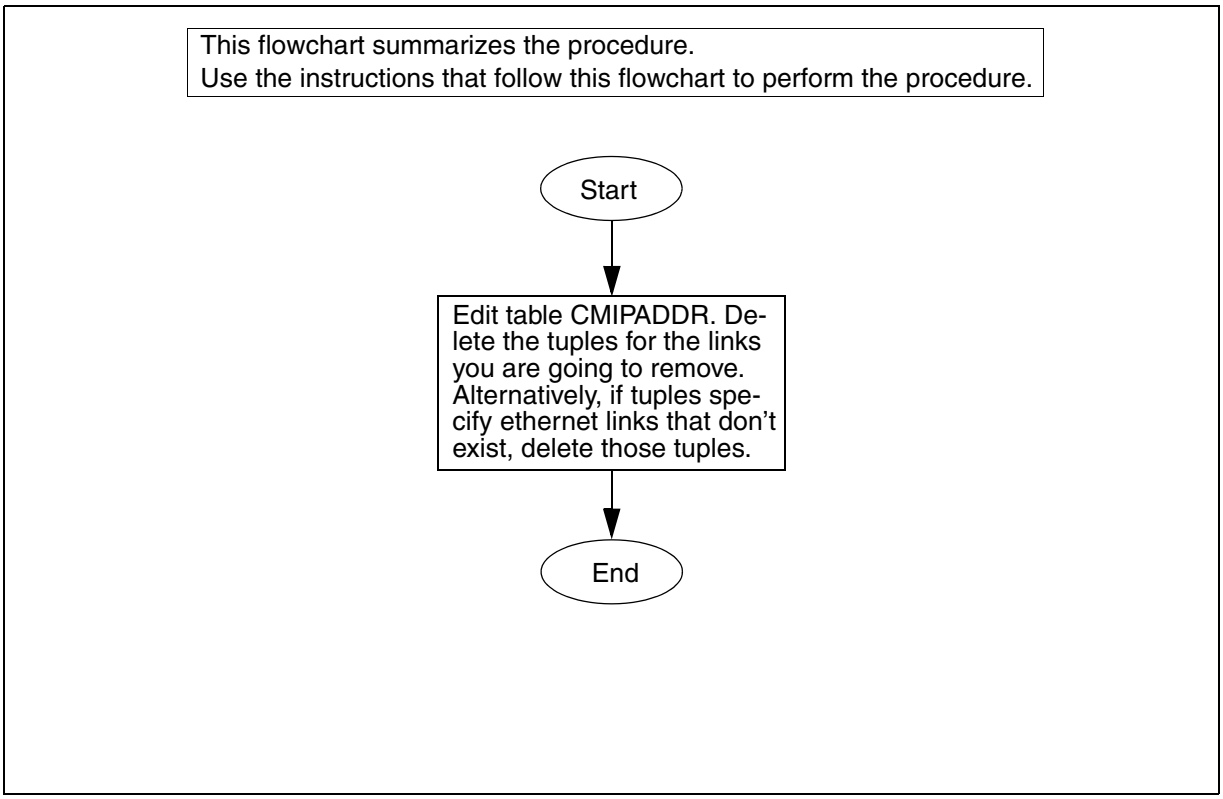
This procedure does not refer to any common procedures.

Introduction to routine maintenance procedures (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 perform the routine maintenance procedure.

Figure 4-29 Deleting tuples from table CMIPADDR



Deleting tuples from table CMIPADDR

At the MAP terminal

1 Start the table editor. At the user interface prompt on any MAP screen, type

>TABLE CMIPADDR

and press the Enter key.

Example of system response:

```
TABLE: CMIPADDR
```

Introduction to routine maintenance procedures (continued)

2 Display the tuples in table CMIPADDR. Type

>LIST ALL

and press the Enter key.

Example of system response:

```
KEY       DATA
------------------------------------------------------------------------
GATEWAY 0 GW (10 40 14 130) 0
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 2 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
```

Table CMIPADDR contains tuples for the ethernet links. Those tuples begin with the word “ETHRLNK”.

Note: In the ETHRLNK tuples in the example, the values in the fields beyond the location field (whose value is “REAR”) are examples, and are for illustrative purposes only.

3 Use the POS command to move to the tuple that you want to remove. Type

>POS ETHRLNK <entry-number>

and press the Enter key

where

<entry-number> is an integer such as 0, 1, 2, or 3

For example, if you are removing the tuple that specifies ethernet link 3, type

>POS ETHRLNK 3

Example of system response:

```
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24
(10 40 14 107) 24 (10 40 14 4) 0
```

4 Delete the tuple. Type

>DEL

and press the Enter key.

Example of system response:

```
TUPLE TO BE DELETED:
ETHRLNK 3 ETHR 14 REAR NONE (10 40 14 106) 24
(10 40 14 107) 24 (10 40 14 4) 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

Introduction to routine maintenance procedures (end)

5 Confirm the deletion. Type

>Y

and press the Enter key.

Example of system response:

```
TUPLE DELETED.
```

6 Select the next step as follows:

If	Do
you need to delete another tuple	step 3
you do not need to delete any more tuples	step 7

7 Exit from the table editor. Type

>QUIT

and press the Enter key.

8 You have completed this procedure.

Changing tuples in table CMIPADDR

Use this procedure only when directed to do so by one of the following procedures in this document:

- the procedure titled “Adding, removing, or re-arranging ethernet links”
- one of the procedures for clearing ETHR alarms

Do not use this procedure on any other occasion.

Application

The procedure tells how to edit tuples in table CMIPADDR. The table contains one tuple for each ethernet link.

> ***Note:*** For a description of table CMIPADDR, see the chapter titled “XA-Core data schema overview” in the *XA-Core Reference Manual*, 297-8991-810.

Use this procedure when you are re-arranging ethernet links that is, moving the connections of existing links from one set of circuit packs to another set of circuit packs in the XA-Core shelf. You must edit the tuples for the links you are re-arranging.

Alternatively, use this procedure if you have been investigating an ETHR alarm and you have discovered that erroneous datafill exists in one or more tuples in table CMIPADDR. You must edit the tuples to correct the errors.

Prerequisites

Prerequisites are as follows.

- If you are re-arranging ethernet links, the prerequisites are listed in the procedure titled “Adding, removing, or re-arranging ethernet links” in this document.
- If you are correcting erroneous datafill to clear an ETHR alarm, there are no prerequisites.

Interval

Perform this procedure when directed to do so by the procedure titled “Adding, removing, or re-arranging ethernet links” in this document, or by one of the procedures for clearing ETHR alarms, also in this document.

Common procedures

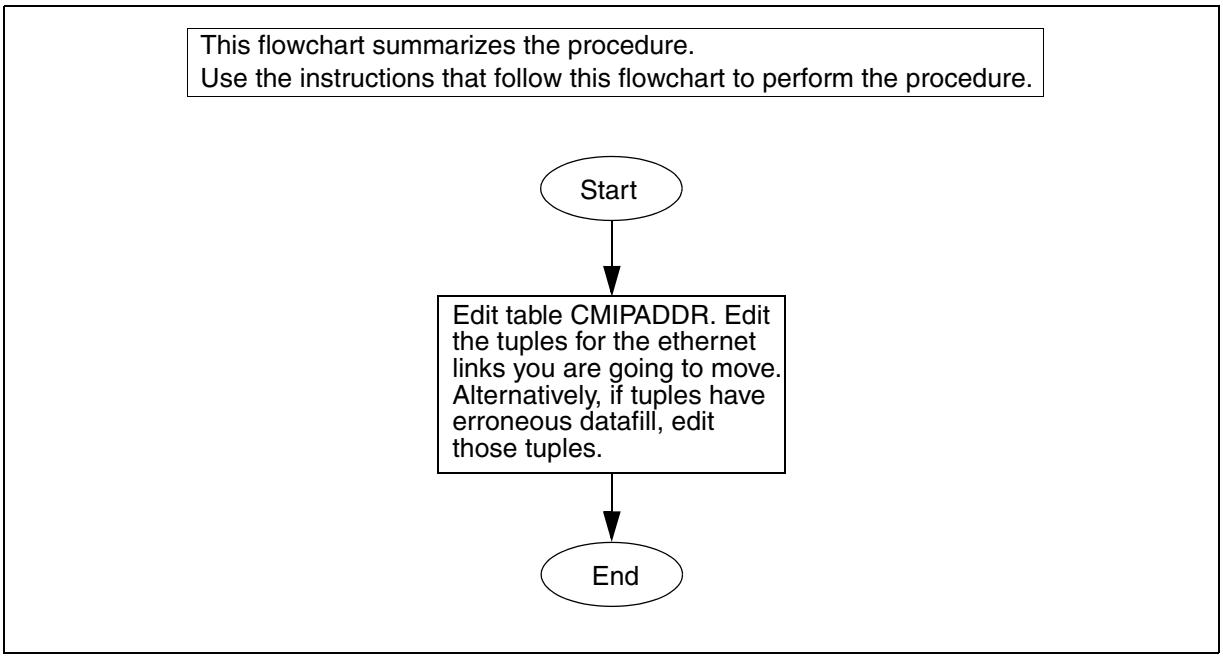
This procedure does not refer to any common procedures.

Changing tuples in table CMIPADDR (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 perform the routine maintenance procedure.

Figure 4-30 Changing tuples in table CMIPADDR



Changing tuples in table CMIPADDR

At the MAP terminal

1 Start the table editor. At the user interface prompt on any MAP screen, type

>TABLE CMIPADDR

and press the Enter key.

Example of system response:

```
TABLE: CMIPADDR
```

Changing tuples in table CMIPADDR (continued)

2 Display the tuples in table CMIPADDR. Type

>LIST ALL

and press the Enter key.

Example of system response:

```
KEY       DATA
------------------------------------------------------------------------
GATEWAY 0 GW (10 40 14 130) 0
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 5  REAR NONE (10 40 14 100) 24 (10 40 14 101) 24 (10 40 14 1) 0
ETHRLNK 1 ETHR 14 REAR NONE (10 40 14 106) 24 (10 40 14 107) 24 (10 40 14 4) 0
```

Table CMIPADDR contains tuples for the ethernet links. Those tuples begin with the word “ETHRLNK”.

Note: In the ETHRLNK tuples in the example, the values in the fields beyond the location field (that is, the values to the right of “REAR NONE”) are examples, and are for illustrative purposes only.

For illustrative purposes, we assume that the XA-Core shelf contains four HIOP circuit packs (in slots 5 rear, 6 rear, 13 rear, and 14 rear), and that there are two ethernet links, and that we are going to move the connections for the two links from the HIOP circuit packs in slots 5 rear and 14 rear to the HIOP circuit packs in slots 6 rear and 13 rear.

We will change the tuples for the ethernet links so that table CMIPADDR will be as shown below.

```
KEY       DATA
------------------------------------------------------------------------
GATEWAY 0 GW (10 40 14 130) 0
CMHOST 0  HOST (10 40 14 108) 24 0
CMHOST 1  HOST (10 40 14 109) 24 0
ETHRLNK 0 ETHR 6  REAR NONE (10 40 14 102) 24 (10 40 14 103) 24 (10 40 14 2) 0
ETHRLNK 1 ETHR 13 REAR NONE (10 40 14 104) 24 (10 40 14 105) 24 (10 40 14 3) 0
```

Changing tuples in table CMIPADDR (continued)

3 Use the POS command to move to the tuple that you want to change. Type

>POS ETHRLNK <entry-number>

and press the Enter key

where

<entry-number> is an integer such as 0, 1, 2, or 3

For example, if you want to change the tuple that specifies ethernet link 0, type

>POS ETHRLNK 0

Example of system response:

```
ETHRLNK 0 ETHR 5 REAR NONE (10 40 14 100) 24
(10 40 14 101) 24 (10 40 14 1) 0
```

4 Indicate that you intend to change the tuple. Type

>CHA

and press the Enter key.

In response, the system prompts you to supply a new value for each field in the tuple, one field at a time. Fort each field you can specify a new value, or you can just press the Enter key to retain the existing value.

Example of system response:

```
SELCLASS: ETHR
```

5 Press the Enter key to retain the existing value.

Example of system response:

```
SLOT: 5
```

6 Select the next step as follows:

If	Do
you are re-arranging ethernet links	step 7
you are correcting erroneous datafill	step 9

7 Specify the new slot value. Type

><slot-value>

where

<slot-value> is the number of the slot containing the HIOP circuit pack or HCMIC circuit pack to which the ethernet link will be connected.

For example, if the ethernet link will connect to an HIOP circuit pack in slot 6, type

>6

and press the Enter key.

Example of system response:

```
LOCATION: REAR
```

Changing tuples in table CMIPADDR (continued)

8 Go to step 10.

9 Specify the slot value. If the existing value is correct, just press the Enter key to retain that value. If the existing value is not correct, type

><slot-value>

where

<slot-value> is the number of the slot containing the hardware that supports the link.

For example, type

>6

and press the Enter key.

Example of system response:

```
LOCATION: REAR
```

10 Press the Enter key to retain the existing value.

Example of system response:

```
PACKLET: NONE
```

11 Select the next step as follows:

If	Do
you are re-arranging ethernet links	step 12
you are correcting erroneous datafill	step 14

12 Indicate that there is no packlet. Press the Enter key to retain the existing value (NONE).

Note: If you are re-arranging ethernet links, the value is NONE because packlets are not involved. For an explanation of why this is true, look in the section titled “Adding, removing, or re-arranging ethernet links”, and look under the heading “What this procedure does not cover”.

Example of system response:

```
CARDIP: 10 40 14 100
```

13 Go to step 15.

14 Specify the packlet value. If the existing value is correct, just press the Enter key to retain that value. If the existing value is not correct, type

><packlet>

and press the Enter key

where

<packlet> is NONE or UPPER or LOWER.

Example of system response:

```
CARDIP: 10 40 14 100
```

Changing tuples in table CMIPADDR (continued)

15 Specify the card-IP value. Type

><card-IP>

and press the Enter key

where

<card-IP> is the card IP address of the circuit pack to which the ethernet link is going to be connected. This value is stated in the Network Specification Book for your office. To find the card IP address, look in the section of the book titled “Communication Server Components”.

For example, type

>10 40 14 102

and press the Enter key.

Example of system response:

```
CARDNETM: 24
```

16 Specify the card-netmask value. Type

<card-netmask>

and press the Enter key

where

<card-netmask> is an integer indicating the number of leading 1’s in the netmask. This value is stated in the Network Specification Book for your office. To find the card-netmask value, look in the section of the book titled “Communication Server Components”.

If the card-netmask value for the circuit pack that the ethernet link is moving to is the same as the card-netmask value for the circuit pack that the ethernet link is moving from, you can just press the Enter key to retain the same value.

If the value is different, type it and press the Enter key.

Example of system response:

```
MTCIP: 10 40 14 101
```

17 Specify the maintenance-IP value. Type

><maintenance-IP>

and press the Enter key

where

<maintenance-IP> is the card-maintenance IP address, of the circuit pack to which the ethernet link is going to be connected. This value is stated in the Network Specification Book for your office. To find the card-maintenance IP address, look in the section of the book titled “Communication Server Components”.

For example, type

>10 40 14 103

and press the Enter key.

Example of system response:

```
MTCNETM:
```

Changing tuples in table CMIPADDR (continued)

18 Specify the maintenance-netmask value. Type

<maintenance-netmask>

and press the Enter key

where

<maintenance-netmask> is an integer indicating the number of leading 1's in the netmask. This value is stated in the Network Specification Book for your office. To find the maintenance-netmask value, look in the section of the book titled "Communication Server Components".

If the maintenance-netmask value for the circuit pack that the ethernet link is moving to is the same as the maintenance-netmask value for the circuit pack that the ethernet link is moving from, you can just press the Enter key to retain the same value.

If the value is different, type it and press the Enter key.

Example of system response:

```
EDGEIP: 10 40 14 1:
```

19 Specify the edge-IP value, which is the IP address of the edge device. Type

><edge-IP>

and press the Enter key

where

<edge-IP> is the IP address of the edge device. This value is stated in the Network Specification Book for your office. To find the edge-device IP address, look in the section of the book titled "Communication Server Components".

For example, type

>10 40 14 2

and press the Enter key.

Example of system response:

```
NETID: 0
```

20 Press the Enter key to retain the existing value.

Note: Zero is the only valid value for NETID.

Example of system response:

```
TUPLE TO BE CHANGED:
ETHRLNK 0 ETHR 6 REAR NONE (10 40 14 102) 24
(10 40 14 103) 24 (10 40 14 2) 0
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

21 Confirm the change. Type

>Y

and press the Enter key.

Example of system response:

```
TUPLE CHANGED.
```

Changing tuples in table CMIPADDR (end)

22 Select the next step as follows:

If	Do
you need to change another tuple	step 3
you do not need to change any more tuples	step 23

23 Exit from the table editor. Type

>QUIT

and press the Enter key.

24 You have completed this procedure.

Establishing cable connections for new ethernet links

Use this procedure only when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to make the cable connections for ethernet links that you are adding.

There can be 0, 2, or 4 ethernet links to an XA-Core shelf. This procedure tells you how to establish cable connections for one pair of links at a time.

Prerequisites

For each pair of ethernet links that you intend to establish, you must have the following things.

- Parts found in the NTLX1145 ethernet cabling kit. Each kit contains the parts that carry two ethernet links between the circuit packs in the XA-Core and the bulkheads on the sides of the XA-Core shelf. Nortel ships one NTLX1145 ethernet cabling kit with each pair of HIOP circuit packs and with each pair of HCMIC circuit packs.
- Two NTRX5132 ethernet engineered cables. Each cable carries a single ethernet link between the bulkhead on the side of the XA-Core shelf and the CS LAN device or ethernet termination panel. (You use an ethernet termination panel if the CS LAN device is a third-party device.)
- The name and location of the CS LAN device or ethernet termination panel to which you must connect the far end of each NTRX5132 ethernet engineered cable.
- The location of the ethernet port to which each NTRX5132 ethernet engineered cable connects on the CS LAN device or on the ethernet termination panel.

Interval

Perform this procedure when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.

Common procedures

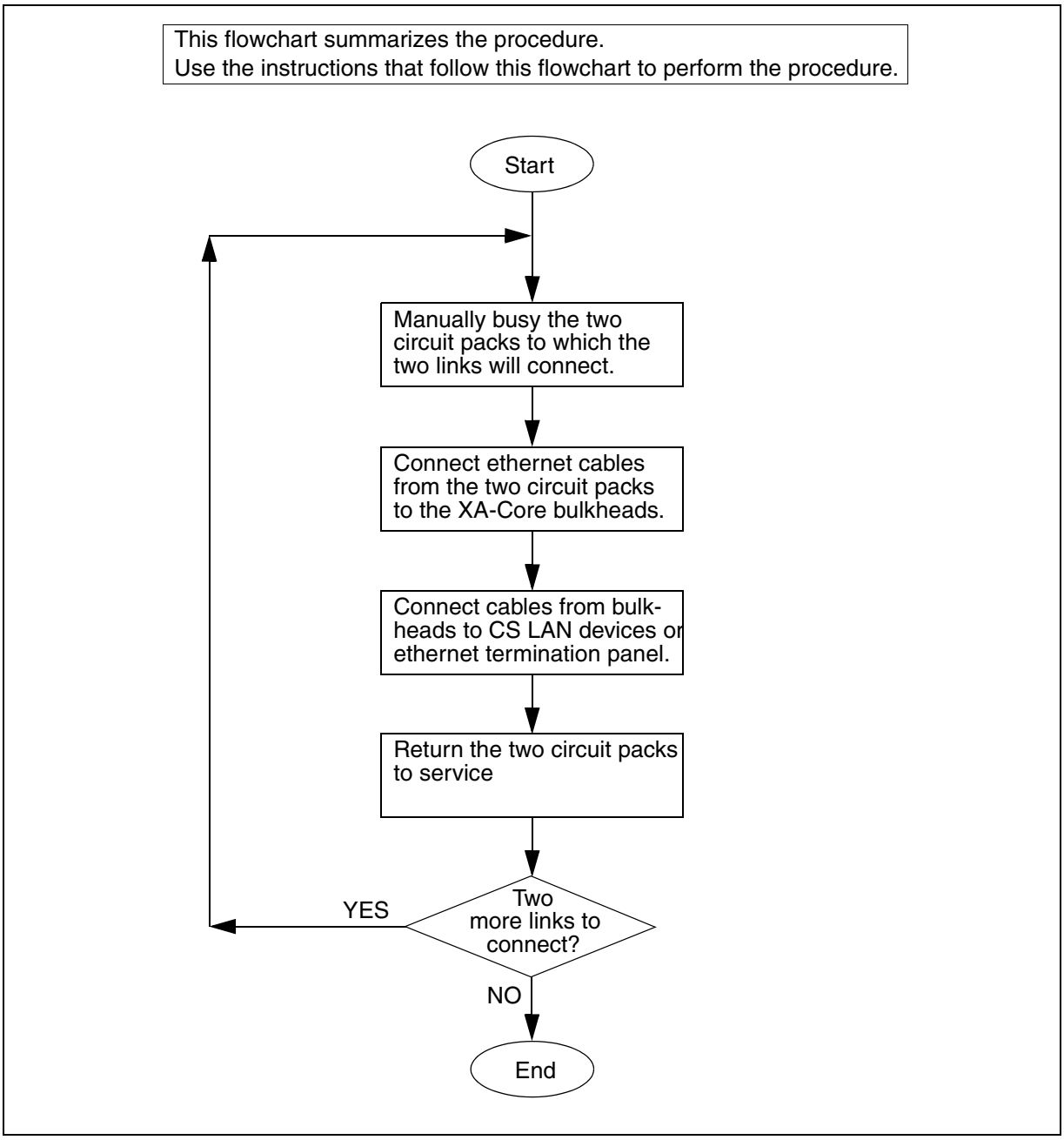
This procedure does not refer to any common procedures.

Establishing cable connections for new ethernet links (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 perform the routine maintenance procedure.

Figure 4-31 Establishing cable connections for new ethernet links



Establishing cable connections for new ethernet links (continued)

Establishing cable connections for new ethernet links

At the MAP terminal

1 Go to the IO level of the MAP. At the user interface prompt on the MAP screen, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

The IO MAP screen appears. In the following example, the screen indicates that there are HIOP circuit packs in slots 5 rear, 6 rear, 13 rear, and14 rear, and HCMIC circuit packs in slots 4 rear and 15 rear. In each of these circuit packs, the middle section of the circuit pack is the ethernet section, and in each case the screen indicates that the ethernet section is not equipped: “ETHR -”. This means that currently there are no ethernet links to the XA-Core shelf.

IO MAP level

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

IO              Front:   111111111  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     .              Tape .                 Disk .
 7 Bsy_          17   Front     .              Tape .                 Disk .
 8 RTS_           4   Rear      .              RTIF .     ETHR -      CMIC .
 9                5   Rear      .              RTIF -     ETHR -      AMDI .
10 LoadFW_        6   Rear      .              RTIF -     ETHR -      AMDI .
11               13   Rear      .              RTIF -     ETHR -      AMDI .
12 Uneq_         14   Rear      .              RTIF -     ETHR -      AMDI .
13               15   Rear      .              RTIF .     ETHR -      CMIC .
14 Alarm_       XAC:
15 Cntrs_       IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Establishing cable connections for new ethernet links (continued)

2 Manually busy the pair of the circuit packs to which you are going to establish connections for new ethernet links.

Note: The possible pairs are as follows: HCMIC circuit packs in slots 4 rear and 15 rear; HIOP circuit packs in slots 5 rear and 14 rear; HIOP circuit packs in slots 6 rear and 13 rear.

Proceed as follows.

a Manually busy the first of the pair of circuit packs. Type

>BSY <nn> R

and press the Enter key

where <nn> is 4 or 5 or 6

For example, if you are going to establish ethernet links to the HIOP circuit packs in slots 5 rear and 14 rear, type

>BSY 5 R

and press the Enter key.

Example of system response:

```
BSY 5 r complete
```

b Manually busy the second of the pair of circuit packs. Type

>BSY <nn> R

and press the Enter key

where <nn> is 13 or 14 or 15

For example, if you are going to establish ethernet links to the HIOP circuit packs in slots 5 rear and 14 rear, type

>BSY 14 R

and press the Enter key.

Example of system response:

```
BSY 14 r complete
```

At the XA-Core shelf

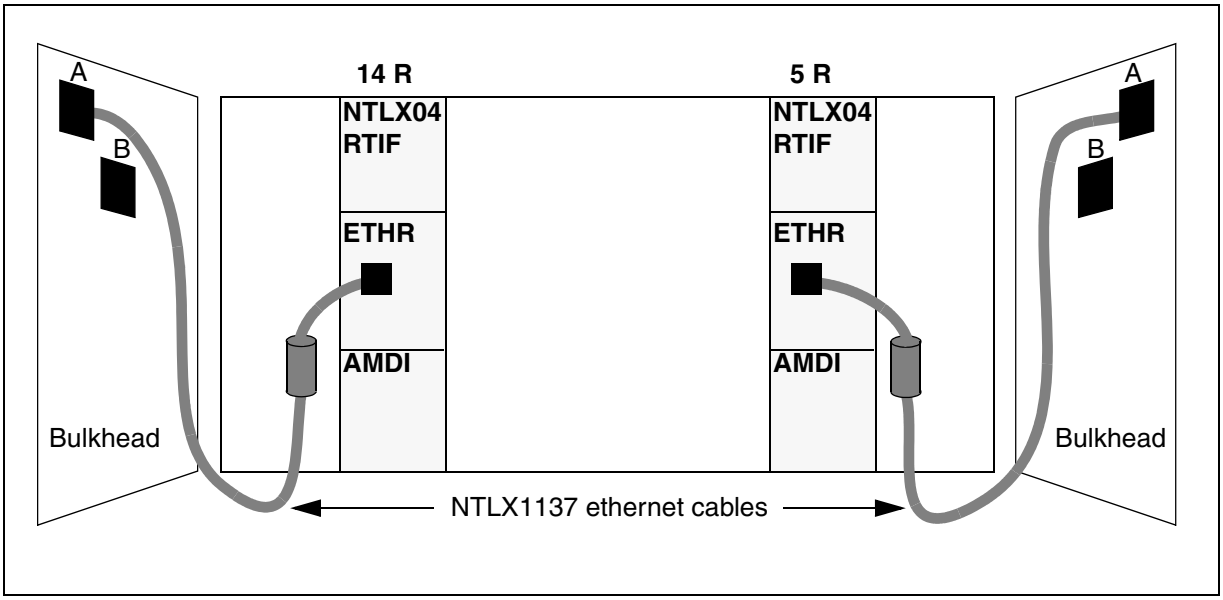
3 Locate the NTLX1145 Ethernet Cabling Kit. Each kit contains two ethernet cables (NTLX1137) and two bulkhead-adapter plates (NTLX1120).

4 Go to the rear of the XA-Core shelf. Remove the screws securing the plate at location A on each bulkhead.

The following illustration shows the locations of the plates on the bulkheads, and the routing of the NTLX1137 cables connected to HIOP circuit packs in slots 5 rear and 14 rear.

Establishing cable connections for new ethernet links (continued)

Cabling from the circuit packs to the bulkheads



5 Using the screws that you removed in step 4, install a bulkhead-adapter plate (NTLX1120) on each bulkhead. If you are establishing the first and second ethernet links to the XA-Core, install the adapter plates at location A on each bulkhead. If you are establishing the third and fourth ethernet links to the XA-Core, install the adapter plates at location B on each bulkhead.

6 Take one of the ethernet cables (NTLX1137) from the ethernet cabling kit. Snap the modular coupler of the ethernet cables into the bulkhead adapter plate on the bulkhead on your left.

7 Connect the other end of the ethernet cable to the ethernet port on the circuit pack that you busied in step 2b (the circuit pack in slot 13, 14, or 15). The ethernet port is located at the middle of the circuit pack.

8 Take the second ethernet cable (NTLX1137) from the ethernet cabling kit. Snap the modular coupler of the ethernet cable into the bulkhead adapter plate on the bulkhead on your right.

9 Connect the other end of the ethernet cable to the ethernet port on the circuit pack that you busied in step 2a (the circuit pack in slot 4, 5, or 6). The ethernet port is located at the middle of the circuit pack.

10 Connect an ethernet engineered cable (NTRX5132) to the ethernet port on the XA-Core bulkhead on your left.

11 Connect a second ethernet engineered cable (NTRX5132) to the ethernet port on the XA-Core bulkhead on your right.

At the CS LAN device or ethernet termination panel

12 Connect the other end of each ethernet engineered cable (NTRX5132) to the corresponding ethernet port of the Passport 6480 or Passport 8400, or to an ethernet termination panel if you are using a third-party CS LAN device.

Establishing cable connections for new ethernet links (continued)

At the XA-Core shelf and at the CS LAN device or ethernet termination panel

13 Perform a visual check to verify that complete end-to-end connections are in place from the ethernet ports on the pair of circuit packs to the CS LAN device or to the ethernet termination panel.

At the MAP terminal

14 Go to the ETHR level of the MAP. At the user interface prompt on the MAP screen, type

>ETHR

and press the Enter key.

The ETHR MAP screen appears. In the following example, the screen indicates that the following slots contain circuit packs that are capable of supporting ethernet links: 4 rear, 5 rear, 6, rear, 13 rear, 14 rear, and 15 rear. The screen indicates that the ethernet links are not equipped. This means that currently there are no ethernet links to the XA-Core shelf.

ETHR MAP level, indicating that there are currently no ethernet links

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

ETHR            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit         123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3              Dep:
 4              Typ:                    ***      ***
 5              Slot: Side: Packlet:  Port: Link:
 6 Tst_           4   Rear            .     -
 7 Bsy_           5   Rear            .     -
 8 RTS_           6   Rear            .     -
 9               13   Rear            .     -
10 LoadFW_       14   Rear            .     -
11               15   Rear            .     -
12 Uneq_
13             XAC:
14 Alarm_      ETHR:
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

15 Return the pair of circuit packs to service.

Proceed as follows.

a Return the first circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is 4 or 5 or 6

Establishing cable connections for new ethernet links (continued)

For example, if you earlier (in step 2a) busied the HIOP circuit pack in slot 5 rear, type

>RTS 5 R

and press the Enter key.

Example of system response:

```
RTS 5 r passed
```

b Return the second circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is 13 or 14 or 15

For example, if you earlier (in step 2b) busied the HIOP circuit pack in slot 14 rear, type

>RTS 14 R

and press the Enter key.

Example of system response:

```
RTS 14 r passed
```

16 Monitor the ETHR level of the MAP to verify that the links recover properly. For example, if the circuit packs in slot 5 rear and slot 14 rear are the circuit packs that you returned to service in the preceding step, then the ETHR screen should indicate that the ethernet links have gone into service, as shown in the following illustration.

ETHR MAP level, indicating that the ethernet links to slots 5 and 14 rear have recovered properly

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

ETHR            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3              Dep:
 4              Typ:                    ***      ***
 5              Slot: Side: Packlet:  Port: Link:
 6 Tst_           4   Rear            .     -
 7 Bsy_           5   Rear            .     .
 8 RTS_           6   Rear            .     -
 9               13   Rear            .     -
10 LoadFW_       14   Rear            .     .
11               15   Rear            .     -
12 Uneq_
13             XAC:
14 Alarm_      ETHR:
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

Establishing cable connections for new ethernet links (end)

17 Select the next step as follows:

If	Do
you need to establish the cable connections for another pair of ethernet links	step 1
you do not need to establish the cable connections for any more pairs of ethernet links	step 18

18 You have completed this procedure.

Removing cable connections for ethernet links

Use this procedure only when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to remove the cable connections for ethernet links that you are removing.

There can be 0, 2, or 4 ethernet links to an XA-Core shelf. This procedure tells you how to remove cable connections for one pair of links at a time.

Prerequisites

None.

Interval

Perform this procedure when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.

Common procedures

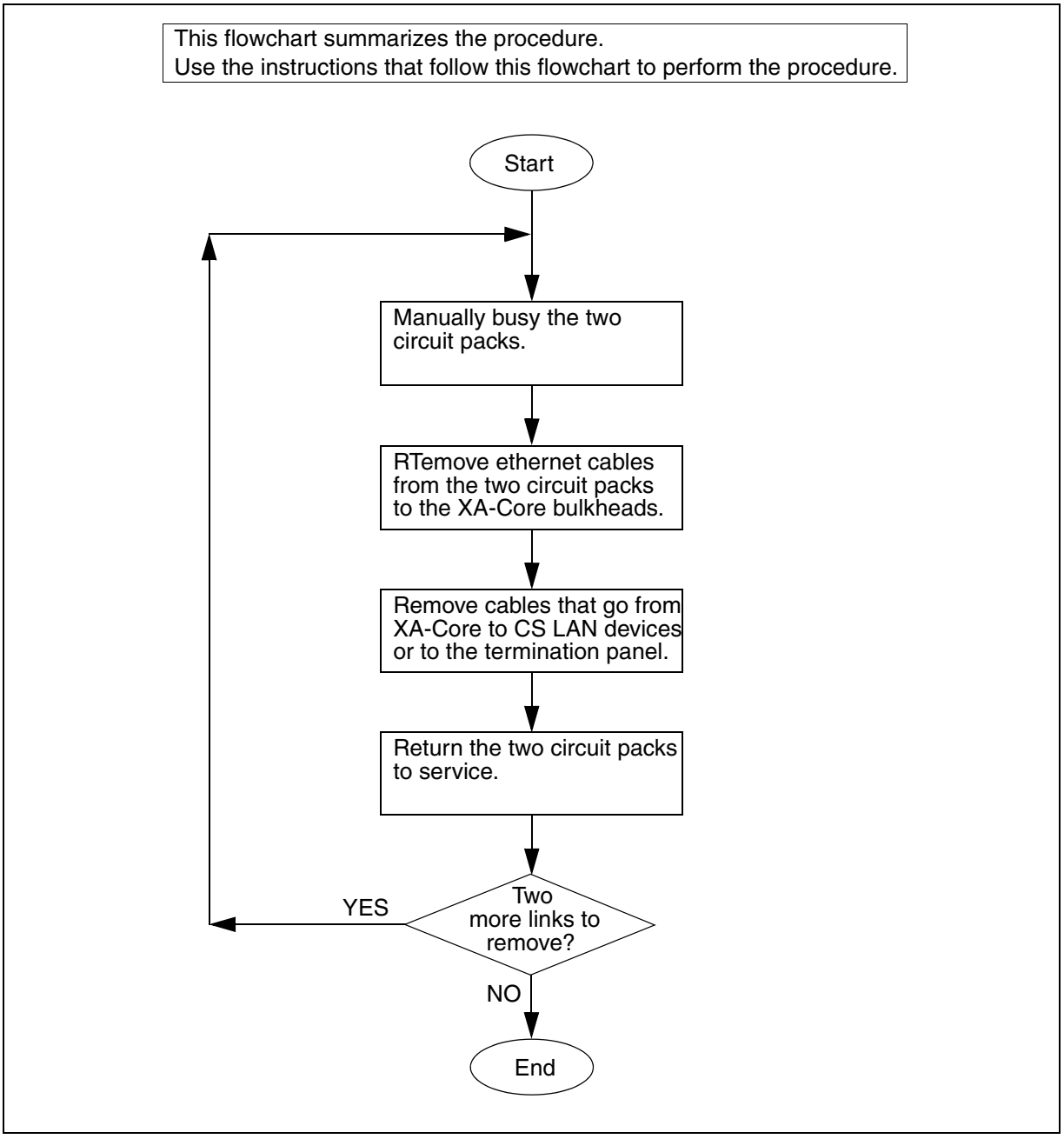
This procedure does not refer to any common procedures.

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.

Removing cable connections for ethernet links (continued)

Figure 4-32 Removing cable connections for ethernet links



Removing cable connections for ethernet links (continued)

Removing cable connections for ethernet links

At the MAP terminal

1 Go to the IO level of the MAP. At the user interface prompt on the MAP screen, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

The IO MAP screen appears. In the following example, the screen indicates that there are HIOP circuit packs in slots 5 rear, 6, rear, 13 rear, and 14 rear, and HCMIC circuit packs in slots 4 rear and 15 rear. In each of these circuit packs, the middle section of the circuit pack is the ethernet section. The screen indicates that the ethernet section of each HIOP circuit pack is equipped: “ETHR .”. This means that currently there are four ethernet links to the XA-Core shelf, and the links are connected to the HIOP circuit packs.

IO MAP level

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

IO              Front:   111111111  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     .              Tape .                  Disk .
 7 Bsy_          17   Front     .              Tape .                  Disk .
 8 RTS_           4   Rear      .              RTIF .     ETHR -       CMIC .
 9                5   Rear      .              RTIF -     ETHR .       AMDI .
10 LoadFW_        6   Rear      .              RTIF -     ETHR .       AMDI .
11               13   Rear      .              RTIF -     ETHR .       AMDI .
12 Uneq_         14   Rear      .              RTIF -     ETHR .       AMDI .
13               15   Rear      .              RTIF .     ETHR -       CMIC .
14 Alarm_       XAC:
15 Cntrs_       IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

2 Manually busy the pair of the circuit packs from which you are going to remove the ethernet links.

Note: The possible pairs are as follows: HCMIC circuit packs in slots 4 rear and 15 rear; HIOP circuit packs in slots 5 rear and 14 rear; HIOP circuit packs in slots 6 rear and 13 rear.

Proceed as follows.

a Manually busy the first of the pair of circuit packs. Type

>BSY <nn> R

and press the Enter key

where <nn> is 4 or 5 or 6

Removing cable connections for ethernet links (continued)

For example, if you are going to remove the ethernet links from the HIOP circuit packs in slots 5 rear and 14 rear, type

>BSY 5 R

and press the Enter key.

Example of system response:

```
BSY 5 r complete
```

b Manually busy the second of the pair of circuit packs. Type

>BSY <nn> R

and press the Enter key

where <nn> is 13 or 14 or 15

For example, if you are going to remove the ethernet links from the HIOP circuit packs in slots 5 rear and 14 rear, type

>BSY 14 R

and press the Enter key.

Example of system response:

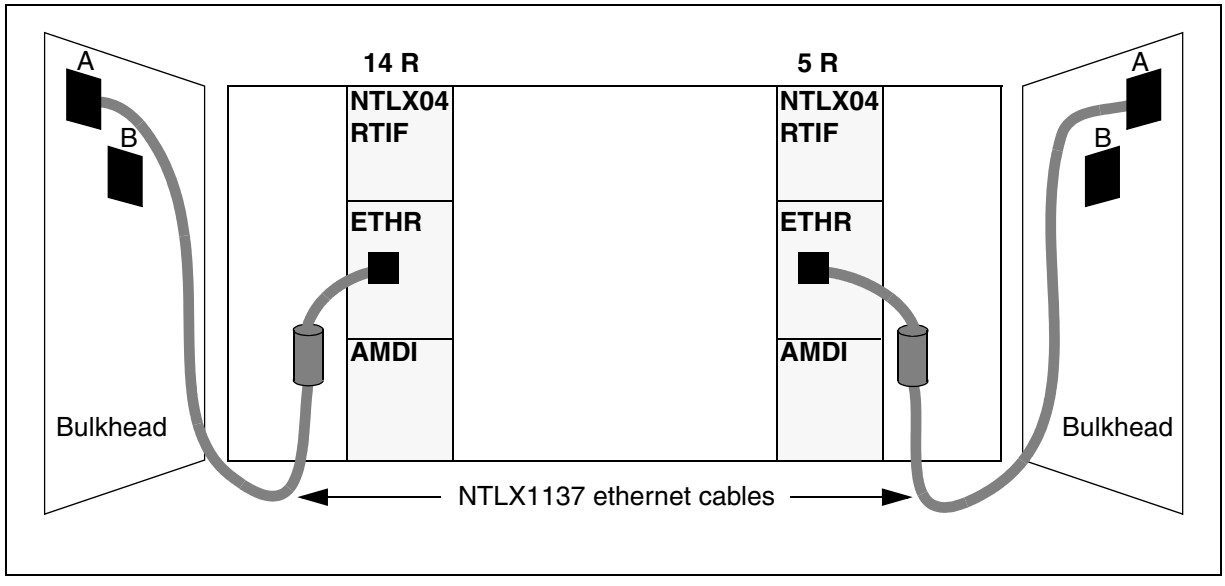
```
BSY 14 r complete
```

At the XA-Core shelf

3 Go to the rear of the XA-Core shelf. Find the ethernet cables (NTLX1137) that are connected to the pair of circuit packs from which you are removing the ethernet links.

The following illustration shows the locations of the ethernet cables connected to HIOP circuit packs in slots 5 rear and 14 rear.

Cabling from the circuit packs to the bulkheads



Removing cable connections for ethernet links (continued)

4 Disconnect the ethernet cable (NTLX1137) from the ethernet port on the circuit pack that you busied in step 2b (the circuit pack in slot 13, 14, or 15). The ethernet port is located at the middle of the circuit pack.

5 Still working with the same ethernet cable as in the preceding step, disconnect the modular coupler at the other end of the cable from the bulkhead adapter plate on the bulkhead on your left.

6 Store the ethernet cable in a safe place away from the XA-Core shelf.

7 Disconnect the ethernet cable (NTLX1137) from the ethernet port on the circuit pack that you busied in step 2a (the circuit pack in slot 4, 5, or 6). The ethernet port is located at the middle of the circuit pack.

8 Still working with the same ethernet cable as in the preceding step, disconnect the modular coupler at the other end of the cable from the bulkhead adapter plate on the bulkhead on your right.

9 Store the ethernet cable in a safe place away from the XA-Core shelf.

10 Locate the ethernet engineered cable (NTRX5132) that carried the links that was formerly connected to the circuit pack that you busied in step 2a (the circuit pack in slot 4, 5, or 6). (The ethernet engineered cable carried the link between the XA-Core and the CS LAN device or the ethernet termination panel.) Disconnect the ethernet engineered cable from the ethernet port on the XA-Core bulkhead on your right.

11 Locate the ethernet engineered cable (NTRX5132) that carried the links that was formerly connected to the circuit pack that you busied in step 2b (the circuit pack in slot 13, 14, or 15). (The ethernet engineered cable carried the link between the XA-Core and the CS LAN device or the ethernet termination panel.) Disconnect the ethernet engineered cable from the ethernet port on the XA-Core bulkhead on your left.

At the CS LAN device or ethernet termination panel

12 Still working with the same ethernet engineered cables as in steps 10 and 11, disconnect the other ends of the two cables from the corresponding ethernet ports on the Passport 6480 or Passport 8400, or from the ethernet termination panel if you are using a third-party CS LAN device.

13 Store the ethernet engineered cables in a safe place.

Removing cable connections for ethernet links (continued)

At the MAP terminal

14 Go to the ETHR level of the MAP. At the user interface prompt on the MAP screen, type

>ETHR

and press the Enter key.

The ETHR MAP screen appears. In the following example, the screen indicates that the following slots contain circuit packs that are capable of supporting ethernet links: 4 rear, 5 rear, 6, rear, 13 rear, 14 rear, and 15 rear. The screen indicates that the ethernet links for slots 6 rear and 13 rear are still equipped, and the links for the other slots are not equipped. (This is what you would expect to see if you had started out with four ethernet links, as described in step 1, and if you had removed the connections to the circuit packs in slots 5 rear and 14 rear.)

ETHR MAP level, indicating that there are currently no ethernet links

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

ETHR             Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2               Sta:-.-.--..-..-.--.-.  ....-..-....  0      0      0       0
 3               Dep:
 4               Typ:                    ***      ***
 5               Slot: Side: Packlet:  Port: Link:
 6 Tst_            4   Rear            .     -
 7 Bsy_            5   Rear            .     -
 8 RTS_            6   Rear            .     .
 9                13   Rear            .     .
10 LoadFW_        14   Rear            .     -
11                15   Rear            .     -
12 Uneq_
13              XAC:
14 Alarm_       ETHR:
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

When you display the ETHR MAP screen, the screen should indicate that the ethernet links for the circuit packs that you busied in step 2 are not equipped.

15 Return the pair of circuit packs to service.

Proceed as follows.

a Return the first circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is 4 or 5 or 6

Removing cable connections for ethernet links (end)

For example, if you earlier (in step 2a) busied the HIOP circuit pack in slot 5 rear, type

>RTS 5 R

and press the Enter key.

Example of system response:

```
RTS 5 r passed
```

b Return the second circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is 13 or 14 or 15

For example, if you earlier (in step 2b) busied the HIOP circuit pack in slot 14 rear, type

>RTS 14 R

and press the Enter key.

Example of system response:

```
RTS 14 r passed
```

16 Select the next step as follows:

If	Do
you need to establish the cable connections for another pair of ethernet links	step 1
you do not need to establish the cable connections for any more pairs of ethernet links	step 17

17 You have completed this procedure.

This page is intentionally left blank.

Moving the cable connections for existing ethernet links

Use this procedure only when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to re-arrange a pair of existing ethernet links, that is, to move the cable connections for the pair of links. You disconnect the links from one pair of circuit packs in the XA-Core shelf, and connect the links to a different pair of circuit packs in the shelf.

Prerequisites

None.

Interval

Perform this procedure when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.

Common procedures

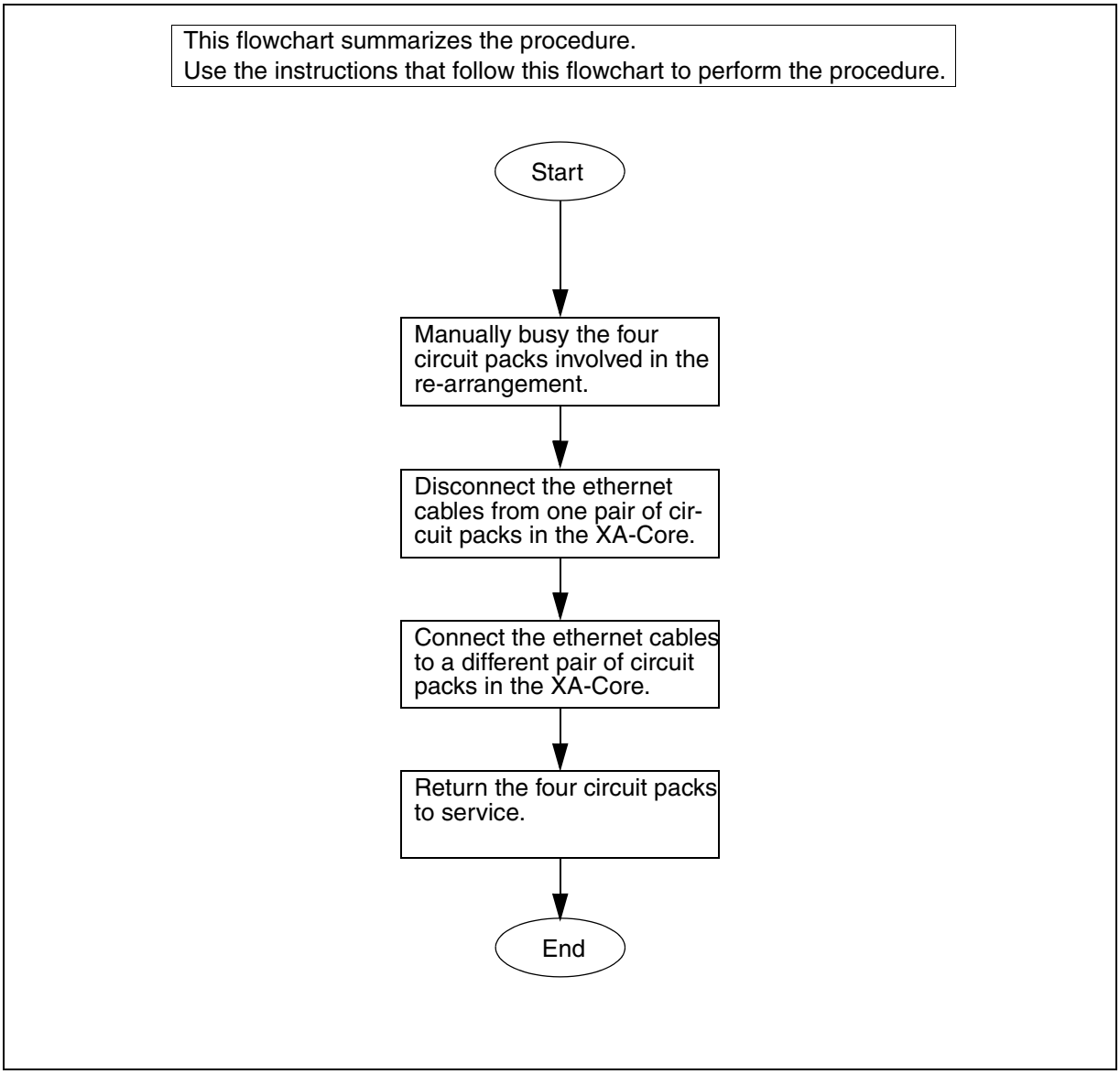
This procedure does not refer to any common procedures.

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.

Moving the cable connections for existing ethernet links (continued)

Figure 4-33 Moving the cable connections for existing ethernet links



Moving the cable connections for existing ethernet links (continued)

Moving the cable connections for existing ethernet links

At the MAP terminal

1 Go to the IO level of the MAP. At the user interface prompt on the MAP screen, type

>MAPCI;MTC;XAC;IO

and press the Enter key.

The IO MAP screen appears. In the following example, the screen indicates that there are HIOP circuit packs in slots 5 rear, 6, rear, 13 rear, and 14 rear, and HCMIC circuit packs in slots 4 rear and 15 rear. In each of these circuit packs, the middle section of the circuit pack is the ethernet section. The screen indicates that the ethernet sections of the circuit packs in slots 6 rear and 13 rear are equipped. This means that currently there are two ethernet links to the XA-Core shelf, supported by the circuit packs in slots 6 rear and 13 rear.

IO MAP level

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

IO                    Front:   111111111  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     .               Tape .                 Disk .
 7 Bsy_               17   Front     .               Tape .                 Disk .
 8 RTS_                4   Rear      .               RTIF .     ETHR -      CMIC .
 9                     5   Rear      .               RTIF -     ETHR -      AMDI .
10 LoadFW_             6   Rear      .               RTIF -     ETHR .      AMDI .
11                    13   Rear      .               RTIF -     ETHR .      AMDI .
12 Uneq_              14   Rear      .               RTIF -     ETHR -      AMDI .
13                    15   Rear      .               RTIF .     ETHR -      CMIC .
14 Alarm_            XAC:
15 Cntrs_            IO:
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

2 Manually busy the two pairs of circuit packs that will be involved in the re-arrangement, that is, the pair of circuit packs to which the ethernet links are currently connected, and the pair of circuit packs to which you intend to move the connections.

Note: The possible pairs are as follows: HCMIC circuit packs in slots 4 rear and 15 rear; HIOP circuit packs in slots 5 rear and 14 rear; HIOP circuit packs in slots 6 rear and 13 rear.

Proceed as follows.

Moving the cable connections for existing ethernet links (continued)

a Manually busy the first circuit pack from which you are going to disconnect a link. Type

>BSY <nn> R

and press the Enter key

where <nn> is the slot number of one of the pair of circuit packs from which you are going to disconnect the ethernet links

For example, type

>BSY 6 R

and press the Enter key.

Example of system response:

```
BSY 6 r complete
```

b Manually busy the second circuit pack from which you are going to disconnect a link. Type

>BSY <nn> R

and press the Enter key

where <nn> is the slot number of the second of the pair of circuit packs from which you are going to disconnect the ethernet links

For example, type

>BSY 13 R

and press the Enter key.

Example of system response:

```
BSY 13 r complete
```

c Manually busy the first circuit pack to which you are going to connect the link. Type

>BSY <nn> R

and press the Enter key

where <nn> is the slot number of one of the pair of circuit packs to which you are going to connect the ethernet links

For example, type

>BSY 5 R

and press the Enter key.

Example of system response:

```
BSY 5 r complete
```

Moving the cable connections for existing ethernet links (continued)

d Manually busy the first circuit pack to which you are going to connect the link. Type

>BSY <nn> R

and press the Enter key

where <nn> is the slot number of the second of the pair of circuit packs to which you are going to connect the ethernet links

For example, type

>BSY 14 R

and press the Enter key.

Example of system response:

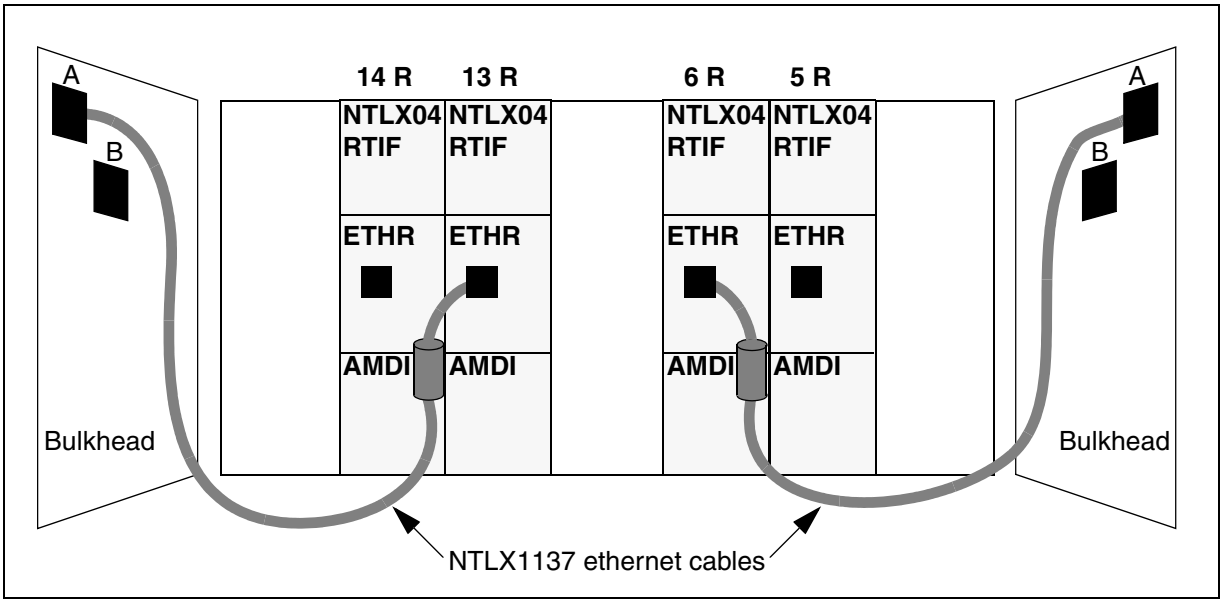
```
BSY 14 r complete
```

At the XA-Core shelf

3 Go to the rear of the XA-Core shelf and locate the two ethernet cables (NTLX1137) that will be involved in the move.

The following illustration shows the locations of the ethernet cables connected to the ethernet ports on the HIOP circuit packs in slots 6 rear and 13 rear. (In our example we are going to move the links from slots 6 rear and 13 rear to slots 5 rear and 14 rear.)

Cabling from the circuit packs to the bulkheads



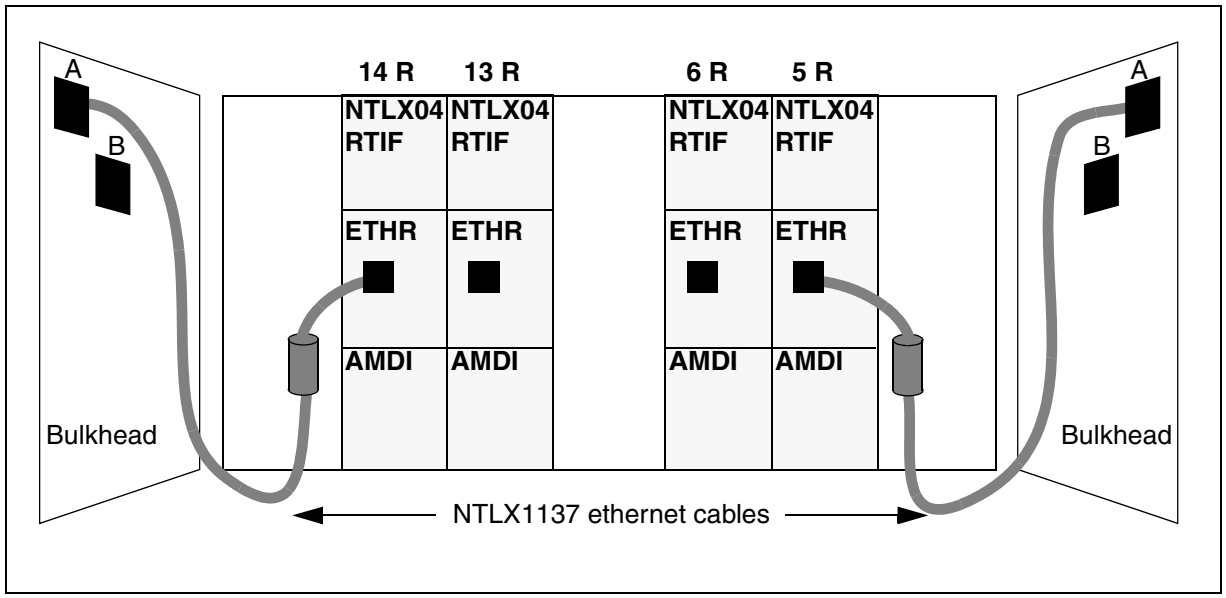
4 Disconnect the two ethernet cables from the ethernet ports on the pair of circuit packs from which you are removing the ethernet links.

Moving the cable connections for existing ethernet links (continued)

5 Connect the two ethernet cables to the ethernet ports on the pair of circuit packs to which you are going to connect the ethernet links.

The following illustration shows the cabling after the change.

Cabling from the circuit packs to the bulkheads



At the XA-Core shelf and at the CS LAN device or ethernet termination panel

6 Perform a visual check to verify that complete end-to-end connections are in place from the ethernet ports on the pair of circuit packs to the CS LAN devices or to the ethernet termination panel.

At the MAP terminal

7 Go to the ETHR level of the MAP. At the user interface prompt on the MAP screen, type

>ETHR

and press the Enter key.

The ETHR MAP screen appears. In the following example, the screen indicates that the following slots contain circuit packs that are capable of supporting ethernet links: 4 rear, 5 rear, 6, rear, 13 rear, 14 rear, and 15 rear. The screen indicates that all the ethernet links are not equipped. This means that currently there are no ethernet links to the XA-Core shelf.

Moving the cable connections for existing ethernet links (continued)

ETHR MAP level, indicating that there are currently no ethernet links

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

ETHR            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit         123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3              Dep:
 4              Typ:                    ***      ***
 5              Slot: Side: Packlet:  Port: Link:
 6 Tst_           4   Rear            .     -
 7 Bsy_           5   Rear            .     -
 8 RTS_           6   Rear            .     -
 9               13   Rear            .     -
10 LoadFW_       14   Rear            .     -
11               15   Rear            .     -
12 Uneq_
13             XAC:
14 Alarm_      ETHR:
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

8 Return the four circuit packs to service.

Proceed as follows.

a Return the first circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is the same value you used in step 2a

For example, if in step 2a you busied the HIOP circuit pack in slot 6 rear, type

>RTS 6 R

and press the Enter key.

Example of system response:

```
RTS 6 r passed
```

Moving the cable connections for existing ethernet links (continued)

b Return the second circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is the same value you used in step 2b

For example, if in step 2b you busied the HIOP circuit pack in slot 13 rear, type

>RTS 13 R

and press the Enter key.

Example of system response:

```
RTS 13 r passed
```

c Return the third circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is the same value you used in step 2c

For example, if in step 2c you busied the HIOP circuit pack in slot 5 rear, type

>RTS 5 R

and press the Enter key.

Example of system response:

```
RTS 5 r passed
```

d Return the second circuit pack to service. Type

>RTS <nn> R

and press the Enter key

where <nn> is the same value you used in step 2d

For example, if in step 2d you busied the HIOP circuit pack in slot 14 rear, type

>RTS 14 R

and press the Enter key.

Example of system response:

```
RTS 14 r passed
```

Moving the cable connections for existing ethernet links (end)

9 Monitor the ETHR level of the MAP to verify that the links recover properly. For example, if the circuit packs in slot 5 rear and slot 14 rear are the circuit packs to which you connected the ethernet links in step 5, then the ETHR screen should indicate that the ethernet links for slots 5 rear and 14 rear have gone into service, as shown in the following illustration.

ETHR MAP level, indicating that the ethernet links to slots 5 and 14 rear have recovered properly

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

ETHR            Front:   111111111  Rear: 111111      SM     PE     IO      PKLT
 0 Quit          123456789012345678  456789012345      .      .      .       .
 2              Sta:-.-.--..-..-.--.-.  ....-..-....     0      0      0       0
 3              Dep:
 4              Typ:                    ***      ***
 5              Slot: Side: Packlet:  Port: Link:
 6 Tst_           4   Rear            .     -
 7 Bsy_           5   Rear            .     .
 8 RTS_           6   Rear            .     -
 9               13   Rear            .     -
10 LoadFW_       14   Rear            .     .
11               15   Rear            .     -
12 Uneq_
13             XAC:
14 Alarm_      ETHR:
15 Cntrs_
16
17 Indicat_
18 Query_
  XMAP0
Time  14:12   >
```

10 You have completed this procedure.

This page is intentionally left blank.

Testing ethernet links

Use this procedure only when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document. Do not use this procedure on any other occasion.

Application

Use this procedure to test ethernet links that you have added or re-arranged.

Prerequisites

None.

Interval

Perform this procedure when directed to do so by the procedure titled "Adding, removing, or re-arranging ethernet links" in this document.

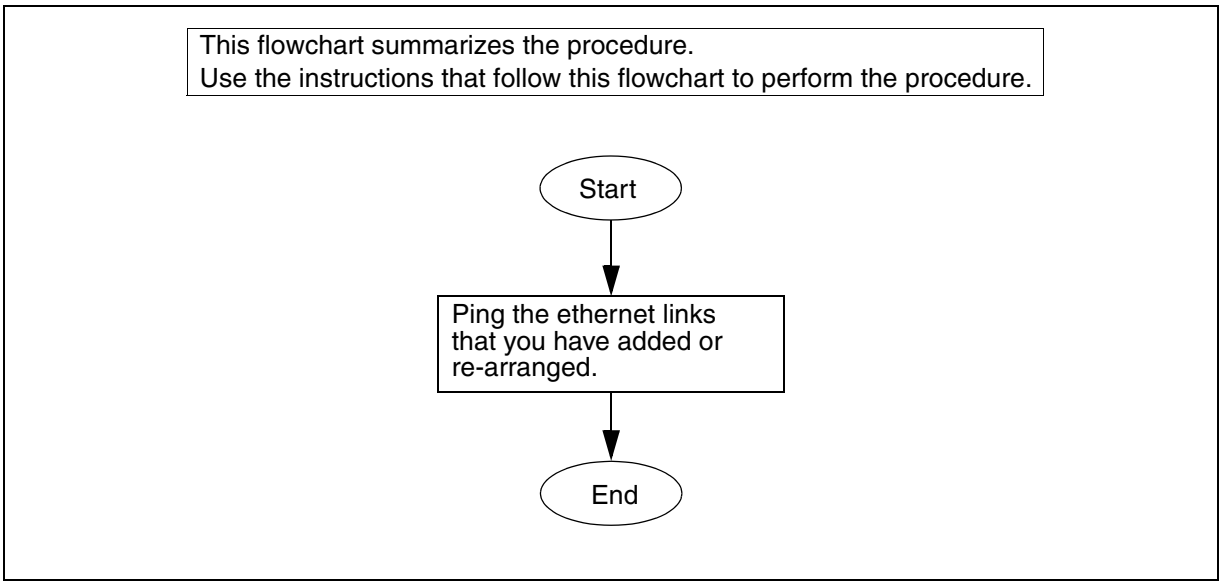
Common procedures

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.

Figure 4-34 Testing ethernet links



Testing ethernet links (continued)

Testing ethernet links

At the MAP terminal

1 Query one of the circuit packs to which you have connected an ethernet link, to find out the IP addresses. At the user interface prompt on any MAP screen, type

>QUERY CARD <slot-number> R

and press the Enter key.

where

<slot-number> is the slot number of the circuit pack

For example, if you have connected an ethernet link to the circuit pack in slot 4, rear (an HCMIC circuit pack), type

>QUERY CARD 4 R

and press the Enter key.

Example of system response:

```
Command submitted.
.
.
.
4R HIOP NTLX17AA 03 01 Y NNTM64423WJW XREC01BB XREC01AA Y
.
.
.
Port IP Address: 10.40.14.200
Assigned IP Address 1: 10.40.14.208
Assigned IP Address 2: 10.40.14.209
```

Note: The IP addresses shown are examples, and are for illustrative purposes only.

2 Write down the IP addresses that the system displays in the response to the QUERY CARD command.

At the SDM or at any other device connected to the CS LAN

3 Ping each of the addresses that you wrote down in step 2. To ping an address use the following command.

PING <IP-address>

For example, if the IP address is 10.40.14.200, use the following command.

PING 10.40.14.200

4 Select the next step as follows:

If	Do
any one of the addresses from step 2 fails to respond to the PING command	step 5
each of the addresses from step 2 responds to the PING command	step 6

Testing ethernet links (end)

5 Call the next level of support.

6 Select the next step as follows:

If	Do
you need to test another link	step 1
you do not need to test any more links	step 7

7 You have completed this procedure.

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How to specify log throttling

Use this procedure if you want to throttle certain logs, that is, limit the number of log messages that the system sends to the all log devices (devices that print or display the messages), and, optionally, to Disk Log.

Introduction

You specify log throttling by adding entries to table LOGTHROT. You can specify throttling against a specific log, for example, TRK113. Alternatively, you can specify throttling against a log-report group, for example, TRK. You specify a reporting interval, such as five minutes, and a threshold, such as 100.

> ***Note:*** For a description of table LOGTHROT, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

You can specify throttling for logs generated in the XA-Core. For information on the log groups, see *DMS-100 Log Report Reference Manual*, 297-8021-840 (North American market) or 297-9051-840 (International market).

Application

For each entry in table LOGTHROT, the system maintains a counter. If the entry specifies an individual log, for example, log TRK113, the counter counts instances of that log. If an entry specifies a log group, for example, log group TRK, the counter counts all instances of all logs in the log group, that is, all instances of all logs in the range TRK000 to TRK999. If, during the reporting interval, the number of instances reaches the threshold value specified in the entry, then the system throttles any additional such log messages. That means the system does not send those additional log messages to the log devices. Also, on a per-entry basis, you can choose to throttle log messages going to Disk Log. If you choose this option, the system applies the same limits to log messages going to that destination.

At the expiry of each reporting interval, the system resets the counter to zero, cancels any existing log throttling, and resumes sending the log messages to their destinations. Note that different entries can have different reporting intervals, for example, five minutes for one entry and one minute for another.

Co-ordination of table LOGTHROT with table LOGCLASS

You must co-ordinate tables LOGTHROT and LOGCLASS. The system will not allow you to add an entry to one table if a conflicting entry exists in the other table. A conflicting entry is one that has the same value in the REPNAME field, which exists in each table, and which contains the log-report identifier, for example, TRK113. If you try to add an entry to one of the tables, but a conflicting entry exists in the other table, the system will issue a message,

How to specify log throttling (continued)

telling you that such an entry already exists in the other table, and asking you to remove the entry from the other table.

How to specify log throttling (continued)

Note: For a description of table LOGTHROT, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810. For a description of table LOGCLASS, the description of the table in the *Customer Data Schema Reference Manual*, 297-8021-351 (North American market) or 297-9051-351 (International market).

Prerequisites

None

Interval

Perform this procedure when you please.

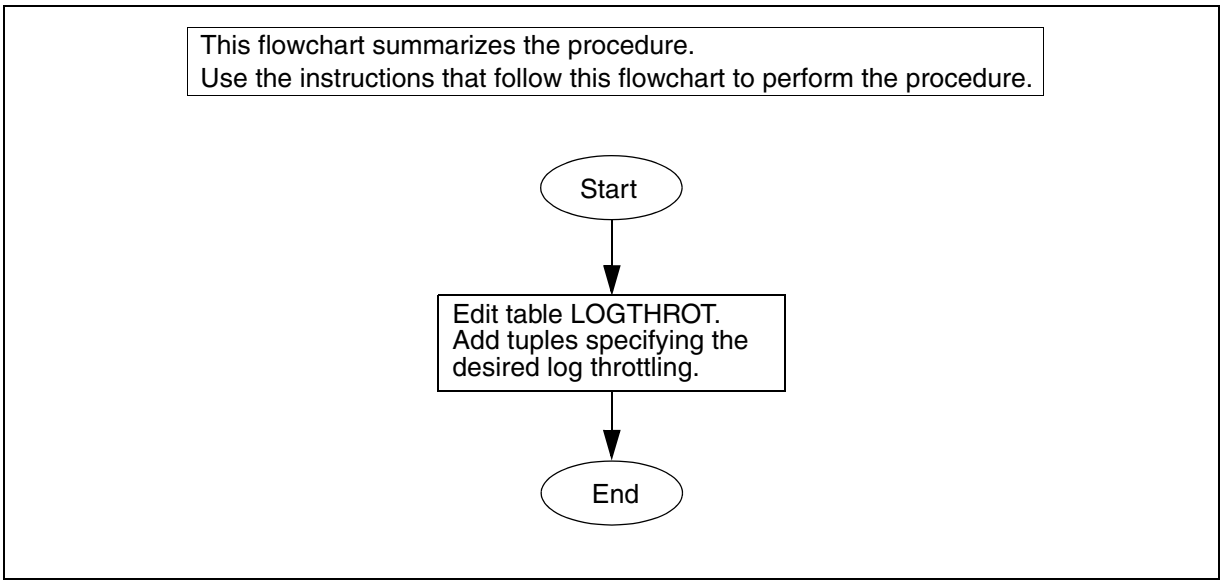
Common procedures

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.

Figure 4-35 How to specify log throttling



How to specify log throttling (continued)

How to specify log throttling

At the MAP terminal

1 Start the table editor. At the user interface prompt on any MAP screen, type

>TABLE LOGTHROT

and press the Enter key.

Example of system response:

```
TABLE: LOGTHROT
```

2 Indicate that you intend to add a tuple. Type

>ADD REPNAME <repname>

and press the Enter key

where

<repname> specifies the log or the log group that is to be throttled

If you want to throttle a specific log, type the log-group name followed by the identification number of the log report. For example, if you want to throttle log TRK113, type

>TRK113

and press the Enter key.

Alternatively, if you want to throttle a log group, type the log-group name followed by -1. For example, if you want to throttle the TRK log group, type

>TRK-1

and press the Enter key.

In response, the system prompts you to supply a value for each field in the tuple, one field at a time.

Example of system response:

```
THRSHOLD:
```

How to specify log throttling (end)

3 Specify the threshold value. This is the number of log messages satisfying the REPNAME specification that the system will send during a single reporting interval. Type

><threshold-value>

and press the Enter key

where

<threshold-value> is an integer in the range 0 to 255

For example, to specify a threshold value of ten, type

>10

and press the Enter key.

Note 1: If you enter 0, then there is no threshold value, and the system will not throttle log messages satisfying the REPNAME specification.

Note 2: If you do not want throttling to apply to a log, you do not need to specify the log and specify a threshold of 0. The absence of throttling is the default behavior.

Example of system response:

```
TUNITS:
```

4 Specify the reporting interval. Type

><reporting-interval>

where

<reporting interval> is an integer in the range 0 to 32767, specifying the length of the reporting interval in minutes.

For example, if you want to specify a reporting interval of one minute, type

>1

and press the Enter key.

Note 1: The recommended TUNITS value is 1.

Note 2: If you enter 0 (or a negative value in the range -32768 to -1), then there is no reporting interval, and the system will not throttle log messages satisfying the REPNAME specification.

Note 3: If you do not want throttling to apply to a log, you do not need to specify the log and specify a reporting interval of 0. The absence of throttling is the default behavior.

Example of system response:

```
DLOG:
```

5 Specify whether you want the system to throttle log messages going to Disk Log. Type

><dlog-throttling>

and press the Enter key

where <dlog-throttling> is Y or N

- Y means the system will throttle log messages going to Disk Log just as it throttles log messages going to the log devices.
- N means the system will not throttle log messages going to Disk Log.

For example, type

>Y

and press the Enter key.

Example of system response:

```
TUPLE TO BE ADDED:
TRK113 10 1 Y
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

6 Confirm the addition. Type

>Y

and press the Enter key.

Example of system response:

```
TUPLE ADDED.
```

7 Select the next step as follows:

If	Do
you need to specify throttling for other log messages	step 2
you do not need to specify any further log throttling	step 8

8 Exit from the table editor. Type

>QUIT

and press the Enter key.

9 You have completed this procedure.

5 Introduction to trouble locating and clearing procedures

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).

Chapter summary

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.

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How to perform a manual REx test on XA-Core

Use this procedure to perform a manual routine exercise (REx) test on an eXtended Architecture Core (XA-Core).

Application

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.

Interval

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

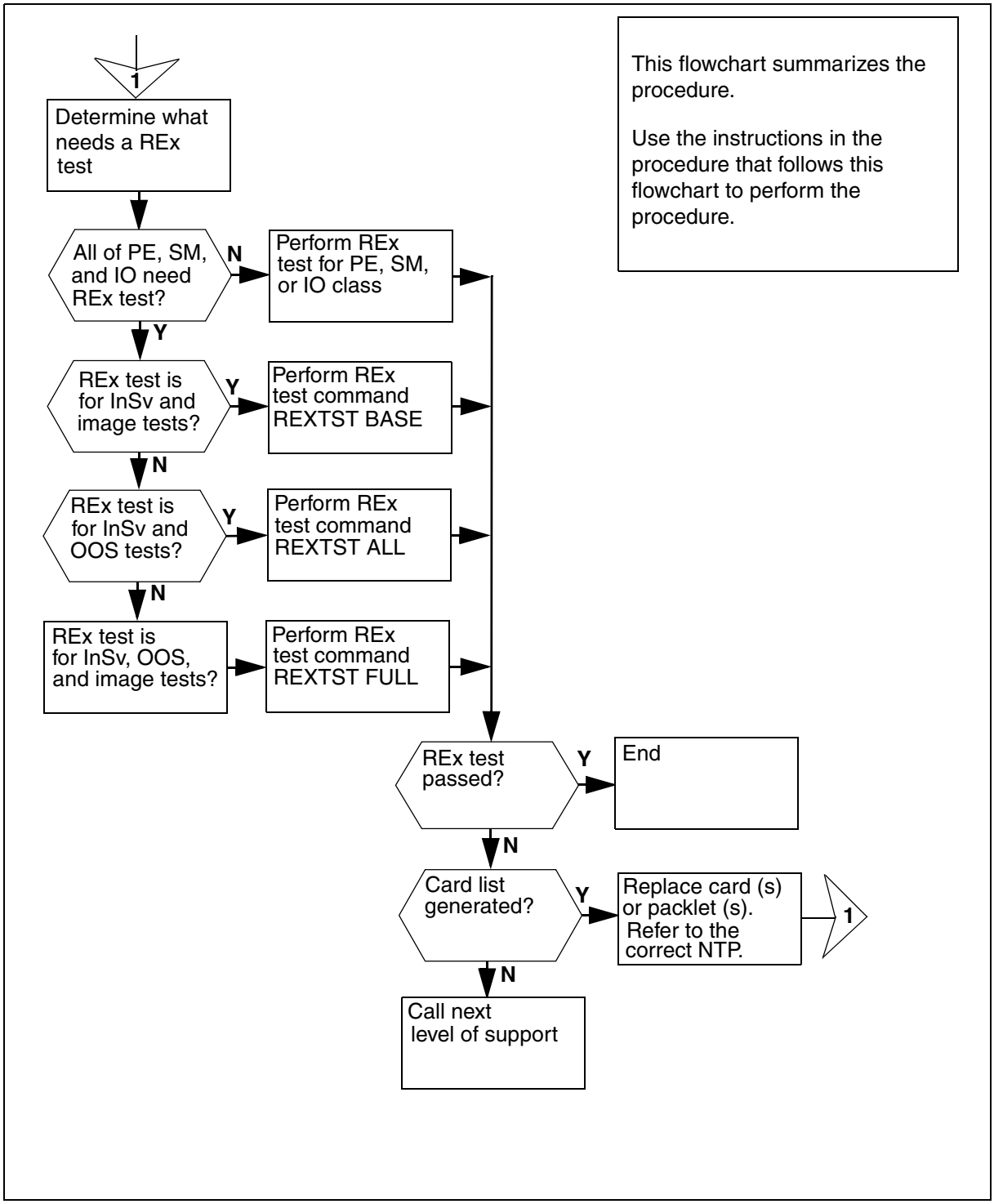
There are no common procedures.

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)

Figure 5-1 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.



CAUTION
RTIF terminals must emulate VT100 terminals.
REx tests will run only if all RTIF terminals have been set to emulate VT100 terminals.

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 Indicat_
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:

>**Y**ES

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.

How to perform a manual REx test on XA-Core (continued)

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)?
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:

>**Y**ES

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

How to perform a manual REx test on XA-Core (continued)

10 To confirm the command, type:

>**Y**ES

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.
```

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

How to perform a manual REx test on XA-Core (continued)

14 To confirm the command, type:

>**Y**ES

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 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

How to perform a manual REx test on XA-Core (continued)

17 To confirm the command, type:

>**Y**ES

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

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	step 20
anything else	step 26

How to perform a manual REx test on XA-Core (end)

20 To confirm the command, type:

>**Y**ES

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.

If the MAP response indicates	Do
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.

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.

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How to repair an XA-Core cooling unit

Use this procedure to identify and correct faults in an XA-Core cooling unit.

Application

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

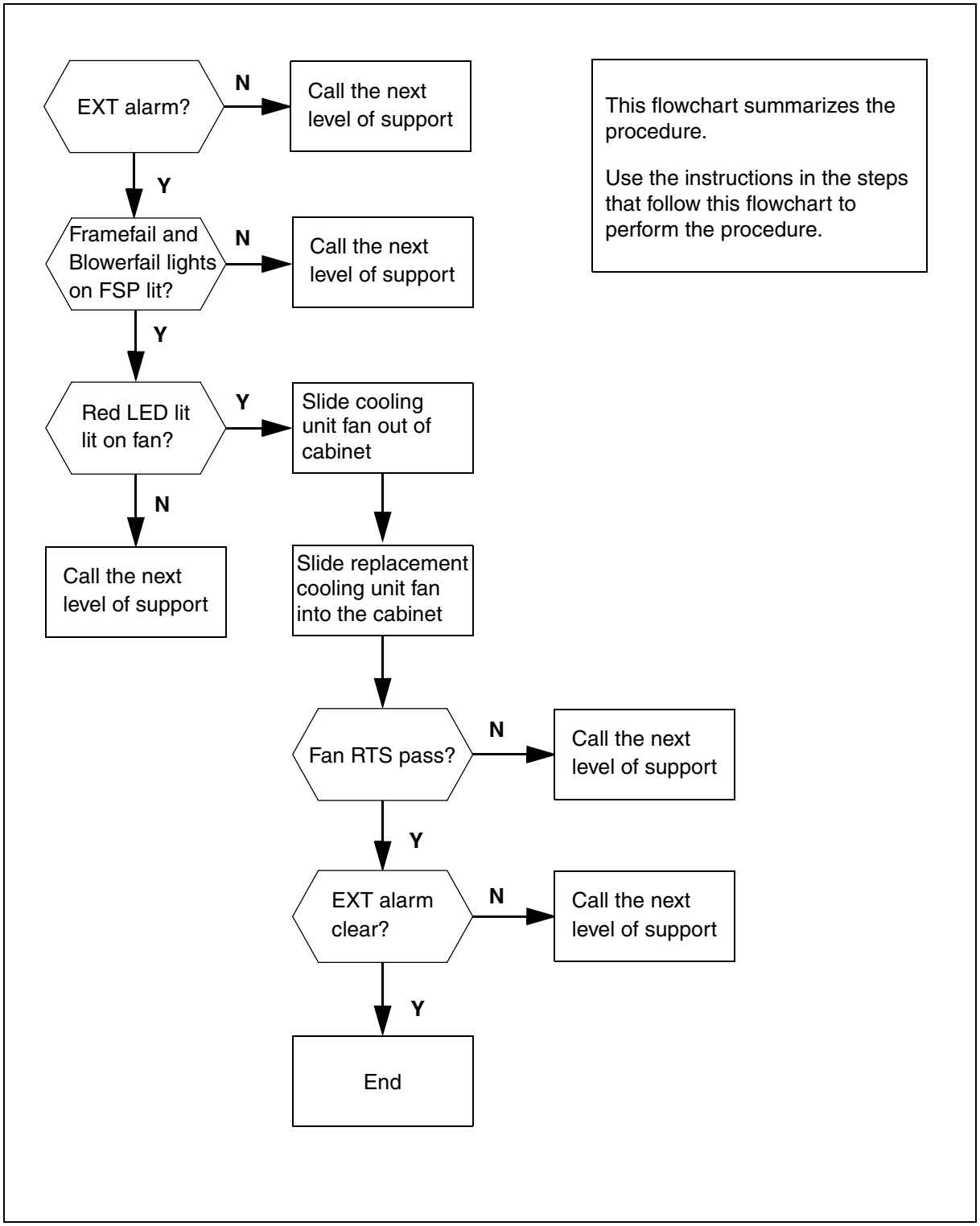
There are no common procedures.

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)

Figure 5-2 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.

If the EXT FSP alarm is	Do
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).

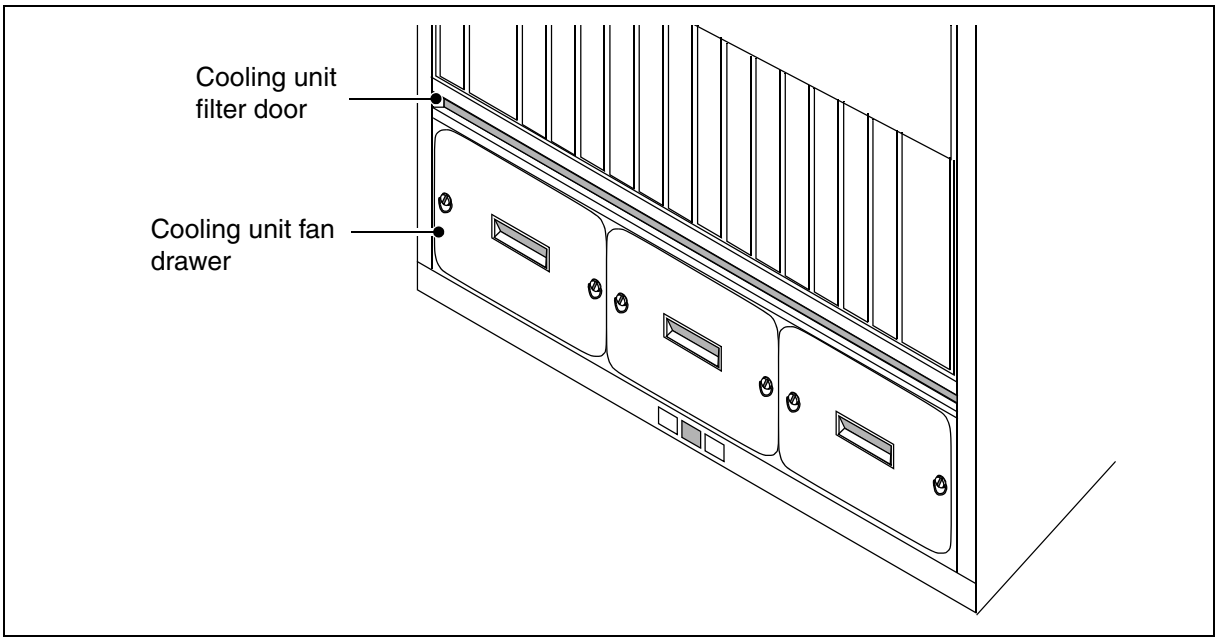
If the FANFAIL and BLOWER-FAIL lamps are	Do
on	step 3
off	step 14

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.

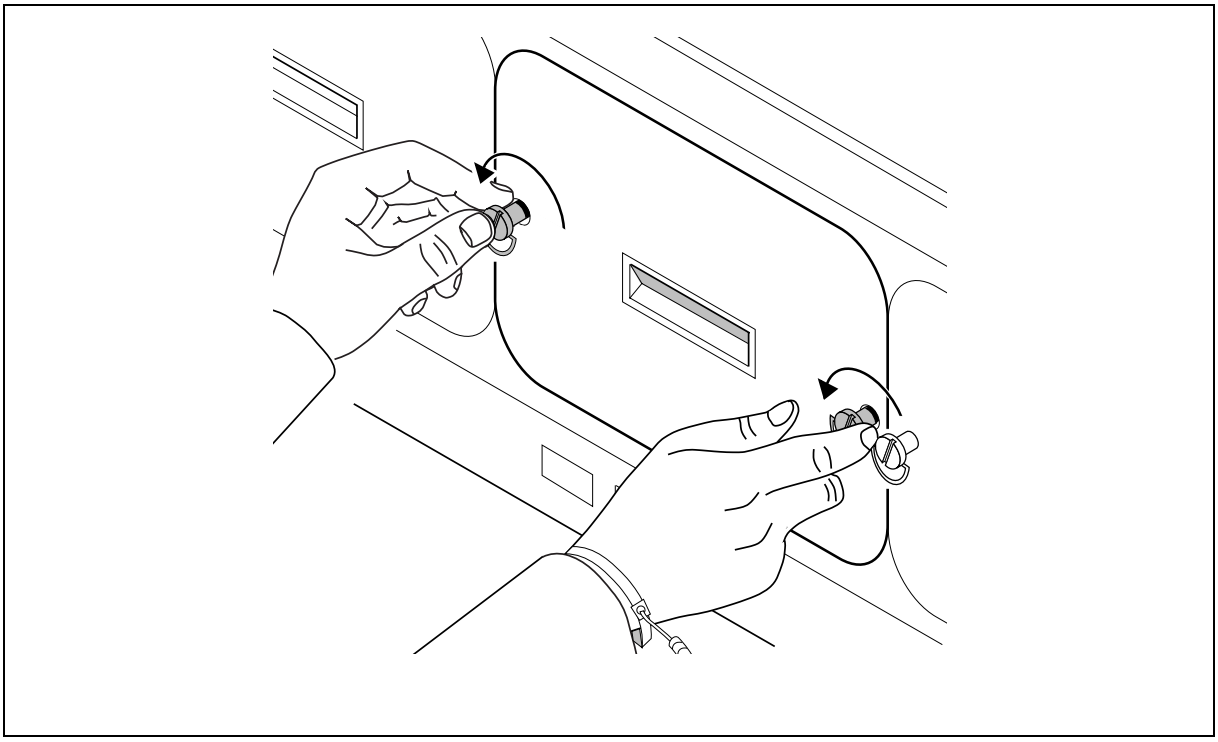
a Turn the locking screws in a counter-clockwise direction.

b Pull the fan drawer halfway from the slot in the cooling unit.

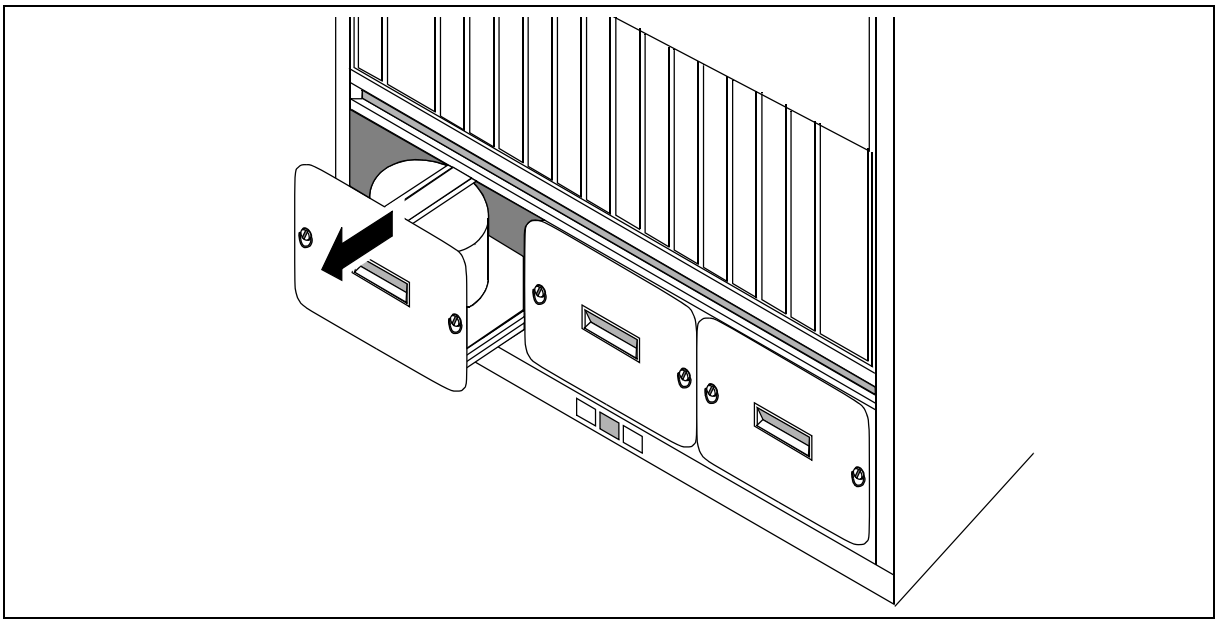
c Wait for the fan to spin down.

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.

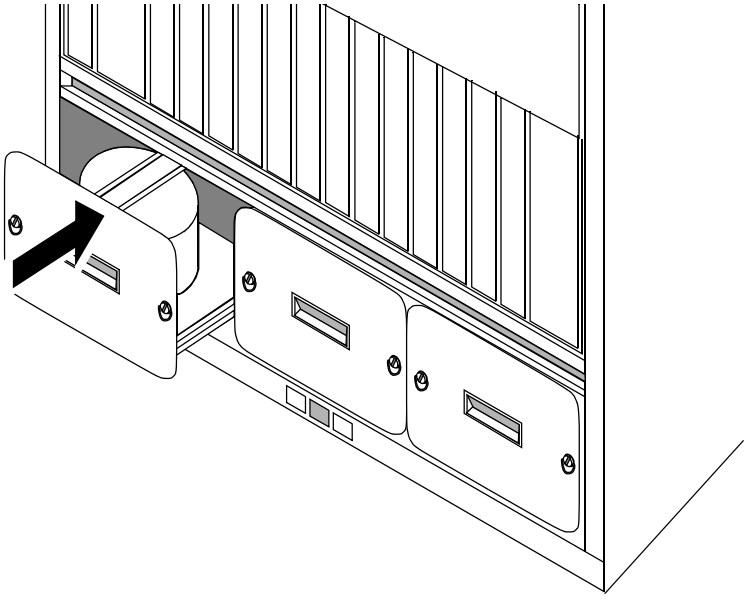
Remove the fan drawer completely from the cooling unit shelf and place in a safe location away from the physical shelf.

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



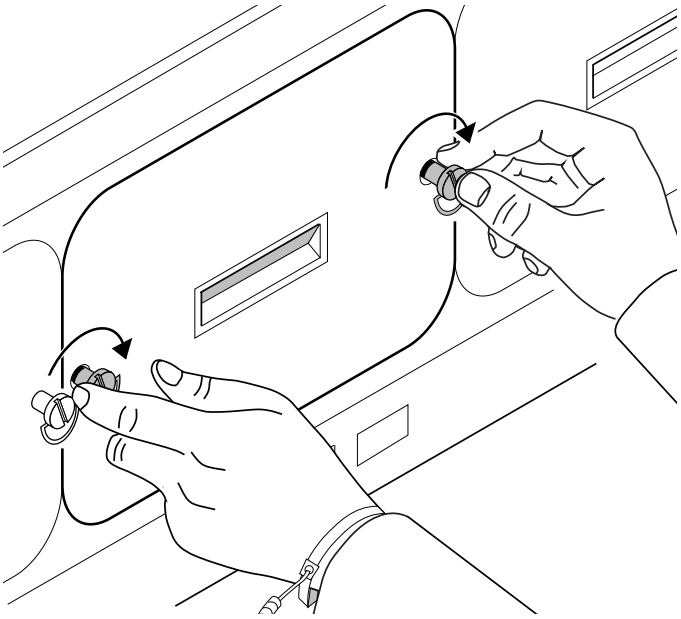
10 Make sure that the fans power up. Make sure that the green LEDs light on all fan drawers.

If the cooling unit fans are	Do
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.

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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. 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.



CAUTION
RTIF terminals must emulate VT100 terminals.
REx tests will run only if all RTIF terminals have been set to emulate VT100 terminals.

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.

SREx

System REx tests, also referred to as SREx tests, are REx tests that the system runs automatically. The SREx tests run automatically once a day, normally at the default time of 1:30 a.m. The default SREx schedule is as follows. On Saturday, Sunday, and Monday, the system runs the base REx test class. On Tuesday, Wednesday, Thursday, and Friday, the system runs the full REx test class. (For descriptions of the test classes, see "REx test classes" on page 6-4.) 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 SREx test begins, the system checks that all communication paths to the message switches are functioning. If all the paths are functioning, then the SREx test will be able to take a path out of service, and that action will not isolate a message switch. The system will run the SREx test only if all communication paths to the message switches are functioning. For example, if either of the devices supporting RTIF links (RTIF packlets or HCMIC circuit packs) is busy, the system will not run the SREx test.

Before the SREx test begins, the system checks whether the hardware and firmware against the baseline and exception-list information in tables FWINV and PECINV.

- If any SM or PE circuit pack is incompatible with the baseline and exception-list information in table PECINV, the system does not run the SREx test, and issues log XAC415.
- If the firmware in any SM or PE circuit pack is incompatible with the baseline and exception-list information in table FWINV, or if table FWINV does not contain an entry for the SM or PE circuit pack, the system does not run the SREx test, and issues log XAC415.
- If the hardware or firmware in any IOP, HIOP, or HCMIC circuit pack, or in any AMDI, CMIC, or Ethernet packlet is incompatible with the baseline and exception-list information in table FWINV, but the hardware and firmware of other downloadable components is compatible with that information, the system runs the SREx test but bypasses the out-of service (OOS) IO class of tests.

  Note: For information on tables FWINV and PECINV, see the chapter titled "XA-Core data schema overview" in the *XA-Core Reference Manual*, 297-8991-810.

Before the SREx test begins, the switch automatically checks the dedicated stability threshold counters. The stability threshold counters monitor parity faults occurring in 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:

- If you request a manual REx test, the MAP displays a warning and confirmation prompt. The manual REx test can abort or can execute.
- In the case of a scheduled REx test, when the scheduled time of the test arrives, the switch aborts the test and generates a log report. The log indicate the reason. 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 any member of the IO link group or any member of the IO hardware group has gone through number of in-service (InSv) to the system-busy

(SysB) transitions that equals or exceeds the major threshold for the group, the system does not perform the IO class of tests.

Note: When the major threshold is been equalled or exceeded, the SysBTh major alarm is raised. For a list of the members of the IO link group, and for a list of the members of the IO hardware group, see the section covering the XAC SysBTh major alarm, found in chapter 1 of this document.

— 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.

Note: If the firmware in any IOP, HIOP, or HCMIC circuit pack, or in any AMDI, CMIC, or Ethernet packlet is below baseline, but the firmware in other downloadable components is at or above baseline, the system bypasses the IO class of 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.
- 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.

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, “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.

7 Problem isolation and correction

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
AMDI	XAC309 AMDI link problem	XAC609 AMDI link condition cleared	XAMDI, XAMDIPRT, XAMDILNK, XAMDMAJU, XAMDCRIU
Baseln	XAC337 Baseln alarm raised	XAC637 Baseln alarm cleared	none
Config	none	none	none
Disk	XAC306 Disk problem	XAC606 Disk alarm cleared	XADISK
ETHR	XAC329 ETHR link problem	XAC629 ETHR link condition cleared	XETHRMJU, XETHRCRU, XETHR, XETHRPRT, XETHRLNK
FWsoak	XAC631 FW soaking started, XAC635 FW soaking in progress	XAC632 FW soaking completed	none
FWvers	XAC300 FWversion mismatch	XAC630 FW version mismatch cleared	none
Image	XAC308 Image test report	XAC608 Image test passed/alarm cleared	XARXBASE, XARXFULL
ImgTst	none	none	none
IOflt	XAC312 IOP fault	XAC612 IOP alarm cleared	none
IOtrbl	XAC324 IOP trouble	XAC624 IOtbl alarm cleared	none
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
MemLim	XAC801 MemLim (Memory Limit)	XAC601 MemLim condition cleared	XASM, XASMCRIU
MScomm	XAC303 Message Switch (MS) communication problem	XAC603 MScomm alarm cleared	XCMIC, XAIOP, XARXIO, XALKMAJU

Table 7-1 Relations among alarms, logs, and OMs (Sheet 2 of 2)

Alarms	Event Log	Event-clear Log	Related OM registers
PEtrbl	XAC322 PE trouble	XAC622 PEtbl alarm cleared	none
RExFlt	none	none	XARXPE, XARXIO, XARXSM, XARXBASE, XARXFULL, XARXABRT, XARXALL
RExSch	XAC413 REx Schedule failure	XAC613 RExSch alarm cleared	none
RExTst	XAC615 REx started	XAC415 REx report	XARXPE, XARXIO, XARXSM, XARXBASE, XARXFULL, XARXABRT, XARXALL
RIBkey	XAC325 RIBKey detected	XAC625 RIBKey removed	none
RTIF	XAC305 Reset Terminal Interface (RTIF) problem	XAC605 RTIF alarm cleared	XRTIF, XRTIFPRT, XRTIFLNK, XAIOP
SMtrbl	XAC323 SM trouble	XAC623 SMtbl alarm cleared	none
Split	XAC618 Split mode entered	XAC619 Split mode exited	XAPEMAJU, XAMSMPXU, XARSMPXU, XASSMPXU
SysBTh	XAC320 SysBTh Alarm Raised	XAC620 SysBTh Alarm Cleared	XAPE, XASM, XAIOP, XADISK, XATAPE, XRTIF, XRTIFPRT, XRTIFLNK, XCMIC, XCMICPRT, XCMICLNK, XAMDI, XAMDIPRT, XAMDILNK, XETHR, XETHRPRT, XETHRLNK
Tape	XAC307 Tape problem	XAC607 TAPE alarm cleared	XATAPE, XAIOP
TOD	XAC304 Time of Day clock (TOD) problem	XAC604 TOD alarm cleared	XAIOP, XCMIC
WgSlot	XAC321, XAC327 Wrong slot	XAC627 WgSlot cleared (card removed)	none
XATrap	XAC814 XATrap	XAC614 XATrap alarm cleared	XATRAP

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 *NonMenu Commands Historical Reference Manual*, 297-1001-820.

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.

8 How to problem solve a MemLim alarm

This chapter explains the problem solving techniques that apply to the MemLim alarm.

Background

The following background informatin applies to MemLim alarm problem solving techniques:

- "Some commonly used terms"
- "Addressable memory"
- "The software image"

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.

Table 8-1 Definitions of commonly used terms (Sheet 2 of 2)

Term	Definition
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.
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).

Note: For more information on triplex memory, see the section titled "Relationship between N+1 redundancy and triplex memory", at the end of this chapter.

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 in "n+1" shared-memory configurations

Number of SM cards (N)	Shared-memory configuration	Addressable memory (AM)
5	4+1	768
6	5+1	960
7	6+1	1152
8	7+1	1344
9	8+1	1536
10	9+1	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

The following memory limits apply for the XA-Core:

- "Limits imposed by software"
- "Limits imposed by hardware"

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

Software release	Start of PS	End of PS	Delta
CSP10.4	#30000000	#4FFFFFFF	512M
CSP12 and subsequent releases	#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

Software release	Start of PS	End of PS	Delta
CSP10.4	#50000000	#7FFFFFFF	768M
CSP12	#40000000	#7FFFFFFF	1024M
CSP13 and subsequent releases	#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

	Max PS configuration		**Max DS configuration**	
Addressable Memory	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.

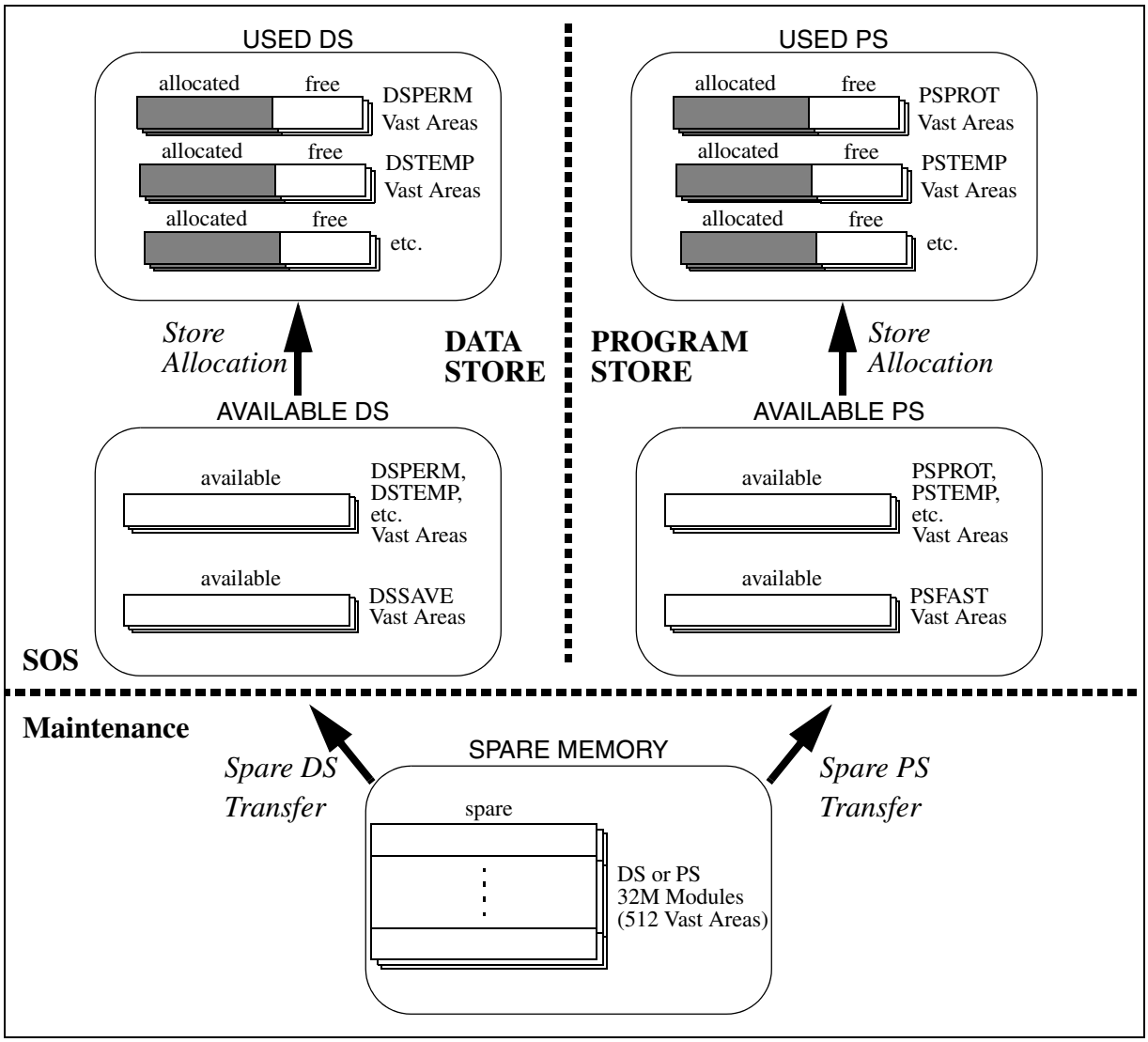
It can be seen from the upper two-thirds of the figure, that SOS maintains separate pools for data-store (DS) and program-store (PS) and that within these categories, there is a further subdivision between available store (DS and PS) and used store (DS and PS). Within the category of used store, the 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

DS Alarm Test Result	PS Alarm Test Result	MemLim Alarm Status
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:

Figure 8-2 Sample MAP response display

```
Memory Limits Statistics

Total addressable memory:  786432 Kbytes
Spare memory:                   0 Kbytes

Store     Available   Available   Major       Minor       Transfers
Alarm Type
          Memory Crt  Memory Any  Limit       Limit       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 XSMEMLIM command, if run again, would show the following:

Command input:

```
>xsmemlim
```

The following is an example MAP response display:

Figure 8-3 Sample MAP response display

```
Memory Limits Statistics

Total addressable memory:  786432 Kbytes
Spare memory:                   0 Kbytes

Store     Available   Available   Major       Minor       Transfers
Alarm Type
          Memory Crt  Memory Any  Limit       Limit       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 8-19. 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> [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>] [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> [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> [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 dstemp 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 dstemp_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 dstemp_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:

Figure 8-4 Sample 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%
```

Note 1: In the display, AVAIL represents the available memory that has not been allocated to any process. It is also the amount of memory that is currently configured and available to be used. The memory listed under the AVAIL label includes (1) configured memory that does not have a memory type (such as DSTEMP or DSPROT) associated with it, and (2) memory that

has a memory type associated with it, but that is still available for allocation (also known as FREE memory).

Note 2: If you use the STORE tool and you want to get an accurate view of the existing SHARED memory usage, you should exclude the DSSCRATCH memory type and the FIRMWARE_DLL memory type from the calculation. DSSCRATCH memory and FIRMWARE_DLL memory are included in the totals reported by the STORE tool, but are outside of the SHARED memory schema.

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:

Figure 8-5 Sample 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 #00000060 #00006020 #017A,#0000          MPBMSUI
   1212 #0012D780 #000000E0 #0000F020 #6000,#5002
   1051 #00121A80 #00000040 #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 #00000040 #000080A0 #0746,#0000          DKCACHUI
     66 #0002BF60 #000000E0 #00010000 #0107,#0000
XLFIDBUI
    173 #000296A0 #00000040 #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:

Figure 8-6 Sample 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          STOR
.
.
.
#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:

Figure 8-7 Sample 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.

Relationship between N+1 redundancy and triplex memory

N+1 redundancy and triplex memory are related. Triplex memory is part of the arrangement by which the system maintains N+1 redundancy for shared-memory cards. We will explain this further in the following sections, but first we must cover some background information.

Background: N+1 redundancy for shared-memory circuit packs

In most shared-memory configurations, the system maintains N+1 redundancy for shared-memory circuit packs. Such configurations are referred to as "n+1" shared-memory configurations. (For a list of the "n+1" shared-memory configurations, see Table 8-2 in this chapter.)

N+1 redundancy for shared-memory circuit packs does not mean that we have a group of active circuit packs, with a single additional inactive circuit pack that stands ready to take over if one of the active units fails. Instead, all the shared-memory circuit packs are active. They are said to work in "load-sharing" mode. N+1 redundancy exists because the system maintains one circuit packs's worth of memory as backup memory, to be used in case one of the circuit packs should fail. The backup memory is composed of 32-megabyte blocks scattered across all the shared-memory circuit packs. (It is outside the scope of this discussion to explain how the system chooses which 32-megabyte blocks on which circuit packs will be the backup memory.)

Background: memory allocation

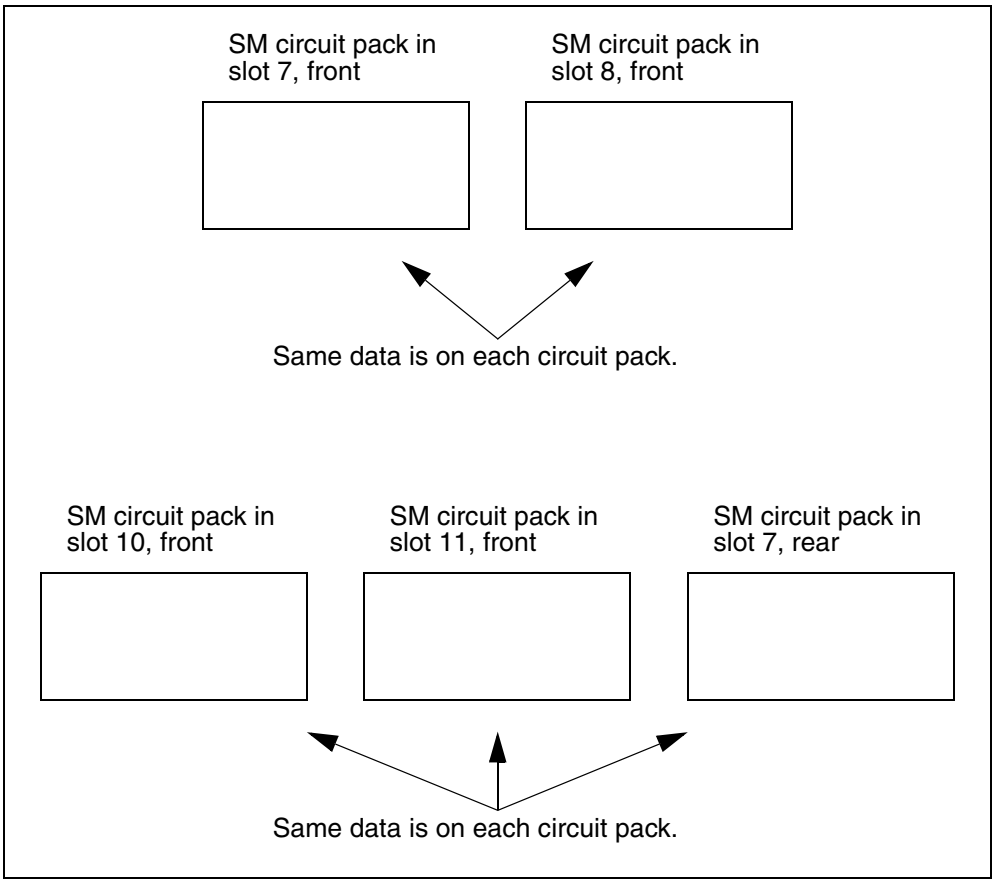
The system allocates memory in blocks of 32 megabytes. Each NTLX14CA shared-memory circuit pack has 12 such blocks. When the system allocates a 32-megabyte block of memory, it always allocates a second 32-megabyte block on another shared-memory circuit pack. The second block will contain a duplicate copy of the data. This means that all the data stored on all the shared-memory circuit packs is backed up. This is referred to as duplex memory.

In 12 instances, the system allocates a third 32-megabyte block of memory to contain a third copy of data, that is, a second backup copy. In such cases, the system maintains the data in triplicate. The memory block containing the third copy is referred to as triplex memory.

In a system that uses an "n+1" shared-memory configuration, there are 12 32-megabyte blocks that are triplex memory. The 12 triplex memory blocks are equivalent to the capacity of one shared-memory circuit pack. This is true for every system that uses any one of the "n+1" shared-memory configurations. (It is outside the scope of this discussion to explain how the system chooses the 12 memory blocks that it will maintain in triplicate, and the 12 memory blocks that will hold third copies of data.)

Figure 8-8 shows a representation of the shared-memory circuit packs in a system that has five such circuit packs, and uses the "4+1" shared-memory configuration. In the figure we have shown how the memory is backed up. Two of the circuit packs back each other up. The remaining three circuit packs back each other up.

Figure 8-8 How memory is backed up in a "4+1" configuration



Note: We have used a "4+1" system as the example because it is the easiest one to explain. (It is outside the scope of this discussion to explain how the system distributes multiple copies of data in each shared-memory configuration.)

How N+1 sparing uses triplex memory

Allocating triplex memory (12 memory blocks, each 32 megabytes in size, that will contain third copies of data) is the system's method of setting aside enough memory to support N+1 redundancy.

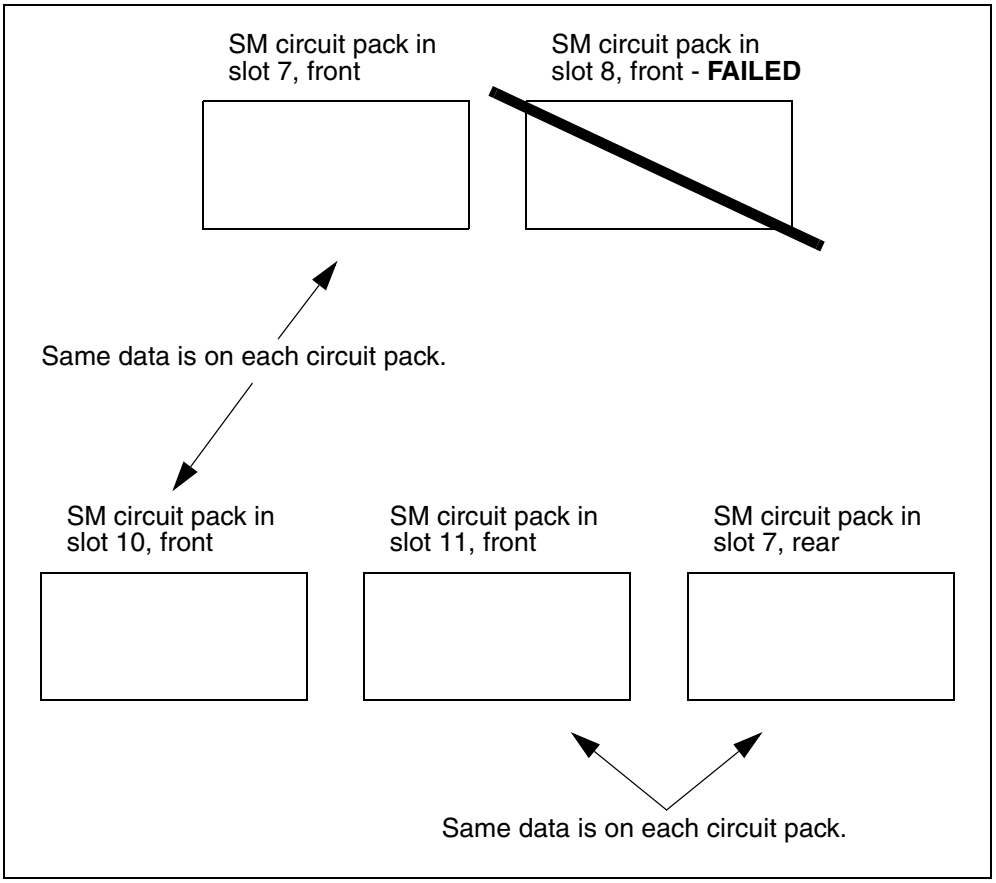
The following example explains the relationship between N+1 redundancy and triplex memory.

Again referring to an example system that has five shared-memory circuit packs, and uses the "4+1" shared-memory configuration, Figure 8-9 shows what happens if one of the shared-memory circuit packs fails.

In Figure 8-9, the shared-memory circuit pack in slot 8, front, has failed. The failure does not deprive the system of any of its data, because all the data on the failed circuit is duplicated on the circuit pack in slot 7, front.

However, the system wants to have a backup copy of the data that is on the shared memory circuit pack in slot 7, front. It must write a new copy of that data. To write the new copy, it overwrites the triplex memory. Specifically, it uses the shared-memory circuit pack in slot 10, front.

Figure 8-9 Failure scenario in a system with "4+1" configuration



Note: The system's choice of the shared-memory circuit pack in slot 10, front, as the location of the new backup for the data in the shared-memory circuit pack in slot 7, front, is for illustrative purposes only. (It is outside the scope of this discussion to explain how the system decides which of the triplicated memory should be overwritten in such a failure scenario.)

Optionality related to triplex memory

The question arises, “Can I choose to turn triplex memory on or off?” The answer depends on the shared-memory configuration of your system.

If your system has an “n+1” shared-memory configuration, there is no optionality related to triplex memory. Triplex memory is part of the N+1 redundancy in the system. It cannot be de-activated.

There is only one case in which there is optionality related to triplex memory. If your system has the “10” shared-memory configuration, which means that the system operates without triplex memory (and without N+1 redundancy for shared-memory circuit packs), the option exists to activate triplex memory, thus converting the system to the “9+1” shared-memory configuration. This is done by way of a patch. For more information, contact Nortel Networks.

Note: The “10” shared-memory configuration is used only with certain products. In a “10” shared-memory configuration, there is more addressable memory than in a “9+1” configuration: 1920 megabytes as opposed to 1728 megabytes. For a “10” shared-memory configuration, the “N+1” shared-memory redundancy is de-activated by the inclusion of certain software in the software load. The decision to use the “10” shared-memory configuration is a product-specific decision. This document does not try to explain such product-specific decisions. The decision to apply a patch to convert a system from the “10” shared-memory configuration to the “9+1” shared-memory configuration may have adverse ramifications for the operation of the system. Such ramifications are product-specific, so a discussion of such ramifications is beyond the scope of this document. For advice on this matter, contact Nortel Networks.

DMS-100 Family

XA-Core

Maintenance Manual

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